Maslow and the Motivation Hierarchy: Measuring Satisfaction of the Needs

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For each of the 5 needs in Maslow’s motivational hierarchy (physiological, safety–security, belongingness, esteem, and self-actualization), operational definitions were developed from Maslow’s theory of motivation. New measures were created based on the operational definitions (1) to assess the satisfaction of each need, (2) to assess their expected correlations (a) with each of the other needs and (b) with four social and personality measures (i.e., family support, traditional values, anxiety/worry, and life satisfaction), and (3) to test the ability of the satisfaction level of each need to statistically predict the satisfaction level of the next higher-level need.

Psychometric tests of the scales conducted on questionnaire results from 386 adult respondents from the general population lent strong support for the validity and reliability of all 5 needs measures. Significant positive correlations among the scales were also found; that is, the more each lower-level need was satisfied, the more the next higher-level need was satisfied. Additionally, as predicted, family support, traditional values, and life satisfaction had significant positive correlations with the satisfaction of all 5 needs, and the anxiety/worry facet of neuroticism had significant negative correlations with the satisfaction of all the needs. Multiple regression analyses revealed that the satisfaction of each higher-level need was statistically predicted by the satisfaction of the need immediately below it in the hierarchy, as expected from Maslow’s theory.

Maslow’s (1943, 1987) theory of human motivation has generated a great deal of interest, based on the number of citations it has garnered, but it has always been a controversial theory, because the literature includes both criticism and support. For example, it has been criticized for being culture centered (Yang, 2003), but it has received empirical support in a large number of countries and cultures (Davis-Sharts, 1986). Some critics have claimed that it is gender biased (Cullen & Gotell, 2002), while others have contended that it is relevant to both genders (Coy & Kovacs-Long, 2005). Nonetheless, given that the theory recurs in the literature and that it continues to draw interest from both theorists and researchers, it should be regarded as deserving research attention.

To permit meaningful empirical testing, as Marx and Hillix (1973) explained, theories should follow certain rules that allow them to be tested and verified. First, their terms must be explained, which for Maslow’s theory would mean identifying the needs and clarifying their definitions. Next, a more advanced form of theory testing entails examining
the hypothesized relationships among the variables, which requires viable measures to assess the needs and theorized relationships among them (e.g., their expected hierarchical associations) and their ability to predict certain outcomes. Thus, this article uses grounded theoretical concepts to define the needs, develop viable measures for them, and assess their relationships to each other and to a set of theorized antecedent and outcome variables.

**Definition of a Need**

For the purpose of clarity, the relevant concepts are defined in the sections that follow. First, a “need” (the most critical concept) is defined; then, operational definitions of the specific needs are provided in the subsequent section on scale development. The approach used here is based on the fundamentals of drive theory (e.g., Hull, 1951; Spence, 1956). Basically, drive theory posits that certain things are required by all human beings for the continuation of their lives or for their well-being. Seward and Seward (1937) defined drive as “an activity of the total organism resulting from a persistent disequilibrium” (p. 349), with a disequilibrium usually created by an insufficiency (or deficiency) of certain things, such as water, food, and rest. Thus, a drive reflects a “need” that arises from the lack of some particular thing, such that a “need” can be characterized by, and defined as, a lack of something that is essential to an organism’s (a person’s) existence or well-being.

For further clarification, it should be noted that a “thing,” itself, is not a need; instead, the thing, when it is lacking, creates the need that is felt by the organism. For example, the lack of water, which is necessary for survival, is what creates the need for water, which, in turn, drives the organism to seek water. Therefore, it is not the water that is the need (water is just a chemical), but, rather, it is the lack of water that creates a disequilibrium in the organism that drives the organism to seek water. Of course, Maslow’s theory goes beyond this to explain that each type (or level) of need contains various things that he grouped together because they are conceptually related. These ideas, particularly that (a) the thing is not a need and (b) the lack of a thing is what identifies a need, are necessary to understand how the scales were developed to measure satisfaction of the five needs in Maslow’s theory.

**Approach to Scale Development**

For the sake of parsimony, it is assumed that the five needs (i.e., physiological, safety–security, belongingness, esteem, and for self-actualization) exist along the lines Maslow (1943) described (for the most part, Maslow’s original 1943 theory is used here). Although some tests of the needs have been conducted by previous researchers, most were undertaken in therapeutic settings. Therefore, instead of directly measuring the needs themselves or assessing the extent to which those needs were satisfied, previous studies (e.g., Collins, Langham, & Sigford, 2000) tended to use existing personality scales that were thought to be related to the needs. Furthermore, as Wahba and Bridwell (1976) argued in their review of the research, most scales that assessed the concepts have been troubled by measurement problems. Therefore, what is still required is a set of valid and reliable measures that are designed to directly assess the five needs or satisfaction of the needs.

To create valid and suitable measures for the needs, it is essential to derive unambiguous definitions for each concept. Thus, each of the needs is operationally defined to develop a clear understanding of what is to be measured with each scale. In turn, the definitions are used to enable scale development for empirical testing. Subsequently, the new scales are assessed for their reliability, their construct validity, and an exploratory analysis of their expected relationships with a set of demographic, social, and personality variables.

**LEVEL 1: PHYSIOLOGICAL NEEDS.**

Marx and Hillix (1973) stated that terms can be either “primitive” (e.g., an object that can be pointed to) or defined via semantic relationships. By virtue of the terms it used, Maslow’s (1987) theory has the necessary theoretical foundation. For example, food and water are concrete things that can be seen and touched and are consumed on a daily basis, and so the need for them can be readily understood. In particular, some molecules (e.g., water, salt, oxygen) are needed for life, such that deficiencies motivate the organism to seek them. Indeed, the links between hunger and deficiencies of some chemicals have been empirically confirmed (Poothullil, 1992). Maslow also mentioned other needs, including ambient temperatures (we can freeze to death or die of overheating).
And medical doctors argue that we need exercise and healthy physiques. Thus, physiological needs can be operationally defined as the lack of chemicals, nutrients, or internal (e.g., exercise/health) or environmental (e.g., temperatures) conditions necessary for the body to survive, such that the extended absence of these things could lead to psychological stress or physical death.

Regarding the location of physiological needs in the hierarchy, some critics have argued that it might not be as Maslow described (Wahba & Bridwell, 1976), and some used anecdotes, such as when people at a banquet in China delay eating until the guest of honor arrives, to argue that a person’s physiological needs (for food) might not be as significant as social (relationship) needs (Nevis, 1983). But Maslow (1987) was referring to “chronic extreme hunger,” which he thought was rare in normally functioning societies. Consequently, the hierarchy is not a matter of valuing what is “important” but, rather, whether one is psychologically “deprived” of something, which, when sufficiently lacking, gives rise to the need. Ignoring these ideas leads to a misconception of the basic needs.

Some misunderstanding of this level could have occurred among modern critics of Maslow’s theory because people who live in affluent societies might not be fully sensitized to this idea. As Maslow (1987) explained, “Average . . . citizens are experiencing appetite rather than hunger when they say ‘I am hungry.’ They are apt to experience sheer life-and-death hunger only by accident” (p. 17). That is, over the last century, agriculture has advanced so far in the developed countries that the needs for food and water are being met, which could make this need seem less critical than it is. In other words, in a wealthy society nourishing liquids of many types (e.g., juice) can be found such that a person might imbibe them without realizing they are composed of water and think that water is not an essential physiological need. In less developed countries, however, drinkable water is less accessible and more highly valued (Gadgil, 1998). Consequently, because the physiological needs are located at the lowest level of the hierarchy, and the theory does not identify any lower-level needs, no hypothesis is made about other needs that could predict the physiological needs.

LEVEL 2: SAFETY–SECURITY NEEDS.

Safety–security needs, as Maslow (1943) explained, are also basic to human beings, as can be observed in infants, who have an overt “danger reaction” (e.g., crying) to threatening stimuli, such as being in danger of falling (losing the support of a parent’s arms), or being treated roughly. This reaction may be “instinctive,” that is, performed without conscious design or intentional adaptation (Oxford English Dictionary, n.d.), to facilitate survival in response to predators because, without it, the species may have perished countless millennia ago. The response is apparently so fundamental that it may be genetically and neurologically determined to aid survival (Carretie, Hinojosa, Mercado, & Tapia, 2005).

To define the safety–security needs, it is necessary to identify the types of threats that could elicit the safety–security response and the conditions that satisfy these needs. Because this level of need is conceptually higher than the previous level, the terms used as threats to safety refer to both concrete and abstract things, such as wild animals, criminal assault, disease, war, anarchy, social chaos, natural catastrophes, and, in more peaceful times, the lack of such things as job security, financial security, medical insurance, and retirement security (Maslow, 1943).

Maslow (1943) also gave examples of things that could satisfy the safety–security needs, such as a place where one can feel safe from harm (e.g., a shelter such as a house that gives protection from weather disasters), a guardian, or someone who can be relied on for help (e.g., a reliable police force), an ethical legal system, or a trustworthy government, and more abstractly, stability or structure in one’s life. From these examples, safety–security needs may be defined as the lack of protections such as shelter from environmental dangers and disasters, personal protection from physical harm, financial protection from destitution, legal protection from attacks on one’s rights to a peaceful existence, or a lack of stability in one’s life.

