

HUMAN MOTIVATION AND PSYCHOLOGICAL WELL-BEING IN A SAMPLE OF
CLINICAL AND NON-CLINICAL ADULTS

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Dedication

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Abstract

Many researchers and theorists have argued that a person's psychological health and well-being require that needs are met. If needs are not met, the result is distress and attempts to compensate, both of which may lead to psychological problems. Thus, psychologists and others whose goal is to help people with psychological problems require a theory of important psychological needs.

This study provides a critical review of major need theories and assessment instruments developed to operationalize those theories. Based upon this review, five needs (autonomy, competence, relatedness, purpose, and physical) were identified as being critical aspects of psychological well-being. Using a relatively new needs assessment scale, these five needs were assessed in 1,358 clinical and non-clinical adults from various sites around a Midwestern state.

Results indicated a five-factor structure that was slightly different than the one originally hypothesized. This new five-factor model (life direction, positive interpersonal relations, interpersonal support, competence, and ability to adapt) was found to be consistent across both the clinical and non-clinical samples. Results provided strong evidence that this measurement instrument has superior psychometric properties to previously developed instruments. Importantly, this new need assessment inventory could discriminate clinical from non-clinical samples. An additional important finding concerned self-esteem. Many researchers have argued about whether self-esteem is a need. Results here suggest that self-esteem is not a need, but is either irrelevant or may be a vague measure of several needs. Suggestions for future research and implications for clinical treatment are discussed.

Chapter I

Purpose of Study & Literature Review

The purposes of this thesis are to review the major historical need theories, discuss their strengths and weaknesses, provide evidence to support the importance of assessing need fulfillment in clinical populations, critique the current instruments of need fulfillment, and discuss the development and psychometric properties of a new needs assessment instrument.

Major Needs Theories

The concept of “human needs” has been a heavily researched area of psychology. In the early years of research many authors referred to needs as “drives”, “wishes”, “desires”, or “instincts” and it is only until recently that the term “need” has been consistently adopted as a way to discuss this construct.

Thomas

In 1917 one of these early researchers, William Isaac Thomas, came up with the concept of the “four wishes” (new experience, security, response, and recognition). New experience refers to engaging in exciting and adventurous activities. Security means opposing new experience and focusing on maintaining the status quo (avoiding the new and unknown). Response involves a desire to express and receive affection and appreciation from others. Recognition involves a desire to achieve competence and a high status in one’s community.

Thomas considered these wishes to be the variables that link behaviors with the demands and potentialities of every human being (Volkart, 1951). He also believed these wishes are innate and their fulfillment is necessary for psychological health (Volkart). However, Thomas believed that in the quest for wish fulfillment individuals can end up choosing inappropriate replacements (e.g. food, alcohol, sexual acting out) for those unmet wishes, which suggests wishes can be

unconscious. Because psychological distress could be due to lack of wish fulfillment, Thomas believed individuals who seek counseling should be thoroughly assessed in order to determine which wishes are not being fulfilled appropriately. He suggested this assessment should focus on gaining a holistic picture of an individual by considering his or her behavior, the context in which it occurred, and the consequences that follow the behavior. By taking this view one can gain an understanding of the individual's amount of adjustment or maladjustment and therefore prescribe the most effective forms of treatment (Volkart).

Murray

Since Thomas' theory was developed, there have been many researchers who have continued to research psychological needs, Henry Alexander Murray being one of the most famous. Murray (1938) defined a need as a "construct which motivates behavior to resolve an unsatisfying situation" (p. 124). He believed all humans have 40 needs, which he divided into 13 viscerogenic needs (physical satisfiers) and 27 psychogenic needs (mental/emotional satisfiers) (Appendix A).

Murray's assessment of human needs is similar to Thomas in four ways. First, he agreed that without the satisfaction of needs an individual's psychological health will be compromised. Second, individuals often attempt to meet their needs in unhealthy ways (e.g. drinking, drugs, sexual acting out). Third, needs are often unconscious to the individual, which can lead to a feeling of emptiness or discontent. Finally, the best way to understand and assist an individual experiencing psychological distress is to understand which needs are not being met.

However, unlike Thomas, Murray (1938) believed individuals are aware of what they want, but are not aware of what they need and must be educated about the difference between the superficiality of wants and the deep satisfaction gained from fulfilling needs. Therefore, Murray

believed psychological treatment should focus on educating clients about their needs and how to best fulfill them. Although Murray deserves much credit for bringing awareness of human needs to the forefront of psychology, critics state his list of needs is too long and some of his concepts (achievements, recognition, and exhibition) are too “westernized” to be considered truly universal (Klineberg, 1980).

Maslow

Another researcher who significantly influenced the study of human needs was Abraham Maslow. Maslow (1943) believed human motivation is fueled by the existence of unmet needs and the desire to develop an optimum level of functioning. Maslow believed these needs are arranged in a hierarchy and that higher needs emerge only after lower level needs have been somewhat satisfied. The first level of the hierarchy contains the physiological needs (hunger, sex, food, rest, and thirst). The needs for safety and security (protection, stability, freedom from fear and chaos) reside on the second level and the needs for love and belongingness (intimacy, attention, and affiliation with a group) occupy the third. The fourth level of the hierarchy is the location of self-esteem needs (consistent high view of self and respect for the esteem of others), and the self-actualization needs (achieving the highest personal potential) occupy the highest level of the hierarchy.

Although Maslow (1943) viewed these needs to exist and be satisfied according to a hierarchical model, he does note some exceptions to this rule. Maslow believed there could be a reversal of the order of needs in the hierarchy if an individual views one need to be more important than another (e.g. self-esteem more important than love and belongingness). In this case, the need for self-esteem would require fulfillment before the love/belongingness need would emerge. A second example exists when a lower level need has been satisfied for a long

period of time (e.g. an individual has never experienced chronic hunger), it may become undervalued (due to the focus on higher order needs) and could result in lack of fulfillment. In this case, although an individual may experience hunger, he or she is not fully aware of this need, and therefore does not focus on its satisfaction. A third example of non-hierarchical need fulfillment occurs when an individual has no desire for a certain need or has never experienced need fulfillment in a particular area (e.g. lack of love/attention during childhood), and therefore has no desire or understanding of that need. A final exception to Maslow's hierarchy of need fulfillment occurs when individuals act as martyrs (giving up having their needs met for a higher cause). In this case, although these individuals are aware of the needs they are sacrificing, they are more focused on the cause for which they are sacrificing, rather than the needs themselves (1943).

Maslow's viewpoint on the necessity of having needs met is consistent with the views of Thomas and Murray. Maslow believed thwarting need fulfillment leads to psychological distress, and therefore it is the assessment of need fulfillment or lack thereof which should be the focus of psychotherapy. In addition, Maslow agreed human needs are universal, can be unconscious, and many people choose inappropriate routes (drinking, drugs, overeating, sexual acting out) to need fulfillment (Maslow, 1943). In addition to sharing similar views on needs and their fulfillment, Maslow's theory shares some of the same criticisms as Murray's (too many needs, lack of universality) as well as criticisms unique to his theory (lack of evidence for hierarchy, difficulty operationalizing his concepts) (Alderfer, 1969; Galtung, 1980; Goodman, 1968; Klineberg, 1980; Lawler & Suttle, 1972; Lederer, 1980; Locke, 2002; Rauschenberger, Schmitt, & Hunter, 1980; Snyder, 1994; Wahba & Bridwell, 1976).

Alderfer

Alderfer (1969) proposed an alternative to Maslow's (1943) hierarchy called the E.R.G. theory. E.R.G. stands for the three needs Alderfer suggest exist in all human beings (existence, relatedness, and growth). Existence needs are the physical needs of an individual (air, water, food, shelter, pay, fringe benefits, working conditions), relatedness needs refer to establishing satisfying supportive relationships with others, and growth needs refer to being able to use one's talents and to develop areas of competencies or interests. Alderfer believed in order for one to label something a need, one has to demonstrate that some degree of satisfaction of that need is necessary for the survival and healthy functioning of the individual.

Although aspects of Alderfer's (1969) theory mirror Maslow's, there are three distinct ways the theories are different. First, Alderfer's (1969) theory subsumes some of Maslow's (1943) needs under his three categories. Alderfer believed that there is some overlap in the safety and esteem needs of Maslow's theory. He deals with this by including needs that deal with physical or material needs in the existence category and those that deal with interpersonal needs in the relatedness category. This same concept applies to Maslow's esteem needs. The needs that involve interactions with others were included in Alderfer's relatedness category and those that deal with autonomy or self-improvement are included in the growth category. By combining these aspects of Maslow's need theory, Alderfer ends up with a more parsimonious model of human needs. Second, Alderfer's (1969) hierarchy of needs was not strictly ordered with lower level needs taking a priority over higher needs. This means a lower need does not require fulfillment before a higher need can serve as a motivator for behavior. For example, an individual who is chronically hungry would not be so dominated by this existence need that he could not recognize if he is connected with others or has areas of competence. Third, Alderfer (1972) argued although generally lower needs decrease in importance once they are satisfied,

they can become a motivator if a higher need is not being met. This concept suggests individuals who are unable to satisfy higher needs will focus more on attaining fulfillment of lower needs, which is a reversal of Maslow's hierarchy concept. Alderfer gave two examples of this phenomenon: "The less relatedness needs are satisfied, the more existence needs will be desired, and the less growth needs are satisfied, the more relatedness needs will be desired" (p. 27). The concept of need substitution was not allowed in Maslow's theory because his hierarchy was strictly ordered and he believed once a need is satisfied it could no longer serve as a motivator for behavior.

Consistent with previous researchers, Alderfer (1969) believed human needs are universal and fulfillment of those needs leads to psychological well-being, whereas thwarting of needs leads to psychological distress. Individuals lacking in need fulfillment may seek out inappropriate ways to fulfill their needs. However, like Murray (1938) and Maslow (1943), Alderfer's (1969) theory has also been subject to criticism. Several authors who tested his theory found no evidence of a hierarchy and no evidence lower level needs decrease in importance once they have been satisfied (Hall & Nougaim, 1968; Lawler & Suttle, 1972; Mobley & Locke, 1970; Rauschenberger et al., 1980). In addition to these criticisms, I note that his E.R.G. theory has only been tested in occupational settings, which limits the generalizability of his theory of need fulfillment to other populations.

Deci & Ryan

One modern theory on human needs is Self Determination Theory (SDT), which was proposed by Deci and Ryan (1985). Deci and Ryan believe in order for something to qualify as a need it must be directly related to the well-being of the individual, and therefore they define needs as "the nutrients or conditions that are essential to an entity's growth and integrity"

(Ryan, 1995, p. 410). SDT posits there are three universal human needs (autonomy, competence, relatedness), which are essential for optimal functioning. Autonomy refers to an individual's feeling he or she is the originator of his or her behaviors (Deci & Ryan). However, Deci and Ryan emphasize autonomy should not be considered the same as independence because autonomy would encourage interactions and support of others where independence would not. Relatedness refers to being connected with others and the community at large in an environment of mutual support and caring. Competence involves feelings of effectiveness and skill in one's interactions (individual or community) and having opportunities to express one's aptitude (Deci & Ryan).

The needs for autonomy, competence, and relatedness posited by SDT have been empirically validated through numerous studies. The existence of autonomy as a basic human need has been demonstrated with adults in university settings (Bettencourt & Sheldon, 2001; Chirkov, Ryan, Kim, & Kaplan, 2003; Gagne, 2003; Hodgins, Koestner, & Duncan, 1996; Levesque, Zuehlke, Stanek, & Ryan, 2004; Sheldon & Bettencourt, 2002; Sheldon, Ryan, Deci, & Kasser, 2004; Sheldon, Ryan, & Reis, 1996), work setting (Gagne, 2003), medical settings (Kasser & Ryan, 1999; Williams, Frankel, Campbell, & Deci, 2000; Williams, Grow, Freedman, Ryan, & Deci, 1996; Williams, Rodin, Ryan, Grolnick, & Deci, 1998) and with adolescents and children (Hayamizu, 1997; Ryan & Lynch, 1989; Yamauchi & Tanaka, 1998). Support for competence has been demonstrated in university settings (Levesque et al., 2004; Sheldon et al. 1996) and with children and adolescents (Chirkov & Ryan, 2001; Hayamizu, 1997; Yamauchi & Tanaka, 1998). Empirical support for relatedness has been demonstrated in a medical population (Kasser & Ryan, 1999) and in university settings (Bettencourt & Sheldon, 2001; Hodgins et al., 1996; Ryan et al., 1999; Sheldon, & Bettencourt, 2002). Support for the complete model

(autonomy, competence, and relatedness) has been demonstrated in university settings (La Guardia, Ryan, Couchman, & Deci, 2000; Reis, Sheldon, Gable, Roscoe, & Ryan, 2000; Sheldon & Elliot, 1999; Sheldon, Elliot, Kim, & Kasser, 2001) work settings (Baard, Deci, & Ryan, 2000, cited in Baard, 2002; Deci, Ryan, Gagne, Leone, Usunov, & Kornazheva, 2001; Ilardi, Leone, Kasser, & Ryan, 1993; Kasser, Davey, & Ryan, 1992), and with a sample of adults (Kasser & Ryan, 1996).

Although the numerous studies listed above give tremendous support for the existence of autonomy, competence, and relatedness as psychological needs, there has been little consistent measurement of these constructs across studies. Of the studies mentioned above, thirteen developed their own instrument to measure needs, ten used measures of similar constructs (e.g. self-esteem, well-being), four used the basic Need Satisfaction at Work scale (formerly called the *Work Motivation Form*) (Ilardi et al., 1993), and only one used the general need satisfaction scale, which was created from the need satisfaction at work scale (Deci et al., 2001). While theoretically, most definitions of autonomy, competence, and relatedness should measure similar constructs, without consistent operational definitions that account for individual differences, it becomes more challenging to generalize results across populations. For example, although Deci & Ryan's (1985) belief that basic human needs are universal has received much support from studies in Turkey, Russia, Korea, Japan, and Germany, respectively (Chirkov & Ryan, 2001; Chirkov et al., 2003; Deci et al., 2001; Hayamizu, 1997; Levesque et al., 2004; Ryan et al., 1999; Sheldon et al., 2001; Yamauchi & Tanaka, 1998), consistent measurement would provide more support for the universality of needs. R. M. Ryan (personal communication, July 29, 2004) stated one reason there has been little consistent measurement of needs is because SDT looks at need fulfillment as "setting specific" (work, school, etc.) and not "in general"; therefore, many

researchers develop their instrument to measure need fulfillment in a particular setting, rather than as a general construct. However, Ryan stated that the development of a general measure of need fulfillment would be a valuable tool to measure overall psychological well-being.

Deci & Ryan's (1985) theory of human needs shares both similarities and differences with the prior need theories. All the theories discussed previously posit relatedness as a need, Murray (1938) supports the need for autonomy, and Maslow (1943) and Alderfer (1969) include competence (although they define it differently). In addition, Deci & Ryan support the universality of needs, the potential unconsciousness of needs, agree individuals may seek out fulfillment of needs in inappropriate ways (eating disorder, addiction, behavioral problems), and agree thwarting of need fulfillment leads to psychological distress. However, Deci and Ryan's theory differs from the previous theories by not using a hierarchy and not including physical, self-esteem, or sense of purpose/meaning needs. R. M. Ryan (personal communication, July 29, 2004) stated SDT has not focused attention on the physical needs because there was no reason to assume in the population they were studying that the physical needs were unmet. However, Ryan believes when studying a clinical population, those below the poverty line, or individuals in developing countries, it is essential to measure the fulfillment of physical needs because these populations are often lacking need fulfillment in this area, which has a deleterious effect on psychological functioning.

Ryan and Deci (2000a) chose not to include self-esteem in their model because they believe it to be an outcome measure of having the other three needs fulfilled. Sheldon et al. (2001) tested this hypothesis by adding self-esteem to Deci and Ryan's model of basic needs and concluded self-esteem could be viewed either an outcome measure or as its own separate need.

Based upon Deci and Ryan's hypothesis, and the results of Sheldon et al's study, it is clear more research is necessary in order to gain a better understanding of how self-esteem is best classified.

