Toward a Theory of Holistic Needs and the Brain

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This article reviews Maslow’s theory of motivation wherein he proposes a hierarchy of human needs. First, it describes the principal elements of Maslow’s theory and discusses considerations relating to the flexibility of the hierarchy. Second, it explains the relationship among Maslow’s theory of human needs, attachment theory, and evolutionary threat assessment system theory. Third, it provides an overview of the brain structures posited to be involved in attachment and evolutionary threat assessment system theory and their relation to Maslow’s hierarchy. Finally, it explains how the 3 theories converge to form a theory of holistic needs. KEY WORDS: brain, holistic nursing, motivation, palliative care Holist Nurs Pract 2011;25(5):258–265

Abraham H. Maslow1-5 published a number of theoretical articles in the 1940s and 1950s in which he proposed that there is a hierarchy of needs that affects the behavior of all human beings. He proposed 5 types of needs, with the most basic being physiological needs. His hierarchy followed in ascending order with safety needs, love needs, esteem needs, and the need for self-actualization.

Maslow’s theory influenced the nursing theories of Virginia Henderson6 and Hildegard Peplau,7 and has been covered in many introductory nursing texts over the years.8-10 Moreover, Babara Dossey11,12 explicitly subsumes Maslow’s hierarchy of needs within her theory of integral nursing.

Maslow’s hierarchy of needs is still discussed in some introductory texts as a tool for identifying patient needs and setting priorities for nursing care.13,14 Current nursing research continues to utilize Maslow’s hierarchy as a model of what motivates individuals. Recent articles have applied Maslow’s hierarchy to patients15; mental health nursing16; home health care nursing17,18; and the productivity, motivation, and job satisfaction of nurses themselves.20,21

A 2003 qualitative study examined the needs of older adults in Sweden who were admitted to the emergency department.15 Most patients expressed a need to feel safe. Self-esteem was expressed as a desire to maintain one’s dignity, and love was expressed as a desire to be accepted by the staff. Although some patients mentioned their physiological needs to researchers, patients were more likely to express higher needs.

A 2005 study of Canadian nurses at long-term care facilities is particularly noteworthy since it examined trade-offs in care among various types of needs.22 The nurses who participated in the study read 3 vignettes about elderly patients who required extensive assistance per day on 6 care dimensions, according to regional standards. The nurses were then asked how much time they would cut from each dimension of care to reduce the total amount of time devoted to care by 30%. The 6 dimensions can be roughly classified into 4 of Maslow’s needs: physiological, safety, love, and esteem needs. As one might expect, the largest cuts were made at the expense of the higher-order needs, including care associated with personal appearance (esteem needs), which was reduced by 21% to 45%, across the 3 vignettes. Nurses prioritized safety needs and, thus, care related to safety needs was virtually uncut.
The current article presents a theoretical framework that integrates Maslow’s theory of motivation with attachment theory and evolutionary threat assessment systems (ETAS) theory in an attempt to explain how the brain is involved in the holistic needs of patients. First, it summarizes Maslow’s original writings in regard to his hierarchy of needs, highlighting his propositions about its structure, flexibility, and innate nature. The subsequent sections of the article relate Maslow’s motivational needs to attachment theory and to ETAS theory. It is suggested that 2 complementary brain systems related to attachment and threat assessment are involved in Maslow’s safety, love, and self-esteem needs: the attachment system and ETAS. The attachment system is related to their development and activation, and ETAS perceives and responds to threats to these needs. The specific brain structures that have been implicated as being involved in all of Maslow’s needs, and attachment and threat assessment, are briefly discussed. The proposed theory of holistic needs helps explain an individual’s primal as well as his or her higher order needs and can be applied to patients in hospitals and in other health care settings.

MASLOW’S THEORY OF HUMAN NEEDS

Maslow proposed 5 types of needs, which varied in terms of their power to motivate behavior in that the appearance of a higher need depended on the satisfaction of those needs that preceded it on the hierarchy. According to his theory, physiological needs are the most “pre-potent” (or powerful) needs, so they form the lowest rung in the hierarchy.