With regard to the needs hierarchy, in Maslow’s theory, the more the physiological needs are satisfied, the more the person will attempt to satisfy the safety–security needs. This means that it is not the feeling of need that should be correlated; rather, it is the satisfaction of the needs that should be correlated. Although not everyone will satisfy higher-level needs, the satisfaction of any given lower-level need,
according to Maslow’s theory, makes it possible to satisfy the next higher-level need. This implies that two contiguous needs could be positively correlated (especially if large numbers of people are sampled). In other words, when one has sufficiently satisfied a need (i.e., when satisfaction of that need is high), then one would have time to attend to satisfying the next higher-level need, which should result in a greater level of satisfaction with that need as well. Therefore, an increase in the satisfaction of the former (physiological) need should be associated with an increase in satisfaction of the latter (safety–security) need.

H(1): The more the physiological needs are satisfied, the more the safety–security needs will be satisfied.

LEVEL 3: BELONGINGNESS NEEDS.
In describing the belongingness needs (also called the “love needs”), Maslow (1987) noted that when physiological and safety–security needs are largely gratified, people “hunger for affectionate relations with people in general” (p. 381). As Baumeister and Leary (1995) pointed out in an extensive review of the theory and research on this concept, the need of human beings to have interpersonal attachments and to feel a sense of belonging with other people is considered fundamental to the species. Their review offers strong support for several factors that were theorized to characterize the belongingness needs. These include an evolutionary basis for satisfying them, that is, forming attachments with other individuals or groups can increase survival for those who develop belongingness with others (Ainsworth, 1989).

Baumeister and Leary (1995) concluded that the belongingness needs are innate, that they are universal (because they are found in every human society), that interpersonal bonds are very easy to develop for most people, and that the deprivation of satisfying these needs can have negative consequences for the individual. Baumeister and Leary also stated that “social exclusion may well be the most common and important cause of anxiety” (p. 506) because it is accompanied by feelings of social rejection, isolation, loneliness, and depression, which confirms Maslow’s (1943) observation that “practically all theorists of psychopathology have stressed thwarting of the love needs as basic in the picture of maladjustment” (p. 381).

A definition of the belongingness needs can be derived from Maslow’s (1943) initial theoretical conceptualization and from Baumeister and Leary’s (1995) review of the concept: a lack of close, lasting, emotionally pleasant interactions with other people, in groups as well as in intimate dyads, that yield personal relationships characterized by mutual affective concern. Thus, close relationships may take many forms, the foremost of which is the family, as well as same-sex and heterosexual friendships, romances, marriage, work groups, and other forms. However, it should be noted that “love is not synonymous with sex. Sex may be studied as a purely physiological need” (Maslow, 1943, p. 381), which is how the two needs are examined in the present research.

With regard to the place the belongingness needs take in the hierarchy, again, Maslow’s (1943) theory specifies that the relative gratification of a need at any of the levels releases the person to start focusing on satisfying the need at the next level up in the hierarchy. Thus, when one’s physiological and safety–security needs are largely satisfied, one will be able to pay more attention to satisfying his or her need to form pleasant interactions with others.

H(2): The more the safety–security needs are satisfied, the more the belongingness needs will be satisfied.

LEVEL 4: ESTEEM NEEDS.
Maslow (1943) regarded the esteem needs as having two components: esteem for oneself and the respect one receives from other people. To achieve a clearer understanding of the two facets, they are explained separately, although they could be assessed either as separate facets or combined as an overall construct.

Esteem for self. In reviewing self-esteem, Guindon (2002) complained that practitioners did not define this concept because they assumed its meaning was implicitly understood, and therefore she offered a new definition for it. Unfortunately, her definition used the word self to define “self,” which rendered the definition incomplete. Therefore, to increase clarity, the term “self-esteem” is here rephrased as “esteem for self” and (using the Oxford English Dictionary definition of self and Guindon’s review of the concept) is defined as a person’s attitudinal evaluation of and the respect he or she has for his or her own nature or character and the
related feelings of one’s worthiness, merit, or value as a person.

Esteem from others. Whereas self-esteem has been well researched by psychologists for decades, esteem from others has not received much attention, either conceptually or empirically. Using the definition developed earlier to characterize esteem for self, “esteem from others” is defined here in terms of what a person receives, that is, the attitudinal evaluation and respect a person receives from people regarding that person’s nature or character and their related feelings about that person’s worthiness, merit, or value as a person.

Thus, esteem needs, as an overall concept, is defined as the lack of respect a person has for himself or herself or the lack of respect a person receives from other people.

One reason for the scarcity of research on this variable might be the absence of a usable measure for it. In one early attempt to measure the overall esteem need (among managers), Porter (1961) used two statements, one for prestige (of a person’s management position) received from other people in one’s company and one for prestige received from other people not in the company. As each statement was evaluated separately, no scale was created (and no reliability reported). Later, Lester (1990) designed a scale for more general use, but the esteem need still contained only two items that referred to respect from others.

Recently, a scale was created for esteem from others (Taormina, 2009) that included statements reflecting the respect and admiration other people felt for a person (e.g., “I am admired by many people”). That scale had a significant negative correlation with gambling behavior, which may indicate a type of divergent validity of the scale because gambling is regarded by many people to be an immoral behavior; that is, the respondents received less esteem from other people for engaging in a socially undesirable behavior.

In regard to the place of esteem needs in the hierarchy, there is a logical progression from satisfying belongingness needs to seeking esteem because both involve social interactions. A human being needs others with whom to interact to feel good about himself or herself within a network of social relationships, which may satisfy the need for self-esteem. But it is not sufficient to only be a part of a group (especially if one is not respected by the group members). Thus, to have a fulfilling sense of esteem, one needs the respect of others as well.

H(3): The more the belongingness needs are satisfied, the more the esteem needs will be satisfied.

Level 5: Self-Actualization Needs.

Self-actualization has been one of the most difficult needs to define because it is at the highest level of the theoretical hierarchy and thus is a more abstract concept. Maslow (1987) described it as “people’s desire for self-fulfillment, namely, the tendency for them to become actualized in what they are potentially. This tendency might be phrased as the desire to become more and more what one idiosyncratically is” (p. 22).

Another difficulty in defining this need was in viewing it subjectively, as an idealistic state of being. Maslow (1987) chose to describe acquaintances and friends (p. 126) who were “very fine,” “older,” “creative,” “visibly successful,” “saintly,” and “sagacious” people (p. 42); thus, his characterization of self-actualized people was subjective and idealized. Also, the descriptions were not of those people’s inherent characteristics but of their values, that is, about being “involved in a cause outside their own skin, in something outside of themselves” (p. 42). The attention that (financially) successful older people give to creativity (versus shame and doubt) and their generativity (versus stagnation) depicts people who successfully passed through Erikson’s (1964) seventh stage of development. Specifically, generativity refers to being concerned with other people and trying to make the world a better place. This led to the problem of including other-orientedness as part of the definition of self-actualization.

The idea of including other-orientedness to define self-actualization is inappropriate because it introduces confounds. For example, other-oriented behavior might be motivated by a lack of being liked by others (i.e., the person’s belongingness needs). Alternately, the desire to help others might result from a lack of respect from others (i.e., the esteem needs). Additionally, although some writers believe that self-actualization should include the idea of a “social self” (which describes the individual in relation to other people), other-orientedness fundamentally confounds the definition of self-actualization because
the constructs of “self” and “other” are inherently distinct (i.e., other people are independent physical entities that cannot be part of a person’s individuated physical “self”).

Furthermore, because Maslow was concerned with therapy, he thought clinical psychologists should help patients using Erikson’s (1964) idea of generativity, which states that one should care about other people rather than be self-concerned. This therapeutic approach disposed some psychologists to overlook the main concept of self-actualization, that is, the self, and instead to emphasize an idealized view of what people should be like (i.e., to be concerned about the welfare of other people). Unfortunately, that contradicts what self-actualization is, at least regarding its lexical meaning.

In order to derive an operational definition that will better allow the concept to be measured, a more fundamental approach to establishing a working definition should be taken. This is accomplished by examining the linguistic elements of the term self-actualization. The first element, self, consists of a person’s conscious and unconscious, including the cognitions, thoughts, and feelings that combine to form the person’s core identity. Also, according to the Oxford English Dictionary (n.d.), the self is “that which a person really and intrinsically is,” or, “one’s true character.”

To complete the definition, the second part of the term can also be broken down to reveal its nature. Actual refers to what is genuine, real, or true. The -ize suffix refers to converting something, and -ation refers to a process; thus, the term actualization refers to the process of converting something into what it really and essentially is. Therefore, when all parts of the word are used in combination, the term self-actualization can be more precisely defined: the process of a person becoming what he or she really and uniquely, that is, idiosyncratically, is (where idiosyncratic refers to “individual disposition; A peculiarity of constitution or temperament particular to a person,” Oxford English Dictionary, n.d.). This definition delineates the true self from what society tells us we ought to be.