Another need not included in SDT is purpose or meaning in life. Ryan and Deci (2000a) view meaning, like self-esteem, to be an outcome measure of having the needs of autonomy, competence, and relatedness met. However, not including sense of purpose/meaning as a need seems to be a more questionable choice. Perhaps they chose to not include this as a need because of the populations their theory is most frequently tested on (college students, organizational settings). In these populations it would be logical to assume that sense of purpose is in part derived from work accomplished in school or on the job. However, how can this same construct be assessed in individuals who are unemployed, retired, physically unable to work, or have other reasons for not working (e.g. family responsibilities)? Furthermore, it is not unheard of for an individual with a good job, sense of autonomy, and relatedness to still feel something is missing from his or her life. I posit this emptiness reflects a lack of purpose/meaning in one's life.

There are several other researchers who agree with this position and view meaning (defined as mastery, self-actualization, or growth) as an essential human need that exists separate and apart from other needs (Alderfer, 1969; Galtung, 1980; Mallmann, 1980; Maslow, 1943; Ryff, 1989; Volkart, 1951). Furthermore, many existentialists believe the search for meaning or purpose in life is the greatest need that exists in humanity (Binswanger, 1975; Buber, 1968; Frankl, 1984; Heidegger, 1962; Kierkegaard, 1989; Maddi, 1970; Sartre, 1957; Tillich, 1952; Wong, 1998; Yalom, 1980). Due to the overwhelming support for sense of purpose or meaning as a psychological need, and because R. M. Ryan (personal communication, July 29, 2004) reports this need has not yet been tested as a need rather than an outcome measure, sense of purpose warrants further investigation.

While Deci and Ryan's (1985) theory has in general received extensive empirical support, they have been criticized for having too general of a model (Pyszczynski, Greenberg, & Solomon, 2000). In addition to this criticism, I have some criticisms of their theory. First, neglecting to include the physical needs, when the majority of researchers (Alderfer, 1969; Ryan & Deci, 2000b; Galtung, 1980; Hull, 1961; Klineberg, 1980; Lederer, 1980; Mallmann, 1980; Maslow, 1943; Murray, 1938; Volkart, 1951) agree physical needs are essential for the survival of the human race, eliminates the possibility of gaining a holistic view of individuals who are severely lacking in this area. Second, viewing sense of purpose/meaning as an outcome measure without empirically validating this hypothesis suggests this could be another need state which is unassessed. Third, validating their theory on students and professionals while neglecting the more clinical populations, those who are retired, physically unable to work, unemployed, or who have other reasons for not working, limits the generalizability of their conclusions to these populations. Fourth, although the majority of research supports the existence of their three needs, the lack of consistent measurement of those needs could affect the generalizability of the findings to other populations.

Ryff

Ryff (1989) proposed another modern theory of human needs; however, she defined it as a theory of well-being. This theory is presented because her conceptualizations of well-being mirror the need concepts presented in previous theories. Ryff posits the key components of well-being are self-acceptance (positive attitude toward the self), positive relationships with others (reciprocal and supportive), autonomy (self-determined and independent), environmental mastery (sense of mastery and competence), purpose in life (goals and sense of direction), and personal growth (aspiring to continually develop). Her conceptualization of the dimensions of

well-being came from a compilation of constructs proposed by previous researchers (Allport, Rogers, Neugarten, Buhler, Erikson, Birren, Jahoda, Jung, and Maslow), and she believes that these encompass an individual's total well-being.

In addition to sharing similar theoretical components, Ryff (1989) also agrees lacking components of well-being can create psychological manifestations of depression, anxiety, and addictive behaviors. This suggests that Ryff (1989 & 1995), like the need theorists, believe fulfillment of these dimensions is essential for optimal functioning. In addition, Ryff (1989 & 1995) posits that these dimensions of well-being are universal even though their expression may be culturally dependent, which is consistent with the aforementioned need theorists.

Ryff's (1989) theory has undergone testing and several studies demonstrate her conceptualization of well-being is empirically sound. Research has supported the existence of her six dimensions of well-being in samples of non-institutionalized adults over 25 years of age (Keyes, Shmotkin, & Ryff, 2002; Ryff & Keyes, 1995), women over the age of 55 (Kling, Seltzer, & Ryff, 1997; Kwan, Love, Ryff, & Essex, 2003), and in middle aged adults (Ryff, Schmutte, & Lee, 1996; Schmutte & Ryff, 1997). Although Ryff's (1989) scale of Psychological Well-Being (PWB) was used in all the studies mentioned above, the instrument was modified in every study, providing only tentative support for her operationally defined theory.

In addition to the research that supports her theory, Ryff should be praised for her forward thinking about the components and measurement of well-being, and suggestions about how to treat psychological distress. Ryff (1995) believes in order for treatment to be effective, one has to "identify what is missing in people's lives" (p. 103) rather than pathologizing the individual. By identifying the parts that are missing, treatment can focus on filling these voids in appropriate ways rather than focusing solely on symptom management.

Although Ryff's (1989) theory is based upon arguably the "best" aspects of prior theories and subsequent research has supported both her theory and scale of well-being, there are some questionable aspects of her conceptualization of holistic well-being. First, although not considered to be a psychological variable, physical needs certainly contribute to well-being and therefore should be included in a holistic analysis of any individual. Ryff does not state why the physical component was not included in her model, but perhaps like Deci and Ryan (1985), Ryff is aware of the importance of physical needs but does not focus on its assessment. Second, personal growth may not be a unique dimension of well-being because of its likely connection to purpose in life. Although Ryff defines these two variables differently, she does not explain why they are separated. In addition, there could be many situations where because someone has purpose in life they are experiencing growth (e.g. parenting, teaching). Third, I argue her dimension of self-acceptance is similar to the self-esteem need, and research has not been able to determine whether it is a need or an outcome of having needs met. Without providing evidence of why she believes self-esteem is a separate need, it is difficult to support her use of it as one. Finally, I suggest another limitation of including personal growth and self-acceptance into the well-being dimension is that these constructs are difficult to objectify. While positive relations with others (relatedness), autonomy, environmental mastery (competence), and purpose in life could all be confirmed by collateral data, personal growth and self-acceptance are purely subjective and therefore more difficult to verify.

In summary, there is some agreement among the aforementioned theorists. Alderfer, Deci and Ryan (when considering clinical populations), Maslow, and Murray agree physical needs are critical to the well-being of individuals. Support for relatedness is given through the theories of Alderfer, Deci and Ryan, Maslow, and Thomas. The concept of competence is supported by

Alderfer, Deci and Ryan, Ryff, and Thomas. Autonomy is supported by Deci and Ryan and Ryff, and purpose is supported by Alderfer, Maslow, and Ryff. Thus, the most theoretically supported need constructs are relatedness, competence, and physical needs, with the majority of researchers mentioned supporting their existence. The two more tentative need categories are autonomy and purpose. Autonomy is only seen as a need by two theorists and purpose is only seen as a need by three. In addition to this lack of general support for these two needs, there is still controversy over how needs are defined, how many needs exist, and whether self-esteem should be considered a need. Thus, the current research hopes to shed some light on these areas.

Consequences of Lack of Need Fulfillment in Clinical Populations

The addiction literature has proved to be a source of evidence for the proposition that lack of need fulfillment and resulting attempts to compensate for unmet needs can lead to psychological problems. Two studies examining variables associated with drug use found conflicts with family and friends (relatedness) and one's ability to achieve in school or work (competence) to be related to an increased use of drugs (Arthur & Blitz, 2000; Bruns & Geist, 1984). Another study found lacking purpose in life and experiencing feelings of depression were correlated with addictive patterns of drug use (Sadava, Thistle, & Forsyth, 1978).

In addition to drug addiction, alcohol use and alcohol addiction have also been connected with lack of need fulfillment. Pearlin and Radabaugh (1976) found increased use of alcohol was related to low self-esteem, psychological distress as manifested through symptoms of anxiety, a lack of mastery (competence), and subject's reports of using alcohol as an escape from psychological pain. Hull's (1981) results were similar, demonstrating lack of self-esteem, inability to overcome personal shortcomings (competence), and desire to avoid psychological pain were significant contributors for increased alcohol consumption. Newcomb, Bentler, and

Collins (1986) also found that low self-esteem was related to alcohol use. Additionally, they discovered a significant relationship between alcohol use and both dissatisfaction with relationships (relatedness) and future opportunities (autonomy). The lack of autonomy was also found to have a significant relationship in a study by Room and Leigh (1992). These researchers found lack of control over one's life (autonomy) led to uncontrolled drinking (Room & Leigh). Beckman's (1980) results suggest the three main factors associated with drinking in women are powerlessness-inadequacy (competence), sociability (relatedness), and escapism (avoiding pain resulting from unmet needs). Jessor, Carman, and Grossman (1968) found similar results in a sample of college students. They concluded drinking serves as a coping mechanism for students who experience difficulties in social functions (relatedness) and personal effectiveness (competence) (Jessor et al.).

Although the majority of research on alcohol and need fulfillment has been speculative, Hart and Stueland (1992) conducted a study that directly compared need fulfillment and alcohol consumption. The Human Service Scale (HHS) (Kravetz, 1973) was developed based upon Maslow's theory and was used as the measure of need fulfillment in this study. The results of the study demonstrated there was a significant relationship between alcohol use and lack of need fulfillment in five areas (physiological, emotional security, economic security, family need, and social need). In addition, when these needs were fulfilled, there was a significant reduction in alcohol use and cravings (Hart & Stueland). This clearly study demonstrates there is a link between need fulfillment and alcohol use. Furthermore, this work demonstrates how the physiological needs are compromised as a result of alcohol use. These results confirm the need for future research and indicate a failure to assess physiological needs would result in an incomplete assessment of an individual.

Although few studies have directly linked addictive behavior to lack of need fulfillment, the research suggests a strong relationship between the two. Therefore, making a direct connection between the two could be useful for gaining an understanding of the underlying causes of addiction and developing more effective treatments.

Chapter II

Current Measures of Need Fulfillment

Edwards Personal Preference Schedule

The Edwards Personal Preference Schedule (EPPS) (1959) was developed to assess the fulfillment of 15 of Murray's (1938) manifest needs (Achievement (Ach), Deference (Def), Order (Ord), Exhibition (Exh), Autonomy (Aut), Affiliation (Aff), Intraception (Int), Succorance (Suc), Dominance (Dom), Abasement (Aba), Nurturance (Nur), Change (Chg), Endurance (End), Heterosexuality (Het), and Aggression (Agg)). The EPPS is a 225 item forced choice inventory with scale scores on each scale ranging from 0 to 28.

The EPPS (Edwards, 1959) was normed on 1,509 college students and 8,963 adults from a nationwide sample. Since the normative data was collected, the EPPS has been used mainly in university settings (Becker, 1964; Caputo, Psathas, & Plapp, 1966; Cunningham, Wakefield, & Ward, 1975; Fiske, Howard, & Rechenberg, 1960; Gardiner, 1976; Getter & Nowinski, 1981; Horst & Wright, 1959; 1981; Murgatroyd & Gavurin, 1975; Murgatroyd, Stuart, & Denmark, 1974; Pierce & Faulkender, 1988; Santee, 1975; Stolle & Bravence, 1984; Thorson & Powell, 1992; Waters, 1968; Williams, Tallarico, & Tedeschi, 1960), but has also been used with vocational rehab clients (Cooper, 1990), in occupational settings (Cantwell, 1991; Gardiner, 1973; Slocum & Hand, 1971), in clinical settings with alcoholics (e.g. Fitzgerald, Pasewark, & Tanner, 1967; Goss, Morosko, & Sheldon, 1968; Manaugh & Scott, 1976), and with hospitalized

psychiatric patients (e.g. Heilizer & Trehub, 1962; Newman & Wischner, 1960; Nowicki, 1967; Pasewark, Davis, & Fitzgerald, 1968; Perkins, 1968).

Internal consistency coefficients for the normative sample ranged from .60 (Deference) to .87 (Heterosexuality), and test-retest coefficients for a one-week interval ranged from .74 (Achievement) to .88 (Abasement), however no other psychometric properties were reported (Edwards, 1959). Of the subsequent research cited above, only five studies report psychometric properties. Waters (1968) found only moderate stability over a 7-week interval, with alpha coefficients ranging from .37 (Affiliation) to .67 (Abasement & Intraception). Caputo et al. (1966) found similar results over a 15-month period, with alpha coefficients ranging from .41 (Intraception) to .73. Two studies of clinical samples demonstrated the EPPS (Edwards, 1959) cannot consistently discriminate between clinical and non-clinical samples and the authors concluded its continued use with clinical populations is questionable (Pasewark et al., 1968; Fitzgerald et al., 1967).

Cooper (1990) conducted a factor analysis and concluded there are four factors for males and five for females, which contrasts the suggestion by Edwards (1959) to use only one set of norms since the intercorrelation matrices are so similar. Another group of researchers conducted a factor analysis and concluded there is a discrepancy between the constructs the EPPS (Edwards) is designed to measure and what it actually measures (Levonian, Comrey, Levy, & Procter, 1959). These researchers used data from the normative sample and found a “large number of narrow factors, the majority of which seem to be based upon shared common statements” and low correlations between items measuring the same construct (Levonian et al., p. 358). Thus, they concluded the EPPS is sorely lacking sufficient psychometric properties. Thorson and Powell (1992) also questioned the use of the EPPS normative data because the

college samples they compared with the original Edwards data scored entirely differently, which suggests instability in the instrument.

Helms (1983) contradicts much of the psychometric research cited above in her detailed analysis of the EPPS (Edwards, 1959). She states the internal consistency coefficients reported by Edwards ranged from .60 to .87 with the (Deference) scale demonstrating the least reliability and the (Heterosexuality) the most. Test-retest reliability is reported to be adequate for up to three weeks, with alpha coefficients ranging from .55 to .87. In addition, her summary of factor analytic studies demonstrates Edwards' factors are similar to the factors extracted by other researchers, and correlational studies demonstrate constructs measured by the EPPS are similar to the constructs measured by other researcher's scales (Helms).

In summary, the EPPS (Edwards, 1959), developed to operationalize 15 of Murray's (1938) manifest needs, appears to have questionable psychometric properties. The inadequacies could be due to the flaws in the theory underlying its development or the items selected to measure the constructs of interest. Due to the theoretical flaws inherent in Maslow's theory, lack of parsimony, and conflicting psychometric evidence, this scale appears to be less than adequate for purposes of the current study.

Manifest Needs Questionnaire

The second instrument developed to measure four of Murray's (1938) needs was developed because the authors were critical of the length of the EPPS (Edwards, 1959) and time required to fill out the instrument (Steers & Braunstein, 1976). The Manifest Needs Questionnaire (MNQ) (Steers & Braunstein) measures needs for Achievement (nAch), Affiliation (nAff), Dominance (power) (nDom), and Autonomy (nAut) through a series of 20

statements describing various behaviors at work. Individuals indicate how frequently they engage in the behaviors on a 7-point Likert scale ranging from 1 (always) to 7 (never).

The scale has been used in academic (Eberhardt, Yap, & Basuray, 1988; Geiger & Cooper, 1995; Harvey & France, 1987; Kirchmeyer, 1993; Matsui, Okada, Kakuyama, 1982; Medcof, 1990; Mudrack, 1993; Mudrack & Farrell, 1994; Parker & Chusmir, 1991; Steers & Spencer, 1977) and business settings (Blackburn, 1981; Brief, Aldag, Darrow, & Power, 1980; Chusmir, 1988; Chusmir & Koberg, 1988; Chusmir & Koberg, 1989; Dalton & Todor, 1979; Dreher, 1980; Dreher & Mai-Dalton, 1983; Fagenson, 1992; Joiner, 1982; Konovsky, Dalton, & Todor, 1986; Latham & Marshall, 1982; Marongiu & Ekehammar, 1999; O'Connor & Morrison, 2001; Todor & Dalton, 1982; Williams & Woodward, 1980). Steers and Braunstein (1976) report internal consistency coefficients of .66 (nAch), .56 (nAff), .61 (nAut), and .83 (nDom), and test-retest reliability at two weeks was .72 (nAch), .75 (nAff), .77 (nAut), and .86 (nDom). In addition, they concluded the MNQ (Steers & Braunstein) exhibited reasonable levels of convergent and discriminate validity when compared to another measure of need fulfillment, the Personality Research Form (PRF) (Jackson, 1967).