MASLOW’S HIERARCHY OF NEEDS

The following is Maslow’s hierarchy of needs:
- Need for self-actualization
- Esteem needs
- Love needs
- Safety needs
- Physiological needs

PHYSIOLOGICAL NEEDS

Among the physiological needs are hunger, thirst, sleep, sex, respiration, salt regulation, control of body temperature, and the chemical composition of the blood and cells. In keeping with the scientific thinking of his time, Maslow also referred to physiological needs as physiological drives.

SAFETY NEEDS

Maslow believed the safety needs of typical adults in American culture were so well met that one had to look at children and individuals with neuroses (ie, anxiety disorders) for examples of these needs. According to Maslow, children’s safety needs are expressed in the need for an orderly world, for an undisrupted routine, and for consistency in parenting to prevent the child from feeling anxious or unsafe. Unfamiliar stimuli and situations clearly undermine a child’s sense of safety and elicit a terror reaction. Neurotic adults, on the other hand, tend to react to “unknown, psychological dangers in a world that is perceived to be hostile, overwhelming and threatening.” Maslow saw a strong parallel between the child’s need for orderliness and the obsessive-compulsive symptoms of adults who try to impart order into a world they see as being filled with unknown and unexpected potential dangers.

LOVE NEEDS

Maslow primarily perceived the love needs as being needs for affection and belongingness. He emphasized that love needs involve both giving and receiving love, and he believed that people hunger for affectionate relationships and for a place within a group. Maslow stressed that love is not synonymous with sex and that sex could be studied as a purely physiological need, although he posited that sexual behavior had multiple determinants including sexual and other needs. In a 1958 article, Maslow noted that love needs were commonly subsumed under the concept of psychological security and sometimes confused with safety needs and self-esteem needs.

SELF-ESTEEM NEEDS

Maslow proposed that people have the need (a) to be positively evaluated and complimented by others and (b) to gain self-respect and self-esteem. Maslow identified 2 sets of esteem needs. The first is a desire...
for confidence, achievement, and independence. The second is the desire for attention, recognition, and prestige. Maslow posited that satisfying these needs leads to self-confidence, while thwarting these needs produces feelings of inferiority and helplessness.

NEED FOR SELF-ACTUALIZATION

The need for self-actualization is essentially the desire for self-fulfillment. Individuals may seek self-actualization in the areas of motherhood, athletics, art, innovation, or in creation in those who possess capacities of creation.

INSTINCTUAL BASIS OF HUMAN NEEDS

Maslow conceived of the physiological, safety, love, and esteem needs as basic human needs. Although he argued strongly against the instinctive theories of behavior that were current in his time, he believed that these basic needs had an instinctive or innate basis. Turning again to children to provide an example, he wrote, “As a single example, all of the scientific data now available indicate that it is psychiatrically desirable for children to be protected, accepted, loved and respected. But this is precisely what children (‘instinctively’) desire.” Whereas learning theorists believed that children’s needs for love, safety, belonging, and connection with their parents was the result of conditioning, since parents feed and reward their children in various ways, these needs resemble unconditioned responses more so than they do conditioned responses. Thus, they must have an underlying biological basis. Maslow argued that the anthropological evidence for the universality of these basic needs provided substantial support for their biological basis.

Maslow explicitly tied his hierarchy of needs to evolutionary theory, suggesting that the needs in the lower rungs of the hierarchy evolved earlier and that those in the higher rungs evolved later. As such, the lower the need is in the hierarchy, the more critical it is for survival. Similarly, the brain’s lower and most primitive subcortical structures developed first and are most critical for survival in contrast to the higher, more complex cortical structures that developed most recently in evolution. For instance, basic physiological functions, such as breathing, heart rate, blood pressure, and digestion are controlled by the hindbrain or brain stem, whereas thirst and hunger are controlled by higher brain structures located in the midbrain.