Regarding the components of self-actualization, previous attempts were limited by the lack of a clear definition, which made earlier measures ambiguous, or were inappropriate because they stressed being other-oriented. One attempt (Shostrom, 1964) used many other-oriented adjectives that are socially approved (e.g., empathetic, friendly, accepting, tolerant, modest, and humble), but whereas the terms were derived from a psychotherapeutic point of view, they could invoke social desirability. Thus, although the terms had a high reliability, several adjectives did not fit the definition of self-actualization. In another example, Lester (1990) created a scale for self-actualization for college students (N = 46, mean age = 21 years), but viewed from the stricter definition of self-actualization, the items do not seem to describe the concept (e.g., “I am seeking maturity” would be irrelevant to older people, and the results from such a small sample of young college students might not be generalizable).

In a different approach, Leclerc, Lefrançois, Dubé, Hébert, and Gaulin (1998) used the Delphi technique, which asked several authors who had published at least one paper on self-actualization to list the traits of a self-actualized person. They obtained 36 items, which they placed into two categories: “openness to experience” and “reference to self.” Unfortunately, “openness to experience” is one of the Big Five personality constructs (Costa & McCrae, 1992), and because this is a personality characteristic, it should have a normal curve for all members of the population, but this contradicts the idea that self-actualization is achieved by a relative minority of the population (Maslow, 1962, p. 190).

Also in the Leclerc et al. (1998) study, some items (e.g., “aware of their feelings”) are characteristic of all human beings, whereas some items (e.g., “capable of intimate contact”) are typical of most mammals (e.g., dogs are very affectionate), and some items are other-focused (e.g., “capable of empathy”). For the “reference to self” items, although fittingly labeled, some were not appropriate, with one of the most troublesome items being “have a positive self-esteem.” Because self-esteem is a component of the (subordinate-level) esteem needs, it brings into doubt whether that study had a clear definition of self-actualization as a separate construct. Also, that study did not empirically test the items and did not report reliabilities for the scales.

Additionally, French and Joseph (1999) tried to relate religiosity to self-actualization and used 15 items of a self-actualization scale by Jones and Crandall (1986), which included items such as “I feel free
to be angry at those I love,” and “I fear failure.” However, the scale yielded an alpha reliability of only .20, so it was dropped from their analyses.

As a consequence of the problems with previous scales, a new scale was developed for this study. All the items created were based on the definition of self-actualization developed in this article and, with discerning selectivity, on Maslow’s (1987) theoretical explanations. Therefore, the items for the present study were intentionally focused on the self-oriented aspects of self-actualization (e.g., “I am now being the person I always wanted to be”).

Regarding the theoretical location of the self-actualization construct in the needs hierarchy for empirical testing, once the esteem needs have been largely satisfied, a person should be sufficiently secure in his or her social standing among other people that he or she can turn to the endeavor of self-actualizing, namely, trying to become what he or she really (and uniquely) wants to be.

H(4): The more the esteem needs are satisfied, the more the self-actualization needs will be satisfied.

**Exploratory Variables and the Five Needs**

In addition to creating the needs measures and testing their interrelationships, a set of additional measures was identified to determine whether certain theoretical and practical variables would be associated with the needs, as might be expected from inductive reasoning. Three variables of interest selected were emotional support received from the family, personal (traditional) values, and anxiety/worry (i.e., a facet of neuroticism) as a personality measure. One further variable selected for testing was life satisfaction.

**FAMILY EMOTIONAL SUPPORT.**

In humans, children are raised and cared for by their parents and family, who provide the child with basic necessities (e.g., nourishment) and protection (e.g., shelter) for survival, growth, and development. These behaviors should relate directly to satisfying the physiological and safety–security needs. Family members also (to varying degrees) provide love and emotional support to the child, which partially satisfies the belongingness needs. The family could (likewise, to varying degrees) also provide a positive regard that fosters self-esteem.

Along these lines, as described in attachment theory (Ainsworth, 1989; Bowlby, 1982), children who are raised by caring, supportive parents tend to have higher self-esteem (Armsden & Greenberg, 1987) and to be more outgoing and competent in their social activities (Waters, Wippman, & Sroufe, 1979), which could earn them more respect from others, thus increasing their esteem needs (from both the self and others). When these needs are adequately met, the person will be more able to pursue his or her self-actualization. To test these ideas, family emotional support was selected to assess its relationship to the satisfaction of all five needs.

H(5): The more family emotional support people receive, the more satisfaction there will be of their (a) physiological, (b) safety–security, (c) belongingness, (d) esteem, and (e) self-actualization needs.

**TRADITIONAL VALUES.**

Traditional values, which are characteristic of a society and usually learned and adopted by individual members of the society, represent ideas, concepts, and qualities that people consider important. According to Homer and Kahle (1988), using social adaptation theory, values guide individuals on what to do when faced with choices in life and have a causal influence on their behaviors. Unger et al. (2002) tested this idea among several ethnic groups and found that higher levels of traditional cultural values, specifically filial piety and familism (i.e., a sense of family obligation), were associated with lower levels of health risk behaviors.

Traditional values in most societies usually refer to close family ties, personal integrity, respect for others, and living according to the cultural mores of one’s society. Each of these factors could affect the extent to which a person’s needs are satisfied. For example, family ties, as reflected in intergenerational support, could help a person satisfy physiological needs (e.g., for food) and safety–security needs (for home and shelter provided by parents to their children and by offspring to their elders). Close family ties also refer to feeling love, acceptance, warmth, and inclusion, which help satisfy the belongingness needs.

Additionally, personal integrity can help a person develop self-esteem, and the respect one has for others is likely (in most societies) to be reciprocated,
such that someone with personal integrity will probably be more accepted and liked by others, increasing satisfaction of the belongingness needs, and be more respected by others, increasing satisfaction of the need for esteem from others. Thus, if all the aforementioned needs are more likely to be satisfied in a person who abides by his or her society’s traditional values, this would make it more likely for that person to also achieve self-actualization.

H(6): The more that people abide by traditional values, the more satisfied will be their (a) physiological, (b) safety–security, (c) belongingness, (d) esteem, and (e) self-actualization needs.

ANXIETY AND WORRY AS A FACET OF NEUROTICISM.

Neuroticism is characterized by anxiety, worry, fear, and doubt (Costa & McCrae, 1992), and Maslow (1943) explained that this aspect of personality is antithetical to the satisfaction of certain needs: “Some neurotic adults in our society are, in many ways, like unsafe children in their desire for safety” (p. 379). Anxiety, and its associated symptom, worry, as the most characteristic features of neuroticism, can manifest in any aspect of life, such as whether there is enough food to eat (physiological need) and whether it is safe to eat (safety–security need) or whether a spouse truly loves the person (belongingness need). Also, research on neuroticism has found it to occur with low levels of self-esteem (Judge, Erez, Bono, & Thoresen, 2002). Therefore, people with high levels of the anxiety/worry component of neuroticism would suffer such disquietude in their lives that they would be less likely to self-actualize. Indeed, Lester, Hvezda, Sullivan, and Plourde (1983) found that neuroticism had negative correlations with all five of the Maslow needs. Whereas neuroticism has several facets containing numerous items (Costa & McCrae, 1992), which could not all be assessed here, this personality construct was measured by its principal feature, namely anxiety/worry.

H(7): The more anxiety/worry (neuroticism) people have, the less satisfied will be their (a) physiological, (b) safety–security, (c) belongingness, (d) esteem, and (e) self-actualization needs.

LIFE SATISFACTION.

As Milyavskaya and Koestner (2011) explained, self-determination theory (Deci & Ryan, 2000) posits that the satisfaction of certain basic psychological needs should result in a variety of positive outcomes, including an overall feeling of well-being. Using self-determination theory, Milyavskaya and Koestner found that, for people who were satisfied with their own autonomy and with their relatedness to others, there were significant positive correlations with the feeling of overall well-being. This suggests that satisfaction of all five of the needs in Maslow’s hierarchy could be positively related to life satisfaction.

That is, based on Milyavskaya and Koestner’s (2011) results, relatedness to others may reflect belongingness, and autonomy may reflect self-actualization (living idiosyncratically) because Maslow (1987) noted that “self-actualizing people maintain a degree of individuality, detachment, and autonomy” (p. 156), that is, autonomy allows a person freedom to manifest his or her individual temperament (as compared with a person who remains dependent on others and thus would be less likely to live out his or her unique personal peculiarities). Also, Deci and Ryan (2009; Ryan & Deci, 2000) explained that satisfaction of basic physiological, psychological, and motivational needs will positively influence one’s affect and well-being.

Hence, to the extent that life satisfaction is an indicator of overall well-being (Pavot, Diener, Colvin, & Sandvik, 1991), the Milyavskaya and Koestner (2011) results may presage similar correlations with life satisfaction. Here, a more direct test is conducted on satisfaction of all five needs in Maslow’s hierarchy in relation to life satisfaction.

