DYADIC ADJUSTMENT AND PERSONALITY TRAITS IN CAVE DIVERS:
AN EXPLORATORY STUDY

DISSERTATION

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by
William B. Oigarden, M.A., LMHC, NCC

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DEDICATION

My parents both died before their time and as a result, other than a patent my father holds, they are invisible on the internet. By dedicating my dissertation to them, their names will be on the internet for all to see. My parents were really good people. They would be proud of my accomplishment.

Tarald Halfdan Oigarden (1929-1990)

Florence Claire Briordy-Oigarden (1929-1975)
ACKNOWLEDGMENTS

This dissertation would not have been completed without the support and encouragement of Catharina Eeltink Ph.D, my dissertation chair and methodologist. Dr. Eeltink encouraged my curiosity, allowed a lot of room to explore ideas, and eventually focused me in on what a dissertation is and what both she and the university expected. As a result of Dr. Eeltink’s encouragement and insight, I believe this effort has produced some clinically useful results regarding personality and relationship adjustment for a population never before studied. I am pleased that Dr. Eeltink did not make this easy for me since I now have the experience to not only understand the dissertation process but be useful helping the next generation of doctoral students complete their degrees. Barry University holds the highest level of accreditation in the counseling field and in turn held me to the highest academic standard.

After writing and stumbling many times a colleague Mark Durica, LCSW took a great deal of time to help me understand academic writing and grammar. Mark has the advantage of having grown up attending parochial schools and he would remind me I have great semantics and my writing is intriguing but most of the time lacked comprehensible syntax. Personally, as a survivor of the “whole word” approach to reading in the 1960’s I had to, as a child, memorize the spelling of every word without breaking it down phonetically. This approach to reading and then writing must have filled my memory to capacity. After memorizing thousands of words it seems there was not enough room in my brain to memorize and practice any of the syntax rules. So I am deeply indebted to Mark for helping an old dog learn new tricks (syntax).

Committee members Christine Sacco-Bene Ph.D. and Cheryl McCloud Ph.D. encouraged me and made themselves available without hesitation. Dr. Sacco-Bene was v
instrumental in providing me the opportunity to be inducted in the Chi Sigma Iota international honor society. Additionally, Dr. Sacco-Bene always created a safe environment to explore two of the most important topics in our field; ethics and cultural diversity.

Five psychotherapy experts in their respective fields crossed my path during my journey to become a doctoral level counselor educator. I spent time honing my psychotherapy skills in various settings including a graduate assistant position at Barry University’s Orlando campus and counseling clinic, Florida Hospital Behavioral Health Center, my own private practice in the community, child welfare, Northeast Florida State Hospital, and the Florida Department of Corrections. My personal counseling identity was molded through clinical work with: David Bloodgood Ph.D. who taught me how to incorporate object relations theory specializing in treatment of personality disorders and human sexuality and couple intimacy. Steve Livingston Ph.D. introduced me to the legislative process and advocacy for psychotherapists. Dr. Livingston also allowed me to stretch myself teaching masters level students as part of my doctoral internship. Paul Gallant Ph.D. shared the teachings of Michael White, David Epston, Karl Tomm, and Tom Anderson and consistently reminded me of the constructionist postmodern stance of “not knowing”, which is my main orientation today. Jonathan Cohen Ph.D. introduced and lead me through the unique process of working with mentally ill criminals in a correctional setting. Lastly, thanks to the late Eugene Tootle Ph.D. Dr. Tootle was a neuroscience pioneer in the field of counseling and always made time to discuss and share his passion, the brain. That passion was so great that, at times, you could not get out of his office. Dr. Tootle spent his entire life as a renowned educator and leaves behind a great legacy.
Data collection would not have as successful without the full support of cave diving organizations such as the National Speleological Society Cave Diving Section, Global Underwater Explorers, and the North Florida Springs Alliance. Study announcements via the internet were successful on the Cave Diver’s Forum, the Deco Stop, WKPP listsrv, and Jill Heinerth’s facebook page. Individuals directly involved in soliciting participants include Kelly Jessop, Gene Melton, and Forrest Wilson. Gareth Lock a cave diver and fellow doctoral student from Great Britain was also helpful soliciting participants throughout Europe. Special thanks goes to Peter Buzzacott Ph.D. a passionate and dedicated diving researcher for providing access to his library of diving related literature and getting the word out in Australia, France, and Great Britain.

Completing a dissertation is a taunting task. When I first started putting pen to paper or rather fingers to the keyboard about four years ago I reached out to a colleague who taught me desktop publishing and video production in the 1980’s. T.S. Ransel was more than willing to help but, like my chair, did not enable me to just get through. Mr. Ransel actually fired me a few times since my early writing was not able to withstand academic rigor. After many false starts my friend of 30 years became my reader and joined me in the celebration of a successful dissertation. Never give up.

Finally I have to express how grateful I am to my wife Karen. From the time I decided to seek a professional counseling degree, obtaining licensure, and through the completion of this doctorate Karen never once complained about the time I spent away from our family. It is very exciting to have such a wonderful person in my life. A great bonus includes a partner who is an avid and curious cave diver, caver, and boating enthusiast.
ABSTRACT

DYADIC ADJUSTMENT AND PERSONALITY TRAITS IN CAVE DIVERS:
AN EXPLORATORY STUDY

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Barry University, 2013
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Since scuba diving in underwater caves became popular a half century ago, more than 400 cave divers have lost their lives in the United States. Cave diving has been described as one of the world’s most dangerous extreme sports. Despite these demonstrable dangers, both younger open water divers and older more sedentary divers are seeking certification as cave divers at the greatest rate to date. This study sought to further the understanding of personality and interpersonal relationship functioning by studying adult male cave divers who were either married or in a committed relationship.

The primary purpose of this study was to investigate the dyadic relationships of adult male cave divers, as measured by the Dyadic Adjustment Scale, in relation to the five personality traits measured by the Zuckerman Kuhlman Personality Questionnaire. The secondary purpose of this study was to investigate the relationship between dyadic adjustment and the personality trait of alexithymia, as measured by the Toronto Alexithymia Scale.

Two hundred sixty eight participants, all fully certified cave divers, volunteered to complete an online survey. Significant negative correlations were found between Zuckerman’s neuroticism-anxiety, aggression-hostility, and dyadic adjustment. The most significant negative correlation was that between dyadic adjustment and alexithymia. There were no significant correlations between Zuckerman’s’ impulsive sensation
seeking, sociability, and activity scales and score of dyadic adjustment. These findings may be useful in developing family therapy interventions for cave divers and their families, and possibly for other extreme sports participants as well.
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CHAPTER I

THE PROBLEM

Diving in underwater caves is a very dangerous sport. What attracts people to it? Why would an individual put on over one hundred and forty pounds of very expensive, highly technical equipment, and enter an inhospitable underwater environment that is often dark, disorienting, restrictive of movement, and where there is often no easy escape if something goes wrong?

Cave divers require a high level of training, and they become artists in the way they travel neutrally buoyant in water-filled caves. They seem to require a unique personality to be able succeed in such an extreme environment. Early cave diving instructors, including this researcher, set the standard for how to survive in an inherently dangerous environment while performing many tasks simultaneously.

Cave diving began to become popular in Florida in the 1960’s, less than two decades after Jacque Cousteau invented the Self Contained Underwater Breathing Apparatus (SCUBA) in 1943. SCUBA equipment allowed divers to venture into Florida springs, sinkholes, and underwater caves. Cave divers visit environments with inherent hazards that includes flowing water, low or no visibility, a confusing number of possible exits, restrictions, entanglement in a guideline, and, by definition, a physical overhead barrier preventing divers from ascending to the surface when desperately low on air (Buzzacott, Zeigler, Denoble, & Vann, 2009). American cave diving fatalities began with the first cave dives using scuba in 1952. By 1966, there were 11 documented American cave diver fatalities. Recognizing the growing problem, the National Association for Cave Diving (NACD), formed in 1969, began to keep accident records, and between 1969 and 2007 there were 368 American cave diving fatalities.
In the face of such great personal and family loss why do some people choose to dive in caves? There are different reasons for diving in caves: exploration of the unknown, the collection of scientific data, the challenge of technical complexity, natural beauty, tranquility, and the experience itself. This researched focused on personality factors that may influence participation in extreme sports such as cave diving, and the relationship between these traits and dyadic adjustment, which may provide data that will help counselors gain insight into how to provide effective interventions to individual and families engaged in extreme sports such as cave diving.

**Background**

Cave diving is expensive compared to most sports. The initial investment in equipment can easily reach $20,000. Technical cave divers, those who dive in deep caves below two hundred feet on mixed gases, use diver propulsion vehicles for penetrations reaching further than seven miles, or rebreathers that extend bottom time to more than ten hours, can easily spend $40,000 on just equipment. Cave diver training is also expensive. Cave diving agencies have at least three progressive levels of certification which include a mentoring process (Heinerth & Oigarden, 2008), and can take up to two years to complete the training. Tuition, travel, lodging, breathing gases, and dedicated time are all required during the training phase. After the training is complete cave diving trips require considerable investments of time and money, and the cumulative investment in preparation takes the explorer away from home and requires thousands of dollars on task-specific equipment. Not surprisingly, especially when the couple has a young family, these priorities conflict with those of the partner (P. Buzzacott, personal communication, April 02, 2013). The personal communications in this dissertation were all provided by cave divers considered experts and one licensed
psychotherapist who is also a cavern diver. One cave diving expert employed a pseudonym to protect their identity.

Cave diving techniques have not changed much since this researcher helped design cave diver training in the mid to late 1970’s (Heinerth & Oigarden, 2008). What has changed is the monetary investment this kind of diving requires and the availability of training worldwide. These have contributed to a change in the demographics of cave divers from the young obsessed enthusiast to that of a less-fit, middle-aged, somewhat sedentary individual with the inclination and disposable income to pursue the sport. This shift contributes additional health related problems related to age and creates a greater population of “at risk” middle-aged cave divers. In most cases, these “at risk” cave divers all have families, including children. Recent cave diving accidents show an upward trend in health related cave diving fatalities (J. Bozanic, personal communication, June 10, 2011).

Many cave divers have similar lifestyles. Many choose to live near the cave diving sites either in Florida, Georgia, Missouri, Australia, the Bahamas, or in the northern part of the Yucatan peninsula in Mexico. Once hooked, many cave divers will move their entire families to one of these locations. The areas where the caves are located are either remote or rural. Jobs are typically not high paying in these areas, and thus the family’s lifestyle is limited by the local economy.

Since cave diving has become so expensive, some divers choose keep their lucrative jobs in large cities and commute to the cave diving sites on the weekends. This creates two problems; first, the diver typically leaves their family at home and travels alone, and second, the cost of the weekend dive trips is very expensive. Some divers can spend up to $1,000 in a weekend. They also have to keep a dedicated vehicle and all
their equipment in the remote dive location.

The literature review suggests there has never been a specific study of how the obsession of a sport like cave diving can affect and dominate an individual and their family. Some call them enthusiasts, others passionate, and even others obsessive or zealots. I like the example of the father who takes up learning to fly. The future pilot spends all his time studying about flying, going to ground school classes, and even going to air shows. The one hour of flight time he gets each week costs hundreds of dollars. The future pilot has a wife and daughter. There is now hundreds of dollars less each week to pay bills. The father’s daughter’s birthday is this Saturday. Not only is the father not able to afford to buy his daughter a birthday present, he is likely to choose to miss the birthday party to go flying.

Once someone gets cave diving in their blood they usually cannot let go. Most of the decisions in their life revolve around the next dive. It eventually controls where the diver lives and where and when the diver works. Many dive trips require being able to pick up and take time off on little notice. When an expedition is upcoming, the cave diver requires a job that will allow him or her to take a few weeks at a time off.

Since the risk of cave diving is so great, and the sensation or experience is so thrilling, the day to day interactions of the cave diver begins to change. Many cave divers become more direct and almost overbearing to others who do not see things their way. Unfortunately, this behavior even affects members of the cave diver’s own family. Historically cave divers have had multiple marriages or relationships, or choose to stay single after multiple attempts at failed relationships. It is unclear why this occurs, but in many relationships the diver all of sudden seems to get up and leave their spouse in what would typically be looked at as a happy, loving relationship. Many cave divers choose to
leave their family of origin and associate exclusively with other cave divers. To cope with this phenomenon, cave divers have created a unique social system. They have workshops, seminars, conferences, and socials that frequently do not include their families.

This researcher has been involved with cave diving for almost four decades (Heinerth & Oigarden, 2008). Historically, cave divers have experienced both individual and family problems. Some of these problems can be identified with the same criteria as other mental health problems. These include addictions, obsessions, mood disorders, and in extreme cases, personality disorders, including antisocial behavior. Research shows there may be a correlation between attention deficient disorder and the need for stimulation (Antrop, Roeyers, Van Oost, & Buysse, 2000); the technical complexity and challenge of cave diving might attract such individuals.

**Extreme Sports**

An extreme/high-risk sport may be defined as a recreational physical activity that carries a risk of serious physical injury or even death (Willig, 2008). The label extreme sport has become a well-known denominator for activities such as bungee jumping, skydiving, skate and snowboarding, surfing, hang gliding, paragliding, rock climbing, kayaking, rafting, canyoning and so on. Campbell and Johnson (2005) found that in England, 5% of the adult population was taking part in at least one venture activity on a regular basis, and 12% said that they would like to take part in such activities. In the United States, participation in such alternative sports has increased by 245% between 1978 and 2000 (Puchan, 2004). In addition, the demographics of participants in extreme sports now include people of all ages and increasing numbers of women (Celsi, Rose, & Leigh, 1993). Celsi et. al. comment that from an outsider’s point of view, extreme sports
can be seen as reckless, perhaps impulsive acts, whereby caution is thrown to the wind in the pursuit of thrills, as suggested by the literature on sensation seeking.

Qualitative data from Willig’s (2008) study include participants describing extreme sports as addictive and reporting that they experience the need, rather than simply a desire, to engage in such sports. Extreme sports may fulfill a therapeutic function but may also lead to dependency (Willig, 2008).

Health psychologists tend to start from the assumption that health risk should be avoided and those who engage in risky behaviors represent a problem to be solved. Unhealthy practices tend to be understood as manifestations of underlying problems or pathologies within the individual. The assumption is made that no one in their right mind would choose to act in ways that jeopardize physical safety and mental equilibrium. In contrast, after evaluating the meanings of risky behaviors (Willig, 2008) allowed for the possibility that seeking out such experiences may not necessarily be indicative of psychopathology.

Since extreme sports are a relatively recent phenomenon, little research has been carried out in this area. Willig’s (2008) review of the literature, based upon relevant publications listed on the PsycINFO database, identified only 19 articles directly concerned with the psychological dimension of extreme or dangerous or risky sports. These publications focused on three topics: personality, birth order effects, and the meanings and motivations behind risk taking behavior.

In Willig’s (2008) study, participants were asked about their experiences in taking part in extreme sports and the meaning they associated with the experience. The participants’ qualitative descriptive statements were structured around a series of themes. Four of them were invoked by all participants. These were: context, challenge, suffering,
and other people. Five additional themes were shared by at least half the participants and these included: mastery and skill, contrast, being in the present, compulsion, and pleasure. Willig’s (2008) investigation identified the importance of matching one's abilities with the demands of the context in such a way as to test one's limits without being overwhelmed. Willig concluded:

If environmental and personal conditions are right (e.g. no over-crowding, good weather, appropriate equipment, appropriate level of fitness and/or skill etc.), one may experience intense feelings of joy and pleasure unlike those generated by any other activity. These feelings of elation may persist for some time afterwards…An encounter with novel rituals and routines as well as specialist equipment can add to this quality. The experience offers its participants access to combinations of feelings and sensations, which are not available in everyday life. (p. 694)

Numerous studies have attempted to establish a relationship between the practice of extreme sports and certain personality traits (Diehm & Armatas, 2004; Franques et al., 2003; Rowland, Franken, & Harrison, 1986; Shoham, Rose, Gregory, & Kahle, 1998) and levels of arousal (Kerr, Frank-Ragan, & Brown, 1993). Most of these studies used Zuckerman's Sensation Seeking Scale (Zuckerman, 1979; Zuckerman, 1994). Sensation seeking is “a trait defined by the seeking of varied, novel, complex, and intense sensations and experiences, and the willingness to take physical, social, legal, and financial risk for the sake of such experience” (Zuckerman, 1994, p. 27). Extreme sports enthusiasts (e.g., individuals engaged in scuba diving, skydiving, hang gliding, climbing, and auto racing) have been found to have high overall sensation seeking scores (Próchniak, 2011). It could be argued that since one dimension of sensation seeking is
the desire to encounter new and stimulating experiences, it may be a necessary precondition for the initiation of extreme sport involvement (Willig, 2008).

Próchniak (2011) measured personality traits, personal values, time perspective, and attitude toward death among Polish skydivers. This study included the Zuckerman Kuhlman Personality Questionnaire (ZKPQ; Zuckerman et al., 1993), Schwartz’s Value Survey, the Present and Future Time Perspective Questionnaire, and the Attitude toward Death Questionnaire. The study compared 53 skydivers to 59 low-risk sport athletes as the control group. Both groups were all male.

Próchniak (2011) is one of the few researchers studying extreme sports who has studied Zuckerman’s Alternative Five Factor Model of personality. One of the traits of the ZKPQ is Impulsive Sensation Seeking, which is defined as a readiness to act under the influence of impulse or without a plan for the future. It has a positive relation for willingness to take risks for the sake of excitement or novel experiences (Zuckerman, et al., 1993). Próchniak (2011) found that on the ZKPQ skydivers scored higher than the control group on the Impulsive Sensation Seeking Scale, and this was the only trait that discriminated the skydivers from the control group. This is consistent with hypotheses and work by Hymbaugh and Garrett (1974) and Jack and Ronan (1998) who also found that skydivers tended to score higher on a total sensation seeking measure than their low-risk sport sample. A higher mean score on the Impulsive Sensation Seeking factor suggested that skydivers seek novel, unknown, and uncertain experiences. Extreme sports may satisfy the need for stimulation (Próchniak, 2011). High sensation seeking also can have negative consequences, as skydivers with high sensation-seeking needs may underestimate risks (Trimpop, 1994; Zuckerman, 1994).

Próchniak (2011) found the personal values of skydivers differed somewhat from
those of control groups. Results from the Schwartz Value Survey showed skydivers had significantly higher means on the Stimulation and Openness to change as well as the Self-direction scores in comparison to the controls. Schwartz stated the need for stimulation is derived from the human need for variety to maintain optimal activation. The Higher Stimulation scores in this study suggest skydivers may seek excitement, novelty, and challenge in life. Items that describe this value are an exciting life, a varied life, and daring. The other scale, self-direction, derives from a need for control, mastery, and autonomy. Items that describe this value are freedom, creativity, independence, choosing one’s own goals, and curiosity (Schwartz, 1992). Skydivers may have a high need for autonomy, independence in thinking and acting, as well as a need for competence (Próchniak, 2011). Próchniak’s results confirm previous studies focused on the need for variety and stimulation in risk-taking groups (Hymbaugh & Garrett, 1974; Beatty, Kahle, Homer, & Misra 1985; Madrigal & Kahle, 1994; Zuckerman, 1994; Jack & Ronan, 1998).

Cazenave, Le Scanff, and Woodman (2007) investigated 180 women involved in risk taking behavior. Risk taking behavior is described as having a significant degree of danger and the possibility of material damage, bodily damage, or both. The participants’ involvement in risk taking sports was subdivided into three groups: (1) women who practiced non-risk sports such as tennis, (2) women who practiced risk taking sports such as mountaineering for leisure more than 10 hours per week, and (3) women whose profession involved risk taking sports such as guiding and training mountaineers.

The Sensation Seeking Scale (SSS) (Zuckerman et al., 1964) contains four factors with 10 forced-choice items for each factor: Thrill and Adventure Seeking (TAS); Experience Seeking (ES); Disinhibition (Dis); and Boredom Susceptibility (BS)
(Zuckerman, Eysenck, & Eysenck, 1978). Higher scores indicate for TAS, a desire to engage in risky and adventurous activities and sports providing unusual sensations; for ES, the seeking of stimulation through the mind and the senses; for Dis, impulsive extraversion; and for BS, an aversion to repetitive experience (Zuckerman, 1994). This scale has been used in a number of studies, which have shown that extreme sports participants score higher on the SSS than low-risk sports participants (Michel et al., 1997; Rowland, Franken, & Harrison, 1986; Zuckerman, 1983).

Cazenave et al. found overall sensation seeking scores, TAS scores, and ES scores were all significantly higher for the high-risk leisure group as compared to the non-risk group and the professional group. There were no significant differences between any of the groups for the BS and Dis scales. This study also used the Toronto Alexithymia Scale (Bagby, Parker, and Taylor, 1994). The Toronto Alexithymia Scale (TAS-20) has 20 items and three subscales: Factor 1 (F-1), difficulty in identifying one’s feelings and distinguishing them from bodily sensations of emotion arousal (e.g. “I am often confused about what emotion I am feeling’’); Factor 2 (F-2), difficulty in describing one’s feelings to others (e.g. “I find it hard to describe how I feel about people’’); and Factor 3 (F-3), externally oriented thinking (e.g. “I prefer to just let things happen rather than to understand why they turned out that way’’). There was a significant difference between the groups on the Toronto Alexithymia Scale total score, on F-1 (difficulty in identifying one’s feelings); and on F-2 (difficulty in describing feelings to others). For each of these analyses, Tukey’s follow-up tests revealed that the high-risk leisure group scored significantly higher than the non-risk group and the professional group, and that the non-risk group scored significantly higher than the professional group. There were no significant differences between the groups on F-3 (externally oriented thinking;
Cazenave, Le Scanff, & Woodman, 2007).

In contrast, Taylor and Hamilton (1997) discussed that sensation seeking acts can be grouped into those reflecting escape and those reflecting compensation. The compensation risk taking profile is tied to mastery of the skill with a desire to act positively. It is linked to strong expectations for success, constructive ways of forging one’s identity, and a psychologically well-balanced personality.

Taylor and Hamilton (1997) found that the risk-taking profile of women who engaged in a high-risk sport (skydiving) was an escapist profile. The escapist profile is associated with a more pessimistic view of one’s actions, a desire to forget oneself, and a lower level of self-awareness. The escapist profile is positively correlated with depression, negative affect, and state anxiety, and negativity correlated with optimism and self-esteem (Taylor & Hamilton, 1997). Cazenave et al. state that for high-risk sports participants “risk-taking sports may thus be a means of regulating their affect (Levenson, 1990) by momentarily forgetting their emotional distress (Spies, Hesse, & Brandes, 1997) and uneasy feelings (Taylor & Hamilton, 1997), and by getting away from everyday life, which might be perceived as fairly monotonous (Michel, Carton, & Jovent, 1997)” (p. 430).