OTHER HIGHER NEEDS

Maslow discusses a number of additional higher needs that were not the focus of his theory. Key among these is the desire to understand and to search for meaning in the world. Another is a sense of beauty. Others include a need for creativity and a need for symmetry, order, and perfection. Although some of these needs may exist to some degree in animals other than humans, Maslow believed that these characteristics are certainly more prominent in humans. Yet, they are “predetermined to a greater or lesser extent by the structure and functioning of the organism.”

FLEXIBILITY OF THE HIERARCHY

Maslow states in his original article and elsewhere that higher needs arise only after lower needs are satisfied. However, he offers 2 exceptions to this rule. One pertains to variations within individuals and the other reflects variations across individuals. The first exception recognizes that most needs are not 100% met in anyone. For instance, someone might be 90% satisfied with his or her physiological needs, 80% satisfied with his or her safety needs, 50% with his or her self-esteem needs, and 10% with his or her self-actualization needs. The second source of variation from the hierarchy can be found in the emphasis that individuals place on different needs. “There are some people in whom . . . self-esteem is more important than love,” and “there are other[s] . . . in whom the drive for creativity . . . seems to be more important than any other [need].”

Maslow notes that needs operate within situations or contexts, and we would argue that the relative potency of different needs vary widely by context, and the immediacy of situations. Thus, although Maslow’s needs may form a hierarchy with respect to their evolutionary development and their survival value, they may not do so on the level of daily experience. Instead, they may compete with, and interact with, one another to varying degrees, depending upon a person’s history and immediate circumstances. It seems likely that their relative potency may be based on the same conditions. The prevailing conceptions of primary and
secondary drives in Maslow’s time probably limited his full appreciation of the potential variability and interactivity of his proposed needs.

ATTACHMENT THEORY AND SAFETY, LOVE, AND SELF-ESTEEM

Maslow’s ideas align closely with some of John Bowlby’s conceptions and findings about attachment theory. Bowlby became interested in ethology in the 1950s and was struck by Konrad Lorenz’s concept of imprinting, in which goslings form a strong attachment to their mothers. Contrary to learning theory and psychoanalytic notions that assumed the parent-infant bond was learned because children are rewarded in various ways by their parents, Bowlby suggested that the mother-child bond was the product of an innate motivational system that evolved to ensure the survival of offspring.

Attachment theory proposes that human infants are born with innate sets of behaviors to ensure proximity to their mothers and this proximity limits their exposure to a number of dangers. In addition to directly providing safety, the mother offers a sense of security that allows children to explore the world. This bond is inherent to mother-infant love, which contributes to a sense of self-esteem in children.

However, research suggests that the child’s attachment system interacts with his or her mother’s fear system and parenting system in ways that can promote or undermine the adult’s self-esteem and sense of safety. Other research indicates that the infant’s attachment system may be critical for the development of romantic love relationships later in life.

ETAS THEORY AND SAFETY, LOVE, AND SELF-ESTEEM

Evolutionary threat assessment systems theory draws together several lines of evidence that there are specific brains systems that assess animate and inanimate sources of potential threats to one’s safety and security. The sources of threat include environmental events and situations that can cause physical harm, as well as potential threats to self-esteem, social status, and social and romantic relationships. Contrary to Maslow’s perspective that the average adult does not typically suffer from threats to his or her safety, recent research indicates that subclinical levels of anxiety are quite common in the general public. As ETAS theory explains, the symptoms of anxiety and related psychiatric symptoms reflect the action of brain systems that have evolved to assess threats. General anxiety is a brain reaction to unknown potential threats, or as Maslow suggested to “unknown . . . dangers in a world that are perceived to be hostile, overwhelming and threatening.” Specific phobias are thought to result from brain reactions to specific types of threats: heights, snakes, insects, and so forth. Social anxiety is thought to arise from perceived threats to self-esteem, whereas paranoid symptoms are based on perceived threats to social and romantic relationships.