H(8): The more satisfied are people’s (a) physiological, (b) safety–security, (c) belongingness, (d) esteem, and (e) self-actualization needs, the more life satisfaction they will have.

EXPERIMENT

METHOD

Respondents

Although the need satisfaction measures were created in English, an opportunity arose to gather data from
a large sample in China. Thus, there were 386 (198 male, 248 female) respondents who were all ethnic Chinese, aged 18 to 67 years ($M = 31.44, SD = 12.78$). The average number of brothers was 1.10 ($SD = 1.27$), and average number of sisters was 1.24 ($SD = 1.30$). For education, 7 respondents had none, 46 finished primary school, 241 secondary school, 79 had a bachelor’s degree, and 13 had a master’s degree or higher. For marital status, 246 were single, 132 married, and 8 indicated “other” (divorced, separated, or widowed). The average number of children was 0.65 ($SD = 1.11$), with most respondents (69.43%) having none and the rest (30.57%) having one to six children. For employment, 73 respondents were unemployed, 127 had part-time jobs, and 186 had full-time jobs. For monthly income (in U.S. dollars), 181 earned less than $625, 94 earned between $625 and $1,249, 58 between $1,250 and $1,874, 29 between $1,875 and $2,499, 10 between $2,500 and $3,124, and 14 earned $3,125 or more. For overall health, the mean score was 2.63 ($SD = 0.74$).

**Measures**

The questionnaires assessed six elements: satisfaction of the five hierarchical needs, anxiety/worry (a facet of neuroticism), family emotional support, life satisfaction, traditional values, and demographics.

**DEMOGRAPHICS.**

Data for age, number of brothers and sisters, and number of children were continuous and recorded as given by the respondents. For the remaining (categorical) demographics, the responses were dummy coded: For gender, $0 = female$, $1 = male$; for education, $0 = none$, $1 = primary school$, $2 = secondary school$, $3 = bachelor’s degree$, $4 = master’s degree or more$; for marital status, $1 = single$, $2 = married$, $3 = other$. For employment status, $0 = unemployed$, $1 = part-time$, $2 = full-time$; for monthly income, in U.S. dollars, $1 = <$625, $2 = $625-$1,249, $3 = $1,250-$1,874, $4 = $1,875-$2,499, $5 = $2,500-$3,124, $6 = $3,125 or more; and for perceived overall health, $1 = bad$, $2 = moderate$, $3 = good$, $4 = very good$, $5 = excellent$.

**SATISFACTION ON MASLOW’S FIVE NEEDS.**

All the items for each need level were developed from Maslow’s (1943, 1971, 1987) theory of need satisfaction, which was examined for conceptual explanations and examples, yielding 15 statements (items) for each of the first four needs and 12 for self-actualization. The question that was asked for the physiological, safety–security, belongingness, and esteem needs referred to satisfaction of the need (i.e., “How satisfied are you with,” followed by the items), and responses were measured on a 5-point Likert scale ranging from 1 (completely unsatisfied) to 5 (completely satisfied). For self-actualization, the question asked, “How much do you agree or disagree that the following statements describe you” (followed by the items), and responses were measured on a 5-point agree–disagree Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. The items for all five of the needs measures are listed in the Appendix.

**PHYSIOLOGICAL NEEDS SATISFACTION.**

Although there are many physiological needs, some are classic in terms of their underlying prepotency (e.g., hunger). Thus, satisfaction with the physiological needs was measured by 15 items (statements) that included items specifically mentioned by Maslow (1943, p. 373), that is, the need for sleep, food, water, sex, physical health, and suitable ambient temperature (i.e., heating/cooling). The items asked about the amount or quality of these. A sample item was “The quality of the water I drink every day.”

**SAFETY–SECURITY NEEDS SATISFACTION.**

Maslow (1987) discussed the need to have a safe and secure place to live and to be protected from dangers in the environment, as well as the need for financial security and a stable life. Maslow (1943, pp. 376–380) specifically mentioned being secure in one’s home and neighborhood, protection from being attacked, safety from war, disease, natural catastrophes, criminal assault, and even financial security (e.g., of having a savings account). These were all included in the 15 items created to assess satisfaction of the safety–security needs. A sample item was “The safety of my neighborhood.”

**Belongingness Needs Satisfaction.**

This measure focused on receiving love, support, warmth, and affection. Maslow (1943, pp. 380–381) described it as having “affectionate relations with people in general” and cited people who could satisfy these needs as family and friends and mentioned “a sweetheart, or a wife” (to be less gender specific, this was named “spouse/partner”). Thus, the items created included a spouse or partner, family, friends, associates, and colleagues. Satisfaction of the belongingness needs was also measured with a 15-item scale. A sample item was “The affection shown to me by my friends.”
ESTEEM NEEDS SATISFACTION.

Because Maslow (1943, pp. 381–382) noted that esteem needs “can be classified into two subsidiary sets” (i.e., self-esteem and esteem from other people), the 15-item esteem needs satisfaction measure contained two parts. Satisfaction with esteem for self had seven items that specifically asked about satisfaction with one’s feelings of self-esteem, self-worth, self-respect, and positive self-regard. A sample item for this facet of esteem was “The amount of esteem I have for myself.” Satisfaction with esteem from others had eight items on satisfaction with the prestige, respect, esteem, recognition, and positive regard or appreciation received from other people. A sample item for this facet of esteem was “The prestige I have in the eyes of other people.” To obtain an overall estimate of the esteem needs construct, the two facets were combined into a single measure in this study.

SELF-ACTUALIZATION NEED SATISFACTION.

Although Maslow (1950, 1962) wrote on this topic extensively, many of those ideas were factors that Maslow (1969) conjectured to be associated with this need and thus could not be used. Rather, the items created for this study were based on Maslow’s (1962, pp. 193–196) central concepts (e.g., self-expression and being uninhibited). Specifically, Maslow (1943) mentioned self-fulfillment (p. 382), self-acceptance, enjoying life, doing what one wants, living life fully, and gratifying one’s own wishes (Maslow, 1962, p. 196). These concepts, and those created from the operational definition (developed in this article), were included as items for this construct. Self-actualization was measured with 12 items that assessed the extent to which it was achieved. A sample item was “I am now being the person I always wanted to be.”

Measures for the Exploratory Variables

ANXIETY/WORRY AS NEUROTICISM.

To avoid a lengthy questionnaire, a brief 5-item scale that assessed the most characteristic aspects of neuroticism (i.e., anxiety and worry) was used for this measure. The items were selected from two sources to ensure that they focused only on the anxiety/worry facet of the larger neuroticism construct. Two items were extracted from the neuroticism domain of the NEO Personality Inventory (NEO-PI-R; Costa & McCrae, 1992), “I often worry about things” and “I am filled with doubts about things,” and three items from Peterson and Seligman’s (2004) neuroticism measure, “I usually expect the worst,” “I usually look on the bright side” (reversed), and “I am not confident that things will work out for the best.” Responses were measured on a 5-point agree/disagree Likert scale.

FAMILY EMOTIONAL SUPPORT.

For this scale, 10 items were selected from Procidano and Heller’s (1983) 20-item Perceived Family Social Support scale. Because the present study was designed to assess the extent of received family emotional support, some items were deleted because they referred to giving rather than receiving support, and others were deleted because of excessive item length or ambiguity. A sample item was “My family gives me the moral support I need.” To measure this, the 5-point agree/disagree Likert scale was used.

LIFE SATISFACTION.

Life satisfaction was measured with a 10-item scale from Sirgy et al. (1998; originated by Meadow, Menter, Rahit, & Sirgy, 1992), who used the measure for a five-nation study (Australia, Canada, China, Turkey, and the United States). Respondents were asked to rate how satisfied they felt with their lives as compared with certain situations (e.g., “How satisfied are you compared to the accomplishments of most people in your position?”). Responses were measured on the 5-point unsatisfied/satisfied Likert scale.

TRADITIONAL VALUES.

The most relevant values measure for the Chinese sample in this study was the 12-item Chinese Values Scale (Taormina, 2009), which measures values that are considered central to the culture. Sample items were “personal steadiness,” “prudence,” and “respect for tradition.” Respondents were asked to what extent they personally live their lives by these values, using a response scale that ranged from 1 (never) to 5 (always).

LANGUAGE OF THE QUESTIONNAIRE

All items for all the measurement scales were originally constructed in English by a native English speaker with extensive experience constructing and publishing scales that measure psychological constructs. When an opportunity arose to gather a large sample of data in China, translation of the scales was then undertaken by bilingual expert linguists. One team of linguists translated the original English items into Chinese, after which a second team translated the Chinese version back into English. The back-
translation was then examined by another bilingual expert and by the native English speaker who created the items, and the back-translation was deemed virtually identical to the original English version.

Procedure
To obtain a wide range of respondents, data were collected in popular shopping locations (frequented by people from all walks of life), business districts, and universities. For sidewalk interventions, a random-ordered method was used. To complement this approach, randomly selected apartment buildings were also targeted, with one apartment on each floor visited at times that were convenient to the residents (i.e., during the afternoons or early evenings).