However, these psychometric properties have not held up across the studies mentioned above. Results demonstrate the internal consistency of the MNQ (Steers & Braunstein, 1976) is questionable at best due to the consistently poor to adequate alpha coefficients reported across studies for all scales except the nDom subscale, which consistently has alpha's ranging from .56 to .83 (Blackburn, 1981; Brief et al., 1980; Chusmir, 1988; Chusmir & Koberg, 1989; Dreher, 1980; Dreher & Mai-Dalton, 1983; Eberhardt et al., 1988; Fagenson, 1992; Geiger & Cooper, 1995; Joiner, 1982; Konovsky et al., 1986; Marongiu & Ekehammar, 1999; Parker & Chusmir, 1991). Further support for the utility of the nDom subscale comes from three studies that

exclusively studied this scale. These authors found the internal consistency of this scale to be .70 or higher (Medcof, 1990; Mudrack & Farrell, 1994; O'Connor & Morrison, 2001). In addition to internal consistency coefficients, three studies conducted factor analyses on the MNQ and concluded due to poor factor loadings on all subscales except nDom, the MNQ should not be used as a measure of need fulfillment in organizational settings (Blackburn, 1981; Kirchmeyer, 1993; Williams & Woodward, 1980).

In summary, the MNQ (Steers & Braunstein, 1976) was developed to assess four of Murray's (1938) needs (Achievement, Affiliation, Autonomy, and Dominance) in the work place. Of all of these subscales, only the Dominance scale has been proven to be somewhat internally consistent and have adequate factor loadings. Therefore, the majority researchers conclude the MNQ is not an appropriate scale for measuring need fulfillment. The flaws in the MNQ could be due to the underlying flaws in Murray's theory or poor item selection. In either case, both poor psychometric properties and the focus on assessing need fulfillment in a non-clinical population make this instrument less than adequate for measuring need fulfillment in a clinical population.

Needs Assessment Questionnaire

The final instrument developed based upon Murray's (1938) need theory was the Needs Assessment Questionnaire (NAQ) (Heckert et al., 2000), which was developed to address the psychometric limitations of the MNQ (Steers & Braunstein, 1976). The development of this instrument included adding 40 new items to the 20 original MNQ items and norming the scale on both an undergraduate and alumni sample of a university. Factor analysis suggested a four factor solution (each factor corresponding to only one need) with the combination of factors accounting for 38% of the variance, and internal consistency coefficients (ranging from .65 to .81) were

found to be significantly higher than the MNQ alpha's (Heckert et. al). Convergent and discriminant validity was demonstrated by the statistically significant correlations between the NAQ (Heckert et al.) and the corresponding scale of the Personality Research Form (PRF) (Jackson, 1967), however the nAut scale demonstrated the lowest correlation (.34) (Heckert et. al). Concurrent criterion validity was demonstrated by correlations between the NAQ scale scores and various criteria for the student (e.g. GPA, number of friends, number of roommates preferred) and alumni (e.g. number of monthly goals set, frequency of feedback, frequency of procrastination) samples.

In both student and alumni samples, only the nAut subscale showed less than favorable results. In the student sample, the nAut scale was not statistically significantly correlated with any of the criteria, and in the alumni sample, the nAut was only correlated with one out of seven criteria (Heckert et. al, 2000). A confirmatory factor analysis on the alumni sample resulted in a poor fit to the data. However, due to the poor performance of the nAut scale, the authors removed it from a subsequent factor analysis, and results demonstrated an improvement in fit despite a significant Chi Square value (Heckert et. al). Although the developers concluded that the "NAQ is a reliable and valid alternative to the Manifest Needs Questionnaire", they do not suggest using the nAut subscale due to its poor psychometric properties (Heckert et. al, p. 134).

In summary, the NAQ (Heckert et al, 2000) was developed to address the psychometric limitations of the MNQ (Steers & Braunstein, 1976). While many psychometric properties of the NAQ are superior to the MNQ, the poor fit suggested by the factor analysis and the lack of subsequent research on this scale makes the developers' conclusion about the utility of the NAQ premature. In addition, since the NAQ has never been used with any clinical sample, it is unclear if the improved psychometric properties of this scale would be robust with different populations.

Furthermore, due to the highly criticized theory upon which this instrument is based, it is not likely the use of this instrument would yield an accurate measure of need fulfillment.

Porter Need Satisfaction Questionnaire

The first instrument developed to operationalize need concepts posited by Maslow (1943) was the Porter Need Satisfaction Questionnaire (PNSQ) (Porter, 1961). This questionnaire was developed to assess the degree to which an individual's needs at work are satisfied. The PNSQ includes five subscales (security, social interaction, esteem, autonomy, and self-actualization). Individuals rate on a 7-point scale how much opportunity exists for each of the five needs to be met on the job and how much opportunity should exist on the job. The discrepancy between these scores determines the individual's level of need satisfaction (Porter).

The majority of research conducted with the PNSQ (Porter, 1961) focused on employees at a variety of businesses (Adler & Aranya, 1984; Altimus & Tersine, 1973; Anantharaman & Balachandar, 1990; Anantharaman, & Venkataraman, 1982; Barling & Neall, 1977; Blunt, 1972; Carlson & Thompson, 1995; Ganesan & Rajendran, 1982; Hall & Mansfield, 1975; Hand, Estafen, & Sims, 1975; Herman & Hulin, 1973; Imparato, 1972; Ivancevich, 1969; Lawler & Suttle, 1972; Lefkowitz, 1974; Lefkowitz, Somers, & Weinberg, 1984; Marsteller & Slocum, 1972; Orpen, 1974a; Orpen, 1974b; Orpen & Lisus, 1974; Payne, 1970; Pierson, Archambault, & Iwanicki, 1985; Porat, 1977; Porter, 1962; Porter, 1962; Porter, 1963; Saiyadain, 1977; Slocum, 1971; Slocum & Strawser, 1972; Venkataraman & Anantharaman, 1981; Waters & Roach, 1973; Waters & Roach, 1976; Wexley, McLaughlin, & Sterns, 1975; Yue, 1997), however two studies assessed needs satisfaction with college students (Lefkowitz, Somers, & Weinberg, 1984; Mansfield, 1972), and one assessed need fulfillment in a sample of housewives (Betz, 1982). Two review articles summarize the psychometric data obtained from studies through the late

1970's. Blunt (1977) states the problem with the majority of studies on the PNSQ is the researchers blindly accept the PNSQ's validity even though Porter and the majority of other researchers who have used this instrument do not provide any evidence of its validity. In addition, Blunt reports the factor analyses conducted by three researchers failed to support Porter's claim that the PNSQ adequately operationalized Maslow's need constructs. Furthermore, he criticizes Porter for failing to provide any validation information on his instrument over the course of ten years of research and questions why researchers have continued to use an instrument that has only sparse evidence of its psychometric properties (Blunt).

Wahba and Birdwell (1976) reached similar conclusions in their summary of ten studies. They concluded the PNSQ (Porter, 1961) suffers from a lack of internal consistency and has inconsistent factor analysis results. In addition, they are critical of Porter's claim that his scale accurately reflects Maslow's hierarchy because Porter does not assess physical needs and he includes autonomy as a separate need rather than including it with the esteem need. Furthermore, they criticize Porter for only including 15 items in his scale, having the majority of those assess for esteem and self-actualization, and for failing to provide any original validity data on his instrument (Wahba & Birdwell).

Two more recent studies of the PNSQ (Porter, 1961) support the above criticisms. Pierson et al. (1985) conducted a factor analysis on the PNSQ, which yielded a two-factor solution undermining Porter's claim of five needs. Ganesan and Rajendran (1982) compared Wernimont's (1966) Job Satisfaction Scale with the PNSQ and found inconsistent relationships between the corresponding scales. They concluded that the PNSQ may not be an accurate measure of need fulfillment.

In summary, the PNSQ (Porter, 1961) was created to measure Maslow's (1943) need hierarchy in work settings. However, after extensive research, it appears the PNSQ (Porter) is sorely lacking in psychometric properties. Thus, the PNSQ should not be considered an effective representation of Maslow's theory and should not be used to assess need fulfillment. The poor instrument qualities could be due to the theoretical flaws in Maslow's theory discussed previously in this paper, or could be due to poor item content and insufficient items to measure each construct.

Existence, Relatedness, & Growth

Alderfer (1969) developed another instrument based upon Maslow's (1943) theory of human needs; however, Alderfer posits there are only three needs (existence, relatedness and growth). His original instrument, developed to measure need satisfaction in work settings, contained 88 items which individuals would rate on a 6-point scale ranging from 1 (strongly agree) to 6 (strongly disagree). However, this instrument has rarely been used in its original form. Most researchers have modified the instrument's items to reflect the nature of the population of interest, and/or have selected items from each subscale to reduce the amount of time required for completion.

Alderfer's (1969) instrument in its varied forms has been used in both organizational (Alderfer, 1967; Alderfer, 1969; Alderfer, Kaplan, & Smith; 1974; Lamude & Lichtenstein, 1985; Rao & Kulkarni, 1998; Scherf, 1974; Schneider & Alderfer, 1973; Szilagy & Holland, 1980; Wilcove, 1978) and educational settings (Pulakos & Schmitt, 1983; Rauschenberger, Schmitt, & Hunter, 1980; Schmitt & Son, 1981; Schmitt & White, 1978). Assessing the psychometric properties of this instrument is complicated by the various modifications researchers have made to the instrument as well as a lack of psychometric data on the complete

instrument. Alderfer (1969 & 1972) provides separate data for the satisfaction and desire subscales which, taken together, suggest moderate psychometric properties.

Alderfer (1969) reported the internal consistency coefficients for the satisfaction and desire scales were .78 and .65, and .81 and .86 respectively. However, Alderfer et al., (1974) reported alpha coefficients for the relatedness satisfaction scales ranged from .29 to .94, and Rauschenberger et al., (1980) reported alpha coefficients ranging from .66 to .78, and test-retest coefficients ranging from .54 to .79. Factor analysis of the satisfaction scales demonstrated all items loaded on their hypothesized factors to generate a seven-factor solution (Alderfer, 1972), which is consistent with Wilcove's (1978) results. The desire scales produced a five-factor solution instead of seven, because all items corresponding to relatedness loaded on one factor rather than the three separate factors (superiors, peers, and customers) seen in the satisfaction factor analysis (Alderfer, 1972). In contrast, another study resulted in a five-factor solution for both the satisfaction and desire scales (Alderfer, 1967).

Alderfer (1972) reports that the moderately high correlations between the need satisfaction questionnaire and structured interviews (taping similar constructs) provide evidence for convergent validity, and correlations with variables external to E.R.G. theory (job complexity, customer service contact activities, educational level, seniority, and pay) support the predictive validity of his measures of satisfaction and desires. In addition, Schneider and Alderfer (1973) suggest the E.R.G. scales demonstrate construct validity by being low to moderately correlated with the Job Description Index (Smith, Kendall, & Hulin, 1969).

In summary, Alderfer's (1969) measurement of need fulfillment based upon his E.R.G. model was developed based upon Maslow's theory, and presumes to assess existence, relatedness, and growth needs in occupational settings. However, due to the paucity of

psychometric research conducted on Alderfer's (1969) measure and the frequent modifications made to his original instrument, there are limits to the conclusions that can be drawn from the existing research. While it appears the factor analysis of the satisfaction scale is somewhat consistent, internal consistency and construct validity are at best questionable. It is clear more research should be conducted on the entire list of items in this instrument so that more conclusive psychometric results can be generated. However, for purposes of the current research, this measure of need fulfillment appears to be inappropriate due to the highly criticized theory on which it is based (Maslow's), the lack of use with a clinical population, and the lack of conclusive psychometric data.

Human Service Scale

Another scale developed on the basis of Maslow's (1943) theory of human needs was the Human Service Scale (HSS) (Kravetz, 1973). This scale was developed to provide a multidimensional assessment of a client's rehabilitation needs by assessing seven need areas (physiological, emotional, economic security, family, social, economic self-esteem, and vocational self-actualization) in an 80-item, multiple-choice Likert-type rating scale (Kravetz). The seven need dimensions are defined as follows: physiological needs refer to an individual's perception of his or her physical health, emotional security is the perception of overall emotional health, economic security is the amount of concern over economic problems, family is the amount and type of interaction with family members, social refers to the interaction with friends and the community as a whole, economic self-esteem refers to the individual's economic success and stability, and vocational self-actualization refers to the individual's amount of satisfaction derived from his or her job (Kravetz). Maximum points per scale are as follows: physiological (110), emotional security (152), economic security (41), family (69), social (65), economic self-

esteem (44), and vocational self-actualization (114). Scores for each scale are obtained by calculating a percentage of the total points for that scale, and based upon that determining the amount of need fulfillment an individual is experiencing (75% = high, 50% = average, 25% = low). Individuals who are currently employed are asked to fill out the entire questionnaire, while those who are unemployed only fill out questions 1 through 63 (Kravetz). The unemployment variable generates a predetermined score of zero on the vocational self-actualization scale in order to reflect unemployment as a deficit state (Kravetz).

The scales normative sample included over 1,000 individuals in 29 states who had been admitted to a rehabilitation facility (Kravetz, 1973), and because of the nature of the instrument's purpose it has been subsequently used to assess both rehabilitation clients (Bolton, 1977; Bolton, 1978a, Bolton, 1978b; Garske & Thomas, 1992) and alcoholics (Hart, 1977; Hart, 1978; Hart & Stueland, 1982; Taricone, Bordieri, & Scalia, 1989). A factor analysis conducted on the normative sample yielded a seven factor solution, contradicting Maslow's (1943) hypothesis of five, however, Hart's (1977) study with alcoholics yielded six first order factors and four second order factors, which suggests the HHS (Kravetz) may not be adequately measuring the more latent constructs.

Internal consistency coefficients for the subscales range from .69 to .97, and content validity was estimated to be .91 (Reagles & Butler, 1976), however the lack of psychometric data on this scale does not allow for confirmation of these findings. Bolton (1978a) attempted to determine construct validity but his results only yielded partial support for the underlying constructs of the scale. Finally, although not a direct measure of test-retest reliability, Hart and Stueland (1982) administered the HHS (Kravetz, 1973) to 563 alcoholics both at intake and three months after discharge from the thirty-day inpatient program. The results reflected an increase in

need satisfaction in psychological, emotional security, economic security, family, and social needs but a decrease in economic self-esteem and vocational self-actualization (Hart & Stueland). While the increase in the five need areas is not unexpected after treatment, the decrease in the latter two is surprising. Hart and Stueland suggest the decrease in economic self-esteem and vocational self-actualization could be due to the loss of psychological benefit alcohol provides for these individuals. However, perhaps a more logical conclusion could be these needs either were not effectively assessed by the HHS (Kravetz) or were not sufficiently addressed during treatment.

In summary, the Human Service Scale (HHS) (Kravetz, 1973) is an 80-item measure based upon Maslow's (1943) theory of human motivation used to assess the rehabilitation needs of clients. While the psychometric properties based upon the normative data are encouraging, the dearth of research supporting these findings leaves the utility of this instrument undetermined. In addition, including two variables to measure economic needs and three to measure relatedness needs (family, social, and emotional) seem redundant. It would also seem more parsimonious to subsume economic needs under physiological, especially if this category could be redefined as basic physical needs (adequate food, shelter, clothing, access to clean water, and health care). This change of focus would provide a more holistic assessment of the client's physical needs, and suggest direct interventions to improve his or her physical well-being. Furthermore, renaming the vocational self-actualization scale to sense of purpose/meaning would allow for those clients who are currently unemployed, physically unable to work, retired, or have other reasons for not working (e.g. family responsibilities) to be more holistically assessed. This change would allow for these individuals to be assessed for a sense of purpose independent of a job, which could more accurately assess need fulfillment in this area. This is not to say some

individuals do not derive a sense of purpose from their job, but to assume all individual should is shortsighted. A final criticism of this scale lies within the scales underlying theory. As mentioned in previous sections of this paper Maslow's (1943) theory has been heavily criticized, which makes any instrument based upon this theory limited in its utility.