Trull and Sher (1994) proposed a link between lack of emotions and risk-taking behavior, suggesting that risk taking is a means of rendering more concrete everyday negative emotions. For amateur women who engage in risk taking sports through their leisure activity, the search for excitement may be seen as means of emotional auto-regulation that acts as a defense against past and present stressful events (Michel et al., 1997). Emotional difficulties lurking behind the escapist attitude may also be associated with the amateur women’s tendency to be alexithymic (Cazenave et al., 2007).
Castanier, Le Scanff, and Woodman (2010) studied 302 men involved in downhill skiing, mountaineering, rock climbing, paragliding, or skydiving to investigate the personality differences that lead some people to take risks in high-risk sport. Castanier et al. used the NEO Personality Inventory Revised (NEO PI-R) developed by Costa and McCrae (1992), a Five Factor Model of personality more commonly known as “The Big Five.” Castanier et al. examined three of the NEO PI-R personality characteristics: neuroticism, extraversion, and conscientiousness and how they were correlated to Torgersen’s (1995) proposed eight personality types, spectator, skeptic, hedonist, entrepreneur, insecure, brooder, impulsive, and complicated. Castanier et al. found that typological combinations of neuroticism, extraversion, and conscientiousness were successful in discriminating between low-risk and high-risk takers.

**Theoretical Framework**

**Zuckerman’s Alternative Five Factor Model of Personality**

Personality has been studied and measured as a set of traits, or factors, in both experimental and correlational personality research (Zuckerman, Kuhlman, Joireman, Teta, and Kraft, 1993). In 1943, Raymond Cattell became the first to apply empirical procedures to the task of constructing a personality taxonomy (Goldberg, 1990). Cattell went on to construct scales describing personality and psychopathology. By 1957, Cattell’s inventory was narrowed down to 16 factors.

In 1947, Hans Eysenck began to study the two personality dimensions of extraversion and neuroticism. When Eysenck added the third personality dimension, psychoticism, the model became known as the Big Three model of personality.

A third model, known as the Big Five, also developed from lexical analyses of trait terms in language systems and their translation into simple rating scales (Digman,
1990; Goldberg 1990). The study of traits has yielded a lexicon, or vocabulary, to
describe specific personality traits. These lexical items can be as simple as a single word
or a short group of words. The Big Five was discovered when Cattell’s variables were
analyzed and only five factors proved to be replicable (e.g., Digman & Takemoto-Chock,
described the Big Five factors as openness to experience, conscientiousness, extraversion,
agreeableness, and neuroticism, and these factors continue to be used in the Big Five
Model.

Unlike the Big Five Model that used lexical analysis, the Alternative Five Factor
Model emerged from factor analytic studies of personality and temperament scales, many
of which had been used in personality trait studies (Zuckerman, 1991). The scales
included Eysenck’s (1967) Big Three, the Buss-Plomin (1975) scales for emotionality,
activity, sociability, and impulsivity, and scales from Strelau’s (1983) Temperament
Inventory (Zuckerman, 2002). Zuckerman also included measures of thrill and
adventure-seeking, experience-seeking, disinhibition, and boredom susceptibility from
his Sensation Seeking Scale, and measures of impulsivity, aggression-hostility,
socialization and responsibility, social desirability, neuroticism, and anxiety. In all,
Zuckerman had at least three scale markers for each of nine hypothesized factors:
sociability, general emotionality (neuroticism), anxiety, hostility, socialization, sensation
seeking, impulsivity, activity, and social desirability. After administering the scales to
271 students (73 men and 178 women) from an undergraduate class in personality
psychology (Zuckerman, Kuhlman, & Camac, 1988), the factor analysis yielded a robust
five factor structure as measured by the Zuckerman Kuhlman Personality Questionnaire.
The factors were labeled impulsive sensation seeking, sociability, neuroticism-anxiety,
aggression-hostility, and activity (Zuckerman et al., 1988, 1991). Of relevance to the current study, the Zuckerman Kuhlman Personality Questionnaire has been used to study risky behaviors such as smoking, drinking, drug abuse, sex, gambling, and sports (Zuckerman, 2002, 2007, 2008; Zuckerman & Kuhlman, 2000). Zuckerman, et al. (1993) found that despite the differences between The Big Three, the Big Five, and Alternative Five models, an analysis of the major factors in all three models suggested a great deal of convergence between the three scales.

**Personality and Relationship Satisfaction**

Malouff, Thorsteinsson, Schutte, Bhullar, and Rooke (2010) completed a meta-analysis of research on the Five Factor Model and relationship satisfaction that included 19 samples with a total of 3848 participants. The goal was to estimate the overall association between an individual's Five Factor personality characteristics and the relationship satisfaction of his or her partner. The Five Factor Model core aspects of personality include extraversion, agreeableness, conscientiousness, neuroticism, and openness (Digman, 1990; John & Srivastave, 1999; McCrae & Costa, 1999). These dimensions are related to a variety of life outcomes. Ozer and Benet-Martinez (2006) observed high conscientiousness is linked to work performance and good health, while low agreeableness and high neuroticism are associated with poor health; high agreeableness is related to helping others, high extroversion predicts leadership, high neuroticism is associated with depression, and high openness is related to creativity.

Karney and Bradbury (1995) found the level of neuroticism is a substantial negative predictor of marital quality and stability. Gottman and Levenson (1992) suggested that an important life outcome is satisfaction with an intimate romantic relationship. Greater intimate relationship satisfaction is associated with less relationship
instability and lower relationship dissolution. Heller, Watson, and Iles (2004) found that of the five characteristics, neuroticism had the strongest (negative) relationship with self-rated marital satisfaction. Gottman (1994) found neurotic individuals damage relationships, as they tend to express more criticism, contempt, and defensiveness. In addition, a profile of high neuroticism, low agreeableness, and low conscientiousness has been found to be associated with less adaptive life outcomes, such as various types of psychopathology (Malouff, Thorsteinsson, & Schutte, 2007), and psychopathology, in turn, has been found to be associated with marital stress (South, Krueger, & Iacono, 2011; Knabb, Vogt, Gibbel, & Brickley, 2012).

The meta-analysis by Malouff, et al. (2010) concluded that scores on four of the Five Factor Model of personality factors correlated significantly with level of relationship satisfaction by intimate partners. Greater agreeableness, conscientiousness, extraversion, and openness were associated with greater marital satisfaction. Malouff et al.’s meta-analysis supported the utility of the Five Factor Model of personality in understanding intimate relationships, specifically the relationship between an individual's personality characteristics and the relationship satisfaction of the individual’s intimate partner. The results did not vary significantly from men to women or from married to unmarried individuals, which suggests the relationship is somewhat generalizable across populations.

Ficher, Zuckerman, and Steinberg (1988) compared 30 dysfunctional couples and 30 control couples to determine if sensation seeking congruence was related to marital adjustment. The dysfunctional couples had recently applied for and were starting couples therapy. The control couples were hospital employees and personal acquaintances. Both partners independently took the Sensation Seeking Scale (SSS) and the Locke Marital
Adjustment Questionnaire (MQA). This was a replication of the 1981 study conducted by Ficher, Zuckerman, and Neeb that found the correlations between sensation-seeking scores of control couples were significantly higher than correlations between partners who were in marital therapy on the Sensation Seeking Scale Total score, experience seeking, and boredom susceptibility scales. Overall, Ficher et al. (1988) found the control couples scored significantly higher on the MAQ, indicating better marital adjustment, and found that congruence of sensation seeking is an important factor in marital adjustment, particularly in terms of boredom susceptibility. Ficher et al. (1988) state “The difference between a high and low sensation seeker represents a basic difference in values, risk estimations, and general outlook on life … when one partner has no tolerance for sameness, routine, or unexciting friends while the other partner has a high tolerance for these states or even likes these conditions, it is not difficult to see how the marriage could run awry” (p. 804).

Of interest from a therapeutic point of view, Ficher et al. (1988) found that when the man was lower in sensation seeking then his female partner, he initiated the therapy contact in 67% of the couples. When the man was higher in sensation seeking, his female partner initiated therapy contact in 87% of the cases, and the reason for applying for therapy was more likely to be general marital problems, as opposed to sexual problems. Sexual problems were less likely when both partners were low sensation seekers because they would most likely have similar attitudes towards sex. When there is a discrepancy in levels of sensation seeking beyond the normally found sex differences (Zuckerman, 1979; Zuckerman & Neeb, 1980), one partner may find sexual attributes and desires of the other partner unsatisfactory (Ficher et al., 1988).

**Alexithymia and Relationships**
Lee (2010) explains that emotions play a significant role in interpersonal relationships, suggesting that impairment in the ability to deal with emotions would contribute to interpersonal problems. Being able to effectively deal with the emotional aspects of life vary greatly across the spectrum of emotional functioning. The lower end of this spectrum can be referred to as alexithymia. In 1973, Sifneos was the first to describe alexithymia as a cluster of behaviors observed in individuals experiencing various mental and physical health problems. Since that time, alexithymia has come to be defined as including the following characteristics: difficulty describing feelings to others; difficulty identifying feelings and distinguishing between these feeling and bodily sensations of emotional arousal, a stimulus-bound, externally oriented, cognitive style and constricted imaginal processes (Taylor, Bagby, & Parker, 1997). Along with these basic features, several related characteristics have also been observed, such as problems processing emotional information (Suslow & Junghanns, 2002), difficulties in identifying facial expressions (Taylor, Bagby & Parker, 1997), and lower capacity for empathy (Guttman & Laporte, 2002).

Prerequisite to satisfactory and lasting relationships is the ability to effectively manage complex social situations and varied emotional demands. Lee (2010) concluded that emotions play a significant role in interpersonal relationships and suggested that impairment in the ability to manage one’s emotions contributes to interpersonal problems. Poor emotional regulation has been associated with affective instability and disordered personality organization (Mennin & Farach, 2007). To use a musical metaphor, those without basic command of their own inner emotional world bumble through life emotionally tone-deaf; they just can’t march in time with the rest of the band. Alexithymia can be thought of a sort of emotional tone-deafness, as alexithymia
represents a narrowing in emotional functioning. This has implications for personal health and for interpersonal functioning. Alexithymia is defined as a cognitive-affect deficit (Sher & Grekin, 2007). Specifically, this is a skill deficit, a deficit in the understanding of one’s own emotions and in the communication of one’s emotions to others, like to a significant other for example. Saxena, Dubey, and Pandey (2011) found lower levels of alexithymia and an enhanced capacity to regulate one’s emotions was indicative of sound mental health and higher levels of subjective wellbeing. Conversely, higher levels of alexithymia and emotion regulation difficulties are associated with a variety of mental health related problems, including reduced happiness and satisfaction in one’s life.

Pandey and Choubey (2010) reviewed studies of affect related constructs, including alexithymia and emotion regulation, in relation to medical and psychological problems. They found alexithymia had a positive correlation to adverse consequences for health, whereas improved regulation of emotion had a marked health benefit.

In relation to dyadic relationships, research has shown that alexithymic individuals have deficits in the ability to create and maintain meaningful relationships (Hesse & Floyd, 2008; Vanheule, Desmet, Meganck, & Bogaerts, 2007), and Cooley (2006) reported that marital satisfaction was inversely related to alexithymia.

**Statement of the Problem**

Cave diving, which became popular in Florida in the 1960s, requires specialized training, expensive equipment, and a unique personality. By 2007, in America alone, there were 368 cave diving fatalities (Buzzacott, Zeigler, Denoble, & Vann, 2009). The documentary Ben’s Votex (Heinerth & McClellan, 2012) describes how cave diving has the highest ratio of death per overall participants of any extreme sport, and despite the
potential for such great personal and family loss, open water divers are becoming cave
divers at the fastest rate ever.

Personality factors seem to influence participation in extreme sports such as cave
diving (Willig, 2008). Considering that personality factors have been found to correlate
with relationship satisfaction (Malouff, et al., 2010), it is likely that the unique
personality makeup of cave divers impacts on their interpersonal and intimate
relationships, including their entire family. At present, counselors and family therapists
have little information available to them for working with this population. Research is
needed to increase our understanding of couples that include cave divers, including how
personality factors relate to their dyadic adjustment.

**Purpose and Significance of the Study**

This study sought to extend the understanding of personality and relationship
functioning by studying individuals who participate in an extreme sport (i.e., cave
divers). The primary purpose of this study was to investigate the relationship between
adult male cave divers who are married or in a committed relationship as measured by the
Dyadic Adjustment Scale, with the five personality traits measured by the Zuckerman
Kuhlman Personality Questionnaire. A secondary purpose of this study was to
investigate the relationship between dyadic adjustment with the personality trait of
alexithymia as measured by the Toronto Alexithymia Scale.

This study may further the understanding of cave divers and their dyadic
adjustment. This is the first study of its kind to investigate the relationship between cave
divers’ personalities and their dyadic relationships, and the findings may be useful in
developing family therapy interventions for cave divers and their families, and possibly
other extreme sports participants and their families.
Research Questions and Hypotheses

The research questions and corresponding hypotheses for this study were:

1. **What is the relationship between neuroticism-anxiety and dyadic adjustment?**

   **H₁:** Among cave dives, there is a significant negative correlation between neuroticism-anxiety and dyadic adjustment.

   **H₀:** There is no significant correlation between neuroticism-anxiety and dyadic adjustment among cave divers.

2. **What is the relationship between aggression-hostility and dyadic adjustment?**

   **H₂:** Among cave dives, there is a significant negative correlation between aggression-hostility and dyadic adjustment.

   **H₀:** There is no significant correlation between aggression-hostility and dyadic adjustment among cave divers.

3. **What is the relationship between impulsive sensation seeking and dyadic adjustment?**

   **H₃:** Among cave dives, there is a significant negative correlation between impulsive sensation seeking and dyadic adjustment.

   **H₀:** There is no significant correlation between impulsive sensation seeking and dyadic adjustment among cave divers.

4. **What is the relationship between activity and dyadic adjustment?**

   **H₄:** Among cave dives, there is a significant positive correlation between activity and dyadic adjustment.

   **H₀:** There is no significant correlation between activity and dyadic adjustment among cave divers.
adjustment among cave divers.

5. What is the relationship between sociability and dyadic adjustment?

H₅: Among cave dives, there is a significant positive correlation between sociability and dyadic adjustment.

H₀: There is no significant correlation between sociability and dyadic adjustment among cave divers.

6. What is the relationship between alexithymia and dyadic adjustment?

H₆: Among cave dives, there is a significant negative correlation between alexithymia and dyadic adjustment.

H₀: There is no significant correlation between alexithymia and dyadic adjustment among cave divers.

**Research Design**

A predictive correlational design was used in this study, as it allowed for the examination of the degree of relationship that may exist between two variables. This research was cross-sectional in nature in that the variables of interest in the sample of cave divers and their significant others were evaluated, and the relationships among the variables determined.

This study utilized the Zuckerman Kuhlman Personality Questionnaire (Zuckerman et al., 1993), which was designed to measure the Alternative Five Factor Model of personality. The dyadic satisfaction, cohesion, consensus, and affectional expression of participants was measured utilizing the Dyadic Adjustment Scale (Spanier, 1976). The Toronto Alexithymia Scale (Bagby et al., 1994) was used to measure alexithymia.
Definition of Terms

Neuroticism-Anxiety. Describes emotional upset, tension, worry, fearfulness, obsessive indecision, lack of self-confidence, and sensitivity to criticism (Zuckerman, 2002).

Activity. The first factor describes the need for general activity and impatience and restlessness when there is nothing to do. The second factor indicates a preference for challenging and hard work and lot of energy for work and other tasks (Zuckerman, 2002).

Sociability. One group of items describes a liking of big parties, interacting with many people and having many friends. The second group indicates an intolerance for social isolation in highly sociable subjects and a liking or tolerance for isolation in unsociable subjects (Zuckerman, 2002).

Impulsive Sensation Seeking. The impulsivity items describe a lack of planning and a tendency to act quickly on impulse without thinking. The sensation seeking items describe a general need for thrills and excitement, a preference for unpredictable situations and friends, and the need for change and novelty (Zuckerman, 2002).

Aggression-Hostility. Reflects a readiness to express verbal aggression including rude, thoughtless or antisocial behavior, vengefulness, spitefulness, a quick temper and impatience with others (Zuckerman, 2002).

Limitations

The greatest limitation of correlational research is the inability to make conclusions regarding causal relationships (Isaac & Michael, 1997). A correlational study does not clarify whether one variable caused another to change, and does not eliminate the possibility that an uncontrolled variable may be responsible for the observed relationship between the variables being considered (Isaac & Michael, 1997).
Due to these limitations, correlational research cannot be used to establish causal relationships among variables, but it can assess the association between variables. Another limitation is that the results of this study are limited in generalizability, as the participants in this study were volunteers who self-selected to participate in the study. The results may not apply to individuals who did not volunteer. Lastly, since an anonymous survey was used to collect the data, there will be no opportunity for follow-up with the participants.

**Delimitations**

Participants were limited to male cave diver volunteers who were in a committed relationship and included cave divers who were married, or in a relationship with a significant other.

**Assumptions**

The researcher assumed that participants were honest in answering the questions on the inventories administered. Also, the assumption was made that participants are in a committed relationship, either married, or in a relationship with a significant other.

**Organization of the Study**

Chapter I presented an overview, background, theoretical framework, and purpose and design of the study. In Chapter II, related literature was reviewed to provide the reader with an expanded understanding of the subject area. The methodology, procedures, and data analysis techniques are described in Chapter III. The results of the study are reported in Chapter IV, and Chapter V contains conclusions, implications, and recommendations for further study.
Chapter II

Review of the Literature

Since the early 20th century, marital researchers have been searching for individual characteristics, including personality variables, which contribute to marital adjustment (Luo, Chen, Yue, Zhang, Zhaoyang & Xu, 2008). Marital adjustment is the adaptation of a husband and wife that allows the couple to avoid or sufficiently resolve conflicts so that both people feel satisfied with the marriage and with each other (Locke, 1968). Today, there continues to be a limited number of approaches when investigating the relationship between personality and marital functioning (Luo et al., 2008; Whisman, Uebelacker, & Weinstock, 2004). In the past two decades, research on close relationships has focused on interpersonal process research. More recently, there has been growth to return to work on intrapersonal factors of personality and attachment (Gattis, Berns, Simpson, & Christensen, 2004).

Personality and Relationship Satisfaction

Efforts to link personality traits, attitudes, and values with marital satisfaction have usually taken either an individual or a dyadic approach. The individual approach examines how self and/or partner characteristics are associated with satisfaction and attempts to address this question: “Am I happy in my marriage because I am a good lover, or am I happy because I have a good spouse, or both?” (Luo et al., 2008, p. 1232). The individual approach focuses on the predictive power of stable, personality characteristics in explaining marital satisfaction (Robins, Caspi, & Moffitt, 2000).

Knabb and Vogt (2011) described two individual approaches to the relationship between personality and marital adjustment. The first individual approach examines how one spouse’s personality impacts his or her own marital adjustment. This is called
an actor effect. Actor effects focus on how certain characteristics of an individual impact other characteristics of that same individual. The second individual approach, partner effects, investigates how one partner’s personality or partner effects impacts the other partner’s marital adjustment. Partner effects measure how certain individual characteristics impact the characteristics of the other person in the dyad. In marital research, actor and partner effects are distinct, yet overlapping. Actor effects focus solely on the individual, while partner effects examine the system (Knabb & Vogt, 2011).

The individual approach treats two partners as unrelated individuals and fails to take the couple into consideration. The dyadic approach shifts the focus from the individual to the couple. This approach addresses how one’s marital satisfaction may depend on dyadic characteristics and the systematic associations between the two partners. The dyadic approach overcomes the limitation of the individual approach, which does not consider the couple as a whole. A common dyadic variable used to predict marital satisfaction is couple similarity (Gaunt, 2006; Luo & Klohnen, 2005). The question that dyadic research attempts to address can be phrased, “Am I happy in my marriage because my spouse and I have a lot in common?” (Luo et al., 2008, p. 1232).

In their review of couple similarity research, Cattell and Schuerger (2003) found that couples who score similarly on the Cattell’s Sixteen Personality Factor (16PF) are more likely to experience relational satisfaction. In terms of specific factors, their review found that marital dissatisfaction was significantly correlated with differences between partners in Reasoning, Emotional Stability, Sensitivity, Abstractedness, Vigilance, and Perfectionism. Additionally, differences in Warmth, Social Boldness, and Self-Reliance
were associated with increased stress in couples. In an earlier publication, Cattell (1989) noted that spousal differences in Warmth are typically the primary cause of marital discord in couples who seek out marital therapy.

Knabb and Vogt (2011), using Cattell’s 16PF and Spanier’s Dyadic Adjustment Scale (DAS), studied the relationship between personality and marital adjustment among 270 distressed married couples seen in intensive marital therapy. Their findings were consistent with previous research (Cattell & Nesselroade, 1967; Cattell & Schuerger, 2003) and supported the likeness theory of marital satisfaction, which suggests that personality dissimilarity between couples increases marital dissatisfaction. Knabb and Vogt (2011) also found significant actor effects for Emotional Stability and dyadic adjustment. Spouses who scored high on Emotional Stability were more likely to feel satisfied with their marriages.

Knabb and Vogt (2011) also examined spousal differences on the Dyadic Adjustment Scale in their sample, and found that husbands presenting for intensive marital therapy were significantly more satisfied with their marriages than their wives. This finding is consistent with prior marital research, which has suggested that (a) wives are generally less satisfied with their marriages than their husbands, and (b) when significant differences exist between husbands and wives regarding marital satisfaction, wives typically feel less satisfied (Schumm, Webb, & Bollman, 1998).

While additional studies have found that personality similarity in couples is related to relationship satisfaction (Gattis et al., 2004; Luo & Klohnen, 2005; Robins, Caspi, & Moffitt, 2000), some studies have not found evidence of a significant relationship between personality similarity and satisfaction (Glicksohn & Golan, 2001; Watson et al., 2004). In an attempt to understand the conflicting findings, Shiota and
Levenson (2007) studied the effect of personality similarity on the trajectories of marital satisfaction over time, rather than using a cross-sectional design. They studied middle-aged (40 to 50 years old) and older (60 to 70 years old) couples over a 12-year period. They found that personality similarity was unrelated to initial levels of marital satisfaction, and greater personality similarity predicted more negative slopes in marital satisfaction trajectories over a 12-year period. They concluded that similarity in personality may have negative implications for marital satisfaction in long-term marriages, and offer a developmental perspective on why this may be the case, specifically, the different life tasks that are faced by young, midlife, and older adults (Baltes, 1997; Erikson, 1959/1980).

Shiota and Levenson (2007) note that among young couples, partner selection, emotional intimacy, and the development of a shared life are core issues (Murray, Holmes, Bellavia, Griffin, & Dolderman, 2002; Pasch & Bradbury, 1998). Personality similarity may promote feelings of intimacy and attachment (Kurdek, 1991) and may help foster a sense of equity in contributing to the marriage (Utne, Hatfield, Traupmann, & Greenberger, 1984).

In midlife, the focus for couples seems to be less on the marriage itself and more on meeting individual and shared responsibilities (Moen, Kim, & Hofmeister, 2001). Increasing role strain during this period may mean that couples who can divide tasks easily and effectively reap the greatest benefits in relationship satisfaction. Key areas of conflict for midlife couples tend to involve finances, parenting, and household responsibilities (Anderson, Russell, & Schumm, 1983; Hatch & Bulcroft, 2004; Johnson, White, Edwards, & Booth, 1986; Levenson, Carstensen, & Gottman, 1993). At this stage, personality similarity may become a disadvantage, with spouses competing with
each other in similar performance domains and clashing when attempting to complete the same tasks. For example, highly conscientious people are highly motivated to get things done, but by their 40s they are also used to doing things in a particular way. Two people living together, each insisting that a given task must be accomplished in a particular way, make for a great deal of conflict. By comparison, task completion may be eased when one partner is highly concerned with the details, and the other is more laissez-faire.