In all cases, the guidelines of the American Psychological Association for the ethical treatment of human participants were followed, with potential respondents informed of the nature of the study and assured of their anonymity and of the confidentiality of their answers. Those who agreed to participate were handed the questionnaire. From the 500 people asked, 386 complete questionnaires were collected (on site), yielding a response rate of 77.2%.

RESULTS

Psychometrics of the Needs Scales and Other Measures

FACTOR ANALYSES.

Because each need had numerous items, which could group into multiple components, an exploratory factor analysis was run. This gave five components for the physiological need (food–water, sex, temperature, sleep, and exercise–physical health), four for the safety–security need (home, environment, finance, and police–law), three for the belongingness need (friends, family, spouse–partner), two for the esteem need (for self, from others), and two for the self-actualization need (self-realization, self-determination).

The exploratory factor analysis results thus enabled the use of a confirmatory factor analysis to assess the fit of the 72 items into an overall five-part model, using a structural equation model, which yielded the following results: $\chi^2(74) = 117.47$, $p = .001$, RMSEA = .04, and very good fit indexes for the model, that is, $\text{CFI} = .98$, $\text{IFI} = .98$, $\text{TLI} = .96$, $\text{NFI} = .95$, $\text{GFI} = .96$, all of which reached or exceeded the recommended (.95) value for a good fit of the data to the model (Schreiber, Stage, King, Nora, & Barlow, 2006).

TESTS OF SCALE VALIDITY.

In addition to the confirmatory factor analysis, which helped affirm the construct validity of the five scales, a known-groups validity test was also conducted. This assesses the degree to which the measures can demonstrate significantly different scores for groups already known to differ, and in which direction, on the dimensions measured. The groups were 32 doctors, lawyers, full professors, and wealthy business professionals who were expected to be high on satisfaction of the needs because they had achieved successful lives and 30 indigent, long-term unemployed, and underemployed migrant workers living away from their families who were expected to be low on satisfaction of the needs because of various (e.g., financial, personal, and social) limitations on their lives.

In $t$ tests used to compare the two groups on need satisfaction, all the needs differed significantly ($p < .001$) in the expected direction, with the underemployed ($M = 2.55$, $SD = 0.49$) lower than professionals ($M = 4.19$, $SD = 0.63$) on physiological need satisfaction, $t(60) = 11.41$; the underemployed ($M = 2.18$, $SD = 0.41$) lower than professionals ($M = 4.41$, $SD = 0.72$) on safety–security need satisfaction, $t(60) = 14.82$; the underemployed ($M = 2.42$, $SD = 0.57$) lower than professionals ($M = 4.61$, $SD = 0.53$) on belongingness need satisfaction, $t(60) = 15.65$; the underemployed ($M = 2.03$, $SD = 0.67$) lower than professionals ($M = 4.31$, $SD = 0.58$) on esteem need satisfaction, $t(60) = 14.98$; and the underemployed ($M = 1.95$, $SD = 0.40$) lower than professionals ($M = 3.82$, $SD = 0.40$) on self-actualization, $t(60) = 18.50$. These results reflect strong support for the construct validity of the needs measures.

TEST FOR COMMON-METHOD BIAS.

For common-method bias, Harman’s (1960) factor analytic approach was used. This is a maximum-likelihood analysis of all the variables that uses a forced, one-factor solution, and the resultant Chi-square value is then divided by the degrees of freedom to assess whether the items fit into a single factor, such that a ratio of less than 2.00:1 would indicate a single factor,
reflecting common-method bias. For this study, the ratio was 7.32:1, suggesting that common-method bias was not a concern.

**SCALE RELIABILITIES.**

Another measure of scale integrity for the need levels is reliability. Cronbach’s alpha reliability scores were computed for each of the new scales, yielding .81 for physiological needs, .87 for safety–security, .90 for belongingness, .91 for esteem (.90 for the 8-item esteem from others subscale and .89 for the 7-item esteem for self subscale, but only the combined 15-item measure was used in the analyses), and .86 for self-actualization. Whereas all the reliability values exceeded the recommended .70 (Nunnally, 1978), all scales demonstrated very good reliabilities. Also, scale reliabilities for the four exploratory variables were .83 for family emotional support, .83 for traditional values, .69 for anxiety/worry (neuroticism), and .86 for life satisfaction.

**Correlations**

Three types of correlations were computed. The first was among the five needs. The second was between the needs and the four exploratory test variables, that is, family support, traditional values, anxiety/worry (neuroticism), and life satisfaction (as an outcome). The third set of correlations was between the demographics and the needs. Note that the categorical demographic variables were dummy coded in regular increasing functions (see Measures), and for marital status, only the single (coded 1) and married (coded 2) respondents were included such that all the demographics could be entered in the correlations and regressions. To better understand the results, it should be remembered that the measures assessed the extent to which the respondents felt their needs were satisfied.

The correlations among the satisfactions of the five needs were all positive and significant (all \( p < .001 \)), supporting hypotheses H(1) through H(4) and coinciding with Maslow’s theoretical proposition that any given need should be somewhat satisfied for the next higher-order need to emerge (Maslow, 1987, pp. 17-18). In line with this, the results (except only those for physiological and self-actualization) showed that satisfaction of the needs that are adjacent had higher correlations than those that are not. Specifically, the correlation between physiological and safety–security (.50) was higher than the correlation between physiological and belongingness or between physiological and esteem. The correlation between safety–security and belongingness (.38) was higher than the correlation between safety–security and esteem or between safety–security and self-actualization. The correlation between belongingness and esteem (.50) was higher than the correlation between belongingness and self-actualization. And the correlation between esteem and self-actualization (.50) was higher than the correlation between self-actualization and belongingness or between self-actualization and safety–security.

To test the next four hypotheses, the correlations were between the exploratory variables and satisfaction of the needs. For family support, the correlations with need satisfaction were all positive, from .26 to .57 (all \( p < .001 \)), supporting H(5a) to H(5e). For traditional values, the correlations with the needs satisfaction were also all positive, from .19 to .35 (all \( p < .001 \)), supporting H(6a) to H(6e). For anxiety/worry (neuroticism), the correlations with the need satisfaction were all negative, from –.15 or –.16 (\( p < .005 \)) to –.24 (\( p < .001 \)), supporting H(7a) to H(7e). For life satisfaction, the correlations with the need satisfaction were all positive and ranged from .30 to .58 (all \( p < .001 \)), supporting H(8a) to H(8e).

Because no hypotheses were formulated for the demographics, the correlations assessed whether any personal or social factors might be related to satisfaction of the needs (here, only significant correlations are reported). Satisfaction of physiological needs was positively correlated with the number of brothers and sisters (both \( p < .05 \)), number of children, income (both \( p < .01 \), age (\( p < .005 \)), and overall health (\( p < .001 \)). Satisfaction of the safety–security needs had positive correlations with income (\( p < .05 \)) and overall health (\( p < .005 \)). Satisfaction of the belongingness needs had negative correlations with age and income (both \( p < .05 \)) and a positive correlation with overall health (\( p < .001 \)). Satisfaction of the esteem needs had a negative correlation with employment (\( p < .05 \)) and a positive correlation with overall health (\( p < .001 \)). Satisfaction of the self-actualization needs had positive correlations with overall health (\( p < .05 \)), number of brothers, sisters, and children (all \( p < .005 \)), age, and marital status (both \( p < .001 \)). All these correlations and the variable means, standard deviations, and Cronbach’s alpha reliabilities are shown in Table 1.
Self-Actualization Achievement

Maslow (1962) stated that self-actualization is achieved by very few people, so the data were examined for evidence of this. But self-actualization is not an all-or-none proposition, and the scores were measured on a 5-point Likert scale. Hence, statistically, “achieved” could connote that there would be fewer people at 2 SDs above the mean vis-à-vis a normal curve, where 2.5% of the 386 respondents (i.e., 10 people) would be expected to score. Because only 5 (half the expected number) scored that high, the data seem to support Maslow’s idea.

Mean Differences Tested Across Gender on Need Satisfaction

To ascertain whether there was evidence for the criticism of gender bias raised by Cullen and Gotell (2002) against Maslow’s theory, t tests across gender were run on all five needs. The t values, all using t(384), ranged from -1.80 to 1.86, with none significant (all ps > .05). Thus, no gender differences (biases) were found on satisfaction of any of the needs.

Regressions

To further assess H(1) through H(4), regressions were also run on satisfaction of the needs, that is, for any given need, its lower-level needs (but not its higher-level needs) were included as potential predictors, along with the demographics and the exploratory variables (whereas physiological needs had no lower-level needs, its regression was run on only the demographic and exploratory variables).