Despite these criticisms, I applaud Kravetz (1973) for his foresight in many areas of his instrument development. The inclusion of physiological needs, while limited in its current definition, demonstrates his insight into the importance of assessing this need in a clinical population. In addition, the inclusion of vocational self-actualization (what I call sense of purpose/meaning) also demonstrates his agreement with other researchers (Binswanger, 1975; Buber, 1968; Frankl, 1984; Heidegger, 1962; Kierkegaard, 1989; Maddi, 1970; Sartre, 1957; Tillich, 1952; Wong, 1998; Yalom, 1980) who suggest lack of need fulfillment in this area often leads to psychological distress. However, as stated previously, a modification of this need's definition would allow for a more inclusive examination of this need.

Although the HHS (Kravetz, 1973) has many relevant need states for assessing the clinical population, its limitations (flawed underlying theory, lack of parsimony, narrow definitions of some need states) outweigh its utility. In addition, the current available research has not been able to substantiate the psychometric data obtained on the normative sample. Therefore, for the purposes of the current research, this instrument does not appear to be appropriate.

Basic Need Satisfaction Inventory

The final instrument based upon Maslow's theory of human motivation is the Basic Need Satisfaction Inventory (BNSI) (Leidy, 1994b), which was developed to measure the amount of need satisfaction across five dimensions corresponding to Maslow's hierarchy (physiological,

safety/security, love/belongingness, self-esteem, and self-actualization). The BNSI (Leidy) contains 27 items and five subscales, and responses occur on a 7-point Likert-type scale ranging from 1 (terrible) to 7 (delighted). Item scores are summated resulting in five subscale and one total item score. The total score can range from 27 to 189, with a higher score reflecting higher need fulfillment (Leidy). The normative sample included both a medical (chronic pulmonary disease) (N=109) and healthy adult population (N=100).

The BNSI (Leidy, 1994b) has been used to assess need fulfillment in a subsequent medical population (Leidy, 1999), healthy adult populations (Acton & Malathum, 2000; Barnfather & Ronis, 2000; Timmerman & Acton, 2001), and a sample of adult caregivers (Irvin & Acton, 1996), with all researchers providing psychometric data on their samples. Internal consistency coefficients from the normative samples were .68 and .74 (physical), .72 and .76 (safety/security), .78 and .74 (love/belongingness), .77 and .61 (self-esteem), .83 and .80 (self-actualization) and .92 and .90 (total scale). Two sets of researchers found similar high coefficients (.82, .85, .85, .82, .88, and .90 respectively) (Acton & Malathum, 2000; Timmerman & Acton, 2001), and three other studies calculated similar total item alpha coefficients .89 (Barnfather & Ronis, 2000), .95 (Leidy, 1999), and .94 respectively (Irvin & Acton, 1996).

Leidy (1994b) concluded the BNSI demonstrated content validity through its negative correlations with unrelated constructs (Life Experience Survey, Sarason, Johnson, & Siegel, 1978, and Psychic Tension Scale, Kline, 1988). Further support for content validity has been demonstrated by the BNSI's (Leidy) negative correlation with the Emotional Eating Scale (EES, Arnow, Kenardy, & Agras, 1995) (Timmerman & Acton, 2001), and positive correlations with the Functional Performance Inventory (FPI, Leidy, 1994a) (Leidy, 1999), Health Promoting Lifestyle Profile II (HPLPII, Walker, Sechrist, & Pender, 1987) (Acton & Malathum, 2000),

Personal Resource Questionnaire (PRQ, Brandt & Weinert, 1981), and Rosenberg Self-Esteem Scale (ROSES, Rosenberg, 1965) (Irvin & Acton, 1996).

Even though the five studies conducted with the BNSI (Leidy, 1994b) yielded fairly consistent psychometric properties, the instrument lacks a confirmatory factor analysis of its five need dimensions, has not been subjected to test-retest reliability, and has only been used with samples of healthy adults and medical patients. Therefore, firm conclusions about the psychometric properties of the instrument cannot be drawn, and the generalizability of the results is questionable.

In summary, the BNSI (Leidy, 1994b) is a five-item need assessment scale based upon Maslow's theory of human motivation. Despite strong internal consistency coefficients and evidence of content validity, the paucity of research leaves conclusions about the instruments utility questionable. In addition, as with the other measures based on Maslow's theory, the BNSI (Leidy) is subject to the same underlying theoretical flaws, although Leidy and her colleagues should be praised for their consistent reports of psychometric properties and the use of an instrument with a medical population. However, despite the promising properties of the BNSI (Leidy), its basis in an arguably flawed theory of human need satisfaction limits its utility for the purposes of the present study.

Basic Need Satisfaction in Life Scale

The Basic Need Satisfaction in Life Scale (Deci et al., 2001), was created from the Need Satisfaction at Work Scale (Ilardi et al., 1993), and is based upon Deci and Ryan's (1985) Self-Determination Theory. The scale contains 21 items, three subscales to reflect the three needs (autonomy, competence, and relatedness), and responses occur on a 7-point Likert scale ranging

from 1 (not at all true) to 7 (very true), however the authors provide no normative sample data because the research to develop this instrument was done ad hoc.

R. M. Ryan (personal communication, August 29, 2004) admits the psychometric properties are severely lacking on this scale because of its ad hoc development, unclear factor loadings, and paucity of research utilizing this scale. However, two studies used this scale and reported psychometric properties. Filak and Sheldon (2003) used the scale with two undergraduate samples, internal consistency coefficients from the samples were: .83 and .73 (autonomy), .81 and .86 (competence), and .77 and .80 (relatedness) respectively. Gagne (2003) also used the original scale with a sample of college students and used a modified version of the scale (Basic Need Satisfaction at Work) with a sample of volunteer workers. Results indicated the internal consistency coefficients for the student sample were .69 (autonomy), .86 (relatedness), .71 (competence), and .89 (total scale), and .76 (autonomy), .81 (relatedness), .60 (competence), and .88 (total scale) for the volunteer workers. In addition, Gagne found a strong correlation between each need subscale and measures of autonomy orientation, parental autonomy support, and prosocial engagement in the student sample.

Deci et al., (2001) used the Basic Need Satisfaction at Work Scale with a sample of workers in Bulgaria and America. The alpha coefficients in the Bulgarian and American data were .81 and .73 (autonomy), .57 and .84 (competence), .62 and .79 (relatedness), and .83 and .89 (total scale) respectively. In addition, all the need satisfaction variables were found to strongly correlate with measures of engagement, anxiety, and general self-esteem.

LaGuardia et al., (2000) modified the Basic Need Satisfaction in Life Scale (Deci et al., 2001) in order to create the Basic Need Satisfaction in Relationships Scale, which they used in two samples of college students. For the first study the authors included only 15 items and used a

9-point Likert-type scale to measure an individual's need fulfillment in four relationships (mother, father, romantic partner, and friends). Internal consistency coefficients for the total scales were .92, .92, .92, and .90 respectively. In the second study the need satisfaction scale was revised to a 7-point Likert-type scale and was used to measure need fulfillment in six relationships (mother, father, romantic partner, best friend, roommate, and a significant adult). Internal consistency coefficients were .91, .94, .88, .85, .90, and .90 respectively. LaGuardia et al. also performed a confirmatory factor analysis, which yielded a three-factor solution (root mean square error of approximation of .10 and comparative fit index of .96) and demonstrated adequate fit to the data. Furthermore, overall need satisfaction was highly correlated with attachment variables measured by the Relationship Questionnaire (Bartholomew & Horowitz, 1991) ($r_s = .65, .46, \text{ and } .52$ for overall, self, and other, respectively; $n = 152, p_s < .001$), and well-being measured by the State-Trait Anxiety Inventory (Spielberger, Gorsuch, & Lushene, 1970) and the General Self-Esteem subscale of the Multidimensional Self-Esteem Inventory (O'Brien & Epstein, 1988) ($r = .48, n = 152, p < .001$).

The results of these studies suggest the various forms of the Basic Need Satisfaction in Life Scale (Deci et al., 2001) appear to have adequate to good internal consistency and demonstrate some construct validity with measures of both similar and different constructs. However, the ad hoc nature of the development of the scales and the lack of psychometric research on the scale makes any conclusions about the utility of this instrument tentative at best. In addition, although it appears the developers of the instrument intended for the instrument to be used on a variety of populations, to this point it has only been used to measure need satisfaction in occupational and university settings, which makes generalizability of the results to other populations questionable.

In summary, the Basic Need Satisfaction in Life Scale (Deci et al., 2001) is based on a well-researched theory, and purports to measure three basic psychological needs (autonomy, competence, and relatedness). Preliminary results are somewhat promising but the nature of the scale's development, limited populations studied (occupational and academic), and the dearth of research conducted on the instrument's psychometric properties does not allow firm conclusions to be drawn about its utility or generalizability. In addition, because this instrument has not been validated on clinical populations, and the current researcher believes the inclusion of physical and sense of purpose needs are critical to the holistic assessment of clinical populations; this instrument is not appropriate for the purpose of the present study. Furthermore, the concern over intellectual property rights necessitates the development of a new instrument to assess basic needs in a clinical population.

Psychological Well-Being Scale

Although the final instrument developed by Ryff (1989) is considered to be a measurement of psychological well-being, the similarities in purpose and content warrant inclusion here. Ryff developed her scale of Psychological Well-Being (PWB) as an operational definition of her multidimensional theory of well-being. The PWB has six subscales of 20 items (half phrased in the negative direction) to measure well-being (self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth), and responses are entered on a 6-point Likert-type scale ranging from 1 (strongly agree) to 6 (strongly disagree). The normative sample included over 300 healthy, well-educated, and financially stable adults (Ryff). The internal consistency and test-retest (over a six week period on a sub sample of respondents) coefficients from this sample on the six scales were as follows: self-acceptance: .93, .85, positive relations with others: .91, .83, autonomy: .86, .88,

environmental mastery: .90, .81, purpose in life: .90, .82 and personal growth: .87, .81 respectively. A factor analysis yielded a three-factor solution with the first factor (general well-being) accounting for 51% of the variance, however the existence of the two other factors (accounting for 8.5% and 7.3% of the variance respectively) demonstrate the prior indexes of well-being do not address the other aspects of well-being suggested in the theoretical literature (Ryff).

All subsequent research has made modifications to the original Psychological Well-Being scale (Ryff, 1989). Schmutte and Ryff (1997) conducted a study with middle-aged adults (only using 14 items per scale) and reported internal consistency coefficients ranging from .82 to .90. A similar study was conducted with women over 55 years of age and slightly lower coefficients were reported (ranging from .77 to .85), although this study also reported test-retest reliabilities that ranged from .81 to .90 (Kwan et al., 2003). Another study on two samples of women over 55 years of age reported internal consistency coefficients ranging from .59 to .74 (relocation sample) and .58 to .73 (care giving sample) (Kling et al., 1997).

Two groups of researchers conducted studies with noninstitutionalized adults over the age of 20 (only using three items per scale because conducting a phone interview) and reported internal consistency coefficients as low to moderate (.33 purpose in life to .56 positive relations with others) (Keyes et al., 2002; Ryff & Keyes, 1995). In addition to these results, Ryff and Keyes found depression measures were negatively correlated with all dimensions of well-being and happiness, and life satisfaction measures were positively correlated with both self-acceptance and environmental mastery.

The results of these studies suggest the Psychological Well-Being scale (PWB) (Ryff, 1989) has some internal consistency in fairly healthy adult samples, and factor analysis appears

to support a multidimensional construction of well-being. However, construct validity for all subscales are lacking, and generalizability of results to a more clinical population is not possible at this time. Future research should focus on establishing further psychometric properties, and use of the full scale is recommended due to the poor reliabilities on shorter versions.

In summary, Ryff (1989) developed the Psychological Well-Being scale (PWB) as a representation of her six-component theory of well-being. Coming from a solid theoretical base, her instrument appears to tap into the same universal needs posited by other theorists. However, her inclusion of self-acceptance (self-esteem) as a component rather than an outcome measure is questionable, and it appears purpose in life and personal growth could be combined as one dimension in order to create a more parsimonious model. In addition, her neglect of physical needs is a weakness, because in clinical and non-clinical populations it would be logical to infer deficits in this area would reduce well-being. Therefore, although Ryff's theory and model encompass many of the needs presumed to exist in clinical populations, the paucity of psychometric research, lack of parsimony, and failure to include physical needs make this instrument an inappropriate choice for the purposes of this study.

Justifications for the Development of a New Needs Assessment Instrument

The majority of instruments presented in this paper have originated from theoretically flawed propositions. As such, these instruments have been inherently limited in their ability to accurately measure basic need fulfillment. Lack of consistent psychometric evidence to support the continued use of many of these instruments has further restricted their utility. In addition, the majority of research on the current instruments has been conducted in academic or organizational settings, which has neglected the very people whom this research could directly benefit (those who are experiencing substantial psychological distress). As previously discussed, lack of need

fulfillment has been linked to many psychological manifestations (food addiction, alcohol and drug dependence, and depression), but only a paucity of research (with less than theoretically sound instruments) has been conducted with these populations, limiting the conclusion that can be drawn from the data.

What is more curious is why so little research has been conducted on the very populations viewed to be suffering from the greatest lack of need fulfillment. Perhaps this is because of cost or inconvenience, but if science wishes to assist these individuals, the clinical population can no longer be neglected. If deficits in psychological need fulfillment can be quantified, perhaps new treatments can be created that will prove to be more effective. It is logical to assume that if lack of need fulfillment were the underlying cause of some forms of psychopathology, directly treating these areas would be more effective than the current focus on symptom management.

The first step in this process is the development of a new instrument to assess basic need satisfaction. Drawing from the strongest aspects of the current need theories, the current researcher argues there are five basic human needs (physical, sense of purpose, competence, autonomy, and relatedness) which require fulfillment in order for an individual to experience healthy self-esteem and psychological well-being. Physical needs are included because of their critical nature in sustaining life, and the frequency for which these needs are not met in clinical populations. These physical needs include access to clean water, and adequate food, shelter, clothing, and access to health care. Sense of purpose needs are included not only based upon theory, but also because many individuals in the clinical population may be unemployed, retired, physically unable to work, or have other responsibilities that keep them from working (e.g. taking care of a family), and it would be short-sighted to assume because these individuals do not

have a job they lack purpose in their lives. Since the majority of previous instruments assume a sense of purpose is directly tied to having a job, and this might not be true in clinical populations, this construct will be more broadly defined. Sense of purpose is conceived of as having goals, direction, and some unique contribution to give to others. The last three basic needs are borrowed from Deci and Ryan's (1985) Self-Determination Theory. Competence involves feelings of effectiveness and skill in one's interactions (individual or community) and having opportunities to express one's aptitude, autonomy refers to an individual feeling he or she is the originator of his or her behaviors but is separate from independence, and relatedness refers to being connected with others and the community at large in an environment of mutual support and caring.

Chapter III

Method & Results

Instrument

Miller (2004) developed a 114-item scale (Miller Needs Assessment) of need fulfillment following the guidelines suggested by DeVellis (2003). As a first step in development, 161 items were generated relating to the five need categories (physical needs, sense of purpose, autonomy, competence, and relatedness). Five active therapists working with clinical populations reviewed these items for content, clarity, and appropriateness for use with a clinical sample. Based upon feedback from these reviewers the total items were reduced to 134. A team of three professors of Psychology evaluated the 134 items with the goal of identifying items with poor test properties, ambiguity, or theoretical problems. Based on their feedback, the scale was pruned to 114 items. Each item had a four number response scale ranging from 1 (this statement never fits my experience) to 4 (this statement always fits my experience).