Once spouses are in their 60s, many of the responsibilities so prevalent in midlife have diminished, and intimacy is again a core issue. The departure of children from home and retirement from professional work, both of which distinguished Shiota and Levenson’s (2007) older and our midlife samples, increased the amount of time couples spent together. Couples at this stage reported less disagreement over instrumental issues, such as parenting, household tasks, and finances, and were more likely to report conflict about emotional expression and companionship (Ekerdt & Vinick, 1991; Hatch & Bulcroft, 2004; Levenson et al., 1993). Spouses may complain of spending too much time together, particularly wives whose husbands have recently retired (Fengler, 1975; Keating & Cole, 1979). To the extent that personality similarity predicts decreasing marital satisfaction, as observed in this study, too-similar spouses may find themselves becoming bored with each other (Amato & Previti, 2003). Shiota and Levenson (2007) suggested the changing life stages and marital demands for couples in their 20s, 40s, and 60s may lead to different effects of Big Five similarity for couples over time, as the relationship qualities that support fulfilling these tasks may vary accordingly.

Using the Multidimensional Personality Questionnaire (Patrick, Curtin, & Tellegen, 2002) to measure Positive Emotionality, Negative Emotionality, and Constraint, Stroud, Durbin, Saigal, and Knobloch-Feders (2010) found significant
positive associations between participants’ level of marital dissatisfaction and their own and their partners’ self-reported Negative Emotionality. Consistent with Shiota and Levenson’s (2007) results, Stroud et al. (2010) found that the effects of personality on marital satisfaction were attenuated in marriages of longer duration. Relationship length emerged as a significant moderator, with associations weakening as relationship duration increased.

A number of studies have used the Big Five model to explore the association between personality and marital satisfaction. Unlike pathologically oriented models of personality, the Five Factor Model is built around traits with approximately normal, bell-shaped distributions (Costa & McCrae, 1985). Although the Five Factor model is not designed to measure dysfunction, certain personality traits appear to be related to marital distress (Karney & Bradbury, 1995). In the Big Five, the most consistent and strongest personality predictor of dissatisfaction is neuroticism (Bouchard, Lussier, & Sabourin, 1999; Karney & Bradbury, 1995). People who are highly neurotic tend to experience negative emotions such as anxiety, depression, and anger, and are more likely to overestimate stressful situations (David & Suls, 1999; Eysenck & Eysenck, 1975; Kelly & Conley, 1987).

Research has consistently found that the negative affectivity (i.e., neuroticism) of one partner predicts his or her own marital adjustment (Karney & Bradbury, 1997). For example, in a cross-sectional study, Gattis et al. (2004) found that spouses’ neuroticism was higher in distressed couples who sought counseling than in non-distressed couples. Similarly, in a study of newlyweds, Karney and Bradbury (1997) found that both husbands’ and wives’ neuroticism was associated with lower marital satisfaction. In a 40-year study, Kelly and Conley (1987) found that both husbands’ and wives’
neuroticism at the beginning of the study predicted greater likelihood of divorce. Watson et al. (2004) reported that the effects of neuroticism on the marital adjustment are stronger for the spouse’s personality (partner effect) than for the partner’s personality (actor effect). The most consistent finding to emerge from these studies is that high neuroticism in either or both partners is toxic for marriage.

Gattis et al. (2004) examined the relationship between the Big Five personality factors, positive expressivity, and marital satisfaction in 180 married heterosexual couples (132 distressed, treatment seeking couples, and 48 nondistressed couples). Positive expressivity is a construct reflecting the extent to which people identify themselves with prosocial, relationship oriented, and traditionally feminine qualities such as emotionality, devotion to others, and warmth in relation to others (Spence, Helmreich, & Stapp, 1974). Furthermore, Huston and Houts (1998) suggest that positive expressivity serves as a protective quality to enhance marital satisfaction. Partners high in positive expressivity may be more likely to respond constructively to poor partner behavior, less likely to communicate negative feelings, and more likely to communicate positive feelings in a discussion (Huston & Houts, 1998), all of which may contribute to a partner’s sense that they have social support resources available in the relationship. Gattis et al. (2004) confirmed that neuroticism, agreeableness, conscientiousness, and positive expressivity were all significantly related to marital satisfaction, although the effect sizes were small. In this study, Gattis et al. (2004) also looked at the association between marital satisfaction and similarity in the Big Five personality dimensions and positive expressively, and found no significant effects for personality similarity.

Chen et al. (2007) examined the link between marital adjustment and personality by investigating 66 Japanese married couples using the Locke and Wallace’s Short
Marital Adjustment Test (SMAT; Locke & Wallace, 1959), which has two factors: dyadic consensus and dyadic satisfaction, and the Eysenck Personality Questionnaire (EPQ; Eysenck & Eysenck, 1975). The EPQ is a well-validated personality measurement, which examines three personality dimensions: Neuroticism (N), Extraversion (E), and Psychoticism (P) scores.

Chen et al. (2007) found that overall, the husband’s neuroticism was linked to the wife’s perception of a poor dyadic consensus and, to a lesser extent, to the wife’s marital dissatisfaction. The wife’s extraversion was related to the husband’s marital satisfaction. The results suggested that the neuroticism score alone did not predict one’s own marital adjustment.

Stroud et al. (2010), in an effort to understand problematic personality styles and how they may be important to understanding intimate relationships, examined abnormal personality traits and relationship satisfaction in 118 heterosexual couples. Research has linked specific personality disorders (Bouchard, Sabourin, Lussier, & Villeneuve, 2009) and personality disorder symptoms (South, Turkheimer, & Oltmanns, 2008) to negative relationship outcomes. Stroud et al. (2010) included measures designed to assess traits related for each of the personality disorders identified in the Diagnostic and Statistical Manual-IV: Cluster A (odd/eccentric), B (dramatic), and C (anxious), (DSM-IV; American Psychiatric Association, 2000). Stroud et al. (2010) found nearly all personality disorder characteristics were positively associated with marital dissatisfaction. Of these, the actor effect for paranoid personality disorder and the partner effect for schizoid personality disorder were the most robust, suggesting that elevated Cluster A characteristics may play a greater role in dissatisfaction than Clusters B and C among individuals in committed relationships.
Research has found martial adjustment and personality variables such as neuroticism directly influence marital satisfaction. Studying the dyadic characteristics between two partners may provide further evidence to describe marital adjustment of participants in high-risk sports, such as cave divers. In order to understand the emotional make-up of cave divers, a discussion of alexithymia is relevant.

Alexithymia, which literally means no words for emotions, was a construct first described by Sifneos (1973) as a difficulty in identifying and communicating emotions and feelings. Alexithymia is a trait deficit (Mikolajczak & Luminet, 2006) wherein a person lacks the capacity to process or regulate emotions using cognitive strategies, and this deficit predisposes the person to developing a host of disorders related to poor emotion regulation including depression, trait and state anxiety, and low self-esteem (Corcos & Speranza, 2003; Lumley, Stettner, & Wehmer, 1996).

Alexithymia was originally studied in the context of psychosomatic research and has been extensively researched in relation to physical and mental health issues (Vanheule, Desmet, Meganck, & Bogaerts, 2007). Sher and Grekin (2007) define alexithymia as a cognitive-affective deficit in understanding and communicating emotions. It has been conceptualized as a personality trait relating to an inability or severe deficit in identifying, describing, and communicating feelings; difficulties in differentiating feelings from bodily sensations; and diminished affect-related fantasy. Overall, it represents a narrowing in emotional functioning. Pandey and Choubey (2010) have invigorated interest in the role that emotions and emotional experiences play in determining one’s health status. They reviewed studies of affect related constructs, including alexithymia and emotion regulation, in relation to medical and psychological problems. Pandey et al. (2010) found alexithymia had a positive correlation to adverse
consequences for health, whereas cognitive regulation of emotion had a beneficial influence on health status.

**Alexithymia and Relationships**

Alexithymia is related to the ability to express affection, and affection has long been found to be a foundational force in any sort of human relationship, influencing such areas as relational closeness, stress, and depression. Scholars have long claimed that affection is a fundamental human need (Burgoon & Hale, 1984; Rotter, Chance, & Phares, 1972; Schutz, 1958, 1966). Affection plays a central role in the development of adult attachment styles (Ozen, 2003), in the reduction of insecurity and the promotion of emotional stability in children (Davies, Cummings, & Winter, 2004), in the strengthening of relational communication with spouses (Beatty & Dobos, 1993), in the improvement of mental wellbeing and the reduction of loneliness (Downs & Javid, 1990), and in the enhancement of physical health (Komisaruk & Whipple, 1998).

Saxena, Dubey, and Pandey (2011) studied the relationship of emotion regulation difficulties and alexithymia with mental health and subjective wellbeing in 288 participants using the 20-item Toronto Alexithymia Scale. This study found that lower levels of alexithymia and an enhanced capacity to regulate one’s emotions was indicative of sound mental health and higher levels of subjective wellbeing; while higher levels of alexithymia and emotion regulation difficulties resulted in a variety of mental health related problems, including reduced happiness and satisfaction in one’s life. Other researchers have found that these mental health problems include depression (Gross and Muñoz, 1995), anxiety disorders (Campbell-Sills, Barlow, Brown, & Hofman, 2006), panic disorder (Tull, 2007), post-traumatic stress disorder (McDermott, Tull, Gatz, Daughters, and Lejuez, 2009), and social dysfunction (Gross and Muñoz, 1995).
Clinical observations of the interpersonal functioning of alexithymic patients (Grabe, Spitzer, & Freyberger, 2001; Nemiah & Sifneos, 1970; Taylor & Hamilton, 1997) acknowledge that alexithymic patients have a tendency toward social conformity and conflict avoidance, as well as an unempathic, seemingly cold, or detached way of approaching others. These patients avoid close social relationships, and if they do relate to others, they tend to position themselves as either dependent or impersonal, such that the relationship remains superficial. Chaotic interpersonal relations have also been observed (Sifneos, 1996), as well as inadequate differentiation between self and others (Blaustein & Tuber, 1998; Taylor & Hamilton, 1997).

Vanheule, Desmet, Meganck, and Bogaerts (2007) studied whether alexithymia relates to specific interpersonal problems in 404 outpatient mental health patients and 157 students. The study included the TAS-20 and the Inventory of Interpersonal Problems (IIP-64; Horowitz, Alden, Wiggins, & Pincus, 2000; Vanheule, Desmet, & Rosseel, 2006). The study found that the IIP-64 subscales Cold/Distant, Socially Inhibited, and Non-Assertive interpersonal functioning were significantly related to alexithymia. These results have implications for clinical practice, because highly alexithymic persons tend to withdraw from others and refrain from sharing experiences. It can be expected that they would be reluctant to engage in psychotherapeutic relationships as well. Attending to their own affective experiences is not their habit, nor would self-disclosing them to others.

Hesse and Floyd (2008) studied 347 individuals and how alexithymia may influence the communication of affection. Floyd (2002) found that individuals who described themselves as highly affectionate were happier, less prone to stress and depression, and were more satisfied with relationships than individuals who described
themselves as less affectionate. Hesse and Floyd (2008) found that alexithymia was negatively related to affectionate experience, happiness, use of nonverbal immediacy cues, affectionate communication in close relationships, and closeness in close relationships and positively related to depression and stress.

Alexithymia and Intimate Relationships

Humphreys, Wood, and Parker (2009) assessed the relationship between alexithymia and satisfaction within intimate relationships, including overall relationship satisfaction, and sexual satisfaction. Intimacy has been defined as a feeling of closeness and sharing of emotions and physical experiences with another person (Schaefer & Olson, 1981). Both our physical and mental wellbeing is greatly influenced by our intimate relationships. Humphreys et al. found a negative relationship between alexithymia and perceived intimate relationship quality that seems to be associated with poor social support networks.

Alexithymia has been associated with a variety of interpersonal problems. Mallinckrodt and Wei (2005) found emotional awareness, as indicated by lower levels of alexithymia, to be negatively associated with attachment anxiety and avoidance, and positively associated with social self-efficacy. Montebarocci, Codispoti, Baldaro, and Rossi (2004) found alexithymia to be positively associated with discomfort with proximal or emotional closeness, with placing relationships as secondary, and with need for approval from others. Alexithymia was also found to be negatively associated with confidence in self and in others, indicators linked with insecure attachment. Vanheule, Desmet, Rosseel, Verhaeghe, and Meganck (2007) found alexithymia to be linked with “interpersonal indifference.” Individuals scoring high on a measure of alexithymia did not expect much from other people, nor did they have a strong desire to fulfill the
expectations of others. In a related study, Vanheule et al. (2007) found alexithymia to be related to low levels of reported affection and connection to others, as well as to problems both with expressing needs to others and with coping with challenges faced in social situations.

**Adult Attachment Style and Alexithymia**

Montebarocci et al. (2004) studied 301 undergraduate students at the University of Bologna in an effort to investigate the relationship between adult attachment behavior and alexithymia. Subjects completed the Attachment Style Questionnaire (ASQ; Feeney, Noller & Hanrahan, 1994) and the 20-Item Toronto Alexithymia Scale (TAS-20; Bressi et al., 1996). The ASQ is a 40-item self-report scale and yields five factor scores: one is a factor representing secure attachment; each of the other four scales represents a particular aspect of insecure attachment. Moderate positive correlations were found among TAS total score and several ASQ subscales such as the discomfort with closeness, the relationships as secondary, and the need for approval. The TAS total score and the confidence subscale of the ASQ showed a moderate negative correlation.

Adult attachment is the stable tendency of an individual to make substantial efforts to seek and to maintain proximity to and contact with one or a few specific individuals, who provide the subjective potential for physical and emotional safety and security. This stable tendency is regulated by internal working models of attachment, which are cognitive affective motivational framework built from the individual’s experience in his or her interpersonal world. Attachment styles are the internal working models of attachment that determine people’s behavioral responses to real or imagined separation and reunion from their attachment figures (Berman & Sperling, 1994).

Attachment researchers describe the influence of early attachment experiences on
the evolving internal representations of the self and others, and have begun to investigate how the internal working model of attachment influences future relationships, as well as affect regulating strategies in adulthood. Research studies (Bowlby, 1969; Bretherton, 1985; Tennant, 1988) on attachment styles in infancy and childhood have confirmed that the sensitivity and responsiveness of the primary caregiver to the child’s emotional states is a major determinant of the way the child learns to regulate distressing affects and to relate to other people. Children who are securely attached tend to be those who during their formative years experienced an optimal and consistent responsiveness from caregivers and subsequently learned that modulated emotional expression has positive outcomes. Individuals who received deficient caregiving tend to develop an insecure style of attachment and experience less positive affect than those with secure attachments. These individuals also have deficits in the ability to self-regulate anxiety, depression, and other negative affects (Parker, 1982). In families where expressed emotion is discouraged, and the child feels emotionally unsafe and insecure, the home environment can be detrimental to the child learning to manage their emotions. Lack of competent role models for the nonthreatening display of emotion may lead to discomfort or ambivalence in expressing feelings. The alexithymic construct tends to develop in those children who receive low, or inadequate, maternal care (Fukunishi, Sei, Morita, & Rahe, 1999). Affect development, and development of the requisite cognitive skills for regulating affects, are required for normal growth and development. Poor parental bonding, particularly with the mother, leads to difficulty in the mature articulation of feelings. It is well established that difficulty identifying and communicating feelings is associated with neuroticism and negative affectivity, consequences of insecure attachment (Montebarocci et al., 2004). Normal affect development is hampered when
parents are unable to read and respond to their infant’s emotional cues. Alexithymic individuals show a limited capacity to experience positive emotions such as joy, happiness and love in their interpersonal relationships. Lacking knowledge of their own emotional experiences, alexithymic individuals cannot readily imagine themselves in another person’s situation. Consequently, they are often unempathic, ineffective in recognizing emotional cues, and lacking in self-confidence (Goleman, 1995; Krystal, 1988).

**Boredom and Alexithymia**

Alexithymia has also been associated with boredom. Although a common human experience, boredom is anything but trivial; in fact, it is associated with significant emotional distress. A number of studies have found correlations between chronic boredom and a range of psychosocial problems. Most notably, correlations between boredom and various types of negative affect have been well documented, especially in studies that have correlated boredom proneness with depression and anxiety (Gordon, Wilkinson, McGown, & Jovanoska, 1997; Vodanovich & Verner, 1991).

J. D. Eastwood, Cavaliere, Fahlman, and E. Eastwood (2007) studied boredom, emotional awareness, and external orientation, finding that boredom, emotional awareness, and external orientation are psychometrically distinct. This indicates that the bored individual lacks emotional self-awareness and instead maintains an external orientation. Thus, although the bored individual focuses on the external world and how it fails to satisfy them, the underlying problem is actually this lack of emotional awareness. These findings are consistent with psychodynamic theory, which posits that boredom is associated with impaired emotional awareness and the result of internal psychological processes, rather than an impoverished external environment.
The finding that boredom and alexithymia are highly correlated, yet distinct, raises some noteworthy questions: are past findings regarding the relation between alexithymia and psychopathology better accounted for by boredom, or are past findings regarding the relation between boredom and psychopathology better accounted for by alexithymia? Past research has shown that both boredom and alexithymia are associated with various forms of psychopathology, including somatization (Lipsanen, Saarijarvi, & Lauerma, 2004; Sommers & Vodanovich, 2000), disordered eating (Quinton & Wagner, 2005; Stickney & Miltenberger, 1999), and depression and anxiety (Hendryx, Haviland, & Shaw, 1991; Sommers & Vodanovich, 2000).

The tendency to become bored has also been positively linked with measures of hopelessness (Farmer & Sundberg, 1986), loneliness (Farmer & Sundberg, 1986), hostility and anger (Rupp & Vodanovich, 1997), amotivational orientation (Farmer & Sundberg, 1986), and alcohol or drug use (Coombs, Richardson, & Paulson, 1990). These associations with negative affect and maladaptive behaviors are particularly disconcerting given that boredom is common and often not taken seriously in psychological research or in society more generally.

**Alexithymia and Satisfying Romantic Relationships**

The ability to establish and maintain a satisfying romantic relationship requires an ability to identify emotions, as well as the ability to self-disclose these emotions to one’s partner (Carton, Kessler, & Pape, 1999; Meeks, Hendrick, & Hendrick, 1998; Noller, 1980). Everaerd (1988) asserted that sex is an emotion. Brody (2003) studied 54 female and 39 male healthy young adults who completed the Toronto Alexithymia Scale (TAS-20), and provided both recall and diary measures of penile-vaginal intercourse, partner sex without vaginal intercourse, and masturbation. For women, TAS-20 scores were
inversely associated with both recall and diary measures of penile-vaginal intercourse, but not other sexual behavior. For men, TAS-20 scores were unrelated to all sexual behavior measures. Among both sexes, alexithymia was reported to be elevated in those with hypoactive sexual desire (Madioni & Mammana, 2001). Humphreys et al. (2008) concluded that alexithymia, including difficulties identifying bodily sensations such as arousal, is associated with lower levels of sexual satisfaction. The failure to communicate these feelings or recognize these cues negatively impact overall sexual satisfaction.

In order to understand the psychological make-up of individuals who participate in high-risk sports, such as cave divers, a discussion of emotion regulation is relevant. Interest in emotion regulation developed from Zuckerman’s work on sensation seeking (Zuckerman 1987, 1990) as other researchers questioned what psychological functions such behaviors might serve. The study of emotion regulation has looked at constructs such as self-awareness, interpersonal relationships, psychopathology, anxiety, and alexithymia in individuals who engage in high-risk sports. The connection to the present study lies in the implications that the personality traits associated with risk-taking have for intimate relationships.

**Emotion Regulation**

Emotion regulation, as described by Gross (1998), “refers to the processes by which individuals influence which emotions they have, when they have them, and how they experience and express these emotions. Emotion regulatory processes may be automatic or controlled, conscious or unconscious” (p. 275). Bargh and Williams (2007) describe emotion regulation as processes through which individuals modulate their emotions consciously and unconsciously, and appropriately respond to environmental
demands (Campbell-Sills & Barlow, 2007). Individuals deploy regulatory strategies to modify the magnitude and type of their emotional experience or the emotion-eliciting event (Diamond & Aspinwall, 2003; Gross, 1998). Successful emotion regulation is associated with good health outcomes and improved relationships (Brackett & Salovey, 2004; John & Gross, 2004). Poor emotional regulation has been associated with psychopathology, including Borderline Personality Disorder and Major Depressive Disorder (Berenbaum, Raghavan, Le, Vernon, & Gomez, 2003; Greenberg, 2002; Mennin & Farach, 2007).

Aldao, Nolen-Hoeksema, and Schweizer (2010) completed a meta-analysis of 114 studies that investigated six emotion-regulation strategies (acceptance, problem solving, reappraisal, avoidance, suppression, and rumination) and symptoms of four psychopathologies (anxiety, depression, eating disorders, and substance-related disorders). Acceptance, problem solving, and reappraisal are considered adaptive strategies, while avoidance, suppression, and rumination are maladaptive strategies. Acceptance as a regulatory strategy has been found to promote good outcomes (Heffner, Eifert, Parker, Hernandez, & Sperry, 2003). Reappraisal involves generating benign or positive interpretations or perspectives on a stressful situation as a way of reducing distress (Gross, 1998). Problem solving responses are conscious attempts to change a stressful situation or to contain its consequences. Suppression and avoidance have been observed as maladaptive responses to a variety of stressors contributing to depression, anxiety, and substance abuse (Carver, Scheier, & Weintrauh, 1989).

Aldao et al. (2010) found that problem solving and reappraisal were negatively associated with psychopathology, and avoidance, suppression, and rumination were positively associated with psychopathology. Reappraisal, problem solving, and
acceptance are emotion-regulation strategies that appear to be protective factors against psychopathology; while suppression, avoidance, and rumination are risk factors for psychopathology. Aldao et al.’s meta-analysis found that the effect size for rumination was large; the effect sizes for avoidance, problem solving, and suppression were medium to large; the effect sizes for reappraisal and acceptance were small to medium. This meta-analysis found that internalizing disorders (anxiety, depression) were more consistently associated with regulatory strategies than externalizing disorders (eating and substance-related disorders).

**Emotional Self-Regulation and High-Risk Sports**

Self-regulation theory (Carver & Scheier, 1981) is based on the theory of objective self-awareness (Duval & Wicklund, 1972). This theory states that attention can be focused on the self (referred to as self-awareness) or on the external world, and that important psychological processes are activated when attention is turned toward the self (Gibbons, 1990). The activation of goal-directed behavior is a vital consequence of self-awareness. According to the self-regulatory theory, attention focused on self leads to awareness of discrepancies between one's goal and one’s current status as regards that goal. Carver et al. (1981) proposed that individuals engage in purposeful actions to reduce such discrepancies. What happens when attempts to reduce goal discrepancies fail? Self-regulation theory proposes two possible strategies that individuals use to deal with self-regulatory disruption: escape and compensation.

According to Duval et al.’s (1972) objective self-awareness theory, the detection of these discrepancies leads to negative affect, and discrepancy reduction reflects the avoidance of negative affect. Thus, the easiest way to reduce negative affect is to disengage from the task, to turn attention away from self. Numerous studies have shown
that subjects exposed to contrived failure experiences engage in actions that reduce their level of self-awareness (Duval & Wicklund, 1972; Gibbons & Wicklund, 1976; Greenberg & Musham, 1981).