For physiological need satisfaction, five variables entered the regression (all positively) to explain 24% of the variance, F(5, 370) = 24.87, p < .001. Perceived overall health explained 14% of the variance, marital status explained 5%, traditional values 1%, family support 3%, and number of brothers 1%.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<td>1. Physiological</td>
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<td></td>
<td></td>
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<td>.81</td>
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<td>.87</td>
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<td>3. Belongingness</td>
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<td>.38****</td>
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<td>.90</td>
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<td>4. Esteem</td>
<td>3.57</td>
<td>0.47</td>
<td>.40****</td>
<td>.31****</td>
<td>.50****</td>
<td>—</td>
<td></td>
<td>.91</td>
</tr>
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<td>5. Self-actualization</td>
<td>3.21</td>
<td>0.55</td>
<td>.53****</td>
<td>.35****</td>
<td>.34****</td>
<td>.50****</td>
<td>—</td>
<td>.86</td>
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<tr>
<td>6. Family support</td>
<td>3.46</td>
<td>0.55</td>
<td>.26****</td>
<td>.26****</td>
<td>.57****</td>
<td>.36****</td>
<td>.29****</td>
<td>.83</td>
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<td>7. Traditional values</td>
<td>3.75</td>
<td>0.47</td>
<td>.21****</td>
<td>.20****</td>
<td>.35****</td>
<td>.32****</td>
<td>.19****</td>
<td>.83</td>
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<td>8. Anxiety/worry</td>
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<td>0.58</td>
<td>−.15***</td>
<td>−.16***</td>
<td>−.15***</td>
<td>−.24***</td>
<td>−.16***</td>
<td>.69</td>
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<td>9. Life satisfaction</td>
<td>3.31</td>
<td>0.52</td>
<td>.36****</td>
<td>.30****</td>
<td>.33****</td>
<td>.52****</td>
<td>.58****</td>
<td>.86</td>
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<td>10. Gender</td>
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<td>11. Age</td>
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<td>12.78</td>
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<td>.02</td>
<td>−.11**</td>
<td>−.04</td>
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<td>.19****</td>
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<td>12. Brothers</td>
<td>1.10</td>
<td>1.27</td>
<td>.13*</td>
<td>−.03</td>
<td>−.05</td>
<td>.04</td>
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<td>.16***</td>
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<td>13. Sisters</td>
<td>1.24</td>
<td>1.31</td>
<td>.11*</td>
<td>−.01</td>
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<td></td>
<td>.16***</td>
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<td>14. Marital status</td>
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<td>−.01</td>
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<td>15. Number of children</td>
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<td>.14**</td>
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<td>−.07</td>
<td>−.06</td>
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<td>16. Education</td>
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<td></td>
<td>.05</td>
<td>.06</td>
<td>−.07</td>
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<td>17. Employment</td>
<td>1.29</td>
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<td>.10</td>
<td></td>
<td>.06</td>
<td>−.10</td>
<td>−.10*</td>
<td>.06</td>
</tr>
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<td>18. Income (monthly)</td>
<td>2.05</td>
<td>1.32</td>
<td>.14***</td>
<td>.12*</td>
<td>−.11*</td>
<td>.02</td>
<td>.08</td>
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<td>19. Overall health</td>
<td>2.63</td>
<td>0.74</td>
<td>.37****</td>
<td>.14***</td>
<td>.19***</td>
<td>.18***</td>
<td>.12*</td>
<td>—</td>
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</table>

Note. Numerical codings of the demographics are in the Method section: For marital status, only single and married (N = 378) were included. *p < .05. **p < .01. ***p < .005. ****p < .001.
For safety–security need satisfaction, two variables entered the regression (both positively) to explain 25% of the variance, \( F(2, 373) = 62.73, p < .001 \). Physiological needs satisfaction explained 23% of the explained variance, further supporting H(1), and family support explained 2%.

For belongingness need satisfaction, six variables entered the regression to explain 44% of the variance, \( F(6, 369) = 50.00, p < .001 \). Entering the regression positively were family support, which accounted for 32%; safety–security need satisfaction 6%; traditional values 1%; and education 1%. Entering the regression negatively, income accounted for the remaining 2% of the explained variance.

For esteem need satisfaction, five variables entered the regression to explain 35% of the variance, \( F(5, 370) = 42.12, p < .001 \). Entering positively were belongingness need satisfaction, which accounted for 24%, further supporting H(3); physiological need satisfaction 6%; and traditional values 2%. Also, two variables entered the regression negatively to account for the remaining explained variance: the anxiety/worry facet of neuroticism, which accounted for 2%, and employment for 1%.

For self-actualization need satisfaction, three variables entered the regression (all positively) to explain 41% of the variance, \( F(3, 372) = 86.73, p < .001 \). Physiological need satisfaction explained 28%, esteem need satisfaction explained 10%, adding support to H(4); and number of children accounted for the remaining 3% of the explained variance.

The final regression was for life satisfaction, which was regressed onto all the other variables to determine whether satisfaction of any needs could explain life satisfaction. Three variables entered the regression (all positively) to explain 41% of the variance, \( F(3, 372) = 87.20, p < .001 \). Satisfaction of self-actualization accounted for 34% of the explained variance, esteem need satisfaction 6%, and traditional values 1%.

The regressions for satisfaction of the physiological and safety–security needs are shown in Table 2, for satisfaction of the belongingness and esteem needs are shown in Table 3, and for self-actualization and life satisfaction are shown in Table 4.

**DISCUSSION**

The results are discussed first in regard to the correlations used to test the hypotheses, next in terms of the ability of the satisfaction of lower-level needs to statistically predict the satisfaction of higher-level needs in the regressions, and then in regard to the ability of the demographics and the exploratory variables to predict satisfaction of the five needs and life satisfaction; and, finally, some observations on the intercultural relevance of Maslow’s theory are made (with mention of the sample’s culture included, where relevant, in discussing factors that relate to particular needs).

**Correlations Among the Needs Variables**

The hypotheses for satisfaction of the needs were based on Maslow’s theoretical tenet that it is necessary for lower-level needs to be mostly (though not necessarily 100%) satisfied before a person becomes concerned with satisfying higher-level needs (Maslow, 1943, pp. 388–389). This implies that there should be significant positive correlations between the degrees of satisfaction of any two needs that are adjacent in the hierarchy. As can be seen from the correlation results (Table 1), the satisfaction of any given need was positively and significantly correlated with the need immediately below it in the hierarchy, thus supporting Maslow’s theorized hierarchy of needs.

**Lower-Level Needs as Predictors of Higher-Level Needs**

The theoretical hierarchy of needs also suggests that, in regressions, satisfaction of a lower-level need should be able to statistically predict the extent to which a higher-level need is satisfied, and ideally satisfaction of any need should predict the need immediately above it in the hierarchy. (Whereas the physiological needs are at the lowest level, no other needs in the hierarchy were tested as potential predictors.)

For satisfaction of the safety–security needs, the only other need that could be used in the regression was satisfaction of the physiological needs, which did enter the regression to account for the majority of the explained variance. For satisfaction of the belongingness needs, both satisfaction of the safety–security and physiological needs entered the equation. For satisfaction of the esteem needs, satisfaction of the belongingness and of the physiological needs entered
the regression. Likewise, for self-actualization, satisfaction of the esteem needs and of the physiological needs entered the regression as predictors.

Summarizing these results, satisfaction of the lower-level need immediately below any given need in the hierarchy predicted satisfaction of the next higher-level need, yielding strong evidence for the hierarchical nature of Maslow’s theory of need satisfaction. Also, satisfaction of the physiological needs was a significant predictor of the satisfaction of every one of the four higher-level needs, suggesting that the physiological needs are profound and, as Maslow (1943) argued, that they could very well preempt one’s ability to satisfy any of the higher-level needs if they are not satisfied.

Additional Predictors of Need Satisfaction and Life Satisfaction

**PHYSIOLOGICAL NEED SATISFACTION.**

For satisfaction of this need level, two exploratory and three demographic variables entered the regression. Family emotional support may have been a predictor because the family is the strongest and most important unit in most societies worldwide, including (and especially) in Chinese society (Yang, 1995). Thus, even though the measure assessed “emotional” sup-

| TABLE 2. Stepwise Regressions for Satisfaction of Physiological and Safety–Security Needs |
|---------------------------------|-----------------|-----------------|
| Predictors                       | Physiological   | Safety–security |
|                                 | Beta            | ΔR²             | Beta            | ΔR²             |
| Self-actualization              | n/a             | n/a             | n/a             | n/a             |
| Esteem need satisfaction        | n/a             | n/a             | n/a             | n/a             |
| Belongingness need satisfaction | n/a             | n/a             | n/a             | n/a             |
| Safety–security need satisfaction | n/a             | n/a             | n/a             | n/a             |
| Physiological need satisfaction | n/a             | .44****         | .23             |
| Family emotional support        | .16***          | .03             | .15***          | .02             |
| Traditional values              | .14***          | .01             | .01             | .08             |
| Anxiety/worry (neuroticism)     | −.09            | −.07            | −.07            |
| Gender                          | .07             | .07             | .01             |
| Age                             | .12             | −.05            | −.05            |
| Number of brothers              | .10*            | .01             | −.08            |
| Number of sisters               | .06             | −.07            | −.07            |
| Marital status                  | .15***          | .05             | −.04            |
| Number of children              | .02             | −.02            | −.02            |
| Education                       | −.04            | .04             | .04             |
| Employment                      | .05             | .03             | .03             |
| Income (monthly)                | .08             | .06             | .06             |
| Overall health                  | .37****         | .14             | −.06            |

Total R²: .24  
Final F: 24.87****  
df: 5,370

Final R²: .25  
Final F: 62.73****  
df: 2,373

Note. Need satisfaction was regressed only on lower-level needs. Degrees of freedom do not add to 385 (N – 1) because cases with missing values were deleted. n/a = not applicable.