Pilot Testing

In order to verify that the MNA (Miller, 2004) was appropriate for this study, the scale was given to a pilot group of 15 clinical individuals who had either recently completed treatment or would soon be completing addiction treatment at an outpatient mental health center in the Midwest. These individuals were chosen because they would be the most similar to the clinical individuals who will be part of the normative sample. Informed consent was obtained prior to data collection and the subjects were informed they could withdraw their consent at anytime. All subjects chose to participate, filled out the 114-item questionnaire, and participated in a focus group to discuss the appropriateness of item content, comprehension of items, and length of time needed to fill out the questionnaires. Feedback from the focus group led to the rephrasing of four items in a positive direction and separating one question into two. Both types of adjustments were made to aid in the clarity of the questions being asked. The feedback from the pilot study resulted in a 115-item instrument that retained the original 4-point Likert-type response format.

Other Instruments Used

In addition to the new needs assessment questionnaire one other measure was used in this study, the Rosenberg Self-Esteem Scale (ROSES) (Rosenberg, 1965). The ROSES has been widely used as a measure of self-esteem in numerous populations (e.g. crack cocaine users (Wang, Siegal, Falck, & Carlson, 2001), adolescent and adult samples (Whiteside-Mansell & Corwyn, 2003), eating disordered patients (Griffiths et al., 1999; Telch & Agras, 1994), and college students (Shevlin, Bunting, & Lewis, 1995; Thompson & Thompson, 1986)). The reported internal consistency coefficients range from .81 to .88 (Nho, 1999; Rosenberg, 1965; Whiteside-Mansell & Corwyn), factor analysis supports a single factor structure (Shevlin, Bunting, & Lewis; Wang et al.), negative correlations have been found between the ROSES and body distortion, eating disorders (Griffiths et al.; Telch & Agras; Thompson & Thompson), and

depression (Intili & Nier, 1998), and the ROSES has been found to be negatively related to mood disorders, substance abuse, and other psychiatric disorders (Silverstone & Salsali, 2003).

During the development of this proposal, the researcher considered using the popular Marlowe-Crowne (Crowne & Marlowe, 1960) measure of social desirability in order to determine if a relationship exists between socially desirable responding and the needs assessment measure. However, because of the number of items in the needs assessment measure, the psychometrically sound full version of the Marlowe-Crowne (Crowne & Marlowe) was not a viable option, and the shorter version's poor psychometric properties (Ballard, 1992; Barger, 2002; Beretvas, Meyers, & Leite, 2002; Loo & Thorpe, 2000; Strahan & Gerbasi, 1972) eliminated these scales as possibilities. Furthermore, after extensive searching no other measure of social desirability was found to be both appropriate in length and psychometrically sound, therefore measuring the relationship between needs assessment and social desirable responding is less than ideal at this time. However, future research should explore the possibility of a relationship between needs assessment measure and socially desirable responding.

Subjects

Participants were 1,358 individuals (604 clinical subjects recruited from addiction treatment centers and 754 non-clinical subjects recruited from various businesses) from the Midwest. The clinical sample consisted of 156 females (26%) and 443 males (74%) who ranged in age from 18 to 79 ($M = 39.77$, $SD = 11.89$). Approximately 18% identified as African American, 77% Caucasian, 1% Native American, 2% Hispanic American, and 2% identified as multiracial. The relationship status of clinical participants was as follows: 39% single, 7% separated, 24% married, 27% divorced, and 3% widowed. The majority of clinical subjects (64%) reported being employed at least part-time, 4% reported attending school at least part-

time, and the remaining individuals (32%) were unemployed for a variety of reasons (e.g. retired, disabled, homemaker). In addition, the majority of clinical subjects had completed a high school education (62%), with 1% completing only grammar school, 7% middle school, 12% junior college, 13% college, and 5% had completed a graduate degree.

The main reasons clinical participants reported receiving mental health treatment were alcohol (53%) and drug (55%) addiction. (many participants reported more than one problem so the total percentage is well above 100%.) However, there were several disorders that were reported to be a main focus of treatment (depression = 20%, anxiety = 10%, gambling = .8%, bulimia = .5%, and other 8%). In addition to these main areas of focus for treatment, there were several secondary disorders the clinical population reported as being problematic (alcohol addiction = 32%, drug addiction = 31%, bulimia = .7%, anxiety = .3%, compulsive overeating = 2%, depression = 37%, anxiety = 24%, gambling = 2%, and other = 11%). Approximately 28% of the clinical sample had been receiving treatment for one month or less, 20% one to three months, 11% three to six months, 7% six to nine months, 5% twelve to eighteen months, 3% eighteen months to two years, and 19% reported receiving treatment for at least two years. The majority of clinical subjects (94%) reported the treatment they were receiving was helpful.

The non-clinical sample consisted of 431 females (57%) and 318 males (43%) who ranged in age from 18 to 77 ($M = 40.40$, $SD = 12.46$). Approximately 5% identified as African American, 91% Caucasian, 1% Native American, 1% Hispanic American, 1% Asian American, and 1% multiracial. The relationship status of non-clinical participants was as follows: 23% single, 1% separated, 62% married, 12% divorced, and 2% widowed. The majority of non-clinical subjects (98%) reported being employed at least part-time, 10% reported attending school at least part-time, and 8% of the non-clinical individuals were unemployed for a variety of

reasons (e.g. retired, disabled, homemaker). In addition, the majority of non-clinical subjects had completed a high school education (47%); with 1% completing middle school, 17% junior college, 28% college, and 7% had completed a graduate degree.

In the non-clinical sample, 164 individuals (22%) had received mental health treatment previously and the majority of those (44%) reported receiving treatment for depression. The remaining individuals received treatment for alcohol addiction (9%), drug addiction (2%), bulimia (1%), anorexia (2%), compulsive overeating (2%), anxiety (17%), and other (23%). Approximately 13% reported receiving mental health treatment for one to three months, 10% for three to six months, 10% six to twelve months, 14% one to two years, and 53% for at least two years. There were 83 non-clinical individuals (11%) who reported current psychological distress and of those 83 individuals, the majority (47%) were experiencing depression. In addition, to depression, these individuals also reported experiencing problems with alcohol addiction (.3%), drug addiction (.3%), bulimia (.3%), anxiety (33%), anorexia (.3%), gambling (.1%), and other (36%).

Procedure

Clients in treatment and employees of the selected businesses were approached about participating in the study in accordance with the rules set forth by each of the sites. Those who agreed to participate completed an informed consent prior to data collection (Appendix B & C). During data collection the researcher remained available to answer questions, and the subjects were asked to anonymously complete the packet of questionnaires after being informed they could withdraw from the study at any time. Once the subjects completed the questionnaire, or decided they no longer wanted to participate, they were instructed to place their questionnaire in

an envelope before returning it to the researcher. All subjects were provided refreshments during data collection.

Analyses

Five types of analyses were conducted on the data. An exploratory factor analysis (EFA), a statistical procedure used to discover the underlying factor structure of an instrument, was conducted on the non-clinical data. A second EFA that included the self-esteem items was also conducted on the non-clinical data in order to determine if the self-esteem items would load within the factor structure of the initial EFA or on a separate factor. This analysis was conducted to determine whether self-esteem should be considered a separate need. Several confirmatory factor analyses (CFA) were conducted on the clinical data. CFA is a statistical procedure used to test the relationship between observed variables and their underlying (latent) factors. It was hypothesized the theoretical five factor model would provide the best fit to the data. Multiple regression (MR) is an explanatory, theory-driven procedure used to test the effects of one or more independent variables on a dependent variable, and MR was used to determine which of the five needs explain significant variance in the self-esteem measure. Predictive discriminant analysis (PDA), a procedure used to predict group membership from a set of continuous predictors, was used to determine if the instrument discriminates the clinical and non-clinical samples. Finally, correlations were calculated between each of the five need factors and self-esteem and the sum of all five factors and self-esteem in order to determine if both instruments are measuring similar constructs (concurrent validity).

Results

Exploratory Factor Analysis

SPSS (SPSS, 1999) was used to conduct an exploratory factor analysis (EFA) on the non-clinical sample to determine which of the 115 items explained the most variance in the new measure of need fulfillment, and on which factors those items loaded. Individuals who had missing data were not included in the analyses. The sample size ($n=669$) used for this analysis is considered to be adequate according to Gorsuch (1983) and Nunnally (1967). Principle Axis Factoring (with Varimax and Oblimin rotation) was used because research suggests it is more precise than principal components analysis (Gorsuch, 1997).

The initial solution demonstrated the matrix was factorable (Kaiser-Meyer Olkin measure of sampling adequacy = .951, Bartlett's Test of Sphericity- $X^2(3916, N = 669) = 25990.80$, $p < .001$, Determinant = $4.527E-20$). However, several items had low correlations in the correlation matrix and thus were subsequently deleted from future analyses. Decisions about the number of factors retained for the final rotation were formed by an evaluation of the items that had eigenvalues ≥ 1 , the scree plot, percent of variance accounted for by the factors, and the theoretical interpretability of the factors. Using these criteria, five factors were retained for the final analysis. The final five-factor extraction of 40 items resulted in a factorable matrix (Kaiser-Meyer Olkin measure of sampling adequacy = .967, Bartlett's Test of Sphericity- $X^2(780, N = 669) = 14543.973$, $p < .001$, Determinant = $2.185E-10$). Descriptive statistics for this final extraction can be found in Appendix D.

Results of the final EFA suggested an appropriate criterion for evaluating item loadings was $\geq .3$ due to the presence of many items with high loadings, and the use of this criterion resulted in no cross-loading items. The initial eigenvalues for the five factors were 15.771, 2.127,

1.681, 1.517, and 1.301 respectively. The first factor accounted for 39% of the variance. The remaining four factors accounted for 5%, 4%, 4%, and 3% of the variance respectively, with a total of 55% being explained by all five factors (Table 1). Based on inspection of the component and pattern matrices the researcher concluded some items did not load on factors as expected. Although some items did not load as expected, the majority of factors loadings were consistent between the orthogonal (Table 2) and oblique (Table 3) solutions. Because the factor correlation matrix reflected fairly high correlations among the factors (ranging from .31 to .66) (Table 4) and because prior research suggests need fulfillment items are related, the oblique solution was interpreted and used to develop an appropriate model for the confirmatory factor analyses.

The first factor ($N = 12$) contained a majority of sense of purpose items, with only two autonomy items loading on this factor. When taken in combination, the items suggest the first factor appears to be measuring a life direction factor, rather than a pure sense of purpose factor. The second factor ($N = 8$) contained all relatedness items. However, upon an examination of these items, it appears this is a factor measuring positive interpersonal relations rather than a more general relatedness factor. The third factor ($N = 4$) contained all competence items, and thus this factor is consistent with the a priori hypothesis, and should be considered a competence factor. The fourth factor ($N = 8$) contained four relatedness items and three sense of purpose items. After examining the item content, this factor appears to be better conceptualized as an interpersonal support factor than a general relatedness or sense of purpose factor. The final factor ($N = 8$) consisted of four competence, two sense of purpose, and two autonomy items. The item content suggests this factor is best conceptualized as an ability to adapt factor.

The final EFA solution was used to conduct the non-clinical subscale internal consistency reliabilities on the five factors. Alpha coefficients for the five factors were as follows: life

direction ($N = 12$) $\alpha = .94$, positive interpersonal relations ($N = 8$) $\alpha = .85$, competence ($N = 4$) $\alpha = .79$, interpersonal support ($N = 8$) $\alpha = .83$, and ability to adapt ($N = 8$) $\alpha = .86$ respectively.

The purpose of the second EFA was to determine if self-esteem should be conceptualized as a separate need state or a sum of all need states. This analysis combined the five factors from the previous EFA with the self-esteem items in order to determine if the self-esteem items would load on a separate factor or within the previous factor structure. Results indicated the factor structure of this analysis was almost identical to the prior EFA, with the self-esteem items loading within the pre-existing factor structure and not on a separate factor.

Confirmatory Factor Analysis

Because the non-clinical data was used to generate the EFA solution, the final 40 items from the first EFA were subjected to confirmatory factor analysis (CFA) using the clinical data. Four CFA models were analyzed using AMOS (Analysis of Moment Structures; Arbuckle, 1993; Arbuckle & Wothke, 1995). Model 1 was based upon the results of the first EFA (Figure 1) and model 2, (a second correlational model) included self-esteem as a higher order factor (Figure 2). In addition to these models, two other models were created. The third model can best be conceptualized as the original theoretical model. This model was based upon the five needs that received the most support in the literature (autonomy, competence, relatedness, sense of purpose, and physical) and used self-esteem as a higher order factor in order to test if this conceptualization is appropriate (Figure 3). The fourth model used self-esteem as the only factor in order to test whether psychological well-being/self-esteem could be better conceptualized as a single factor rather than having five discrete parts (Figure 4).

In order to determine the appropriate items to be used in the original theoretical and self-esteem models (Models 3 and 4) a reliability analysis was conducted on the clinical data. Items

were deleted if they had low corrected item total correlation, low squared multiple correlation, and high alpha-if-item-deleted values. These deletions left 90 items to be used with these two models (relatedness $N = 20$, physical $N = 24$, autonomy $N = 13$, sense of purpose $N = 18$, and competence $N = 15$).

Models 3 and 4 were so misspecified that the data would not converge on a solution. Clearly these models do not provide a good fit to the data. However, the two models based upon the EFA both converged on a solution and the fit indices from those analyses are presented below. The χ^2 statistic assesses the amount of discrepancy between original and estimated covariance matrix, and although a nonsignificant χ^2 is preferable this result is seldom met in practice because the χ^2 is a product of sample size (Byrne, 2001). Due to the sensitivity the χ^2 has to sample size, many other fit indices are used to assess model fit. One of these fit indices is a ratio of χ^2/df . This ratio provides a better assessment of the magnitude of the χ^2 statistic and Byrne suggests a $\chi^2/df < 2$ suggests a good fit. However, since the χ^2 is still affected by sample size, this ratio may also reflect a poor fit when the sample size is large. A second fit index, Root Mean Square Error of Approximation (RMSEA) is an example of an overall goodness of fit index. The RMSEA takes into account model complexity and answers the question “How well would the model, with unknown but optimally chosen parameter values, fit the population covariance matrix if it were available?” (Browne & Cudeck, 1993, p. 137-138). RMSEA values $< .05$ indicate a good fit to the data. The next two fit indices (Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI)) are examples of incremental fit indices, which are derived from comparing the sample’s model fit to a null model that assumes the observed variables are uncorrelated. Values for these indices range from 0 to 1, with values greater than .95 indicating a superior fit (Hu & Bentler, 1999). A final fit index the Parsimony Comparative Fit Index (PCFI)

is a parsimony index which penalizes for lack of parsimony and although PCFI does have the same cutoffs as its counterpart CFI (parsimony indices are usually lower), when comparing parsimony indices, the higher index suggest a better fit.

When comparing the fit indices (Table 5), both models provide arguably the same fit to the data. Thus, neither model can be said to provide a better fit to the data. The similarity in fit indices is not surprising because the higher order model is just another version of the correlated factor model. Although both models have a significant X^2 and X^2/df ratio, and the other fit indices are not at values that would be considered an ideal fit, when considering the infancy of the instrument being used and the subjectivity of the fit indices criteria, both models provide an adequate fit to the data.

In addition to fit indices, both of the models provided some other important information. The EFA model provided valuable information on the strength of the relationships between each of the latent variables. The strength of the correlations ranged from .68 to .82 which suggests there is a strong positive relationship among the latent variables. The higher order self-esteem model also provided some unique information. This model demonstrated the strength of the relationship between each latent variable and self-esteem. The correlations between the variables and self-esteem ranged from .83 to .90 suggesting that each latent variable is highly related to self-esteem.

Because the items used in the EFA and higher order self-esteem models provided the best fit to the data, a final reliability analysis was conducted with the clinical data. The alpha coefficients for the subscales were as follows: life direction ($N = 12$) $\alpha = .91$, positive interpersonal relations ($N = 8$) $\alpha = .84$, competence ($N = 4$) $\alpha = .76$, interpersonal support ($N = 8$) $\alpha = .81$, and ability to adapt ($N = 8$) $\alpha = .85$ respectively.