Self-regulatory theory suggests that specific personality traits identify and predict those individuals most prone to engaging in escapes from self-awareness. This theory contents that: all individuals are likely to experience persistent high levels of dispositional self-awareness necessitating escape and correlating positively with public and private self-awareness; escape is motivated by the desire to decrease the negative affect associated with experienced or anticipated negative life events; escape leads to anxiety, depression, and negative affect; escape occurs when an individual holds unfavorable expectancies about correcting or averting negative outcomes, escape is inversely correlated with a general measure of optimism; escape is most frequent in those prone to negative self-evaluation; and escape scores are inversely correlated with self-esteem (Taylor & Hamilton, 1997).

Compensation, or seeking alternate sources of self-worth, is an alternative path to dealing with the negative affect generated by self-regulatory disruption. Greenberg and Pyszczynski (1985) suggest that compensatory shifts are most likely among people concerned about maintaining a positive public self-image. This theory attempts to establish the following: public self-consciousness is more highly correlated with compensation than private self-consciousness; compensation scores are positively correlated with both public and private self-awareness; low and inverse correlations exist between compensation scale and measures of depression, anxiety, and negative affect, and finally that compensation is positively correlated with self-esteem. In contrast to escape behavior, a marginally adaptive response enacted by psychologically vulnerable
individuals, compensation is regarded as a psychologically healthy response enacted by those with a healthy self-concept. Research by Steele (1988) and colleagues suggests that the ultimate goal of self-regulation may be self-maintenance of self-worth and well-being.

Taylor and Hamilton (1997) investigated both self-regulatory motives for sensation seeking behavior, escape from self-awareness and compensatory self-regulation. In Zuckerman’s original model of sensation seeking (Zuckerman, 1971), individuals engage in exciting and dangerous activities as attempts to achieve a high level of cortical activation. According to this model, in order to maintain an optimal level of cortical activation, sensation seekers appear to require greater degrees of sensory stimulation than do non-sensation seekers. Those who chronically engage in stimulating and dangerous activities have a high need for cortical activation.

The motivations of participants in these sensation seeking activities have been examined by Taylor and Hamilton (1997), who concluded that high sensation seekers can be assigned to one of two groups: those whose motivation is escape and those whose motivation is compensation. The compensation risk taking profile is fixed to mastery of a specific skill and associated with the desire to act positively. The compensation risk taking profile is linked to strong expectations for success, constructive ways of forging one’s identity, and a psychologically well-balanced personality. Is it possible that the ZKPQ factors sociability and activity are related to the compensation profile?

In contrast, the escapist profile is associated with a pessimistic view of one’s actions, a desire to forget oneself, and a lower level of self-awareness. The escapist profile is positively correlated with depression, negative affect and state anxiety, and negativity correlated with optimism and self-esteem (Taylor & Hamilton, 1997). Is it
possible that the ZKPQ factors neuroticism-anxiety, aggression-hostility, and impulsive sensation seeking are related to the escapist profile?

Taylor and Hamilton (1997) proposed that sensation seeking can be used as a means to reduce self-awareness, or as a self-regulatory operation that maintains a particular self-image or level of self-esteem. Taylor and Hamilton (1997) cite a study by Levenson (1990) that supports their perspective. Levenson (1990) studied the relationship between personality and risk taking in three groups of risk takers: antisocial risk takers, (substance abusers), adventurous risk takers (rock climbers), and prosocial risk takers (firemen and policemen). He used Zuckerman’s Sensation Seeking Scale (SSS-V, Zuckerman, 1971), to measure Disinhibition and Thrill and Adventure Seeking. He found that Disinhibition correlated significantly with depression, psychopathy, emotionality, and substance abuse potential, which supported the view that escape from self-awareness is associated with indicators of poor psychological functioning. Thrill and Adventure Seeking, on the other hand, was not significantly correlated with any of these measures, which can be taken as supporting the tenet that compensation behavior implies a more complex and resilient self-concept, and thus is not associated with indices of psychological problems.

Cazenave, Le Scanff, and Woodman (2007) investigated 180 women engaged in; non-risk sports (Group 1); risk-taking sports for leisure purposes (Group 2); or risk-taking sports as professionals (Group 3). Each study participant was asked to read the following definition of risk-taking and asked to say whether she agreed with it: “Risk-taking, or the behavior of the risk-taker, is inherently linked to the voluntary self investment in a situation that contains, or is thought to contain, a significant degree of danger (threats, traps, dangerous obstacles) and the possibility of material damage (malfunction,
breakdown, breakage), bodily damage (injury, death), or both.”

Cazenave et al. found that two groups of women (Group 2 and 3) did not have the same psychological profile. The professional women (Group 3) had a risk-taking profile that was based on compensation. In this group, the confrontation with risk resulted in feelings of competence and self-knowledge. This compensatory auto-regulation appears linked with a more positive approach to the difficulties, as well as a greater ease in maintaining a feeling of well-being and a positive self-value (Thoits, 1992). For the professional women who engaged in the risk-taking, the process appeared constructive. The leisure psychological profile (Group 2) was based on escapism, and these women’s attitude towards risk may increase the danger for themselves and possibly for others.

This study also included the Toronto Alexithymia Scale. The study found that the alexithymic individuals (i.e. those with a total TAS-20 score greater than 56), in Group 1 was 19.42%, which is comparable to the percentage revealed in other studies carried out with non-pathological populations (Corcos & Speranza, 2003). The proportion of alexithymic individuals in Group 2 (non-professional risk-taking group) was 36.05% and Group 3 (professional risk-taking group) was 9.11%. This study also included the Sensation Seeking Scale. There was a significant difference between the groups for the total SSS score. Group 2 scored significantly higher than Groups 1 and 3, and that Group 3 scored significantly higher than Group 1. On the TAS subscale, there was a significant difference between the groups Group 2 scored significantly higher than Groups 1 and 3. Finally, for the ES subscale, there was a significant difference between the groups revealed that Group 2 scored significantly higher than Group 1. There were no significant differences between the groups on the remaining subscales (i.e. Disinhibition and BS).
The results revealed significant differences between the groups’ profiles. Of particular interest are the differences that exist between the profiles of Group 2 (escape profile, and high scores on sensation seeking, impulsivity, alexithymia) and Group 3 (compensation profile, average score on sensation seeking, and low scores on impulsivity, alexithymia). The study validated that women’s psychological profiles and emotional regulation characteristics, in relation to the engagement in risk-taking activities, would significantly differ. In fact, the professional risk-takers had a healthier psychological profile than leisure time risk-takers. Cazenave et al. (2007) thus proposed that the professional woman might be considered a model for preventing destructive risk-taking behaviors.

High-Risk Sports as Affect Regulation

Castanier, Le Scanff, and Woodman (2011) studied the moderating role of Self-regulatory strategies in 105 mountaineers and 73 judokas. Judokas are practitioners of the Japanese martial art judo, distilled from the earlier ancient and lethal samurai battlefield art named jujutsu, now a recognized Olympic sport and summer Olympic event since 1968. Mountaineering is a sport where the possibility of severe injury or death is an inherent part of the activity (Breivik, 1995; Llewellyn & Sanchez, 2008). Mountaineering is a demanding activity that involves aerobic and strength capacities, and requires a high level of physiological activation (Fyffe & Peter, 1997).

All study participants completed the Risk and Excitement Inventory and the Positive and Negative Emotions Scale before and after completing their activity (mountain route or judo match). The studied concluded that anxiety significantly decreased from pre/post mountain route and the tendency to use an escape self-regulatory strategy was associated with decreased anxiety. It was hypothesized that high-risk
activities allow one to regulate the physiological arousal associated with anxiety. Involvement in these activities would be a better emotion regulation strategy for anxious individuals than disinhibition behaviors, such as substance abuse. Also, the danger of mountaineering induces external and specific fear that may allow escape motivated individuals to move their nonspecific and internal source of anxiety to a more externally derived anxiety (Woodman et al., 2008).

Woodman, Cazenave, & Le Scanff, (2008) concluded that high-risk sport may be more attractive than other sports for anxious individuals, as it affords them an opportunity to experience and subsequently control their intense anxiety. The results revealed that the anxiety self-regulation process was specific to high-risk sport. Only escape mountaineers derived an immediate emotional benefit (i.e., a decrease in anxiety) from their activity. No such interaction emerged for the compensation strategy and no effects were revealed for judokas.

These results suggest that it is the high-risk specificity of mountaineering that allows one to regulate anxiety in the sport domain; that the high level of attention required in high-risk sport allows individuals to shift attention away from their own internal anxiety (Taylor & Hamilton, 1997). Thus, the practice of high-risk sport may be a means of anxiety regulation, allowing some people to experience an emotional benefit that they do not experience elsewhere (Barlow et al., 2007; Taylor & Hamilton, 1997; Woodman et al., 2009).

**Personality Types and High-Risk Sports**

Few studies have focused on high-risk sports in which the danger is recognized and socially accepted (Turner, McClure, & Pirozzo, 2004). However, personality is an important predictor of various risk-taking behaviors (Selosse, 1998; Vollrath, Knoch, &
Cassano, 1999), and neuroticism, extraversion, and conscientiousness are the most studied personality factors in this area (Bermudez, 1999; Clarke & Robertson, 2005; Vollrath & Torgersen, 2002).

Castanier, Le Scanff, and Woodman (2010) investigated the risk-taking behaviors of 302 men involved in high-risk sports (downhill skiing, mountaineering, rock climbing, paragliding, or skydiving). The participants were recruited via internet forums, both national forums for high-risk sports in general and those specific to a particular high-risk sport. The sportsmen were classified using a typological approach to personality based on Torgersen’s (1995) eight personality types, which were constructed from combinations of neuroticism, extraversion, and conscientiousness. Torgersen’s eight personality types include the impulsive, hedonist, insecure, spectator, complicated, entrepreneur, brooder, and skeptic. Personality was measured by the NEO Personality Inventory Revised Costa et al. (1992). Risk-Taking Behaviors were measured by the risk-taking behavior scale (Lafollie & Le Scanff, 2007): "When practicing my high-risk sport I have sometimes been involved in accidents (during the last 2 years) that are caused by my somewhat irresponsible attitude”; "I think I am very careful and far-sighted when I practice my high-risk sport"; "My friends or colleagues who are experts in the activity think that I take too many risks when I practice my high-risk sport."

Castanier et al. (2010) observed that the typological combinations of neuroticism, extraversion, and conscientiousness were largely successful in discriminating between self-reported low-risk and high-risk takers. Of Torgersen’s eight personality types the skeptic, brooder, and entrepreneur persons reported lower risk-taking behaviors, with skeptics also reporting significantly fewer accidents. Conversely, impulsive, hedonistic, and insecure persons reported greater risk-taking behaviors, with impulsives also
reporting significantly more accidents. Personality types with a configuration of low conscientiousness combined with high extraversion and/or high neuroticism (impulsive, hedonistic, insecure) were associated with greater risk-taking. Conversely, personality types with a configuration of high conscientiousness combined with low extraversion and/or high extraversion (skeptic, brooder; entrepreneur) were associated with lower risk-taking. Impulsive persons' risk-taking could be explained by their desire to enhance bodily sensation (Cooper, Agocha, & Sheldon, 2000) and their tendency to focus on satisfying immediate needs for stimulation, regardless of future consequences for themselves or others (Zuckerman, 1990).

Focusing on bodily sensations may also divert impulsives' attention from their ill being and problems (Taylor & Hamilton, 1997). If impulsives rely on mastering danger in order to experience relief and wellbeing, they are more likely to come to depend on risk-taking to regulate emotion (Pedinielli, Rouan, Gimenez, & Bertagne, 2005; Woodman et al., 2008; Woodman et al., 2009). It seems likely that ever increasing risk levels and the associated risk of accidents might be necessary to satisfy such people, despite their knowledge of the potential negative outcomes (Assailly, 2007).

**Alexithymia and High-Risk Sports**

**Agentic Emotion Regulation and Alexithymia**

Mountaineers are the most commonly studied group of high-risk sports enthusiasts (Woodman, Hardy, Barlow, & Le Scanff, 2010). Lester (2004) proposed that among the motives for mountaineering is the desire to feel agentic, the need to feel a sense of personal agency, in other words to feel as “a force expressing itself, rather than a pawn of other forces” (p. 94). This need is a great threat in interpersonal relationships, particularly those of a romantic nature. Zimmerman and Cleary (2006) described
personal agency as one’s capacity to originate and direct actions for a given purpose. Personal agency is influenced by the belief in one’s effectiveness in performing specific tasks, which is termed self-efficacy, as well as by one’s actual skill. Personal agency is a complex, dynamic and interactive system that allows an individual to be both responsive to an ever-changing environment and proactive in determining that environment (Bandura, 1997).

Lester (1983) studied a successful expedition to Mount Everest, which at 29,029 feet above sea-level is Earth’s highest mountain. Those who conquer Mount Everest must conquer altitude sickness, extreme weather, cold and wind. Lester observed that certain aspects of domestic life, specifically meaningful interpersonal romantic relationships, “were more stressful to the average team member than were the icy conditions in a fragile tent on a snowy ridge in a high wind with inadequate oxygen” (p. 34). The high-risk sports participant likely chooses the stress, toil, and tedium of prolonged exposure to the high-risk environment as a more attractive alternative to the perceived prolonged stress, toil, and tedium of long-term interpersonal relationships (Woodman et al., 2010). Given their difficulty with emotion, some alexithymic individuals find it easier to satisfy their emotional needs via high-risk sport, which is far less anxiety provoking, less threatening to these stalwart risk-takers than fundamental human intimacy; this group would rather risk their very lives than make themselves open and vulnerable to another human being!

The attraction of the prolonged engagement high-risk domain is that it enables people to initiate and modulate their own emotional expression, maintain their own internal locus of control (April, Dharani, & Peters, 2012), unlike real world human relationships which can be unpredictable. In other words, it is in such high-risk domains
that the person can escape the perceived uncertainty and ambiguity of relationships by acting in an emotionally agentic fashion (Lester, 2004). The high-risk domain provides the opportunity for alexithymic individuals to initiate their emotions and to be an agent of these emotions, personal agency. For these alexithymic individuals, difficulty with emotional expression is a likely motive for high-risk sport.

In a study of ocean rowers and mountaineers, Woodman et al. (2010) found that both groups had greater alexithymia than comparison groups. Further, mountaineers reported having the greatest difficulty in interpersonal relationship agency in those relationships that involve the greatest degree of emotional expression: loving partner relationships. Such individuals may unconsciously gravitate towards high-risk activities in order to satisfy an innate need for emotional agency, although any such satiation of this need is transitory because difficulty with expressing one’s emotion is considered a trait deficit.

When the need for emotion regulation is not satisfied within interpersonal relationships, the high-risk adventurer will likely continue to feel a strong pull toward high-risk adventures as a respite from relationship dilemmas. The danger is that the person will take even greater risks in an ever more emotionally demanding and already high-risk domain (Woodman et al., 2010). These high-risk adventurers spend long periods of time away from home to escape the perceived difficulty of everyday human relationships and to experience agentic emotions; they will likely continue pushing their limits to ensure renewed emotion. Such constant pushing of boundaries in a life-threatening environment could result in greater risks being taken with the potential consequences being all too clear (Slanger & Rudestam, 1997).
Alexithymia, Anxiety, and Skydiving

Mikolajczak and Luminet (2006) proposed that alexithymic individuals have difficulty distinguishing physical arousal from emotional arousal or anxiety. In contrast, non-alexithymic individuals are less likely to associate physiological arousal with anxiety, and as a group non-alexithymic individuals who engage in the high-risk activity do so for reasons other than emotion regulation.

The prevalence of alexithymia in the general population is 8%-27%; however, among women who participate in sky-diving, the prevalence of alexithymia scored at 33% (Corcos & Speranza, 2003). Woodman, Cazenave, Le Scanff, & (2008) found that alexithymic women who participated in risk-taking sports had higher anxiety than their nonalexithymic counterparts and among a group of female sky-divers, alexithymia was a moderator of anxiety fluctuations before and after performing a skydive. That is, alexithymic women’s anxiety significantly decreased as a function of performing a skydive and their anxiety significantly increased within 90 minutes of landing. No such differences were revealed for the nonalexithymic women.

In Woodman et al.’s (2008) study of alexithymic women, skydiving appeared to be an effective emotion regulation mechanism, as their anxiety drops considerably as a consequence of performing a skydive. However, these emotional benefits appear to be short-lived, lasting less than two hours after landing, which suggests that these women might come to depend somewhat on risk-taking activities as a means of managing their negative affect. In the nonalexithymic skydiver group, anxiety remains comparatively low and stable throughout the high-risk activity. This seems to suggest that any underlying motive for engaging in high-risk sport for nonalexithymic women is not associated with a (conscious or unconscious) desire to experience anxiety fluctuations.
Woodman, Huggins, Le Scanff, and Cazenave (2009) describe how high-risk activities have almost always been studied using Zuckerman’s sensation seeking scale. Adding to the literature, Woodman et al. (2009) examined why and how alexithymic skydivers satisfy their emotion regulation needs. The study included 98 experienced skydivers who completed the Toronto Alexithymia Scale, State Trait Anxiety Inventory (Spielberger, 1983), and the Sensation Seeking Scale.

Woodman et al. (2009) found that only alexithymic skydivers experienced a significant anxiety fluctuation over the course of the skydive; whereas, nonalexithymic individuals experienced no such anxiety fluctuations (Woodman et al, 2009). These findings suggest that the high-risk sport environment may specifically help alexithymic persons to regulate their anxiety, suggesting a need for emotional self regulation.

Ineffective emotion regulation has been known to have both short-term and long-term consequences, such as an impoverished emotional life (Gilligan & Bower, 1984) and physical or mental malaise (King & Emmons, 1990). If emotion regulation is an important determinant of risk-taking behavior, alexithymia is likely to be a useful construct for exploring the mechanisms that underlie this relationship.

Summary

Participating in various risky or extreme sports has been examined by personality researchers since the 1960s (Zuckerman, 2007; Levenson, 1990). Since there is very limited literature on the relationship challenges of extreme sports enthusiasts, psychotherapists and psychologists have not had a working paradigm with which to understand the interpersonal dynamics of these highly motivated and unique individuals. There is an absence of literature that describes the interpersonal relationships of extreme sports participants such as cave divers. Studies (Karney & Bradbury, 1997; Saxena,
Dubey, & Pandey, 2011; Taylor & Hamilton, 1997) have consistently found that personality traits such as high levels of neuroticism and alexithymia, and the emotional regulation strategy of escapism all have a negative impact on the enthusiast’s relationships with others. The current research was designed as an exploration into how the cave diver’s personality traits and emotional regulation impact the dyadic adjustment of the diver. Because of the void in the literature, more research on cave divers and their intimate relationships is needed.
Chapter III

METHODOLOGY

Chapter III includes a description of the research design and discusses the rationale for the approach. In addition, the sample population, participant selection, research procedures, and instrumentation are also described. Lastly, issues of external validity, data analysis, assumptions, and limitations are discussed. The aim of this study was to investigate the relationship between dyadic adjustment, personality traits, and alexithymia in cave divers.

Research Design and Rationale

This investigation used a correlational research design to explore the interrelationships among dyadic adjustment, personality factors, and alexithymia as measured by the Dyadic Adjustment Scale (Spanier, 1976), the Zuckerman Kuhlman Personality Questionnaire (Zuckerman et al., 1993), and the Toronto Alexithymia Scale (Bagby et al., 1994). Correlational research is a general approach to research that focuses on assessing the relationships among naturally occurring variables. The goal of correlational research is to identify predictive relationships by using either correlations or more sophisticated statistical techniques such as multiple regression (Isaac & Michael, 1997). A predictive correlational design was used in this study because it allows for the examination of the degree of relationship that exists between two variables. This research is cross-sectional in nature in that the variables of interest in a sample of cave divers was evaluated and the relationships among the variables were determined.

The data was gathered through an online survey. This survey was accessible from any computer with Internet access; participants were able to complete the questionnaires at their convenience. Survey research provides an accurate and efficient means for
describing people’s thoughts, opinions, and feelings (Best & Kahn, 2006). The survey consisted of a demographics questionnaire (Appendix A), the Dyadic Adjustment Scale (Spanier, 1976; Appendix B), the Zuckerman Kuhlman Personality Questionnaire (Zuckerman et al., 1993; Appendix C), and the Toronto Alexithymia Scale (Bagby et al., 1994; Appendix D).

**Predictor and Criterion Variables**

In this study, the predictor variables were measured by the Zuckerman Kuhlman Personality Questionnaire (ZKPQ) and the Toronto Alexithymia Scale (TAS-20). The scales of the ZKPQ include 1) neuroticism-anxiety which describes emotional upset, tension, worry, fearfulness, obsessive indecision, lack of self-confidence, and sensitivity to criticism, 2) activity, the first factor describes the need for general activity and impatience and restlessness when there is nothing to do and the second factor indicates a preference for challenging and hard work and lot of energy for work and other tasks, 3) sociability, the first group of items describes a liking of big parties, interacting with many people and having many friends and the second group indicates an intolerance for social isolation in highly sociable subjects and a liking or tolerance for isolation in unsociable subjects, 4) impulsive sensation seeking, divided into impulsivity items which describe a lack of planning and a tendency to act quickly on impulse without thinking and sensation seeking items describing a general need for thrills and excitement, a preference for unpredictable situations and friends, and the need for change and novelty and 5) aggression-hostility, which reflects a readiness to express verbal aggression including rude, thoughtless or antisocial behavior, vengefulness, spitefulness, a quick temper and impatience with others. Although there are 3 factors of the Toronto Alexithymia
Scale. This study used TAS-20 total score.

The criterion variable for this study was measured by the Dyadic Adjustment Scale.

**Research Questions and Hypotheses**

The research questions and corresponding hypotheses for this study are:

1. What is the relationship between neuroticism-anxiety and dyadic adjustment?
   
   \( H_1 \): Among cave dives, there is a significant negative correlation between neuroticism-anxiety and dyadic adjustment.
   
   \( H_0 \): There is no significant correlation between neuroticism-anxiety and dyadic adjustment among cave divers.

2. What is the relationship between aggression-hostility and dyadic adjustment?
   
   \( H_2 \): Among cave dives, there is a significant negative correlation between aggression-hostility and dyadic adjustment.
   
   \( H_0 \): There is no significant correlation between aggression-hostility and dyadic adjustment among cave divers.

3. What is the relationship between impulsive sensation seeking and dyadic adjustment?
   
   \( H_3 \): Among cave dives, there is a significant negative correlation between impulsive sensation seeking and dyadic adjustment.
   
   \( H_0 \): There is no significant correlation between impulsive sensation seeking and dyadic adjustment among cave divers.

4. What is the relationship between activity and dyadic adjustment?
H₄: Among cave dives, there is a significant positive correlation between activity and dyadic adjustment.

H₀: There is no significant correlation between activity and dyadic adjustment among cave divers.

5. What is the relationship between sociability and dyadic adjustment?

H₅: Among cave dives, there is a significant positive correlation between sociability and dyadic adjustment.

H₀: There is no significant correlation between sociability and dyadic adjustment among cave divers.

6. What is the relationship between alexithymia and dyadic adjustment?

H₆: Among cave dives, there is a significant negative correlation between alexithymia and dyadic adjustment.