*p < .05. **p < .01. ***p < .005. ****p < .001.
port, it seems that the family emotional connection is sufficiently strong that it extends to satisfaction of physiological needs.

Traditional values also entered this regression. In many societies, traditional values are characterized by a strong familism (e.g., Unger et al., 2002), in which the family hierarchy is of great importance, particularly the care and support parents give to their children and the respect children show for their parents. The more one believes in these traditions, the more likely one is to practice them, that is, to provide for one’s offspring just as one was provided for by his or her parents, such that a strong belief in the traditional values of one’s society should be reflected in the satisfaction of one’s physiological needs.

Overall health was also a predictor of physiological need satisfaction. This single-item measure was included as a rough assessment of how the respondents felt about their health. People with good health are more likely to exercise, eat and sleep well, and to have greater amounts of (and more satisfying) sex. Because it is a global measure that was related to many needs, future research might investigate overall health further, perhaps as a dependent measure.

Number of brothers was also a predictor of sat-

| TABLE 3. Stepwise Regressions for Satisfaction of Belongingness and Esteem Needs |
|-----------------|-----------------|-----------------|
| **Predictors**  | **Belongingness** | **Esteem** |
| Self-actualization | n/a | n/a |
| Esteem need satisfaction | n/a | n/a |
| Belongingness need satisfaction | n/a | .31**** | .24 |
| Safety–security need satisfaction | .18**** | .06 | .04 |
| Physiological need satisfaction | .18**** | .02 | .25**** | .06 |
| Family emotional support | .42**** | .32 | .04 |
| Traditional values | .13**** | .01 | .16**** | .02 |
| Anxiety/worry (neuroticism) | −.05 | −.18**** | .02 |
| Gender | −.00 | .03 |
| Age | −.06 | −.04 |
| Number of brothers | .03 | .05 |
| Number of sisters | −.03 | .04 |
| Marital status | −.03 | −.01 |
| Number of children | −.04 | −.08 |
| Education | .10* | .01 | .07 |
| Employment | −.01 | −.12**** | .01 |
| Income (monthly) | −.18**** | .02 | .10 |
| Overall health | .02 | −.01 |

<table>
<thead>
<tr>
<th>Total $R^2$</th>
<th>Belongingness</th>
<th>Esteem</th>
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<tbody>
<tr>
<td>.44</td>
<td>.35</td>
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| Final $F$ | 50.00**** | 42.12**** |
| df | 6,369 | 5,370 |

Note. Need satisfaction was regressed only on lower-level needs. Degrees of freedom do not add to 385 (N – 1) because cases with missing values were deleted. n/a = not applicable.

*p < .05. **p < .01. ***p < .005. ****p < .001.
satisfaction of physiological needs. In many societies, such as Italian and Chinese society, sons (especially the eldest) who are brothers are responsible for helping siblings who are in need. After the father has passed away, it is customary for the eldest brother to act as the head of the family, with responsibility to tend to the entire family’s needs. The other demographic predictor was marital status, which may have entered the regression because married couples have more regulated lives (e.g., with food and sex). By contrast, single people might be more likely to eat and sleep according to their own personal desires, which could result in irregular intakes of food or inadequate amounts of sleep, both of which would yield unsatisfactory levels of physiological needs satisfaction.

**SAFETY-SECURITY NEED SATISFACTION.**

For this level of need satisfaction, only two predictor variables contributed to explaining the variance. The first was satisfaction with the physiological needs, and the other was the exploratory variable of family emotional support. This is understandable because the family is the source of well-being and protection for people in all world cultures. For Chinese culture in particular, the family is the first source of help when

| Table 4. Stepwise Regressions for Satisfaction of Self-Actualization Needs and Life Satisfaction |
|-----------------------------------------------|---------------------------------|---------------------------------|
| Predictors                                    | Beta | ΔR² | Beta | ΔR² | Beta | ΔR² |
| Self-actualization                            |      |     |      |     |      |     |
| Esteem need satisfaction                      | .38**** | .10 | .26**** | .06 |      |     |
| Belongingness need satisfaction               | .05  |     | .01  |     |      |     |
| Safety–security need satisfaction             | .05  |     | .08  |     |      |     |
| Physiological need satisfaction               | .35**** | .28 | .02  |     |      |     |
| Family emotional support                      | .07  |     | .04  |     |      |     |
| Traditional values                            | -.02 |     | .11* |     |      |     |
| Anxiety/worry (neuroticism)                   | -.02 |     | -.02 |     |      |     |
| Gender                                        | .04  |     | -.01 |     |      |     |
| Age                                           | .07  |     | -.05 |     |      |     |
| Number of brothers                            | .04  |     | -.04 |     |      |     |
| Number of sisters                             | .08  |     | .01  |     |      |     |
| Marital status                                | .06  |     | -.02 |     |      |     |
| Number of children                            | .16**** | .03 | .00  |     |      |     |
| Education                                     | -.01 |     | .02  |     |      |     |
| Employment                                    | .03  |     | -.04 |     |      |     |
| Income (monthly)                              | -.01 |     | -.04 |     |      |     |
| Overall health                                | -.08 |     | .06  |     |      |     |
| Total R²                                      | .41  |     | .41  |     |      |     |
| Final F                                       | 86.73**** | 87.20**** | 3,372 | 3,372 |
| df                                            | 3,372 |     |      |     |      |     |

Note. Need satisfaction was regressed only on lower-level needs. Degrees of freedom do not add to 385 (N – 1) because cases with missing values were deleted. n/a = not applicable.

*p < .05. **p < .01. ***p < .005. ****p < .001.
a person is in need (Chang & Holt, 1991). No demographics entered this regression.

BELONGINGNESS NEED SATISFACTION.

For belongingness need satisfaction, in addition to satisfaction with the physiological and safety–security needs, two exploratory and two demographic variables also entered the regression. Family emotional support explained the majority of the variance, which can be readily understood because human beings are raised by, and physically and emotionally supported by, their families. Also, the emotional support that families give to each other is a critical component of a happy family life, playing a major role in a person’s feelings of belongingness.

Traditional values was also a positive predictor. Values include ideas, concepts, and qualities that people consider to be important. Because culture is defined as the attitudes, values, beliefs, and behaviors shared by members of a group (Triandis, 1996), a society’s values are shared by people, and shared values tend to bring people together (Cohen, 1976). As McMillan and Chavis (1986) explained, “When people who share values come together, they find that they have similar needs, priorities, and goals, thus fostering the belief that in joining together they might be better able to satisfy these needs and obtain the reinforcement they seek” (p. 13). Thus, sharing important social values engenders a sense of belongingness.

Of the two demographics that entered the equation, education entered positively. Several societies place a high value on self-improvement through education; thus, in such societies people who receive more education may be more accepted by other members of the society, yielding a greater feeling of belongingness. The other demographic, monthly income, interestingly, was a negative predictor, that is, the less income a person had, the more he or she felt a sense of belonging. This might be explained by the fact that in collective societies (e.g., China), friends and colleagues with monetary problems are still accepted and are treated with more consideration (e.g., offered help) if they are not doing well monetarily. For example, at a restaurant outing, members who are better off financially would show consideration to others by inviting them to meals and insisting on paying for the entire meal.

ESTEEM NEED SATISFACTION.

For satisfaction of esteem needs, most of the variance was explained by satisfaction of the belongingness needs, consistent with the hierarchical theory. In addition, traditional values entered the regression, suggesting that abiding by the culture’s traditional values can earn respect for a person. In terms of the values of the sample, Chinese values involve personal and social behaviors that were prescribed to maintain harmony among family and friends and throughout society (Yang, 1995). In other words, by adopting society’s recommended personal characteristics and living according to its prescribed behaviors, one develops an agreeable character that is appreciated and respected by others.

The anxiety/worry facet of neuroticism entered the regression negatively, with high levels of anxiety/worry yielding low levels of esteem. Also, correlations for anxiety/worry with esteem for self and with esteem from others were negative and significant (both \( ps < .001 \)). For esteem for self, Hankin, Lakdawalla, Carter, Abela, and Adams (2007) found that neuroticism could engender symptoms of emotional distress, such as low self-esteem. Also, Lönnqvist, Verkasalo, Mäkinen, and Henriksson (2009) found that neuroticism predicted low self-esteem. Regarding esteem from others, Swickert and Owens (2010) found that high levels of neuroticism yielded low levels of social acceptance on several measures of social support. Thus, the present results match previous research on neuroticism and esteem.