Regression

SPSS (SPSS, 1999) was used to conduct a multiple regression of the five need subscales on the Rosenberg Self-Esteem Scale (Rosenberg, 1965) in order to determine which of the need subscales explained variance in the participants' self-esteem score. Any participants with missing data were excluded from the analyses. Initially two separate regressions were conducted on the clinical ($n = 503$) and non-clinical ($n = 667$) populations, however because there was no real difference found between the part and partial correlations in these samples (life direction: $-.09$ vs. $-.03$, positive interpersonal relations: $.01$ vs $.01$, competence: $-.3$ vs. $-.3$, interpersonal support: $-.05$ vs. $-.05$, and ability to adapt: $-.06$ vs. $-.06$) there was no justification to look at the results separately, so the groups were combined and a subsequent regression analysis was conducted. The combined regression ($n = 1170$) results suggested there were two factors (positive interpersonal relations & competence) that were not accounting for any extra variance in self-esteem. Positive interpersonal relations was the first factor to be removed because the difference between its part and partial correlation was the closest to zero. The removal of this variable did not result in any change to the R^2 value, which demonstrated this factor was not explaining any extra variance in self-esteem. Competence was the second factor to be removed, and the R^2 value reduced from $.514$ to $.508$. Since the change in R^2 is negligible, competence was also not explaining any extra variance in self-esteem and was subsequently removed from the final analysis. The final regression ($N=1207$) contained three factors (life direction, supportive interpersonal relations, and ability to adapt) and resulted in a significant regression ($F = 529.023$ ($3, 1203$) $p < .001$), $R^2 = .569$ and a standard error of the estimate = 3.67 . All three factors explained significant variance in self-esteem (life direction: $\beta = .239$, $t = 7.25$, $p < .001$,

interpersonal support: $\beta = .217, t = 7.66, p < .001$, ability to adapt: $\beta = .372, t = 11.55, p < .001$).

Predictive Discriminant Analysis

SPSS (SPSS, 1999) was used to conduct a predictive discriminant analysis on the five factors from the first EFA (life direction, positive interpersonal relations, competence, interpersonal support, and ability to adapt) in order to determine how well these factors predicted group membership (clinical/non-clinical). Subjects who had missing data and non-clinical participants who reported current distress were not included in the analysis in order to more clearly define the two groups. One discriminant function was calculated ($n = 1109$) which resulted in an eigenvalues of .473, Wilks' $\Lambda = .679, X^2(5, N = 1109) = 427.708, p < .001$. This significant result indicates the group means differ, and therefore the factors in the discriminant function can correctly predict group membership. However, because the sample size for this analysis is large ($n = 1109$) and the X^2 statistic is affected by sample size, the I-Index was calculated (Huberty & Lowman, 2000) in order to determine the proportion of subjects these three factors correctly classify above chance. The calculation resulted in an I-Index value of .492, which demonstrates these factors correctly classify 49% correctly above chance. This index, like the X^2 statistic, both provide support that the factors are able to predict group membership. In addition, table 6 shows that 76% of the participants were classified correctly; further supporting the factors ability to discriminate between group membership.

Chapter IV

Discussion, Implications for Research and Treatment, & Conclusion

Discussion

The purposes of this study included critiquing the major need theories and instruments developed to operationalize these theories, providing support for the importance of assessing

needs in a clinical population, and discussing the prior development and psychometric properties of a new needs assessment measure. This section will focus on discussing the results of this study and the implications the results have for treatment of psychological disorders and future research in the field.

An examination of the first EFA resulted in the retention of five theoretically relevant factors (life direction, positive interpersonal relations, competence, interpersonal support, and ability to adapt), and although they were different from the hypothesized factors, they share some similarities. Life direction contained a majority of sense of purpose items, and this supports other researchers' (Alderfer, 1969; Galtung, 1980; Mallmann, 1980; Maslow, 1943; Ryff, 1989; Thomas (Volkart, 1951)) conclusions that sense of purpose is a critical need.

The original construct of relatedness ended up being divided into two factors in the analysis, positive interpersonal relations, and interpersonal support. Each factor appears to be measuring a distinct aspect of relatedness. Positive interpersonal relations appears to measure interaction between individuals, where interpersonal support appears to measure the ability to obtain assistance from others. Although this division of relatedness was not previously considered, it is apparently an important distinction for understanding participants in this study. In addition, the existence of two factors continues to support the conclusion held by other researchers (Alderfer, 1969; Deci & Ryan, 1985; Maslow, 1943; and Thomas (Volkart, 1951)) that relatedness is important in the assessment of human needs.

The competence factor remained the same as originally conceptualized, with no items from other subscales loading on this factor. This result continues to support other researcher's (Alderfer, 1969; Deci & Ryan, 1985; Ryff, 1989; Thomas (Volkart, 1951)) who posit competence is a critical factor in the assessment of need fulfillment.

The final factor (ability to adapt) contained a combination of items developed to measure competence, sense of purpose, and autonomy. Although some may consider ability to adapt a form of competence, it could also be conceived as an approach to life, rather than a skill to be developed. In either case, the results of the EFA suggest this is an area of need fulfillment that requires further investigation.

Analysis has suggested autonomy is not an independent need. Although this was surprising to the researcher, only three previously discussed researchers (Deci & Ryan, 1985; Ryff, 1989) posited this as a separate need. The current results suggest autonomy, while incorporated into other need states, cannot be best conceptualized as a separate need.

The final unexpected result was the highly supported physical need (Alderfer (1969), Deci and Ryan (1985) (when considering clinical populations), Maslow (1943), and Murray (1938) was not found to be a factor in the EFA. It was the researcher's hypothesis that physical needs would prove to be an important factor at least for the clinical population because often this population is severely lacking in this area. However, this subscale was not an important factor with either sample. The theoretical CFA model (with physical needs) was so misspecified it would not converge on a solution with the clinical data. In addition, in the non-clinical EFA many of the physical items were found to have low correlations with other items in the correlation matrix, which suggests either the items were not effective representations of physical needs or are not critical for understanding need fulfillment in this non-clinical sample. These results suggest it would be important to consider reexamining the physical items' content or consider including these items as "critical items" in the revised scale rather than items used to assess psychometric properties. The inclusion of critical items would allow clinicians to gain

valuable information about their clients' state of health and safety, without negatively affecting the psychometric properties of the instrument.

Several types of data provide evidence that self-esteem is not an independent need. The second EFA provided evidence that the higher order CFA model is conceptually a better fitting model. This EFA provided evidence that self-esteem is not better conceptualized as a separate need state because the self-esteem items loaded within the prior five factor structure and not on a separate self-esteem factor. The failure for the self-esteem items to load on a separate factor supports Deci and Ryan's (1985) premise that self-esteem is not a separate need but rather the sum of need states. In other words, if the five need factors found in the first EFA are really just components of a higher order factor called self-esteem, it would be expected there would be high correlations between each of the need factors and self-esteem. The higher order CFA models this relationship, and based upon the second EFA, appears to provide a more appropriate explanation of the relationship between self-esteem and the five need factors.

In addition to this analysis, comparing the correlations between the five needs (and total need score) and self-esteem with the prior psychometric research on the Rosenberg Self-Esteem Scale (Rosenberg, 1965) provides further support that self-esteem is not a separate need. Each of the five needs and the total need score had fairly high correlations with self-esteem (meaning $R = .69$, positive interpersonal relations $R = .60$, competence $R = .55$, interpersonal support $R = .66$, ability to adapt $R = .71$, total need score $R = .75$), which suggest there is a strong positive relationship between needs and self-esteem. Given that the average of prior test-retest reliabilities (see Burnette, Swan, Robinson, Lester, & Little, 2003; Byrne, 1983; Debate, 2004; Silber & Tippett, 1965) of the Rosenberg self-esteem scale (Rosenberg, 1965) is .61 it appears all of the variance in the self-esteem scale that is reliable can be explained by the five needs.

Even though all five needs were found to be highly related to self-esteem, the multiple regression analysis demonstrated two factors (positive interpersonal relations and competence) from the EFA did not explain any extra variance above what the three other factors (life direction, interpersonal support, and ability to adapt) were explaining in self-esteem. This result was curious because previous theories (e.g. Deci & Ryan, 1985) suggest both competence and relatedness are critical needs that contribute to an individual's self-esteem. It is likely the self-esteem items did not tap these areas effectively, which resulted in these factors not explaining more variance. After all, three variables explained all of the reliable variance in self-esteem. While there seems to be no obvious explanation as to why competence did not explain variance in self-esteem, the possibilities for positive interpersonal relations seem clearer. Perhaps because the construct relatedness was split into two factors (interpersonal support and positive interpersonal relations) the variance explained by the first was the same as the later, and thus no extra variance was explained. In addition, perhaps those who feel interpersonal support already have positive interpersonal relations and vice versa so their responses on the self-esteem measure would not have been affected. Although it is clear the concept of relatedness does have some connection to self-esteem, further research is needed to determine the parameters of this relationship and investigate the relationship between competence and self-esteem.

The final analysis (PDA) demonstrated all five factors (life direction, positive interpersonal relations, competence, interpersonal support, and ability to adapt) correctly classified 76% of the participants into the respective groups (clinical or non-clinical). This is very encouraging because one important quality in a psychological measure is having the ability to discriminate between those in distress from those who are not. This ability to discriminate is important because it provides evidence of construct validity for all five factors.

In addition to the evidence of construct validity provided by PDA, both factor analyses provided further support for construct validity by demonstrating that all five factors (life direction, positive interpersonal relations, competence, interpersonal support, and ability to adapt) are all highly correlated and thus are measuring the same underlying construct (critical aspects of self-esteem). In addition, evidence for concurrent validity was provided through the correlations between each of the five need factors (and total need score) and self-esteem. These high correlations demonstrated the strong positive relationship that exists between the two scales purported to measure the same latent construct (Rosenberg: global self-esteem, new measure: critical aspects of self-esteem). Furthermore, evidence of content validity was provided through the expert review of the item content. Obviously, more research is needed in order to assess the validity of this instrument as it evolves; however, the current validity evidence is promising.

In addition to evidence of the instrument's validity, the alpha coefficients from both the clinical (ranging from .76 to .91) and non-clinical (ranging from .79 to .94) samples demonstrate fairly high internal consistency coefficients, which are considered to be especially good for subscales of a psychological instrument. In particular, the internal consistency coefficients ($\alpha = .76$ and $\alpha = .79$) for the four item competence scale are particularly impressive. It is clear that continued research is needed to assess the psychometric properties of this instrument as it develops and is used with different populations; however, for the first version of this instrument, these reliabilities are notable. Specifically, when comparing the psychometric properties of the current instrument with instruments discussed previously, the current scale has far better psychometric properties (Table 7). Of particular note are the inherently flawed theories from which the majority of instruments were generated, much lower internal consistency coefficients

found in the majority of scales, inconsistent factor analysis results, and the lack of inclusion of clinical individuals in the normative and subsequent samples.

Indeed, the initial psychometric properties of this instrument are one of this study's strengths. Although in its infancy, this instrument has demonstrated that it has good psychometric properties for this sample and continued refinements of the instrument suggest a promising future. Another strength of the study is the large sample of participants ($N = 1,358$) obtained from a variety of clinical and non-clinical sites, which allows for more generalizable results. Specifically, the large number of clinical participants ($N = 604$) have provided some insights into areas that underlie the manifestations of their psychological distress. Gaining an understanding of these areas could lead to modifications of current treatments. In addition, this study provided clear evidence that self-esteem should not be classified as a separate need, and has suggested the five need factors are best understood as critical aspects of self-esteem. This conceptualization is important because of the long controversy over the operational definition of self-esteem. While global measures of self-esteem (e.g. Rosenberg, 1965) do not usually have item content that targets specific behaviors/feelings, items in the current measure provide this specificity. Having knowledge of the specific areas where a person is struggling can lead to targeted interventions that would not be possible with a global measure of self-esteem.

Although this study has many strengths, it also has two weaknesses. The first weakness concerns the lack of ethnic and clinical diversity in the participant population. The majority of the sample was Caucasian and the majority of clinical participants were being treated for alcohol or drug addiction. The second weakness concerns the lack of national diversity. This sample consisted of only individuals from Indiana. It is possible that a larger, national sample could

demonstrate regional differences. This lack of diversity somewhat limit the generalizability of the results to other cultures, disorders, and regions of the country.

Implications for Treatment & Research

The field of human motivation and need assessment has a long and controversial past, and although the more modern theories have come to some agreement on need states there is still uncertainty. This study was conducted to shed some light on this uncertainty and offer some important suggestions for treatment and future directions for research. There are three specific implications this study has for treatment of psychological disorders. First, it is clear that individuals who reported experiencing psychological distress were experiencing lower levels of need fulfillment than those who did not. With this in mind, addressing these areas should be an important focus of treatment, no matter what the diagnosis. If the previous research is correct in that lower levels of need fulfillment lead to manifestations of psychological distress, it is logical to conclude that addressing these unfulfilled areas should ameliorate if not eliminate the symptoms of distress. Addressing these areas could include psychoeducational classes and focused group and individual therapy. By directly addressing the underlying causes of clients' difficulty, it is likely they will not only experience a reduction in their symptoms, but also have the skills necessary to deal with life more effectively.

Second, although the majority of current psychological assessment measures assist clinicians in diagnosing clients, few provide insights into the origins of the client's distress. Specifically, most instruments describe clients' symptoms, but do not provide a starting point for therapy (e.g. addressing underlying problems that manifested the symptoms). This inability to go beyond a diagnosis is a significant weakness of current psychological assessments. Individuals may manifest symptoms (e.g. alcoholism, depression, eating disorders) for a variety of reasons,

but the assessment instruments used to classify these disorders only assess current level of symptoms, and not the specific reasons clients are experiencing those symptoms. Without gaining an understanding of the underlying causes of distress and directly addressing these in treatment, clinicians are doing a disservice to the clients they serve. One purpose of the current instrument was to go beyond symptom classification and tap into the underlying deficits that create these psychological manifestations. The results of this study suggest this instrument has the ability to do so, and thus has a promising future not only as an assessment instrument, but also as a guide for the development of more effective treatments. Third, if the patterns seen in the current clinical populations sample prove to be consistent with other disorders (depression, eating disorders) it is possible the assessment and treatment of these disorders could also be made more effective.

In addition to the clinical implications, the results of this study also provide direction for future research. While the factor analyses has provided some support for the existence of five need factors (life direction, positive interpersonal relations, competence, interpersonal support, and ability to adapt) the regression analysis suggested there were only three factors that explained significant variance in self-esteem. This difference in the number of factors could be because of the subjectivity of interpreting the EFA (scree plot, eigenvalues, percentage of variance explained and theoretical interpretability of the factors) or because of the overlap the five needs share when explaining variance in self-esteem. In either case, the inconsistency warrants further investigation with a new sample of participants. However, results suggest there are at least three needs (life direction, interpersonal support, and ability to adapt) that should be considered critical aspects of self-esteem. Although this study has shed some light on the appropriate classification of self-esteem more research is needed to replicate the findings of this

study. Not only should the same analyses be run with a new population, but other self-esteem measures should be examined.

In addition to continuing to research the critical components of self-esteem, it is important to determine if the factors discovered in this study are consistently found in individuals with other disorders (e.g. eating disorders and depression). Eating disorders are of particular interest because lack of need fulfillment has been implied in various eating disorders. Arnow, Kenardy, and Agras (1992) found binge eating to be associated with psychological distress as manifested through symptoms of anxiety and depression. Waller and Osman (1998) found the same result, and in addition found binge eating was related to feelings of general inadequacy (competence) and interpersonal distrust (relatedness). Two studies found a significant relationship between eating disorders and both low self-esteem and interpersonal problems (relatedness) (Button, Loan, Davies, & Sonuga-Barke, 1997; Fryer, Waller, & Kroese, 1997). Mayhew and Edelman (1989) also concluded low self-esteem is related to eating disorders and found perceived ineffectiveness (competence) was also highly related to eating disorders in a non-clinical sample. Heatherton and Baumeister (1991) state there is a strong relationship between binge eating and the following four psychological variables: low self-esteem, psychological distress as manifested through symptoms of anxiety and depression, a focus on personal inadequacies (competence), and the desire to avoid experiencing psychological pain. Wechselblatt, Gurnick, and Simon (2000) concluded disturbances in autonomy and relatedness are consistently found in individuals suffering from anorexia.