H₀: There is no significant correlation between alexithymia and dyadic adjustment among cave divers

Participants

Participants were limited to adult male cave divers who are currently married or in a committed relationship. Participants for the study were 100 adult male cave divers, which is greater than the minimum number of participants needed to test the hypotheses at a statistical power of .80, assuming an alpha of .05 and a medium effect size (Cohen, 1988). Statistical power is the probability that a statistical significance test will correctly reject the null hypothesis, more simply put, it is the ability of a statistical test to detect an effect, given that the effect actually exists.

Procedure

An email (Appendix E) and a flyer (Appendix F) were sent to points of contact at
the major cave diving organizations and professional groups outlining this study, stating the length of time required to complete the survey, and an explanation on participant anonymity. The flyer provided information regarding the study, the length of time required to complete the survey, participant anonymity, contact information, as well as providing the link to access the survey on-line. The email requested the points of contact post the invitation to participate on electronic forums, listservs, and homepages viewed by their community members. The cave diving organizations and professional groups include: the National Speleological Society Cave Diving Section (NSS-CDS) http://www.nsscds.com; Global Underwater Explorers (GUE) http://www.gue.com; Cave Divers Association of Australia (CDAA) http://www.cavedivers.com.au; the Cave Diving Group (CDG) http://www.cavedivinggroup.org.uk; the Woodville Karst Plane Project (WKPP) and the North Florida Springs Alliance (NFSA) http://www.northfloridaspringsalliance.org. A flyer (Appendix G) was sent to the following Cave Diving Forums: Cave Diver's Forum http://www.cavediver.net, The Deco Stop http://thedecostop.com, and the Global Underwater Explorers Forum http://forum.globalunderwaterexplorers.org. This flyer (Appendix G), was also posted at local dive shops that specifically cater to cave divers in north central Florida and was posted on this researchers Facebook page that has over 500 cave diver contacts. The flyer directed interested participants to a secure, electronic page on SurveyMonkey™ through a hyperlink.

Upon accessing SurveyMonkey™, the participants viewed an informed consent page (Appendix H) pursuant to IRB protocols. The informed consent explained the nature of the study and stated participation was completely voluntary. It also provided the contact information for the researcher, the Barry University Chairperson, and the
Institutional Review Board point of contact. Participants who continued provided their consent by clicking on the “I agree” button. Accepting the terms of the form and agreeing to continue allowed participants to proceed to the next page, the demographics portion of the survey. After answering these questions, participants were directed to three web-based questionnaires housed in SurveyMonkey™. Volunteers completed: 1) a demographics questionnaire (5 minutes); 2) the Dyadic Adjustment Scale (10 minutes); 3) the Zuckerman Kuhlman Personality Questionnaire (20 minutes); 4) the Toronto Alexithymia Scale (10 minutes). Once the questionnaires were completed, participants were thanked for their participation. Participants who opted not to participate were directed to a page that stated they had chosen not to participate, and they were thanked as well. Participants were informed that they may decline to participate or withdraw from the study as anytime, without any negative consequences.

SurveyMonkey™ employs a Secured Sockets Layer of encryption during transmission of survey data, which prevents tracking of Internet Protocol addresses, and participants remain anonymous. The online data provided by participants was encrypted and stored electronically on SurveyMonkey.com™ data servers in the United States. These servers are kept in a locked, wire mesh cage that requires a keycard and biometric recognition for entry. The wire mesh cage is essential to prevent possible unintended wireless access. These servers are monitored through surveillance on a constant basis. In addition to these security measures, a firewall restricts access to network ports, and audits are performed. SurveyMonkey.com™ has a privacy policy that indicates that participant information and data will not be used for other purposes. When participants completed the survey, SurveyMonkey™ notified the researcher via an interactive log-in procedure that allowed the researcher to view the participants’ responses without any identifying
information (SurveyMonkey™, 2009).

Instrumentation

Demographic Questionnaire

A demographic information questionnaire was completed by study participants. Data collected was used to describe the characteristics of participants as a group. Information collected included participants’: age, gender, marital status, years and number of times married or in a committed relationship, number of children living in the home; educational level, nationality, race / ethnicity, country residing in, occupation, current work status, and personal annual income. Cave diver specific data included years as a certified scuba diver, years as a certified cave diver, number of cave dives completed, cave dives in the last twelve months, highest level of cave diver certification/training, and recreational vs. professional cave diver.

Dyadic Adjustment Scale

This study utilized the Dyadic Adjustment Scale, which was designed to measure dyadic adjustment in couples. The scale was developed by Spanier (1976) in an attempt to assess the quality of a marriage or other similar dyads. Spanier and Cole (1974) proposed that dyadic adjustment is a process rather than an unchanging state and that adjustment is an ever-changing process with a qualitative dimension, which can be evaluated at any point in time on a dimension from well adjusted to maladjusted.

The 32 item Dyadic Adjustment Scale consists of various measurement items including 15 Likert-type items that participants rate on a 6-point scale (1 = always agree; 6 = always disagree). A second set of 7 Likert-type items that participants rate on a 6-point scale (1 = all the time; 6 = never). A third set of 2 Likert-type items that participants rate on a 5-point scale (1 = every day; 5 = never). A forth set of 2 Likert-
type items that participants rate on a 2-point scale (1 = yes; 2 = no). A fifth set of 1 Likert-type items that participants rate on a 7-point scale (1 = extremely unhappy; 7 = perfect). The last question is future oriented and has six possible selections ranging from “I want desperately for my relationship to succeed” through “My relationship can never succeed.”

The Dyadic Adjustment Scale has a coefficient alpha reliability of .96 (Spanier, 1976) with a scoring theoretical range from 0 to 151. The higher the score indicates higher satisfaction. The items within the scale have been evaluated for content validity. The scale also offered a criterion-related validity in that it has measured differences between married individuals and divorced individuals showing a significant difference. This scale also has construct validity due to the fact that all of the items came from other scales that had been used in marital adjustment assessments.

Zuckerman Kuhlman Personality Questionnaire

This study utilized the Zuckerman Kuhlman Personality Questionnaire (ZKPQ; Zuckerman et al., 1993) which was designed to measure basic factors of personality. The scale was developed by Zuckerman and Kuhlman (1993) in an attempt to define the basic factors of personality or temperament in a top-down approach from personality traits through level of intermediate biological levels to the genetic bases of personality traits (Zuckerman, 1993). The ZKPQ scale is a 99-item dichotomously scaled (true/false) instrument that was designed to include items in five areas that are considered the Alternative Five Factor Model of Personality. The five areas are (1) Neuroticism-Anxiety; (2) Aggression-Hostility; (3) Impulsive Sensation Seeking; (4) Sociability; and (5) Activity.

Zuckerman (2002) reported Cronbach’s alpha coefficients for all scales in an
American sample ranged between .70 and .80. American students (n = 153) were tested twice on the ZKPQ with an interval at three to four weeks. Test-retest reliability were: Neuroticism-Anxiety, .84; Aggression-Hostility, .78; Impulsive Sensation Seeking, .80; Sociability, .83; and Activity, .76.

**Toronto Alexithymia Scale**

The Toronto Alexithymia Scale (TAS-20; Bagby et al., 1994) is an instrument consisting of 20 items that was constructed to formally assess the personality construct of alexithymia. The TAS-20 consists of 20 Likert-type items that participants rate on a 5-point scale (1 = strongly disagree; 5 = strongly agree). This scale has three distinct subscales measuring the following factors: (a) Factor 1: Difficulty Identifying Feelings; (b) Factor II: Difficulty Describing Feelings; (c) Factor III: Externally-Oriented Thinking. Scores can range from 20 to 100 with the higher numbers representing a higher tendency for the Alexithymia construct (Guttman & Laporte, 2002).

The TAS-20 has been cross-culturally tested in 18 languages and the construct maintains reliability (Parker, Taylor, & Bagby, 2003). The Cronbach’s alpha coefficient in every language except for the Polish sample ranked at greater than or equal to .70, which is the recommended standard for establishing internal reliability. When looking at the individual factors the reliability still remained very high. For Factor 1, all of the samples were greater than .70. For factor 2, the alpha coefficient fell between .60 and .70 in all but four samples. In the case of factor 3, the reliability was adequate in the majority of the samples, but was unacceptably low in few samples (Parker et al. 2003).

**Confidentiality**

All participants were informed that participation was strictly voluntary and they could withdraw at any time during the study with no adverse effects whatsoever. They
were told, as a research participant, the information they provided would be completely anonymous as no names or other identifiers would be collected on the surveys. Data results were only be reported in aggregate form, with no reference to any specific participant. All data will be destroyed after five (5) years.

**Limitations**

The greatest limitation of correlational research is the problem of interpreting causal relationships. Another potential problem with this type of design is that some uncontrolled variable may be responsible for the observed relationship between the variables being considered (Isaac & Michael, 1997). Due to these problems, correlational research cannot be used to establish causal relationships among variables. This design was appropriate to the purpose of the study as the goal is to establish associations among variables and not to infer causality. Although the internal validity of correlational designs is limited, sample selection was done in a way as to maximize the external validity of the study. Additionally, the participants in this study were volunteers who self-select to participate in the study. Lastly, due to the anonymity constraints of this investigation, there would be no allowance for follow-up with the participants.

**Assumptions**

The researcher assumed that participants were honest in answering the questions on the inventory administered; however, there is a possibility that some individuals might have responded in a socially desirable manner. A second assumption is that participants possess the requisite reading level allowing them to comprehend and complete the survey.

**Data Analysis**

The data collected in this investigation was analyzed using the Statistical Package
for the Social Sciences for Windows, Version 19.0 for Students software (SPSS, Chicago, Ill). Correlational analyses were conducted to assess the relationships among the variables.

**Summary**

The goal of this study was to investigate the relationship between dyadic adjustment, personality, and alexithymia in cave divers and their spouses/partners. A correlational approach was used to examine the relationship between these variables as measured by Dyadic Adjustment Scale, Zuckerman Kuhlman Personality Questionnaire and the Toronto Alexithymia Scale. Chapter III described the research design used to examine the research questions presented in this study. It also described the independent and dependent variables, the instrumentation, the participants, and the procedures. Assumptions, delimitations, and limitations affecting the study were also discussed.
CHAPTER IV
RESULTS

This chapter provides a comprehensive analysis of the data obtained from the study. Descriptive statistics and inferential statistics are presented in this chapter. The first section provides participant demographics and descriptive statistics of this data. The statistical analysis was conducted using the Statistical Package for the Social Science for Windows, SPSS Version 19.0 software. Data were collected via an on-line survey consisting of a demographics questionnaire and three self-report instruments: 1) Dyadic Adjustment Scale, 2) Zuckerman Kuhlman Personality Questionnaire, and 3) Toronto Alexithymia Scale. Data were analyzed using correlations with a significance level of 99% in order to assess the relationship between the variables of interest. This study was conducted with adult male cave divers who were either married or in a committed relationship. The participants were recruited from online cave diver’s forums listservs, cave diving organizations homepages and cave diving newsletters.

Descriptive Statistics

A total of 414 surveys were started on-line, however, only 268 participants met the study requirements and completed all the questionnaires. Descriptive statistics were computed for the following demographic variables: age, marital status, years married or in a committed relationship, number of times married or in a committed relationship, number of children living in residence, education, nationality, race-ethnicity, country residing in, years scuba diving, years cave diving, total number of cave dives, number of cave dives in last 12 months, highest level of certification/training, recreational vs. professional cave diver status, occupation, current work status, and current personal annual income.
Age

The participants’ age in this study ranged from 25 years old to 71 years old, with a mean of 45 years old and a standard deviation of 25.70. The largest age group (33%) was the 36-45 years old, followed by the 46-55 years group (27%).

Marital Status

The majority of the participants, seventy-six percent (196 participants), were either married or in a committed relationship. Those who identified themselves as living together were the next largest group at 14 percent (37 participants). The remaining 10% of participants’ were either in a domestic partnership, divorced, separated, or widowed.

Years Married or in a Committed Relationship

Years married or in a committed relationship ranged from less than one to 44 years, with a mean of 14.68 and a standard deviation of 10.27. Twenty-three percent (61 participants) reported having been married or in a committed relationship five years or less. Forty-eight cave divers or 18% were either married or in a committed relationship between 6 and 10 years. The second largest group 54 participants (20%) were either married or in a committed relationship between 11 and 15 years. Thirty-three participants or 12% report being married or in a committed relationship 16-20 years. Forty-eight participants (18%) report be married or in a committed relationship 21-30 years and 23 participants (9%) report being either married or in a committed relationship for + 30 years.

Number of Times Married or in a Committed Relationship

The participants’ number of times married or in a committed relationship ranged from less than one to 8, with a mean of 1.62 and a standard deviation of 0.97. A substantial number of participants 150 (57%) report being married or in a committed
relationship only once. Twenty-eight percent or 74 participants report being married or in a committed relationship twice. Fifteen percent of the participants were married more than two times.

**Number of Children Living In Your Residence**

The participants’ number of children living in their residence ranged from 0 to four, with a mean of 0.6 and a standard deviation of 0.94. One hundred and seventy-three participants (57%) had no children living in their home. Thirty-six participants (13%) only had 1 child at home. Forty-five participants (17%) only had 2 children at home. Only 10 participants or 4% had 3 children at home. There were only 2 participants who reported 4 children at home. Considering that the average age of the participants was 45 years, it is not surprising that the majority of them did not have children living at home.

**Education**

Cave divers tend to be an educated group, as 94% had at least some college. Ninety-six participants (36%) had a graduate degree (Master's, Ph.D., J.D., M.D., etc.), 91 participants (34%) had an undergraduate degree, and 63 participants (24%) reported some college. Only 6% (17 participants) had a high school diploma or equivalent certificate as their highest level of education.

**Nationality**

Nationalities of the 252 participants who responded to this study were represented as follows: 164 United States, 27 United Kingdom, 15 Sweden, 12 Canada, 8 Australia, 6 Germany, 4 Netherlands, 4 Poland, 3 Finland, 3 Ireland, 2 Czech Republic, 2 Italy, 2 Switzerland, 1 Puerto Rico, 1 Slovakia, 1 Ukraine, 1 United Arab Emirates.

**Race / Ethnicity**

Two hundred and forty-four participants (91%) identified themselves as
Caucasian - non-Hispanic, the remainder identified as: Caucasian - Hispanic/Latino 7, Black - African American 2, Asian 1, American Indian 1, Biracial 1, and 11 identified themselves as other.

**Country Residing In**

Countries of residence of the 266 participants who responded to this question represented as follows: 178 United States (67%), 40 (15%) other, 19 United Kingdom (7%), 11 Australia (4%), 9 Canada (3%), 5 Germany (2%), 3 Mexico (2%).

**Years Scuba Diving**

The participants’ years of scuba diving ranged from less than 1 to 53, with a mean of 20.07 and a standard deviation of 11.88. Twenty-four percent (63 participants) report scuba diving between 1 and 10 years. Thirty-five percent (93 participants) report scuba diving between 11 and 20 years. Twenty-one percent (56 participants) report scuba diving between 21 and 30 years. Fourteen percent (38 participants) report scuba diving between 31 and 40 years. Six percent (17 participants) report scuba diving between 41 and 53 years.

**Years Cave Diving**

The participants’ years of cave diving ranged from less than 1 to 45, with a mean of 9.86 and a standard deviation of 8.93. Forty percent (107 participants) report cave diving between 1 and 5 years. Twenty-six percent (70 participants) report cave diving between 6 and 10 years. Twenty-three percent (62 participants) report cave diving between 11 and 20 years. Eleven percent (28 participants) report cave diving between 21 and 45 years.

**Total Number of Cave Dives**

The participants’ total number of cave dives ranged from 5 to 3500, with a mean
of 335.6 and a standard deviation of 532.33. Forty-one percent (110 participants) report total cave dives between 1 and 100. Thirty-eight percent (100 participants) report total cave dives between 101 and 500. Eleven percent (30 participants) report total cave dives between 500 and 999. Five percent (12 participants) reported more than 1500 cave dives. For the current study these three categories were based on the NSS-CDS safety awards. At the completion 100 safe cave dives, the cave diver has achieved the Abe Davis Safe Cave Diving Award; at the completion 500 dives, the cave diver has achieved the Nicholson Safe Cave Diving Award; at the completion 1000 dives, the Sheck Exley Safe Cave Diving Award.

Cave Dives in Last 12 Months

The participants’ cave dives in the last 12 months ranged from 0 to 300, with a mean of 31.14 and a standard deviation of 42.56. The largest number of participants (126 cave divers or 38%) reported total cave dives in the last 12 months between 1 and 25; 65 participants (19%) reported between 26 and 50; 23 participants (7%) between 51 and 100; 11 participants (3%) more than 100 cave dives; 110 participants (33%) report not making a single cave dive in the last 12 months.

Highest Level of Certification/Training

Cave diving organizations have different standards, and as a result, the descriptions of the certifications are slightly different. The NSS-CDS defines their certification levels as Basic-Intro Cave Diver, Apprentice Cave Diver, and Full Cave Diver. Participants’ who identified with these description levels included: 14 (4%) Basic-Intro Cave Diver, 9 (3%) Apprentice Cave Diver, and 127 (40%) Full Cave Diver. The Global Underwater Explorers define their levels as Cave 1, Cave 2, and Cave 3. Participants’ who identified with these description levels included: 19 (6%) Cave 1, 24
(8%), Cave 2, and 6 (2%) Cave 3. Since there are specialty levels of certification, this demographic question allowed the participant to choose more than one category. These specialty levels participants identified themselves as include 55 (17%) exploration cave divers, 38 (12%) rebreather cave divers, and 25 (8%) as cave diving instructors.

**Recreational vs. Professional Cave Diver**

Only 6 (2%) out of 267 participants who responded to this question describe themselves as a professional cave diver who derives their primary income from cave diving. Two hundred sixty-one (98%) considered themselves recreational cave divers.

**Occupation**

The participants’ reported occupations were 51 (22%) management, 18 (8%) business, financial, legal, 73 (32%) computer, engineering, scientists, 19 (8%) education, training, library, 7 (3%) entertainment, sports, & media, 17 (8%) healthcare, 10 (4%) law enforcement, firefighters, 7 (3%) sales, 8 (4%) farming, fishing, and forestry, 12 (5%) construction, automotive, electronics, and 7 (3%) factory, machinists, welders. Additional reported occupations included 10 military, 9 who owned a scuba-cave diving center, 1 charter boat captain, 6 scuba-cave diving instructors, and 1 underwater cinematographer. Also listed were an aircraft test pilot, military pilot, antiques trader, and marine engineer.

**Current Work Status**

The participants’ current work status included 224 (85%) employed - full time, 13 (5%) employed - part time, 19 (7%) retired, 4 (2%) unemployed, and 3 (1%) attending school - full time. The majority of the participants were employed full time.

**Current Personal Annual Income**

The participants’ current personal annual income was reported as: 9 (4%) $10,000
- $20,000, 11 (4%) $20,001 - $30,000, 11 (5%) $30,001 - $40,000, 18 (7%) $40,001 - $50,000, 17 (7%) $50,001 - $60,000, 31 (13%) $60,001 - $70,000, 18 (7%) $70,001 - $80,000, 17 (7%) $80,001 - $90,000, 17 (7%) $90,001 - $100,000, and 94 (39%) greater than $100,001. The largest percentage of the participants made more than $100,000 annually.

Summary of Demographics

The 268 participants in this study had an average age of 45 years, and were typically married or in a long-term committed relationship with no minor children living in the home. The United States represented more study participants and all other nationalities combined.

The participants’ years of scuba diving ranged from less than 1 year to 53 years, with an average of 20 years. Years of cave diving ranged from less than 1 year to 45 years, with an average of 10 years. The majority of participants have over 100 safe cave dives logged, with slightly less than half having under 500 cave dives. The majority of participants reported completing cave dives in last 12 months, and only one-third report not making a single cave dive in the last year. The majority of participants identified themselves as holding traditional cave diving certification, followed by lesser numbers of instructors, exploration cave divers, and those certified for rebreather cave diving.

Employed full time in management, business, financial, legal, computer, engineering, science, and education, the overwhelming majority of participants had at least some college, with slightly more than one-third holding graduate or advanced degrees (Master's, Ph.D., J.D., M.D., etc.). As would be expected given the expense of specialty equipment and extensive travel involved, the largest percentage of the participants report annual income of greater than $100,000.
Inferential Statistics

The Dyadic Adjustment Scale (DAS) consists of 32 Likert-type items. Scores can range from 0 to 151. Higher scores indicate higher satisfaction.

The Zuckerman Kuhlman Personality Questionnaire (ZKPQ) scale is a 99-item dichotomously scaled (true/false) instrument that was designed to include items in five areas that are considered the Alternative Five Factor Model of Personality. The five areas are (1) Neuroticism-Anxiety; (2) Aggression-Hostility; (3) Impulsive Sensation Seeking; (4) Sociability; and (5) Activity.

The Toronto Alexithymia Scale (TAS-20) is an instrument consisting of 20 items that was constructed to formally assess the personality construct of alexithymia. The TAS-20 consists of 20 Likert-type items that participants rate on a 5-point scale (1 = strongly disagree; 5 = strongly agree). Scores can range from 20 to 100 with the higher numbers representing a higher level of alexithymia.

Pearson correlation coefficients were computed to test the research hypotheses. In order to control the overall Type I error, the Bonferroni correction procedure was used to set the level of significance to .01 for the correlational analyses.

Research Question 1: What is the relationship between neuroticism-anxiety and dyadic adjustment?

Hypothesis 1: Among cave dives, there is a significant negative correlation between neuroticism-anxiety and dyadic adjustment.

Null Hypothesis 1: There is no significant correlation between neuroticism-anxiety and dyadic adjustment among cave divers.

The correlation between neuroticism-anxiety, as measured by ZKPQ, and dyadic adjustment, was significant, r (255) = -.22, p < .001). Therefore, the first null hypothesis
was rejected. The coefficient of determination was $R^2 = .048$, indicating that only 4.8% of the variance in neuroticism-anxiety was accounted for by the variance in dyadic adjustment. Lower levels of neuroticism-anxiety were associated with higher levels of dyadic adjustment. The results are presented in Table 1.

Table 1

**Neuroticism-Anxiety and Dyadic Adjustment Total Score**

<table>
<thead>
<tr>
<th></th>
<th>Neuroticism Anxiety</th>
<th>Dyadic Adjustment</th>
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<tbody>
<tr>
<td>Neuroticism-Anxiety</td>
<td>Pearson Correlation</td>
<td>1</td>
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<tr>
<td></td>
<td>Sig. (1-tailed)</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>257</td>
<td>257</td>
</tr>
<tr>
<td>Dyadic Adjustment Total Score</td>
<td>Pearson Correlation</td>
<td>-.217*</td>
</tr>
<tr>
<td></td>
<td>Sig. (1-tailed)</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>257</td>
<td>268</td>
</tr>
</tbody>
</table>

*Correlation is significant at the 0.01 level (1-tailed).

Research Question 2: What is the relationship between aggression-hostility and dyadic adjustment?

Hypothesis 2: Among cave dives, there is a significant negative correlation between aggression-hostility and dyadic adjustment.

Null Hypothesis 2: There is no significant correlation between aggression-hostility and dyadic adjustment among cave divers.