For employment, the negative relationship was somewhat surprising. As employment level was a demographic variable, no hypothesis was formulated because all the demographics were exploratory variables. Nonetheless, to find it as a significant negative predictor of esteem need satisfaction was surprising mainly because it seems anomalous. One possible reason for this might be found in certain factors that are unique to the sample. That is, the gambling industry is the largest employer in the Chinese city where the data were gathered, which means that many of the employed respondents were likely to be working there. However, gambling has long been considered immoral behavior in China (Cheng, 2009). Thus, because those who were employed were likely to be working in the gambling industry, which is traditionally viewed as immoral, this could explain why the
people at the highest (full-time) employment level ($M = 3.36, SD = 0.55$) felt less esteem than people who were either part-time employed ($M = 3.40, SD = 0.56$) or unemployed ($M = 3.50, SD = 0.60$). Future research might investigate this further.

**SELF-ACTUALIZATION SATISFACTION.**
For this level, satisfaction of the physiological and esteem needs were significant predictors. Although physiological need satisfaction was a predictor for all four need levels (noted previously), it is interesting that it had such a high correlation with self-actualization. One reason for this could be that self-actualization was assessed with a self-oriented (rather than other-oriented) measure, such that a self-indulgent element could be playing a role. That is, when someone can live however he or she wants and do whatever he or she wants, the person becomes able to fulfill his or her sensual desires, such as eating the best foods and enjoying the various physical comforts in life, and (perhaps) having sex more frequently (and possibly with more partners). This might explain why physiological need satisfaction was so highly correlated with self-actualization, and this could be an interesting area for future research.

In addition, one demographic, number of children, entered this regression as a positive predictor. This result might stem from traditional attitudes about having children, that is, they perpetuate one’s genes to another generation, which has been a joy for parents (and grandparents) in all societies. In Chinese society, “continuing the family line is a mandatory responsibility” (Lee & Chu, 2001, p. 715). That is, having more children has traditionally been considered desirable, and the more children (especially sons) people have, the more likely they will be to extend their family line (and name) and thus become more self-actualized.

**LIFE SATISFACTION.**
For this variable, it was expected that human beings would be likely to be more satisfied with their lives if the five important needs Maslow identified are satisfied and less so if those needs are unsatisfied. For example, if a person is chronically undernourished from lack of food, the person surely could not be satisfied with his or her life. Similar arguments can be made for the remaining needs. Indeed, satisfaction of all five of the needs was positively and significantly correlated with life satisfaction (all $p < .001$).

Regarding the regression for life satisfaction, self-actualization and satisfaction with esteem needs were positive statistical predictors. Self-actualization may have entered because life satisfaction referred to satisfaction with one’s life achievements, contextualized in relation to what the person expected of himself or herself. For esteem, this is related to the concept of “face,” that is, how positively a person is regarded in society, which is an important aspect of life in Chinese culture (Ho, 1976). Since esteem is of such great value in Chinese society and self-actualization is the epitome of personal achievement, it is understandable that self-actualization and satisfaction of the esteem needs could predict life satisfaction. Traditional values also entered this regression. Because it was an exploratory variable, however, no hypothesis was formulated for it, but its appearance in the regression confirms the importance traditional values play in fostering harmonious relationships in Chinese society (Yang, 1995).

**Intercultural Relevance of Maslow’s Theory**
As noted previously, some writers have criticized Maslow’s theory because they thought it was created using ideas that are based only in Western culture, but the data in this study, which were obtained from an Eastern culture, lent substantial support to the generality of the theory of hierarchical needs. The concepts and the items were based directly on Maslow’s (1943) theory, which he surmised to be universal, and the results of this study appear to confirm what Maslow surmised about culture and the generalizability of the needs.

Specifically, Maslow (1943) suggested that there was a “unity behind the superficial differences in specific desires from one culture to another” and that “it is the common experience of anthropologists that people, even in different societies, are much more alike than we would think” (p. 389). Also, as Maslow further noted (with scientific prudence), the classification of the needs helps in understanding human nature: “The claim is made only that it is relatively more ultimate, more universal, more basic, than the superficial conscious desires from culture to culture, and makes a somewhat closer approach to common-human characteristics” (p. 390). The results of this study appear to confirm Maslow’s expectations because his theoretical concepts, although developed
in a Western culture, held (with strong statistical support) in a culture as diverse as that of China.

Of course, more research should be conducted in other countries. But such research should be performed with a better understanding of the concepts (e.g., physiological need is based in physical requirements, not on superficial prescriptions for social behavior). And it should also be remembered that the measures developed here were not for the levels of need, but they were rather for the extent of satisfaction of the needs.

**General Summary and Future Research**

The present research examined Maslow’s (1943) theorized hierarchy of motivational needs by operationally defining the five needs and developing definition-based scales to measure satisfaction of the needs. Creation of the scales was based on their content and construct validities and tested by confirmatory factor analysis and by the known-groups method of validity assessment. The scales were also tested for their predictive validity, that is, they were examined in relation to the theorized hierarchy, whereby each need was found to be a statistical predictor of the need immediately above it in the hierarchy. These results represent a notable finding because they not only confirm the predictive validity of the measures but lend empirical support to Maslow’s theory. The new scales were also tested for their expected association with other social and personality variables, yielding results that lent further conceptual support for the theory.

With regard to future research, whereas previous measures had limited empirical success, the new measures for need satisfaction developed in this research may be more promising because of their construct validity and high reliabilities. That is, areas for future research are multitudinous because the needs, and their satisfaction, affect virtually all areas of an individual’s personal and social life, particularly in regard to satisfaction of the needs for belongingness, esteem, and self-actualization. To provide one example, satisfaction of the belongingness needs would be particularly interesting, potentially productive, and revealing, to use with research on variables that assess social interactions in a variety of settings, including in groups (of diverse types), and especially in intimate relationship dyads.

**NOTE**

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**REFERENCES**


APPENDIX. THE FIVE NEED SATISFACTION MEASURES

For the first four need measures, the instructions asked the respondents to indicate how much they agreed or disagreed with the statement “I am completely satisfied with” (the items in the list) on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Physiological Needs Satisfaction Scale
1. The quality of the food I eat every day
2. The amount of food that I eat every day
3. The quality of the water I drink every day
4. The amount of water that I drink every day
5. The amount of heating I have when the weather is cold
6. The amount of cooling I have when the weather is hot
7. The quality of the air I breathe every day
8. The amount of sex I am having
9. The quality of sex I am having
10. Every aspect of my physical health
11. The amount of sleep I get to feel thoroughly relaxed
12. The quality of sleep I get to feel fully refreshed
13. The amount of exercise I get to keep me healthy
14. The type of exercise I get to keep my body toned
15. My overall physical strength

Safety–Security Needs Satisfaction Scale
1. The quality of the house/apartment I am living in
2. The space available for me in my house/apartment
3. How secure I am in my house/apartment
4. How safe I am from being physically attacked
5. The safety of my neighborhood
6. How safe I am from catching any diseases
7. How secure I am from disasters
8. How protected I am from dangers in the environment
9. The protection that the police provide for me
10. The protection that the law provides for me
11. How safe I am from destructive terrorist acts
12. How safe I am from acts of war
13. My financial security
14. My ability to get money whenever I need it
15. The money I reserved for me to have a secure retirement

Belongingness Needs Satisfaction Scale
1. The amount of rapport I share with the people I know
2. The quality of the relationships I have with my friends
3. The love I receive from my spouse/partner
4. The intimacy I share with my immediate family
5. The camaraderie I share with my colleagues
6. How much I am welcomed in my community
7. The warmth I share with my relatives
8. The emotional support I receive from my friends
9. The feeling of togetherness I have with my family
10. How much I am cared for by my spouse/partner
11. The happiness I share with my companions
12. The sympathy I receive from my confidants
13. The enjoyment I share with associates
14. The affection shown to me by my friends
15. The closeness I feel with my associates

Esteem Needs Satisfaction Scale
1. The admiration given to me by others*
2. The honor that many people give me*
3. How much other people respect me as a person*
4. The prestige I have in the eyes of other people*
5. How highly other people think of me*
6. The high esteem that other people have for me*
7. The recognition I receive from various people*


8. The high regard that other people have for me*
9. How much I like the person that I am**
10. How sure I am of myself**
11. How much respect I have for myself**
12. All the good qualities I have as a person**
13. My sense of self-worth**
14. The amount of esteem I have for myself**
15. How positive I feel about myself as a person**

Note for the esteem measures:
*Items that represent esteem from others.
**Items that represent esteem from self.
All 15 esteem items may be combined for use as a single scale.

Self-Actualization Satisfaction Scale

For this measure, respondents were asked to indicate how much they agreed or disagreed that the items described them using a 5-point Likert scale that ranged from 1 (strongly disagree) to 5 (strongly agree).

1. I am totally comfortable with all facets of my personality.
2. I feel that I am completely self-fulfilled.
3. I am now being the person I always wanted to be.
4. I am finally realizing all of my innermost desires.
5. I indulge myself as much as I want.
6. I am now enjoying everything I ever wanted from my life.
7. I completely accept all aspects of myself.
8. My actions are always according to my own values.
9. I am living my life the way I want.
10. I do the things I like to do whenever I want.
11. I am actually living up to all my capabilities.
12. I am living my life to the fullest.