While the previous research only suggests a relationship between eating disorders and lack of need fulfillment, Timmerman and Acton (2001) conducted a study that directly assessed need satisfaction and eating. They used the Basic Need Satisfaction Inventory (BNSI) (Leidy,

1994b) as a measure of need fulfillment and found the lower the individual's need satisfaction, the higher the emotional eating. In addition, the self-esteem subscale was the only significant predictor for increased emotional eating (Timmerman & Acton), which suggest there is a link between need fulfillment and eating disorders. A final argument for the assessment of these disorders is because in the current sample, 3.5% of the clinical sample and 5% of the non-clinical sample reported experiencing an eating disorder. Due to the comorbidity of these disorders and the possible underlying causes they share, it is imperative to explore the relationship between need fulfillment and eating disorders. In addition, because prior research has implied a relationship between eating disorders and need fulfillment, but no definitive conclusions could be drawn; more research is needed to explore the dimensions of this relationship. Specifically, a revised version of the current needs assessment measure should be validated on an eating disordered population in order to determine if the same factors and relationship between the factors found in this sample are replicated with this type of clinical sample. The direct assessment of need fulfillment will provide insight into the underlying causes of these disorders and will hopefully lead to the development of more effective treatments.

A second disorder of interest is depression because many researchers have found a relationship between depression and lack of need fulfillment. Price, Choi, and Vinokur (2002) found lack of autonomy, physical needs, and purpose in life were all highly related to symptoms of depression. Ryff and Singer (1998) concluded lacking in sense of purpose, relatedness, competence, and self-esteem led to manifestations of depressive symptomology. In addition, two other authors found symptoms of depression were highly correlated with the absence of social support (relatedness) in samples of older adults (Murphy, 1982; Phifer & Murrell, 1986).

Furthermore, lack of self-esteem has been consistently linked with symptoms of depression (e.g. DuBois & Tevendale, 1999; Emler, 2001).

In addition to the empirical research that supports the link between lack of need fulfillment and depression, an examination of this study's participants past and current psychological states suggest this is a link that must be investigated further. Of the non-clinical participants who reported prior distress ($N = 164$), 44% reported experiencing depression, and of those who reported current distress ($N = 83$), 47% reported experiencing depression. In the clinical group 57% of individuals stated either depression was either a primary or secondary reason for treatment. Although it is not uncommon for addictions and depression to co-occur (Kessler & Price, 1993), the research suggests these disorders may have similar underlying causes. In order to gain a better understanding of the similarity that exists, future research should explore the relationship between need fulfillment and depression. This research has the potential to provide insight into the causes of depression and assist in the development of more effective assessments and treatments.

Conclusion

The present study has provided some insight into how level of need fulfillment contributes to the development of addictions. Results suggest five highly correlated needs (life direction, positive interpersonal relations, competence, interpersonal support, and ability to adapt) could be considered underlying causes of addictions. In addition, both prior research and the current study suggest these needs are critical to the understanding of psychological well-being in both clinical and non-clinical adults. Although two hypothesized needs (autonomy and physical) were not found to be important factors in this study, it would be premature to assume they are not important needs to assess. Furthermore, although this study provided some evidence

that self-esteem is not a separate need state, replication studies are important to verify this finding.

Strengths of this study included the large sample size, promising psychometric properties of the new needs assessment instrument, and appropriate classification of self-esteem, while weaknesses included lack of ethnic, clinical, and national diversity. However, despite these weaknesses, this study has specific implications for treatment and research. First, because lack of need fulfillment has been shown to be highly related to addictions, the proper assessment of need fulfillment is critical for gaining a better understanding of this disorder and developing more effective treatments. Second, future research should focus on continuing to explore the validity of the five needs found to be factorable and the two that were not (autonomy, physical). This continued exploration will provide a better understanding of which needs are critical in understanding psychological well-being. Finally, the revised version of the new assessment of need fulfillment should be validated with eating disordered and depressed populations in order to assess if these same needs underlie these disorders. Hopefully future research will allow for a better understanding of the constructs that underlie psychological distress and provide specific guidance on how to more effectively assess and treat psychological disorders.

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Table 1

Total Variance Explained

Factor	Initial <u>Eigenvalues</u>			Extraction Sums of Squared <u>Loadings</u>			Rotation Sums of Square <u>Loadings</u>
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	15.771	39.427	39.427	15.294	38.236	38.236	12.151
2	2.127	5.316	44.743	1.612	4.030	42.266	8.102
3	1.681	4.202	48.945	1.190	2.975	45.240	6.038
4	1.517	3.793	52.738	1.005	2.512	47.752	8.485
5	1.301	3.253	55.991	.818	2.044	49.796	10.601

Extraction Method: Principal Axis Factoring.

n=669

Table 2

Pattern Matrix

Items	Life Direction Factor 1	Positive Interpersonal Relations Factor 2	Competence Factor 3	Interpersonal Support Factor 4	Ability to Adapt Factor 5
M82	.789	.125	<.01	<.01	<.01
M99	.775	.169	<.01	-.121	<.05
M43	.767	<.01	<.01	<.01	<.01
M49	.706	<.05	<.01	<.05	.111
M69	.702	<.05	<.01	.174	<.01
M86	.642	<.05	<.01	<.09	<.09
M77	.579	<.09	<.09	.213	<.01
M60	.456	.105	.107	<.09	.151
M74	.416	.135	<.01	.186	<.09
M97	.388	.186	<.01	<.01	.276
M94	.345	.165	<.01	.182	.263
m38r	.319	<.09	.119	.117	.163
M98	<.01	.658	<.09	<.01	.152
M90	.143	.634	<.05	.146	<.01
M80	<.01	.625	<.01	<.01	<.01
M106	<.01	.618	.168	<.01	.131
M101	.105	.493	-.127	.160	<.05
M76	<.05	.446	<.09	.133	<.09
M104	<.05	.443	.127	<.05	.233
M89	.120	.422	.128	.150	<.05
M24	<.01	<.05	.752	<.05	<.01
M25	<.05	<.01	.726	<.01	<.05
M59	.249	<.05	.441	.198	.109
M61	.204	.108	.403	<.01	.253
M14	<.01	.112	<.01	.625	<.01
M27	-.125	.141	.151	.510	<.05
m22r	.234	-.171	-.123	.499	.130
M56	.160	<.05	.175	.498	<.01
M1	<.05	<.05	<.01	.481	<.05
M81	<.01	.237	.100	.445	<.01
M18	<.09	<.01	<.05	.428	.228
m100r	.173	<.01	<.01	.426	.141
M5	<.05	<.01	<.01	<.01	.712
M11	.115	<.05	<.05	<.05	.578
M72	<.05	<.05	<.01	<.01	.575
M45	<.01	.164	<.01	<.01	.561
M65	<.05	<.01	<.01	<.09	.546
M12	.233	<.01	<.01	<.01	.498
M41	.195	<.09	<.01	<.05	.445
M39	<.01	.108	.280	<.01	.437

Extraction Method: Principal Axis Factoring. Rotation Method: Oblimin with Kaiser Normalization.

Rotation converged in 9 iterations.

n=669

Table 3

Structure Matrix

Items	Life Direction Factor 1	Positive Interpersonal Relations Factor 2	Competence Factor 3	Interpersonal Support Factor 4	Ability to Adapt Factor 5
M82	.836	.490	.390	.464	.557
M69	.817	.381	.365	.560	.595
M99	.811	.492	.370	.387	.555
M43	.804	.388	.347	.426	.567
M86	.791	.448	.364	.519	.597
M49	.762	.354	.351	.378	.572
M77	.758	.480	.402	.583	.548
M60	.695	.457	.415	.488	.588
M94	.693	.509	.361	.566	.645
M74	.643	.452	.326	.517	.516
M97	.638	.457	.313	.394	.589
m38r	.490	.211	.311	.358	.445
M98	.428	.742	.397	.370	.443
M90	.459	.723	.247	.466	.346
M106	.373	.698	.431	.336	.405
M80	.327	.639	.228	.302	.282
M76	.461	.618	.378	.452	.429
M104	.436	.583	.401	.315	.476
M89	.396	.565	.347	.408	.306
M101	.336	.546	.125	.375	.237
M24	.304	.253	.753	.236	.355
M25	.328	.330	.744	.278	.326
M59	.579	.374	.630	.500	.550
M61	.554	.435	.621	.358	.590
M14	.360	.381	.229	.660	.316
M56	.503	.416	.398	.651	.419
M81	.443	.502	.349	.614	.401
M18	.499	.368	.331	.611	.526
M27	.315	.396	.340	.584	.351
m22r	.461	.166	.110	.572	.402
m100r	.469	.282	.219	.563	.436
M1	.310	.335	.241	.544	.328
M11	.544	.355	.290	.415	.687
M65	.526	.346	.343	.422	.673
M12	.569	.282	.330	.379	.660
M5	.396	.223	.289	.292	.658
M45	.496	.412	.317	.390	.658
M41	.577	.396	.334	.435	.650
M39	.487	.411	.532	.387	.634
M72	.445	.284	.328	.355	.633

Extraction Method: Principal Axis Factoring. Rotation Method: Oblimin with Kaiser Normalization.

$n=669$

Table 4

Factor Correlation Matrix

Factor Correlation Matrix	Life Direction Factor 1	Positive Interpersonal Relations Factor 2	Competence Factor 3	Interpersonal Support Factor 4	Ability to Adapt Factor 5
1	1.000	.461	.382	.535	.668
2	.461	1.000	.376	.449	.398
3	.382	.376	1.000	.303	.443
4	.535	.449	.303	1.000	.481
5	.668	.398	.443	.481	1.000

Extraction Method: Principal Axis Factoring. Rotation Method: Oblimin with Kaiser Normalization.
n=669

Table 5

Goodness-of-Fit Statistics and Indices for CFA Models

	<i>df</i>	χ^2	χ^2/df	<i>TLI</i>	<i>CFI</i>	<i>PCFI</i>	<i>RMSEA</i> (<i>Pr</i> [<i>RMSEA</i> <.05])
EFA Model	730	2284.851	3.130	.837	.854	.761	.059 (>.001)
Higher Order Self-Esteem Model	735	2311.960	3.146	.835	.852	.764	.060 (>.001)

Note: Figures in parentheses are *P* values for Testing *Pr*[*RMSEA*<.05]. *TLI*: Tucker Lewis Index;
CFI: Comparative Fit Index; *PCFI*: Parsimony Comparative Fit Index; *RMSEA*: Root Mean
 Square Error of Approximation.
N=604

Table 6

Classification Results for Predictive Discriminant Analysis

		Predicted Group Membership		Total
		Site Type	1	2
Original	Count	1	350	512
		2	99	597
	%	1	68.4	100.0
		2	16.6	83.4
Cross- validated	Count	1	348	512
		2	101	597
	%	1	68.0	100.0
		2	16.9	83.1

Note: Cross validation is done only for those cases in the analysis. In cross validation, each case is classified
 by the functions derived from all cases other than that case.
 76.5% of original grouped cases correctly classified.
 76.1% of cross-validated grouped cases correctly classified.

Table 7

Deficits of previously developed need fulfillment instruments not found with the new measure of need fulfillment

INSTRUMENT	Based on highly criticized need theory	No clinical sample in normative pop.	Lower α coefficients than current instrument	Factor analysis problems	Lack of validity or reliability evidence	Other problems
EPPS	X	X	X	X		X
MNQ	X	X	X	X		
NAQ	X	X	X	X		
PNSQ	X	X		X	X	
ERG	X	X	X	X		
HHS	X				X	
BNSI	X	X		X		
BNSILS		X	X	X		X
PWB		X				

EPPS (Edwards Personal Preference Schedule, Edwards, 1959)

MNQ (Manifest Needs Questionnaire, Steers & Braunstein, 1976)

NAQ (Needs Assessment Questionnaire, Heckert, et al., 2000)

PNSQ (Porter Need Satisfaction Questionnaire, Porter, 1961)

ERG (Existence, Relatedness, and Growth, Alderfer, 1969)

HHS (Human Service Scale, Kravetz, 1973)

BNSI (Basic Need Satisfaction Inventory, Leidy, 1994)

BNSILS (Basic Need Satisfaction in Life Scale, Deci et al., 2001)

PWB (Psychological Well-Being, Ryff, 1989)

Note: Factor analysis problem: EPPS = low correlations among factors, MNQ = poor factor loadings, NAQ = CFA poor fit to data, PNSQ & ERG = inconsistent results, BNSI = no CFA to confirm EFA, BNSIL = unclear loadings.

Other problems: EPPS = does not discriminate between clinical and non-clinical participants, BNSILS = ad hoc scale development