The correlation between aggression-hostility, as measured by ZKPQ, and dyadic adjustment was significant, $r (254) = -.16, p < .006)$. Therefore, the second null hypothesis was rejected. The coefficient of determination was $R^2 = .026$, indicating that
only 2.6% of the variance in aggression-hostility was accounted for by the variance in dyadic adjustment. The results are presented in Table 2.

Table 2

*Aggression-Hostility and Dyadic Adjustment Total Score*

<table>
<thead>
<tr>
<th></th>
<th>Dyadic Adjustment</th>
<th>Aggression-Hostility</th>
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<tbody>
<tr>
<td>Dyadic Adjustment</td>
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<td>-.158</td>
</tr>
<tr>
<td>Total Score</td>
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<tr>
<td>Pearson Correlation</td>
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<tr>
<td>Sig. (1-tailed)</td>
<td></td>
<td>.006</td>
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<tr>
<td>N</td>
<td>268</td>
<td>256</td>
</tr>
<tr>
<td>Aggression-Hostility</td>
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<td>1</td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sig. (1-tailed)</td>
<td>.006</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>256</td>
<td>256</td>
</tr>
</tbody>
</table>

*Correlation is significant at the 0.01 level (1-tailed).

Research Question 3: What is the relationship between impulsive sensation seeking and dyadic adjustment?

Hypothesis 3: Among cave dives, there is a significant negative correlation between impulsive sensation seeking and dyadic adjustment.

Null Hypothesis 3: There is no significant correlation between impulsive sensation seeking and dyadic adjustment among cave divers.

Impulsive sensation seeking, as measured by ZKPQ, did not correlate significantly with dyadic adjustment, $r (255) = -.05, p < .237$. Therefore, the third null hypothesis was not rejected.

Research Question 4: What is the relationship between activity and dyadic adjustment?
Hypothesis 4: Among cave dives, there is a significant positive correlation between activity and dyadic adjustment.

Null Hypothesis 4: There is no significant correlation between activity and dyadic adjustment among cave divers.

Activity, as measured by ZKPQ, did not correlate significantly with dyadic adjustment, \( r (256) = -.04, p < .258 \). Therefore, the fourth null hypothesis was not rejected.

Research Question 5: What is the relationship between sociability and dyadic adjustment?

Hypothesis 5: Among cave dives, there is a significant positive correlation between sociability and dyadic adjustment.

Null Hypothesis 5: There is no significant correlation between sociability and dyadic adjustment among cave divers.

Sociability, as measured by ZKPQ, did not correlate significantly with dyadic adjustment, \( r (251) = .01, p < .462 \). Therefore, the fifth null hypothesis was not rejected.

Research Question 6: What is the relationship between alexithymia and dyadic adjustment?

Hypothesis 6: Among cave dives, there is a significant negative correlation between alexithymia and dyadic adjustment.

Null Hypothesis 6: There is no significant correlation between alexithymia and dyadic adjustment among cave divers.

The correlation between alexithymia and dyadic adjustment was significant, \( r (266) = -.35, p < .001 \). Therefore, the sixth null hypothesis was rejected. The coefficient of determination was \( R^2 = .122 \), indicating that 12.2% of the variance in alexithymia was
accounted for by the variance in dyadic adjustment. The results are presented in Table 3.

Table 3

_Dyadic Adjustment Total Score and Toronto Alexithymia Scale_

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Dyadic Adjustment Total Score</th>
<th>Toronto Alexithymia Scale Total</th>
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<tbody>
<tr>
<td></td>
<td>Pearson Correlation</td>
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</tr>
<tr>
<td></td>
<td>Sig. (1-tailed)</td>
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<td>.006</td>
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<tr>
<td>Dyadic Adjustment Total Score</td>
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<td>268</td>
<td>268</td>
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<tr>
<td></td>
<td>Pearson Correlation</td>
<td>-.347*</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (1-tailed)</td>
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<td></td>
</tr>
<tr>
<td>Toronto Alexithymia Scale Total</td>
<td></td>
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<td>268</td>
</tr>
</tbody>
</table>

*Correlation is significant at the 0.01 level (1-tailed).

**Summary**

The primary purpose of this study was to investigate the dyadic relationships of adult male cave divers, as measured by the Dyadic Adjustment Scale, with the five personality traits measured by the Zuckerman Kuhlman Personality Questionnaire. The secondary purpose of this study was to investigate the relationship between dyadic adjustment and the personality trait of alexithymia, as measured by the Toronto Alexithymia Scale.

Significant positive correlations were found between neuroticism-anxiety, as measured by ZKPQ, and dyadic adjustment, $r (\cdot.217)$, and between aggression-hostility, as measured by ZKPQ, and dyadic adjustment, $r (\cdot.158)$. The relationship between alexithymia and dyadic adjustment was also significant, $r (\cdot.347)$. However, the first two
correlations had small effect sizes. The relationship between alexithymia and dyadic adjustment showed a moderate effect size. Impulsive sensation seeking, activity, sociability and as measured by ZKPQ, did not correlate significantly with dyadic adjustment. Findings and implications are discussed in Chapter V.
CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Locke (1968) was the first to describe marital adjustment, and believed marital adjustment occurs when a couple is able to either avoid (escape) or resolve (compensate) intramarital conflicts while still feeling satisfied in their relationship. Based on Locke’s work, the individual approach was initially used to describe self and/or partner characteristics associated with satisfaction. This individual approach was limited and did not consider the couple as a whole.

Spanier (1976), on the other hand, conceptualized martial adjustment as a process, rather than an unchanging state, and believed it was possible to evaluate martial adjustment at a specific point in time. That same year, Spanier (1976) developed the Dyadic Adjustment Scale (DAS). The DAS total score fell on a continuum from well-adjusted to maladjusted. This dyadic approach shifted the focus from the individual to the couple, as well as on how one’s marital satisfaction may depend on dynamic factors between the two partners. Spanier’s dyadic approach was superior to the individual approach; and after almost four decades, it is still widely in use. However, in order to create a more complete description of dyadic adjustment, an investigation of personality seemed necessary. Knabb and Vogt (2011) used Cattell’s Personality Factor Questionnaire (16PF) and Spanier’s Dyadic Adjustment Scale (DAS) to gain insight into how personality might affect dyadic adjustment. Their findings supported the argument that similar personality traits may be linked to compensation and dissimilar personality traits may lead to escape, with these dynamics having a significant impact on marital adjustment.

Two studies that supported the likeness theory of marital satisfaction were Cattell
and Nesselroade (1967) and Cattell and Schuerger (2003). These studies found that personality dissimilarity can significantly increase marital dissatisfaction. In agreement with Catell and Nesselroade (1967) and Catell and Schuerger (2003), Kurdek (1991) found that personality similarity is associated with improved dyadic adjustment. These findings are supported by Gaunt (2006) and Luo and Klohnen (2005), who concluded couple similarity is one dyadic variable that predicts marital satisfaction, and indicated couple dissimilarity leads to poorer marital-dyadic adjustment.

Karney and Bradbury (1995) identified a number of studies that have used the Five Factor model of personality to identify personality traits and their relationship to marital satisfaction. While the Five Factor model was not originally designed to measure marital dysfunction, certain personality traits appear to be related to marital distress. Neuroticism, extraversion, and conscientiousness are the most studied personality factors in this area (Bermudez, 1999; Clarke & Robertson, 2005; Vollrath & Torgersen, 2002). Of all the commonly studied personality factors, neuroticism is both the most consistent and the strongest personality predictor of interpersonal problems (Eysenck & Eysenck, 1975). Higher levels of neuroticism are positively correlated with greater levels of marital dissatisfaction. Kelly and Conley (1987) found that high measures of neuroticism in either spouse predicted a greater likelihood of divorce.

David and Suls (1999) noted that highly neurotic individuals have a tendency to experience strong negative emotions such as anxiety, depression, and anger. David and Suls (1999) researchers postulated that because of this, they are more likely to overestimate stressful situations. Gottman (1994) found that the relationship behaviors typical of highly neurotic individuals damage relationships due to the tendency towards defensiveness, the verbalization of criticism, and the expression of contempt. Karney and
Bradbury (1995) also found neuroticism to be a substantial negative predictor of marital quality and relational stability.

The current study was based on the Alternative Five Factor Model of personality and used the Zuckerman Kuhlman Personality Questionnaire (ZKPQ). Unlike the Five Factor Model more commonly known as “The Big Five” that was developed via lexical analysis, the Alternative Five Factor Model emerged from factor analytic studies of personality and temperament scales, many of which had been used in personality trait studies. The scales include aggression-hostility, neuroticism-anxiety, impulsive sensation seeking, sociability, and activity (Zuckerman, 1991).

Zuckerman (2002) found that despite the differences between the Alternative Five Factor Model and the Five Factor Model, an analysis of the major factors suggested a great deal of convergence between the two scales. The factors in the Alternative Five Factor Model corresponded to four of the five traits in the original Five Factor Model: the ZKPQ neuroticism-anxiety factor positively correlated with the Five Factor Model factor neuroticism; ZKPQ impulsive sensation-seeking factor negatively correlated with the Five Factor Model factor conscientiousness; ZKPQ aggression-hostility was inversely related to Five Factor Model factor agreeableness, and ZKPQ sociability and activity were related to the Five Factor Model factor of extraversion (Aluja, García, & García, 2002). In the Five Factor Model, the openness to experience factor was not included in the development of the ZKPQ (Zuckerman, et al., 1993).

Cave diving is a high-risk sport, and personality factors have been found to be important predictors of risk-taking behaviors (Selosse, 1998; Vollrath, Knoch, & Cassano, 1999). Castanier, Le Scanff, and Woodman (2010) investigated the following risk-taking behaviors: downhill skiing, mountaineering, rock climbing, paragliding, and
skydiving. They observed that the typological combinations of neuroticism, extraversion, and conscientiousness were largely successful in discriminating between self-reported low-risk takers and high-risk takers. They found that extraversion and conscientiousness positively associated with low risk takers and neuroticism positively associated with high-risk takers.

Another personality trait that is associated with interpersonal functioning is alexithymia. Sifneos (1970) was the first to describe the personality construct now known as alexithymia. A practicing psychotherapist, he coined the term alexithymia to describe his observations while working with patients with psychosomatization, specifically, that these patients had difficulty in identifying and communicating emotions and feelings (Sifneos, 1973).

Mikolajczak and Luminet (2006) deemed alexithymia to be a personality trait or deficit. Individuals with this trait tend to lack the capacity to process or regulate emotions using traditional cognitive strategies. The presence of alexithymia is often an unrecognized and insurmountable barrier, toxic to a degree in any sort of human relationship be it familial, romantic, marital, or even occupational.

Cooley (2006) reported that marital satisfaction was inversely related to alexithymia. Alexithymia is not unlike an affliction in that those with alexithymic deficits have great difficulty creating and maintaining meaningful relationships, and afflicted individuals are most likely have frequent martial distress (Hesse & Floyd, 2008). Corcos and Speranza (2003) found alexithymic individuals tended to display poor emotional regulation, and a greater incidence of depression, trait and state anxiety, and low self-esteem. Additionally, Hesse and Floyd (2008) found that alexithymia was negatively related to affectionate experience, happiness, use of nonverbal intimacy cues,
affectionate communication and closeness in relationships.

Clinical conclusions of the interpersonal functioning of alexithymic patients acknowledge that alexithymic patients have a tendency toward social conformity and conflict avoidance, as well as an unempathic, seemingly cold, or detached way of approaching others (Grabe, Spitzer, & Freyberger, 2001; Nemiah & Sifneos, 1970; Taylor & Hamilton, 1997). These patients avoid close social relationships, and if they do relate to others, albeit superficially, they tend to position themselves as either dependent or impersonal. Additionally, the trait is associated with chaotic interpersonal relations (Sifneos, 1996), as well as inadequate differentiation between self and others (Blaustein & Tuber, 1998; Taylor & Hamilton, 1997). Vanheule, Desmet, Rosseel, Verhaeghe, and Meganck (2007) concluded alexithymia to be linked to a sense of “interpersonal indifference.” Individuals scoring high on a measure of alexithymia do not expect much from other people, nor do they have a strong desire to fulfill the expectations of others (i.e., their spouse/partner’s, children’s or family’s expectations).

It was the primary aim of the current study to research dyadic adjustment in male cave divers, in relation to salient personality factors in Zuckerman’s Alternate Five Factor Model. A secondary aim of this study was to investigate the personality construct of alexithymia and its possible influence upon marital adjustment and relationship functioning among extreme sport enthusiasts (i.e., cave divers). It was hoped that the results would lead to recommendations in developing marriage and family therapy interventions for cave divers and their families, and possibly other extreme sports participants and their families.

**Restatement of the Methodology**

In this exploratory study, data collection was carried out via the internet using an
online questionnaire and survey. Participants logged on a secure website, SurveyMonkey™. This website anonymously secures and collates participant data. Because of its applicability to assessing relationships between variables, a correlational design was employed. Survey research illustrates the principles of correlational research and provides an accurate and efficient means for describing people’s thoughts, opinions, and feelings (Best & Kahn, 2006).

Two hundred and sixty eight cave divers participated. Participants were adult male cave divers who were either married or in a committed relationship. Participants were recruited from online cave diver’s forums, listservs, cave diving organizations homepages, and cave diving newsletters.

Participants were directed to the website, where they were presented electronically with a detailed cover letter asking them to take part in a research study (Appendix H). This cover letter allowed for each participant to either agree or disagree to participate in the study. The first part of the survey asked questions about demographic data (Appendix A). Participants were then asked to complete three self-report instruments: 1) Dyadic Adjustment Scale, (DAS; Spanier, 1976); 2) Zuckerman Kuhlman Personality Questionnaire (ZKPQ; Zuckerman et al., 1993); and 3) Toronto Alexithymia Scale (TAS-20; Bagby et al., 1994).

Survey participants completed the questionnaires at their leisure and were able to skip any questions they do not wish to answer. Participants were informed that they could discontinue their participation at any time. Incomplete data for any single participant was not used in the data analyses. The scales were scored according to the pre-determined protocols developed by the respective publishers. Data were analyzed using the Statistical Package for the Social Sciences for Windows, Version 19.0 (SPSS,
Conclusions

The main body of the survey included three instruments chosen because of their ability to provide the most relevant data for this research study. These instruments were the Dyadic Adjustment Scale (DAS), Zuckerman Kuhlman Personality Questionnaire (ZKPQ), and the Toronto Alexithymia Scale (TAS-20). The Dyadic Adjustment Scale provided an overall score of marital/couple adjustment (DAS; Spainer, 1976). The ZKPQ is a Alternative Five Factor top down psychobiological model of personality. The Toronto Alexithymia Scale is a 20-item psychometric designed to measure degree of difficulty recognizing, communicating and responding to emotion in self and others. The TAS-20 provided an overall score of individual participants’ level of alexithymia.

Descriptive Results

Data were collected for a number of demographic and diving specific variables. Demographic variables included: age, marital status, years married or in a committed relationship, number of times married or in a committed relationship, number of children living in residence, education, nationality, race-ethnicity, country residing in. Diving specific data collected included: years scuba diving, years cave diving, total number of cave dives, number of cave dives in last 12 months, highest level of certification/training, and recreational vs. professional cave diver status. Other variables included: occupation, current work status, and current personal annual income.

Two hundred and sixty-eight male cave divers participated in this study. The ability to conduct this research online allowed global participation from cave divers representing more than a dozen countries. Although representing many cultures, the majority of the participants resided in the United States and were Caucasian/Non-
Hispanic. This is most likely due to the unique concentration of first magnitude springs suitable for cave diving in a small geographical region in north Central Florida. Other popular cave diving locations, such as the Yucatan Peninsula of Mexico, are dove primarily by American cave divers. Australia is the epicenter for this sport in the southern hemisphere.

The demographics of participants in extreme sports now include people of all ages (Celsi, Rose, & Leigh, 1993). The participants’ ages in this study ranged from 25 years old to 71 years old, with a mean of 45 years old. The cave diver participants reported years of experience was a rather broad distribution, with approximately 20% under five years, 40% between six and 15 years, and 40% of participants reporting greater than 15 years’ experience. Twenty two percent (22%) of cave divers identified themselves as less than 35 years old. Shiota and Levenson (2007) found the primary life task of this age group is finding a mate. The dyadic adjustment of young couples’ core issues included partner selection, emotional intimacy, and the development of a shared life. In regard to cave divers, this age group seems to be the most likely to become bored with diving the same caves, and consequently spends more money updating equipment and moving on to the next even more extreme adventure. This places a large burden on a young family both financially and geographically. As P. Buzzacott (personal communication, April 02, 2013) stated “I temper my impulsive inclination to spend everything on cave diving, to spend every day planning or training for my next adventure.”

Sixty percent of the participants described themselves between 36-55 years old. Moen, Kim, and Hofmeister (2001) identified this as midlife, and stated that marital relationships are less focused on the marriage itself, and more on meeting individual and shared responsibilities. Conflict tended to involve finances, parenting, and household
responsibilities (Levenson, Carstensen, & Gottman, 1993).

Eighteen percent (18%) of the cave divers reported they were over 56 years old. Shiota and Levenson’s (2007) concluded intimacy is again a core issue for this age group. Characteristics included the children leaving home, retirement, and an increased the amount of time spent together. Conflict included emotional expression and companionship needs (Hatch & Bulcroft, 2004).

An important life outcome is satisfaction with an intimate romantic relationship (Gottman and Levenson, 1992). A colleague of the researcher, Fehring, noted “Few of the cave divers I’ve known have been particularly successful at long-term relationships” (B. Fehring, personal communication, March 14, 2013). Another colleague observed “In considering the relationships of cave divers I have known over the last 40+ years, most marriages have ended in divorce or multiple divorces” (G. Melton, personal communication, March 14, 2013). Fifty seven percent of the participants in this study reported being married, or in a committed relationship, only once. Twenty eight percent report being married or in a committed relationship twice, and only 15% were married more than two times. Based on Gottman and Levenson’s (1992) findings that greater intimate relationship satisfaction is associated with less relationship instability and lower relationship dissolution, over half of the cave divers in the present study appeared to experience marital satisfaction. Considering that the average age of the participants was 45 years, it is not surprising that the majority (57%) of them did not have children living at home. Thirteen (13%) had only one child at home while (17%) had two children at home and less than (1%) had three or four children at home.

Seventy percent of the cave divers in this study completed college and thirty-six percent had a graduate degree. Eighty-five percent were employed full time and thirty-
nine percent earned greater than $100,000 USD annually. The most prevalent occupations reported were computer related occupations, engineering, scientist, or management. Huth and Morgan (2011) completed a study in Florida and determined an individual cave diver contributes approximately $155 or $1075 annually to the local economy when making a dive trip. Considering the costs involved in doing cave diving, it would be expected that cave divers have a significant amount of disposable income available, and this is supported by the study findings.

Learning to scuba dive is a prerequisite before embarking on becoming a successful cave diver. In this study, years of scuba diving reported ranged from less than one to 53. Twenty-four percent report scuba diving between one and ten years. This group is particularly vulnerable to having accidents. Statistics have shown that scuba divers are more likely to make mistakes and have poor judgment at about one year after initial certification (Buzzacott, 2003). This one year mark is also when many scuba divers decide to become cave divers. The largest number of participants (35%) reported scuba diving between 11 and 20 years. Forty-one percent reported scuba diving more than 21 years. The latter group of divers who learned to dive sometime in the 1960s – 1990s most likely will continue to dive the rest of their lives unless health reasons interfere.

Thirty four percent of the cave diving participants’ reported cave diving for more than 10 years. The relatively large percentage of long-term divers may be a reflection of the 245% increase in alternative sports such as cave diving between 1978 and 2000 (Puchan, 2004).

Some of the participating cave divers had been cave diving since the mid 1960s so it makes sense that a few participants’ total number of cave dives was estimated as
high as 3500. Most cave divers (41%) reported less than 100 total cave dives; the lowest number of cave dives reported was five. Five percent reported more than 1000 cave dives. This group is most likely described as the “lifelong cave diver” as described in Cave Diving: Articles and Opinions (Heinerth & Oigarden, 2008).

There are different opinions on what makes a cave diver active. If you dive once a month are you active? If you travel to a cave diving destination three times a year and make four dives does that make you active? In either situation you still make 12 cave dives a year. The current study participants’ cave dives in the last 12 months ranged from 0 to 300 with a mean of 31.14. The largest number of participants (38%) reported between one and twenty-five cave dives in the last 12 months.

Participants primarily identified themselves as traditionally trained cave divers (63%), followed by exploration cave divers (17%), rebreather cave divers (12%), and as cave diving instructors (8%). Interestingly, in social situations many primarily identify and introduce themselves as cave divers, rather than by their occupational titles. This same phenomenon has been observed among pathological gamblers (M. Durica, personal communication, April 24, 2013). What cave divers and pathological gamblers have in common is relatively high levels of narcissism (Lakey, Rose, Campbell & Goodie, 2008). As B. Fehring (personal communication, March 14, 2013) observed “As for cave divers, they tend to be polarized, at one end extremely introverted and at the other extremely narcissistic, and both the introverted and narcissistic cave divers tend to have self-esteem issues. Some risk-seekers look for someone as energetic and driven as themselves, but my observation is that type of relationship leads to competition, which ultimately erodes the interpersonal relationship.”

Inferential Results
Neuroticism-anxiety, aggression-hostility, impulsive sensation seeking, activity, and sociability are the five factors that comprise Zuckerman’s ZKPQ. Of these five factors, neuroticism-anxiety and aggression-hostility correlated significantly with dyadic adjustment in the current study. Items indicating neuroticism-anxiety on Zuckerman’s ZKPQ are as follows: I sometimes feel edgy and tense; I often have trouble trying to make choices; I tend to be sensitive; I am easily hurt by thoughtless remarks and actions of others (Zuckerman, 2002). Neurotic individuals tend to damage relationships, as they tend to express more criticism, contempt and defensiveness. Marital adjustment and personality variables such as neuroticism directly influence marital satisfaction and marital stability, albeit negatively. People who are highly neurotic tend to experience higher levels of negative emotions such as anxiety, depression, and anger, and they are more likely to overestimate stressful situations (Gottman, 1994; David & Suls, 1999; Karney & Bradbury, 1997; Eysenck & Eysenck, 1975; Kelly & Conley, 1987). The current study suggests that the negative relationship between neuroticism-anxiety and marital adjustment also holds true for cave divers.

This current study supports the literature review findings that neuroticism has been the most consistent and significant predictor of dyadic adjustment. However, this study found a negative linear relationship. It has been argued that low, as well as high, levels of personality traits are associated with relational difficulties and the relationship may be better described as curve linear. In this study, The ZKPQ aggression-hostility scale was inversely related to agreeableness, and confirms that both neuroticism-anxiety and aggression-hostility have a significant negative correlation with dyadic adjustment.

Daspe, Sabourin, Péloquin, Lussier, & Wright (2013) found both very low and very high levels of neuroticism were associated with lower dyadic adjustment for both
the individual and his or her partner. A possible role of neuroticism may be to promote vigilance; thus, individuals with extremely low neuroticism may be at higher risk of being victimized. It could be argued that those who score extremely low on neuroticism are less mindful of potential threats, be they threats to the marriage or threats to safety, financial or occupation hazards; future research could be helpful. Low neuroticism may be associated with poor health, antisocial behaviors, poor coping skills, and deficits in social competence based on Gray’s biological view of neuroticism as expressed in the behavioral inhibition system (Gray, 1987).