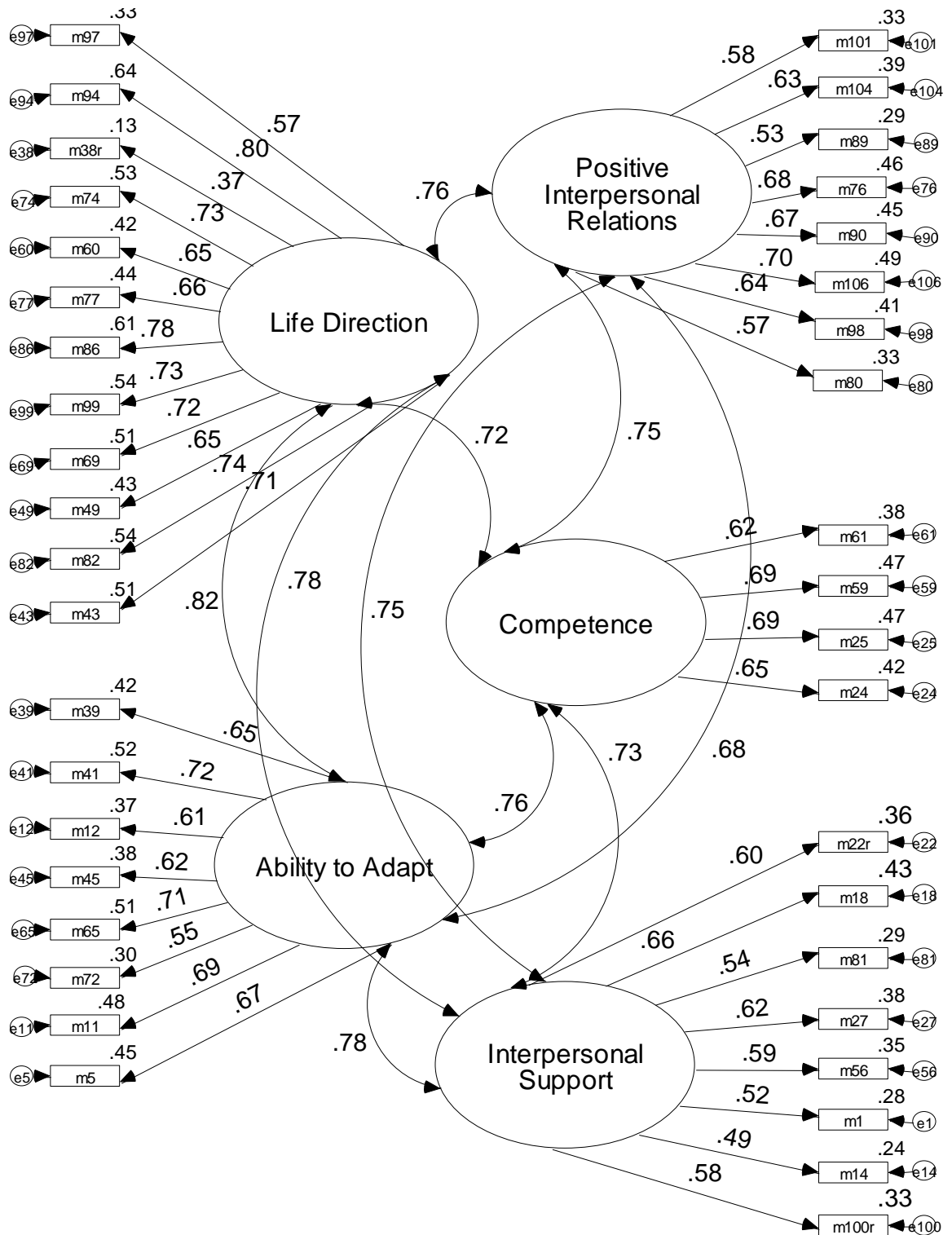


Figure 1. Model 1 based upon first exploratory factor analysis

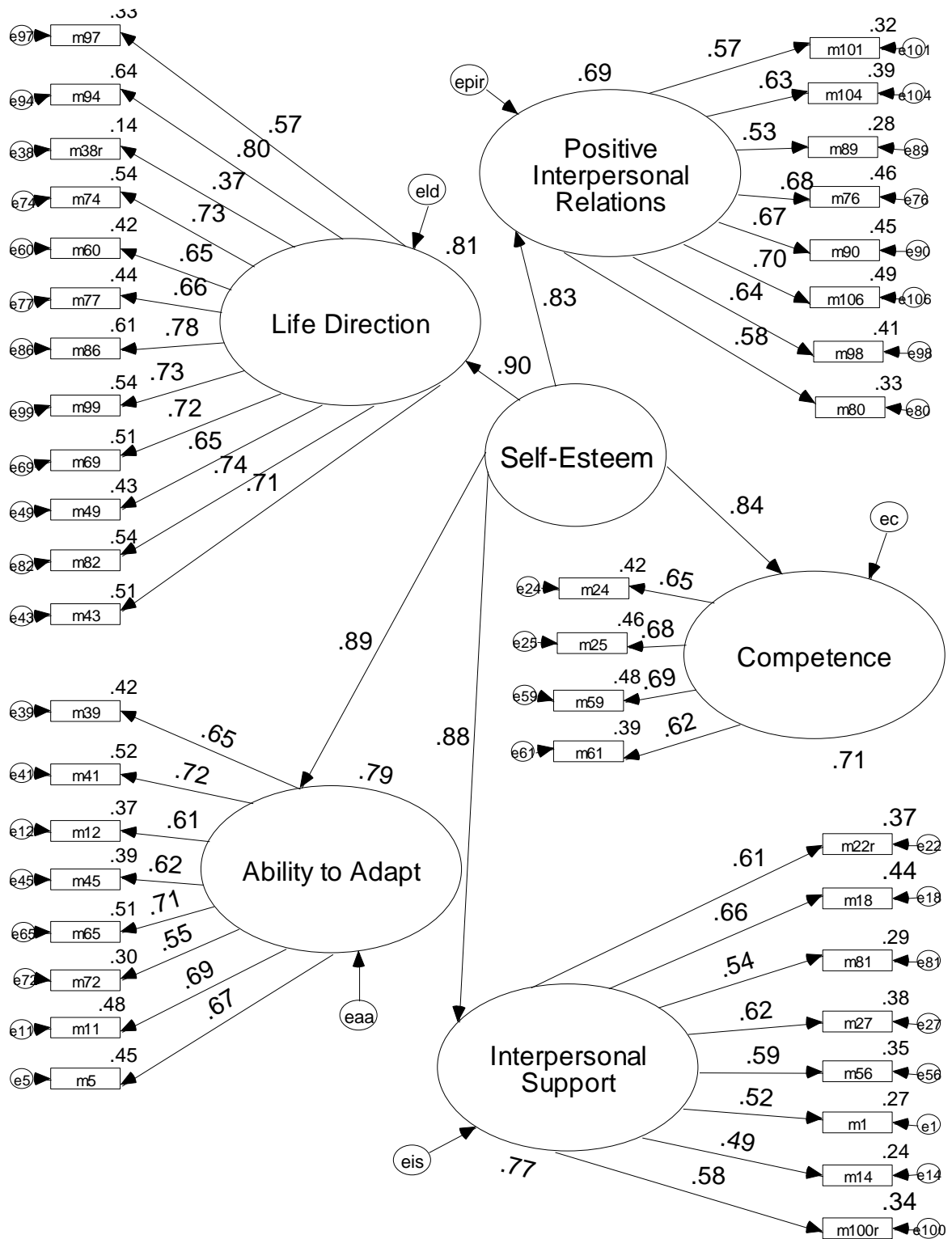


Figure 2. Model 2 with self-esteem as a higher order factor.

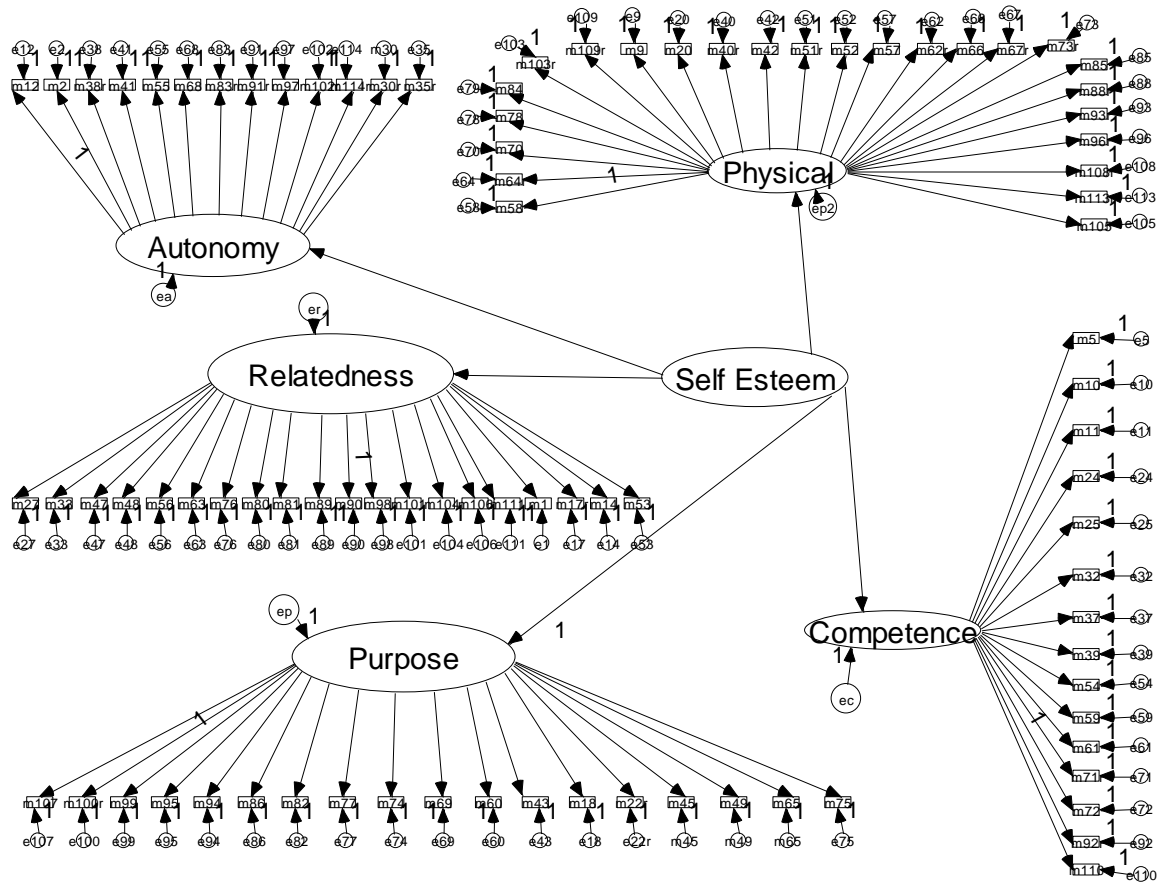


Figure 3. Model 3 based upon the five theoretically supported needs.

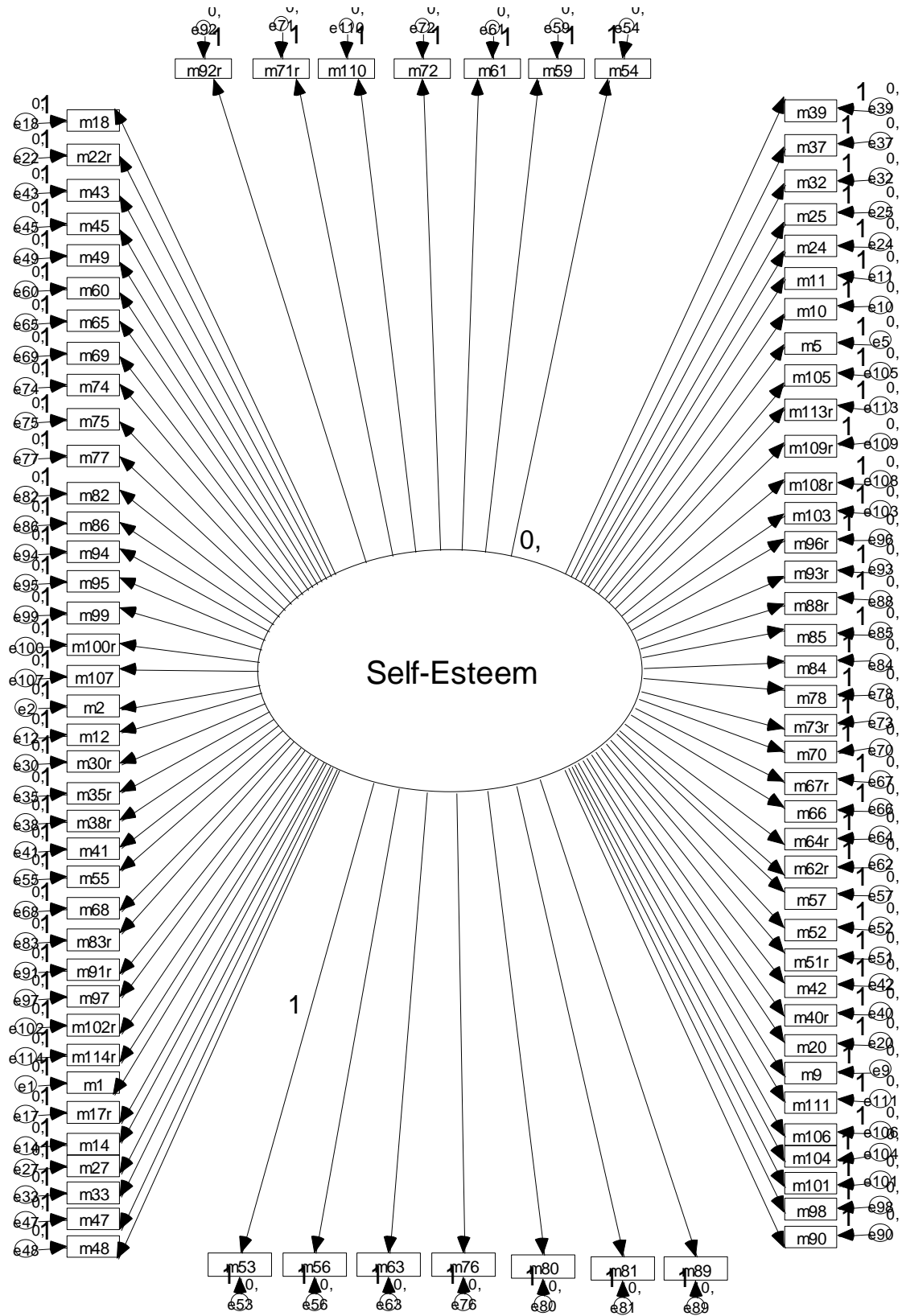


Figure 4. Model 4 single factor self-esteem model.

Appendix A

Murray's Needs

ViscerogenicPsychogenic

Air

Acquisition

Blamavoidance

Water

Conservance

Affiliation

Food

Order

Rejection

Sex

Retention

Nurturance

Lactation

Construction

Succorance

Urination

Superiority

Play

Defecation

Achievement

Cognizance

Harmavoidance

Recognition

Exposition

Noxavoidance

Exhibition

Aggression

Heatavoidance

Inviolacy

Contrarience

Coldavoidance

Infavoidance

Autonomy

Sentience

Defendance

Similance

Passivity

Counteraction

Abasement

Dominance

Appendix B

Participant Consent Form

The purpose of this research project is to examine the relationship between psychological well-being and human motivation. For this project you will be asked to complete a set of questions that will ask you some basic demographic information (age, gender, etc.), and a variety of questions about the relationships in your life, your skills, interactions with others, etc. Please be advised that some of the questions are personal in nature. It will take about 30 minutes to complete the questions. The information you will provide can be useful to researchers and mental health professionals to understand the role psychological distress plays in human motivation.

Please do not write your name on any of the questionnaires so that all data will remain completely anonymous. Participation in the study is voluntary, and you are free to discontinue participation at any time without prejudice from the researcher. In addition, if there are any questions you do not want to answer, you may leave them blank. There is minimal risk involved in participating in the study, although answering some questions may create some feelings of anxiety. If you find yourself experiencing feelings of anxiety, you can call the Boys Town national crisis line 800-448-3000. Please feel free to ask any questions of the investigator before signing the Informed Consent form below and beginning the study, or at any time during the study.

For one’s rights as a research subject, you may contact the coordinator of research compliance: Office of Research Compliance, Office of Academic Research and Sponsored Programs, Ball State University, Muncie, IN 47306, (765) 285-5070.



I _____, agree to participate in this research project titled “psychological well-being and human motivation”. I have read the description of this project and give my consent to participate. I understand that I can request and receive a copy of this Consent Form to keep for future reference.

Participant’s Signature

Principal Investigator
Kimberly A. Miller, BA
Psychological Science
Ball State University
Muncie, IN 47306
(765) 285-1690

Date

Faculty Advisor
Darrell L. Butler, Ph.D.
Psychological Science
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Appendix C

Participant Consent Form

The purpose of this research project is to examine the relationship between psychological well-being and human motivation. For this project you will be asked to complete a set of questions that will ask you some basic demographic information (age, gender, etc.), and a variety of questions about the relationships in your life, your skills, interactions with others, etc. Please be advised that some of the questions are personal in nature. It will take about 30 minutes to complete the questions. The information you will provide can be useful to mental health counselors to better understand their clients' lives.

Please do not write your name on any of the questionnaires so that all data will remain completely anonymous. Participation in the study is voluntary, and you are free to discontinue participation at any time without prejudice from the researcher or your counselor. In addition, if there are any questions you do not want to answer, you may leave them blank. There is minimal risk involved in participating in the study, although answering some questions may create some feelings of anxiety. If you find yourself experiencing feelings of anxiety, you are urged to discuss these with your counselor (641-8259). Please feel free to ask any questions of the investigator before signing the Informed Consent form below and beginning the study, or at any time during the study.

For one's rights as a research subject, you may contact the coordinator of research compliance: Office of Research Compliance, Office of Academic Research and Sponsored Programs, Ball State University, Muncie, IN 47306, (765) 285-5070.



I _____, agree to participate in this research project titled "psychological well-being and human motivation". I have had the study explained to me and my questions have been answered to my satisfaction. I have read the description of this project and give my consent to participate. I understand that I can request and receive a copy of this Consent Form to keep for future reference.

Participant's Signature

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Appendix D

Descriptive statistics from first exploratory factor analysis

Item	Mean	Std. Deviation	Analysis N
M1	3.47	.77	669
M5	3.15	.59	669
M11	3.22	.58	669
M12	3.17	.71	669
M14	3.56	.67	669
M18	3.13	.59	669
m22r	3.39	.72	669
M24	2.63	.63	669
M25	2.82	.62	669
M27	3.16	.68	669
m38r	3.22	.69	669
M39	3.26	.60	669
M41	3.39	.69	669
M43	3.39	.73	669
M45	3.35	.66	669
M49	3.28	.71	669
M56	3.36	.74	669
M59	2.98	.71	669
M60	3.18	.70	669
M61	3.17	.66	669
M65	3.01	.65	669
M69	3.19	.75	669
M72	3.04	.72	669
M74	3.54	.65	669
M76	3.28	.56	669
M77	3.18	.72	669
M80	3.52	.56	669
M81	3.27	.73	669
M82	3.30	.72	669
M86	3.42	.68	669
M89	3.16	.75	669
M90	3.55	.56	669
M94	3.30	.66	669
M97	3.43	.70	669
M98	3.47	.57	669
M99	3.45	.72	669
m100r	3.57	.56	669
M101	3.81	.40	669
M104	3.15	.61	669
M106	3.40	.55	669