Another significant negative correlation revealed in the data was that between aggression-hostility and dyadic adjustment. Items indicating aggression-hostility in Zuckerman’s ZKPQ are as follows: It is natural for me to curse when I am mad; If people annoy me I do not hesitate to tell them so; When people disagree with me I cannot help getting into an argument with them (Zuckerman, 2002).

Analyses of the remaining factors (impulsive sensation seeking, sociability, and activity) found no significant correlations to dyadic adjustment. Impulsive sensation seeking includes both impulsivity and sensation seeking factors. Further research is needed to assess the relationship between impulsive sensation seeking, sociability, and activity and dyadic adjustment as there has been limited research using Zuckerman’s ZKPQ to study marital adjustment.

The literature reviewed in this study suggests that the personality trait of neuroticism to be the single most reliable predictor of poor marital/dyadic adjustment. However, in this study of male cave divers, alexithymia was found to be the strongest predictor of poor marital/dyadic adjustment; the negative correlation between alexithymia and marital/dyadic adjustment had the largest effect size of all the personality traits.
studied. This suggests that in the population of male cave divers, and perhaps in other extreme sports enthusiasts, alexithymia, not neuroticism, may be the most important personality trait to predict poor martial/dyadic adjustment. Epözdemir (2012) studied alexithymia in married couples and found that alexithymia predicted marital adjustment meaningfully; Epözdemir found that husbands’ alexithymic characteristics predicted both husbands’ marital adjustment as well as their wives’ marital adjustment. The Dyadic Adjustment Scale (DAS) has been used to assess returning veterans from the Second Iraqi War assessing the veteran’s psychological and physical aggression among military families. While not employing the Big 5 or the ZKPQ, this study of recently returning veterans found that relationship adjustment as measured by the DAS was significantly lower leading to increased aggression and martial dissatisfaction (Reddy, Meis, Erbes, Polusny, & Compton, 2011). These findings are particularly relevant given the large number of military members returning from the wars in Afghanistan and Iraq. This suggests that combat deployment is a risk factor for marital difficulties, and consecutive combat deployments are a high risk factor for marital difficulties.

Taylor and Hamilton (1997) proposed that sensation seeking can be used as a means to reduce self-awareness, or as a self-regulatory operation that maintains a particular self-image or level of self-esteem. Participation in high-risk sports such as cave diving may be a means of regulating mood (Levenson, 1990) by momentarily forgetting emotional distress (Spies, Hesse, & Brandes, 1997) and uneasy feelings (Taylor & Hamilton, 1997). The motivation seems to be escaping from everyday life, especially from domestic life, which is perceived as fairly monotonous (Michel, Carton, & Jovent, 1997). When the need for emotion regulation is not satisfied within interpersonal relationships, the high-risk adventurer often feels a stronger and stronger
pull toward high-risk adventures as a respite from relationship dilemmas.

Applying this to cave divers, as relational distress increases, the stronger the need for relief (escape) and the stronger need for increased participation in high-risk activity. As a fellow cave diver reflected “I think that cave diving enabled me to deal with the stress of the relationship for a while until ultimately I needed to escape the duress” (G. Melton, personal communication, March 14, 2013).

The escalation of cave diving tends to aggravate and increase the existing level of relational distress, because due to time and financial demands of cave diving activities, the cave diver grows more and more aloof from spouse and children. P. Penny (personal communication, March 14, 2013) related that “I have learned through experience that diving in caves with my significant other brings out the most difficult and competitive features. In addition to needing to demonstrate the “better than” when we dive together, my significant other deviates from the dive plan. Changing the plan, not staying together, taking off and leaving me. This is true both above and below water. Recently it became so bad that I left a vacation early and have considered not diving with him in caves any more.”

Woodman et al. (2010) pointed out there is a danger that the person will take even greater risks in an ever more emotionally demanding and already high-risk domain.

P. Buzzacott (personal communication, April 02, 2013) stated “Such behaviors may have been observed to be fatal to cave divers’ marriages, as their non-thrill seeking spouses are unable to tolerate the absenteeism from the family and the risks the diver so cavalierly takes. As cave diving participation increases so too, necessarily, does the impact upon personal relationships. At the most extreme end of the sport, the cave diving explorers toll on relationships is often terminal.”
Recommendation for Practice

For many cave divers, cave diving is the number one priority in their life. In the context of marriage and family therapy, what are the implications for the non-cave diving partner? What are the implications in those cases in which one member of the dyad is a hard-core enthusiast and the other can take it or leave it? Cave diving instructors have observed the difference between enthusiasts and those who learned to cave dive, dove a few times, and then sold their equipment. Many of those who remain active reflect that after their first cave dive the experience was so profound that their life changed forever. How are cave diving enthusiasts different from individuals who do not pursue cave diving? Before we begin to answer these questions, we first need to examine the psychological and emotional motivations of the cave diver.

Enthusiasts of extreme sports, their family members and loved ones have often been heard to say that these sports are addictive. For such enthusiasts, there is a passionate and intense drive towards such activities, more so than is typically seen in more mundane pastimes. Some research has suggested that extreme sports may play a therapeutic role, but may also lead to dependency (Willig, 2008); however, there are few studies comparing extreme studies and addictive behavior. One such study examined high-risk sports and drug (opioid) dependence; subjects were three groups of 34 individuals (total 102) divided between opioid dependent subjects (ODS), regular paragliders (RP), and college staff as the controls (Franques et al., 2003). Mean scores on the Sensation Seeking Scale (SSS) found similarities between the opioid dependent group and the regular paraglider group, and both groups differed from controls. The researchers suggested that the drug dependent and nondependent paragliders both seek intense and abrupt sensations, and they do so through a variety behaviors. Their results
support the hypothesis that vulnerability to drug dependence is associated with sensation seeking (Franques, et. al., 2003). Future research is needed in this area in relation to cave divers.

The attraction to this potentially fatal high risk recreational activity is most likely a combination of biological, social and psychological needs. The observation can and has been made that cave diving is addictive. Once you get hooked on cave diving it controls where you live, who your friends are, what type of job you have, and even what type of vehicle you drive. We now know that people who suffer from addictions tend to inherit this disease from their parents or grandparents (Perkins, & Berkowitz, 1991). So the predisposition to addiction may to be biological. Is there a genetic basis to the addictive personality? Is there a gene for risk taking and sensation seeking? Is there a gene which predisposes someone to cave diving? Are cave divers actually biologically different? Further research may answer these questions.

Cave divers will be the first to tell you they are usually anxious before the dive, but as soon as they get in the water the any anxiety disappears. Divers who remain anxious in the water will probably not cave dive very long. The anxiety experienced by cave divers may cause problems in relationships and family interaction. Some cave divers seem to put their cave diving needs ahead of their family needs. Some cave divers may become short with their family when they are planning their next dive or at the dive site. Some cave divers’ family members perceive a sense of anger, when instead it is most likely their need to intensely focus on the task at hand as careless mistakes can lead to fatal mistakes. Consider the following scenario.

Raymond is a cave diver. He has been highly successful in all spheres of life, excepting interpersonal relationships. He is worried because his marriage and family life
are troubled, and he does not know why. Raymond makes an appointment with a psychotherapist he found after searching the internet for adventure/extreme sport family counseling. He asks to see the psychotherapist and makes his first appointment.

Raymond has been cave diving for 14 years and dives a couple of times per month. He is on his second marriage. In his first marriage he married another cave diver. They had known each other for a only a few months before getting married. Initially, the novelty of each other and the novelty of cave diving instantly attracted them to each other. While they dove together frequently for a couple of years, they found that other than cave diving they shared few interests. After getting bored with each other they divorced after three years although they remain friends to this day.

Today, Raymond is married for the second time. This marriage is in its ninth year. His wife is an open water diver, but she neither enjoys nor participates in cave diving. His wife sees cave diving as dangerous and expensive. Raymond spends more hours per week participating in ancillary cave diving preparation activities than with his family, so much so that his wife jokingly refers to herself with friends as a “cave diving widow.”

The family’s children are five and seven years old. Until recently Raymond made every effort to include his family when he left for a weekend of cave diving. He would take the family along with him on the six hour trip to north Florida, the center of cave diving activities. Sometimes the family would camp, and other times the family would stay in a motel. When the children were very young, his wife’s time would be spent taking care of the children’s basic needs. As the children grew, the family’s needs began to compete with Raymond’s cave diving time. Actually, Raymond’s time during weekends centered on cave diving and nothing but. Raymond would arise before the sun
and drive nonstop to the dive site and dive until late in the day. When the children were very young, they were content to stay at the motel watching TV. Now that the children are older, they are interested in tubing, canoeing, and bike riding in the State parks. They would like their father to play with them and spend time with them.

Raymond’s initial reaction to these demands was frustration. He had become long accustomed to the spending his weekends diving, filling diving cylinders, and enjoying the camaraderie of his fellow cave divers. This frustration led to both anger and anxiety. Raymond was angry because things had changed. He was anxious, because he actually did love and value his family and did not want them to suffer.

Raymond made efforts to please both this dive partners and his family, but this never seemed to work out. His dive partners became disinterested with him as a dive partner; they saw him as not fully engaged. On the other hand, his family was off on the sidelines waiting for dad to finish his dive. Dyadic adjustment was at an all time low. Anger and anxiety were ever-present.

In an effort to keep his family involved, the Raymond began to cave dive just one weekend per month spending his cave diving weekends as a bachelor. This was not without problems. Raymond would anxiously execute the cave dive only to rush back to the vehicle and his cell phone. He promised he would call his wife as soon as he surfaced to reduce her anxiety. Again, his dive partners saw him as not fully engaged, but they tolerated his behavior, having known him for years.

The family met and mutually agreed that once a month they would plan a family outing that did not include cave diving. While this made a slight difference, Raymond was long accustomed to filling up his hours away from the office with adventurous and novel activities such as dry caving, climbing the rock wall, zip lining, sometimes as
weeklong vacations. While family involvement was more frequent, dyadic adjustment remained uncomfortably low. Additionally, Raymond’s alexithymic personality prevented him from connecting with his family emotionally. Understanding that his wife and family were nearing a breaking point, Raymond wanted things to be different, but he was not sure what “different” looked like.

Once Raymond began individual psychotherapy it became apparent that couples therapy would be the approach most likely to salvage his marriage and family. The goals would be for Raymond to realize that he had a more difficult time than most to connect emotionally and gain insight into how his anger and anxiety was hindering his dyadic adjustment.

Like Raymond, some cave divers initially bring their families with them to the dive site. Yet the typical pattern is that it is usually not long before the family realizes that they have no place to fit in. Typically, these family members soon find other activities in which to fill the void left by their preoccupied spouse or parent.

Typically, at this point the diver and his or her family have been observed to travel in one of three distinct directions. The direction the family takes, as well as its outcome, seems to be determinate upon the unique personality, temperament, strengths and deficits of the cave diving member(s) of the family. Based upon this author’s 40 years of observation of cave divers’ behavior and in an attempt to explain this phenomenon, the author subdivides cave divers into three categories as concerns their stance in the family system: good family insight cave diver, limited family insight cave diver, and poor family insight cave diver.

**Good Family Insight** These divers have the capacity to realize the non-cave diving family members’ position. For example, if their family members are giving cues that
they are feeling ignored, these divers might stop what they are doing and explain to his cave diving buddy that the family has come along. The cave diver with good family insight may go on to discuss that the family had traveled for hours and although he was looking forward to the dive he could see the disappointment in his family. The good insight cave diver might then make a decision that diving at this point was not the right thing to do today and simply ask the dive buddy if they could dive tomorrow instead. These divers have good potential for successful marriages.

**Limited Family Insight** These divers have limited capacity to realize the non-cave diving family members’ position. Based on the family's reaction, the limited family insight cave diver realizes something is wrong and makes an effort to balance the needs of his family with his need to cave dive and to not disappoint his dive buddy. The limited family insight cave diver might, for example, ask his family if he could still go ahead and make the dive, but would provide them the option of being able to go in the town, go back to the motel, see a movie, or go shopping until he can catch up with them later for dinner. These divers may need long-term individual therapy in addition to family/marital therapy.

**Poor Family Insight** These divers either lack the capacity to realize the non-cave diving family members’ position or they simply do not care. The poor family insight cave diver ignores his family and puts his or her needs to cave dive ahead of everything else. This almost always results conflict, and is potentially devastating to the relationship especially when young children are involved. These divers will likely terminate therapy early and are at risk for divorce.

This dissertation has been an exploratory study. It is the hope of this author that some insights have been gained into the relational dynamics of those high risk sports
enthusiasts known as cave divers, as well as suggesting areas for further study. A first of its kind study, it is not known if these relational dynamics exist in, or can be generalized to, other risk taking populations such as mountain climbers, sky-divers, special operations combat personnel, or race car drivers. It has been observed that the high risk activity of cave diving can increase relational stress, negatively affecting dyadic adjustment.

Three of the six personality traits predicted martial/couple/dyadic adjustment as measured by the DAS. When a cave diving couple (extreme sport couple) presents at the therapists office it could be useful to generate a baseline dyadic adjustment score; then, utilizing the ZKPQ and the TAS-20 personality questionnaires the resulting behaviors can be identified. Depending on the therapist’s stance he/she can then design individualized interventions to target those specific maladaptive or destructive behaviors that personify that personality trait. The resulting interventions may provide the couple with improved dyadic adjustment and more insight into how cave diving improves or discourages the martial/couple satisfaction.

Future Research

While both male and female cave divers responded to the survey, participation in the study was limited to adult male cave divers who were married or in a committed relationship. This was necessary due to gender differences identified in the literature review. Data collection was done online. This design allowed cave divers who saw the announcement but did not meet participant criteria to leave comments and/or express their interest in participating in a similar future study. Overwhelmingly, most survey respondents were female cave divers who were currently in a relationship, rather than male divers.

There are plans for a future study that would include female cave divers, engaged
cave divers, separated cave divers, divorced cave divers, as well as those who choose to be free of any romantic commitments. Single cave divers will be able to participate by completing an open ended text box to identify with whom they identified with when completing the dyadic adjustment scale. Cave divers and their spouses, who may or may not be cave divers, will be able to participate. Subjective data in any future research could include the cave diver’s view of dependent children, the sport’s impact on the family, and upon the children’s well-being.

Future studies with a similar design may be broadened to include female cave divers and all the variations of dyads in the 21st century. At a 2009 psychology themed cave diving conference in Tallahassee Florida, this researcher presented specifically on personality traits and the possible link between these traits and psychopathological disorders sometimes found among extreme sports participants. Having this topic warmly received, during the question and answer period, numerous cave divers expressed curiosity as to why addiction was not addressed in the presentation. Most conference participants expressed the opinion that addiction has been a major problem in the cave diving community. Many requested a future follow-up presentation on how addictions impact the cave divers, families, and the cave diving community as a whole (F. Wilson, personal communication, May 30, 2009). Finally, recent research investigating low versus high levels of neuroticism and the implications for dyadic adjustment (Daspe, et. al., 2013) may provide the psychotherapist working with such distressed couple new insights and individualized interventions.

Summary

This chapter included an overview of the study, a discussion of the findings, recommendations for practice, and recommendations for future research. The current
study compared dyadic adjustment to six unique personality traits.

The results of this study indicate that some personality traits measured by the Zuckerman Kuhlman Personality Questionnaire (ZKPQ), specifically neuroticism-anxiety, and aggression-hostility, appear to indicate a greater probability of lower dyadic adjustment (i.e. lower martial satisfaction and greater relational maladjustment). Cave divers who score high on neuroticism-anxiety are at risk relatively higher levels of emotional upset, tension, and hypersensitivity to criticism (Zuckerman, 2002), and may score lower on the Dyadic Adjustment Scale (DAS). Cave divers who score high on aggression-hostility are at higher risk for maladaptive behaviors such as verbal aggression, thoughtless or antisocial behavior, and impatience with others (Zuckerman, 2002).

The results also suggest that the personality trait known as alexithymia impacts dyadic adjustment. Alexithymia is associated with emotional deficits that play a significant role in interpersonal relationships, suggesting that impairment in the ability to recognize and communicate emotion in self and others contributes to chronic interpersonal problems.

Not all study data analyzed led to statistically significant results. This research study did not find the ZKPQ personality traits of impulsive sensation seeking, sociability or activity had any significant effect predicating martial/couple adjustment. Impulsive sensation seeking, sociability, and activity personality traits may however still be useful in assessing possible strengths in marital, couple, family functioning, as well as individualizing clinical interventions. Future research may shed light on the relevance of these factors for clinicians working with cave divers and other extreme sports enthusiasts.
REFERENCES


American Psychiatric Association (2000). *Diagnostic and statistical manual of mental*


Bruckett, M. A., & Salovey, P. . (2004 ). *Measuring emotional intelligence as a mental ability with the Mayer-Salovey-Caruso Emotional Intelligence Test*. Hauppauge,


factors and accident involvement in occupational and non-occupational settings.


David, J. P., & Suls, J. (1999). Coping Efforts in Daily Life: Role of Big Five Traits and


110


Fiske, D. W. (1949). Consistency of the factorial structures of personality ratings from


Florida: National Speleological Society - Cave Diving Section.


115


Journal of Abnormal & Social Psychology, 66(6), 574-583.


behaviours (English), 163(1), 30-36. doi: 10.1016/j.amp.2004.06.016


Hillsdale, NJ: Lawrence Erlbaum.


and Clinical Psychology, 46(1), 139-149. doi: 10.1037/0022-006x.46.1.139


APPENDIX A

DEMOGRAPHICS QUESTIONNAIRE

Please fill out this demographic survey so that we may obtain some general information about you. Your responses are confidential.

1. Age: ________

2. Gender:
   1. Male
   2. Female

3. Current Marital Status: (Select the most recent status if more than one applies)
   1. Single, never married
   2. Married
   3. Domestic Partnership
   4. Living together
   4. Widowed
   5. Divorced
   6. Separated

4. Current Sexual Orientation:
   1. Heterosexual
   2. Gay
   3. Bisexual
   4. Transgender
   5. Other ___________________

5. How many years have you been married or in a committed relationship: 
   ________

6. How many times have you been married or in a committed relationship: 
   ________

7. Number of children living in your residence: ________

8. Educational Level:
   1. Certificate or equivalent
   2. High school diploma
   3. Some college
   4. Undergraduate college degree
   5. Graduate degree (Master’s Degree, Ph.D., J.D., M.D., etc.)

9. What is your nationality? ________________________________
10. What is your race/ethnicity?
   1. Caucasian, non-Hispanic
   2. Caucasian, Hispanic/Latino
   3. Black, African-American
   4. Black, Hispanic/Latino
   5. Black, Caribbean
   6. Asian
   7. Hawaiian/Pacific Islander
   8. American Indian
   9. Alaskan Native
   10. Biracial
   11. Multi-racial
   12. (please specify): ______________________________________

11. Country residing in:
   1. United States
   2. Canada
   3. Mexico
   4. Brazil
   5. Australia
   6. Great Britain
   7. France
   8. Germany
   9. Russia
   10. (please specify): ______________________________________

12. How many years have you been certified as a scuba diver? __________

13. How many years have you been cave diving? __________

14. In total, approximately how many cave dives have you made? __________

15. How many cave dives have you made in the last twelve months? __________

16. What is your highest level of cave diver certification/training? (Select highest level of certification)
   1. Basic/Intro Cave Diver
   2. Apprentice Cave Diver
   3. Full Cave Diver
   4. Cave 1
   5. Cave 2
   6. Cave 3
   7. Rebreather Cave Diver
   8. Cave Diving Instructor
   9. Full Cave Diver (consider myself Exploration Cave Diver)
   10. (please specify): ______________________________________
17. Do you consider yourself to be a:
   1. Recreational Cave Diver
   2. Professional Cave Diver (my primary income is generated by cave diving)

18. Occupation
   1. Occupation Management
   2. Business and financial operations
   3. Computer and mathematical
   4. Architecture and engineering
   5. Life, physical, and social science (scientists)
   6. Counselors, social workers, clergy
   7. Legal
   8. Education, training, and library
   9. Arts, design, entertainment, sports, and media
   10. Healthcare
   11. Protective service (law enforcement, firefighters, fish and game)
   12. Food service and preparation
   13. Building and grounds cleaning and maintenance
   14. Sales
   15. Office and administrative
   16. Farming, fishing, and forestry
   17. Construction
   18. Installation, maintenance, and repair (automotive, electronics, aircraft, telecommunications)
   19. Production (factory/assembly, machinists, welders, textile)
   20. Production (food service, bakers, butchers)
   21. Transportation
   22. Other (please specify): ___________________________

19. Current work status:
   1. Employed/self-employed full time
   2. Employed/self-employed part time
   3. Retired
   4. Unemployed
   5. Never employed
   6. Attending school full time
   7. Attending school part time
   8. Other (please specify): ___________________________

20. Current Personal Income Level:
   1. $10,000 - $20,000/annually
   2. $20,001 - $30,000/annually
   3. $30,001 - $40,000/annually
   4. $40,001 - $50,000/annually
   5. $50,001 - $60,000/annually
6. $60,001 - $70,000/annually
7. $70,001 - $80,000/annually
8. $80,001 - $90,000/annually
9. $90,001 - $100,000/annually
10. $100,001+/annually
11. Prefer not to answer
APPENDIX B

DYADIC ADJUSTMENT SCALE (DAS)

Most persons have disagreements in their relationships. Please indicate below the approximate extent of agreement or disagreement you and your partner for each item on the following list.

<table>
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<tr>
<th></th>
<th>Handling family (relationship) finances</th>
<th>Matters of recreation</th>
<th>Religious matters</th>
<th>Demonstrations of affection</th>
<th>Friends</th>
<th>Sex relations</th>
<th>Conventionality (correct or proper behavior)</th>
<th>Philosophy of life</th>
<th>Ways of dealing with parents or in-laws</th>
<th>Aims, goals, and things believed important</th>
<th>Amount of time spent together</th>
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<td>16. How often do you discuss or have you considered divorce, separation, or terminating your relationship?</td>
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<td>17. How often do you or your mate leave the house after a fight?</td>
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<td>18. In general, how often do you think that things between you and your partner are going well?</td>
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<td>19. Do you confide in your mate?</td>
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<td>20. Do you ever regret that you married (or lived together)?</td>
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<td>21. How often do you and your partner quarrel?</td>
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<td>22. How often do you and your mate &quot;get on each other's nerves?&quot;</td>
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<td>23. Do you kiss your mate?</td>
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<td>24. Do you and your mate engage in outside interests together?</td>
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Every day  Almost every day  Occasionally  Rarely  Never
How often do the following occur between you and your mate?

These are some things about which couples agree and sometimes disagree. Indicate if either item below caused differences of opinion or were problems in your relationship during the past few weeks. (Check yes or no.)

25. Have a stimulating exchange of ideas
   - Never
   - Less than once a month
   - Once or twice a month
   - Once or twice a week
   - Once a day
   - More often
   0 1 2 3 4 5

26. Laugh together
   0 1 2 3 4 5

27. Calmly discuss something
   0 1 2 3 4 5

28. Work together on a project
   0 1 2 3 4 5

These are some things about which couples agree and sometimes disagree. Indicate if either item below caused differences of opinion or were problems in your relationship during the past few weeks. (Check yes or no.)

29. Being too tired for sex
   - Yes
   - No
   0 1

30. Not showing love
   - Yes
   - No
   0 1

31. The dots on the following line represent different degrees of happiness in your relationship. The point, "happy," represents the degree of happiness of most relationships. Please circle the dot that best describes the degree of happiness, all things considered, of your relationship.

   0 1 2 3 4 5 6
   • • • • • •
   Extremely unhappy Fairly unhappy A little unhappy Happy Very happy Extremely happy Perfect
32. Which of the following statements best describes how you feel about the future of your relationship?

5  I want desperately for my relationship to succeed and would go to almost any lengths to see that it does.

4  I want very much for my relationship to succeed and will do all that I can to see that it does.

3  I want very much for my relationship to succeed and will do my fair share to see that it does.

2  It would be nice if my relationship succeeded, and I can't do much more than I am doing now to help it succeed.

1  It would be nice if it succeeded, but I refuse to do any more than I am doing now to keep the relationship going.

0  My relationship can never succeed, and there is no more that I can do to keep the relationship going.
APPENDIX C

ZUCKERMAN KUHLMAN PERSONALITY QUESTIONNAIRE (ZKPQ)

DIRECTIONS: On the following pages you will find a series of statements that persons might use to describe themselves. Read each statement and decide whether or not it describes you. Then indicate your answer on the separate answer sheet.

If you agree with a statement or decide that it describes you answer TRUE by blacking in A on the answer sheet. If you disagree with a statement or feel that it is not descriptive of you, answer FALSE by blacking in B on the answer sheet.

A = TRUE              B = FALSE

In marking your answers on the answer sheet, be sure that the number of the statements you have just read is the same as the number on your answer sheet. Answer every statement either True (A) or False (B) even if you are not entirely sure of your answer.

1. I tend to begin a new job without much planning on how I will do it.
   A = TRUE              B = FALSE

2. I do not worry about unimportant things.
   A = TRUE              B = FALSE

3. I enjoy seeing someone I don't care for humiliated before other people.
   A = TRUE              B = FALSE

4. I never met a person that I didn't like.
   A = TRUE              B = FALSE

5. I do not like to waste time just sitting around and relaxing.
   A = TRUE              B = FALSE

6. I usually think about what I am going to do before doing it.
   A = TRUE              B = FALSE

7. I am not very confident about myself or my abilities.
   A = TRUE              B = FALSE
8. When I get mad, I say ugly things.
   A = TRUE    B = FALSE

9. I tend to start conversations at parties.
   A = TRUE    B = FALSE

10. I have always told the truth.
    A = TRUE    B = FALSE

11. It's natural for me to curse when I am mad.
    A = TRUE    B = FALSE

12. I do not mind going out alone and usually prefer it to being out in a large
    A = TRUE    B = FALSE

13. I lead a busier life than most people.
    A = TRUE    B = FALSE

    A = TRUE    B = FALSE

15. I often feel restless for no apparent reason.
    A = TRUE    B = FALSE

16. I almost never litter the streets.
    A = TRUE    B = FALSE

17. I would not mind being alone in a place for some days without any human
    contacts.
    A = TRUE    B = FALSE

18. I like complicated jobs that require a lot of effort and concentration.
    A = TRUE    B = FALSE
19. I very seldom spend much time on the details of planning ahead.
   A = TRUE          B = FALSE

20. I sometimes feel edgy and tense.
   A = TRUE          B = FALSE

21. I almost never feel like I would like to hit someone.
   A = TRUE          B = FALSE

22. I spend as much time with my friends as I can.
   A = TRUE          B = FALSE

23. I do not have a great deal of energy for life's more demanding tasks.
   A = TRUE          B = FALSE

24. I like to have new and exciting experiences and sensations even if they are a little frightening.
   A = TRUE          B = FALSE

25. My body often feels all tightened up for no apparent reason.
   A = TRUE          B = FALSE

26. I always win at games.
   A = TRUE          B = FALSE

27. I often find myself being "the life of the party".
   A = TRUE          B = FALSE

28. I like a challenging task much more than a routine one.
   A = TRUE          B = FALSE

29. Before I begin a complicated job, I make careful plans:
   A = TRUE          B = FALSE

30. I frequently get emotionally upset.
   A = TRUE          B = FALSE
31. If someone offends me, I just try not to think about it.
   
   A = TRUE              B = FALSE

32. I have never been bored.
   
   A = TRUE              B = FALSE

33. I like to be doing things all of the time.
   
   A = TRUE              B = FALSE

34. I would like to take off on a trip with no preplanned or definite routes or timetables.
   
   A = TRUE              B = FALSE

35. I tend to be oversensitive and easily hurt by thoughtless remarks and actions of others.
   
   A = TRUE              B = FALSE

36. In many stores you just cannot get served unless you push yourself in front of other people.
   
   A = TRUE              B = FALSE

37. I do not need a large number of casual friends.
   
   A = TRUE              B = FALSE

38. I can enjoy myself just lying around and not doing anything active.
   
   A = TRUE              B = FALSE

39. I enjoy getting into new situations where you can't predict how things will turn out.
   
   A = TRUE              B = FALSE

40. I never get lost, even in unfamiliar places.
   
   A = TRUE              B = FALSE

41. I am easily frightened.
   
   A = TRUE              B = FALSE
42. If people annoy me I do not hesitate to tell them so.

   A = TRUE   B = FALSE

43. I tend to be uncomfortable at big parties.

   A = TRUE   B = FALSE

44. I do not feel the need to be doing things all of the time.

   A = TRUE   B = FALSE

45. I like doing things just for the thrill of it.

   A = TRUE   B = FALSE

46. I sometimes feel panicky.

   A = TRUE   B = FALSE

47. When I am angry with people I do not try to hide it from them.

   A = TRUE   B = FALSE

48. At parties, I enjoy mingling with many people whether I already know them or not.

   A = TRUE   B = FALSE

49. I would like a job that provided a maximum of leisure time.

   A = TRUE   B = FALSE

50. I tend to change interests frequently.

   A = TRUE   B = FALSE

51. I often think people I meet are better than I am.

   A = TRUE   B = FALSE

52. I never get annoyed when people cut ahead of me in line.

   A = TRUE   B = FALSE

53. I tend to start my social weekends on Thursdays.

   A = TRUE   B = FALSE
54. I usually seem to be in a hurry.
   A = TRUE   B = FALSE

55. I sometimes like to do things that are a little frightening.
   A = TRUE   B = FALSE

56. Sometimes when emotionally upset, I suddenly feel as if my legs are unsteady.
   A = TRUE   B = FALSE

57. I generally do not use strong curse words even when I am angry.
   A = TRUE   B = FALSE

58. I would rather "hang out" with friends rather than work on something by myself.
   A = TRUE   B = FALSE

59. When on vacation I like to engage in active sports rather than just lie around.
   A = TRUE   B = FALSE

60. I'll try anything once.
   A = TRUE   B = FALSE

61. I often feel unsure of myself.
   A = TRUE   B = FALSE

62. I can easily forgive people who have insulted me or hurt my feelings.
   A = TRUE   B = FALSE

63. I would not mind being socially isolated in some place for some period of time.
   A = TRUE   B = FALSE

64. I like to wear myself out with hard work or exercise.
   A = TRUE   B = FALSE
65. I would like the kind of life where one is on the move and travelling a lot, with lots of change and excitement.

   A = TRUE    B = FALSE

66. I often worry about things that other people think are unimportant.

   A = TRUE    B = FALSE

67. When people disagree with me I cannot help getting into an argument with them.

   A = TRUE    B = FALSE

68. Generally, I like to be alone so I can do things I want to do without social distractions.

   A = TRUE    B = FALSE

69. I never have any trouble understanding anything I read the first time I read it.

   A = TRUE    B = FALSE

70. I sometimes do "crazy" things just for fun.

   A = TRUE    B = FALSE

71. I often have trouble trying to make choices.

   A = TRUE    B = FALSE

72. I have a very strong temper.

   A = TRUE    B = FALSE

73. I have never lost anything.

   A = TRUE    B = FALSE

74. I like to be active as soon as I wake up in the morning.

   A = TRUE    B = FALSE

75. I like to explore a strange city or section of town by myself, even if it means getting lost.

   A = TRUE    B = FALSE
76. My muscles are so tense that I feel tired much of the time.

    A = TRUE  B = FALSE

77. I can't help being a little rude to people I do not like.

    A = TRUE  B = FALSE

78. I am a very sociable person.

    A = TRUE  B = FALSE

79. I prefer friends who are excitingly unpredictable.

    A = TRUE  B = FALSE

80. I often feel like crying sometimes without a reason.

    A = TRUE  B = FALSE

81. No matter how hot or cold it gets, I am always quite comfortable.

    A = TRUE  B = FALSE

82. I need to feel that I am a vital part of a group.

    A = TRUE  B = FALSE

83. I like to keep busy all the time.

    A = TRUE  B = FALSE

84. I often get so carried away by new and exciting things and ideas that I never think of possible complications.

    A = TRUE  B = FALSE

85. I don't let a lot of trivial things irritate me.

    A = TRUE  B = FALSE

86. I am always patient with others even when they are irritating.

    A = TRUE  B = FALSE
87. I usually prefer to do things alone.
   A = TRUE              B = FALSE

88. I can enjoy routine activities that do not require much concentration or effort.
   A = TRUE              B = FALSE

89. I am an impulsive person.
   A = TRUE              B = FALSE

90. I often feel uncomfortable and ill at ease for no real reason.
   A = TRUE              B = FALSE

91. I often quarrel with others.
   A = TRUE              B = FALSE

92. I probably spend more time than I should socializing with friends.
   A = TRUE              B = FALSE

93. It doesn't bother me if someone takes advantage of me.
   A = TRUE              B = FALSE

94. When I do things, I do them with lots of energy.
   A = TRUE              B = FALSE

95. I like "wild" uninhibited parties.
   A = TRUE              B = FALSE

96. After buying something I often worry about having made the wrong choice.
   A = TRUE              B = FALSE

97. When people shout at me. I shout back.
   A = TRUE              B = FALSE

98. I have more friends than most people do.
   A = TRUE              B = FALSE
99. Other people often urge me to "take it easy".

A = TRUE      B = FALSE
APPENDIX D

TORONTO ALEXITHYMIA SCALE (TAS-20)

Using the scale provided as a guide, indicate how much you agree or disagree with each of the following statements by circling the corresponding number. Give only one answer for each statement.

Circle 1 if you STRONGLY DISAGREE
Circle 2 if you MODERATELY DISAGREE
Circle 3 if you NEITHER DISAGREE NOR AGREE
Circle 4 if you MODERATELY AGREE
Circle 5 if you STRONGLY AGREE

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<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Moderately Disagree</th>
<th>Neither Disagree Nor Agree</th>
<th>Moderately Agree</th>
<th>Strongly Agree</th>
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<tbody>
<tr>
<td>1.</td>
<td>I am often confused about what emotion I am feeling.</td>
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<td>2.</td>
<td>It is difficult for me to find the right words for my feelings.</td>
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<td>3.</td>
<td>I have physical sensations that even doctors don’t understand.</td>
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<td>4.</td>
<td>I am able to describe my feelings easily.</td>
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<td>5.</td>
<td>I prefer to analyze problems rather than just describe them.</td>
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<td>6.</td>
<td>When I am upset, I don’t know if I am sad, frightened, or angry.</td>
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<td>7.</td>
<td>I am often puzzled by sensations in my body.</td>
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<td>8.</td>
<td>I prefer to just let things happen rather than to understand why they turned out that way.</td>
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<td>9.</td>
<td>I have feelings that I can’t quite identify.</td>
<td>Strongly Disagree</td>
<td>Moderately Disagree</td>
<td>Neither Disagree Nor Agree</td>
<td>Moderately Agree</td>
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<td>10.</td>
<td>Being in touch with emotions is essential.</td>
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<td>11.</td>
<td>I find it hard to describe how I feel about people.</td>
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<td>12.</td>
<td>People tell me to describe my feelings more.</td>
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<td>13.</td>
<td>I don’t know what’s going on inside me.</td>
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<td>14.</td>
<td>I often don’t know why I am angry.</td>
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<td>15.</td>
<td>I prefer talking to people about their daily activities rather than their feelings.</td>
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<td>16.</td>
<td>I prefer to watch “light” entertainment shows rather than psychological dramas.</td>
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<td>17.</td>
<td>It is difficult for me to reveal my innermost feelings, even to close friends.</td>
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<td>18.</td>
<td>I can feel close to someone, even in moments of silence.</td>
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<td>19.</td>
<td>I find examination of my feelings useful in solving personal problems.</td>
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<td>20.</td>
<td>Looking for hidden meanings in movies or plays distracts from their enjoyment.</td>
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APPENDIX E
LETTER TO POINTS OF CONTACT (Cave Diving Organizations via email)

Barry University

Dear Point of Contact,

My name is William Oigarden and I am a doctoral student under the direction of Dr. Catharina Eeltink in the Adrian Dominican School of Education at Barry University. The purpose of my letter is to request your help with completing a study of adult male cave divers. Prospective study participants are adult male cave divers who are married or in a committed relationship. The study seeks to investigate the relationship between personality and relationship adjustment. Participants will complete a consent form, a demographic questionnaire, and 3 online surveys by means of Survey Monkey™. It will be made clear that if they decline to participate, or should choose to drop out at any time during the study, there would be no adverse effects whatsoever. This will be an anonymous study.

We anticipate the number of cave divers who complete the survey to be 100.

If possible can you post the text box at the end of this message on your organizations homepage, on-line forum, and listsrv if applicable.

Although there are no direct benefits to individual participants, their participation in this study may help our understanding of adult male cave divers who are married or in a committed relationship. Participation is entirely voluntary. The survey is expected to take 45 minutes to complete.

Information provided by research participants will be held in confidence to the extent permitted by law. Any published results of the research will refer to group averages only and no names will be used in the study. Study data will be kept in a locked file cabinet in the researcher's office. All data will be destroyed after 5 years.

Your assistance in distributing this information for this research study is greatly appreciated. If you should have any questions or need more information please contact me, William Oigarden at (386) 984-9348 or by email william.oigarden@mymail.barry.edu, my supervisor, Dr. Catharina Eeltink at (321)235-8401 or by email at keeltink@mail.barry.edu, or the Institutional Review Board point of contact, Barbara Cook at (305) 899-3020, or by email at bcook@mail.barry.edu.

Thank you for your assistance.
Sincerely,

Mr. William Oigarden
Doctoral Candidate and Primary Researcher
Barry University
APPENDIX F

Below is the text box to freely publish on your homepage, on-line forum or listserv

Are you a male cave diver 18 years of age or older and married or in a committed relationship?

Would you like to participate in a FREE study investigating the relationship between personality traits and relationship satisfaction in cave divers?

If you answered yes to these questions, read on….

A doctoral research study is being conducted by WILLIAM B. OIGARDEN, MA, LMHC, NCC a doctoral candidate at Barry University in the Adrian Dominican School of Education, investigating the relationship between dyadic adjustment, personality traits, and alexithymia in cave divers.

To participate go to: [http://www.surveymonkey.com/s/xxxxxxx](http://www.surveymonkey.com/s/xxxxxxx)

Study Requirements - Complete a demographic survey (5 minutes) and three scales that measure dyadic adjustment (10 minutes), personality traits (20 minutes), and alexithymia (10 minutes). You would need to allow approximately 45 minutes to complete the survey. Eligibility Requirements – You must be a male cave diver 18 years of age or older and married or in a committed relationship. We anticipate the number of participants to be 100.

This is a research study and is not considered a therapeutic session. This study is free to all participants. Anonymity will be maintained. Participation is entirely voluntary and can be withdrawn at any time.

- After thoroughly reviewing and reading the Informed Consent screen, you will have two options. Should you choose to participate or choose not to participate in this voluntary study, your anonymity will be secure at all times. You also have the option to discontinue the study at any time.

- Once you have selected the I agree – Take the survey button: you will be presented with a demographics questionnaire. One this is completed, you will move into the rest of the on-line anonymous questionnaire that is comprised of three surveys.

If you should have any questions or need more information please contact me, William B. Oigarden at (386) 984-9348 or by email william.oigarden@mymail.barry.edu, my supervisor, Dr. Catharina Eeltink at (321) 235-8401, or by email at keeltink@mail.barry.edu, or the Institutional Review Board point of contact, Barbara Cook at (305) 899-3020, or by email at bcook@mail.barry.edu.
APPENDIX G
ON-LINE FORUM POST FOR DIRECT EMAIL FROM WILLIAM OIGARDEN

Are you a cave diver 18 years of age or older and married or in a committed relationship?

Would you like to participate in a FREE study investigating the relationship between personality traits and relationship satisfaction in cave divers?

If you answered yes to these questions, read on….

A doctoral research study is being conducted by WILLIAM B. OIGARDEN, MA, LMHC, NCC
a doctoral candidate at Barry University
in the Adrian Dominican School of Education, investigating the relationship between dyadic adjustment, personality traits, and alexithymia in cave divers.

To participate go to: http://www.surveymonkey.com/s/xxxxxxx

Study Requirements - Complete a demographic survey (5 minutes) and three scales that measure dyadic adjustment (10 minutes), personality traits (20 minutes), and alexithymia (10 minutes). You would need to allow approximately 45 minutes to complete the survey.

Eligibility Requirements – You must be a cave diver 18 years of age or older and married or in a committed relationship. We anticipate the number of participants to be 100.

This is a research study and is not considered a therapeutic session.
This study is free to all participants.
Anonymity will be maintained.
Participation is entirely voluntary and can be withdrawn at any time.

• After thoroughly reviewing and reading the Informed Consent screen, you will have two options. Should you choose to participate or choose not to participate in this voluntary study, your anonymity will be secure at all times. You also have the option to discontinue the study at any time.
• Once you have selected the I agree – Take the survey button: you will be presented with a demographics questionnaire. One this is completed, you will move into the rest of the on-line anonymous questionnaire that is comprised of three surveys.

If you should have any questions or need more information please contact me, William B. Oigarden at (386) 984-9348 or by email william.oigarden@mymail.barry.edu, my supervisor, Dr. Catharina Eeltink at (321) 235-8401, or by email at keeltink@mail.barry.edu, or the Institutional Review Board point of contact, Barbara Cook at (305) 899-3020, or by email at bcook@mail.barry.edu.
APPENDIX H

INFORMED CONSENT ON SURVEYMONKEY™ (COVER LETTER)

Barry University

The purpose of this research is to investigate the relationship between dyadic adjustment, personality traits, and alexithymia in adult male cave divers.

Participation is entirely voluntary and you may at any time withdraw from participation. I am asking you to complete the attached electronic survey. More specifically, you will be asked to complete a demographic survey and three scales that measure dyadic adjustment, personality traits, and alexithymia. Dyadic adjustment is a process rather than an unchanging state and that marital/couple adjustment is an ever-changing process which can be evaluated at any point in time on a dimension from well-adjusted to maladjusted. Alexithymia is considered a personality trait and that associated emotions play a significant role in interpersonal relationships, suggesting that impairment in the ability to deal with emotions would contribute to interpersonal problems.

Although there are no direct benefits to individual participants, their participation in this study may help our understanding of adult male cave divers who are married or in a committed relationship.

This study is completely anonymous are there are no potential risks of participating this study. However, there can be no guarantee of absolute anonymity due to the medium of this second party - SurveyMonkey™. Nevertheless, SurveyMonkey™ emphatically declares "Our privacy policy states that we will not use your data for our own purposes." In addition, I will request that SurveyMonkey™ "disable the SSL "before data collection thereby assuring the fact that the results I will receive will be truly anonymous and there will be no record kept of your IP address nor linkages I could utilize to identify you. It will take about 45 minutes to complete the survey. We anticipate the number of participants to be 100.

Your responses will be automatically compiled in a spreadsheet format and cannot be directly linked to you. All data will be stored in a password protected electronic format. In addition, SurveyMonkey™ employs multiple layers of security to ensure that my account and the data associated with the account are private and secure. In addition, a third-party security firm is consistently utilized by the survey tool administration (SurveyMonkey™) to conduct audits of security. The company asserts that the latest in firewall and intrusion prevention technology is employed. Hence, any concerns regarding potential invasion of your privacy and access to your responses other than I, the investigator should be allayed due to these protections. I trust you feel confident to answer the attached survey questions as honestly as you can.
“By clicking on the “I agree” button below and by submitting a completed survey, you are giving permission to use your data record in this study. Participant must click on either the “I agree” button or “I do not agree” button to confirm consent or refusal. Once the “I agree” button is clicked, participant is directly linked to the Survey. If you click on the “I do not agree” button, you will immediately exit this site.

As a research participant, information you provide is anonymous, that is, no names or other identifiers will be collected. SurveyMonkey.com allows researchers to suppress the delivery of IP addresses during the downloading of data, and in this study no IP address will be delivered to the researcher. However, SurveyMonkey.com does collect IP addresses for its own purposes. If you have concerns about this you should review the privacy policy of SurveyMonkey.com before you begin.

Again, you are free to withdraw your participation at any time without penalty. Thank you for your participation in advance. If you have any questions, feel free to contact me at William B. Oigarden at (386) 984-9348 or by email william.oigarden@mymail.barry.edu, my supervisor, Dr. Catharina Eeltink at (321) 235-8401, or by email at keeltink@mail.barry.edu, or the Institutional Review Board point of contact, Barbara Cook at (305) 899-3020, or by email at bcook@mail.barry.edu.

I agree – Take the survey  I do not agree – End survey
ATTACHMENT:

Protecting Human Research Participants

Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that William Oigarden successfully completed the NIH Web-based training course “Protecting Human Research Participants”.

Date of completion: 08/24/2012

Certification Number: 968075
ATTACHMENT:
Permissions to use instruments

Sat 8/25/2012 12:41 PM
From: Graeme Taylor graeme.taylor@utoronto.ca
Subject: Toronto Alexithymia Scale

Dear Mr. Oigarden,

Thank you for payment of the $40 copyright fee for use of the TAS-20. The package is attached in a pdf file, and also a list of related publications in a Word file.

Best regards.

Graeme J. Taylor, MD
Professor of Psychiatry
University of Toronto
Email: graeme.taylor@utoronto.ca
Web: www.gtaylorpsychiatry.org

Sat 9/22/2012 12:09 PM
From: Marvin Zuckerman zuckerma@UDel.Edu
Subject: Permission to use ZKPQ in dissertation

Dear Mr. Oigarden:

This is to give you permission to use the ZKPQ in your research. I would appreciate hearing your results when you have them and receiving a copy of any publication that might follow.

Marvin Zuckerman
Professor Emeritus
zuckerma@UDel.Edu

From: Betty Mangos betty.mangos@mhs.com
Sent: Monday, November 19, 2012 1:30 PM
To: Oigarden, William
Subject: RE: Dyadic Adjustment Scale Permissions Application

Hi Bill,

Please proceed with posting this assessment on Survey Monkey for 100 assessments.
Please let me know if there is anything else that I can do for you.

Thank you,
Betty

From: Beverly Pascua beverly.pascua@MHS.com
To: Betty Mangos
Cc: Oigarden, William
Subject: FW: Permissions Application

Hi Betty,

Can you please process this one for me at your earliest convenience?

Thank you
Beverly Pascua
Client Services Specialist-Corporate
MULTI-HEALTH SYSTEMS INC. (MHS)
P.O. Box 950
North Tonawanda, NY 14120-0950
800-456-3003 ext. 280