Thus, it appears that there are 2 complementary brain systems (ie, the attachment system and ETAS) involved in safety, love, and self-esteem needs. One is involved in their development and activation and the other perceives and responds to threats to them.

BRAIN INVOLVEMENT IN ATTACHMENT, ETAS, AND HOLISTIC NEEDS

Human and animal research has identified a number of brain structures that are involved in mother-infant attachment. Several of them are part of the limbic system, which is located in the midbrain, including the amygdala, the cingulate gyrus, the hypothalamus, septum, and tegmentum. Human and animal research has also implicated the prefrontal cortex of the forebrain and portions of the basal ganglia in mother-infant attachment. The basal ganglia lies at the base of the forebrain, and evolved before the limbic system or the neocortex, the latter of which comprises most of the forebrain.

Research findings indicate that oxytocin and vasopressin, which are released by the hypothalamus, play an integral role in mother-infant attachment and affect various structures in the basal ganglia, limbic system, and other areas of the brain. Oxytocin, a uniquely mammalian neuropeptide, facilitates the initiation of maternal behaviors, increases attachment behaviors in offspring, and may be involved in inducing a sense of security. Vasopressin, a close relative of oxytocin,
has been implicated in pair bonding and other affiliative behaviors in animals and humans.\textsuperscript{56,59,60} Since the attachment system and ETAS have overlapping functions (ie, activating safety, love, and self-esteem needs and assessing threats to them), the 2 systems would be expected to employ overlapping brain structures. Indeed, the major areas of the brain thought to be involved in threat assessment are thought to be the basal ganglia, the limbic system, and the prefrontal cortex.\textsuperscript{24,43,61} These are also some of the same brain structures involved in attachment. In sum, there is growing evidence that the basal ganglia, the limbic system, and the prefrontal cortex are involved in attachment and threat assessment. To the degree this is so, they would appear to be primarily responsible for the safety, love, and self-esteem needs proposed by Maslow. As mentioned earlier, the basic physiological needs, which form the lowest rung of Maslow’s hierarchy, are controlled by the brain stem.\textsuperscript{25,26} This being the case, 4 of Maslow’s 5 needs are attributable to the action of the cortical and subcortical structures discussed thus far. These 4 needs account for many of the major patient needs identified in the health care literature on holistic practice.\textsuperscript{62}

**HIGHER NEEDS AND THE BRAIN**

The foregoing discussion suggests that there is reasonable evidence that the attachment system and ETAS underlie the basic needs described by Maslow. What, however, accounts for the higher needs that humans exhibit? What accounts for the need for beauty, understanding, meaning, and self-actualization? The common behavioral conception in American psychology in Maslow’s time was that most behavior is learned as a consequence of the behavior being rewarded or reinforced. Maslow rejected that idea, at least partially, with respect to the 4 basic needs that have been presented. Nevertheless, Maslow’s own idea that higher needs arise as lower needs are gratified, does not explain what propels (or stimulates) those needs. Panksepp\textsuperscript{63} proposed a “seeking” system in the limbic area of the brain that may provide an explanation. He contends that specific areas of the limbic system, which many psychologists view as “reward centers,” are in fact a “brain operating system to help actualize a diversity of internal wants and desires” (Panksepp, 2005). It is, in his view, a general seeking system that motivates humans and animals to act and find pleasure in meeting these internal wants and desires. Thus, it could motivate a diverse set of “needs,” desires, and interests, which contribute to self-actualization.

**IMPLICATIONS FOR NURSING PRACTICE**

Our discussion to this point has attempted to offer a theoretical framework by which the human needs discussed by Maslow can be represented in the brain. It suggests that the needs in Maslow’s hierarchy pertaining to safety, love, and self-esteem are represented by 2 related brain systems. One, which underlies human attachment, is involved in their development and activation. The other, ETAS, assesses threats to safety, love relationships, and self-esteem and initiates responses to these threats. An additional brain mechanism, which may underlie self-actualization was also presented.

This theoretical framework about the brain systems involved in Maslow’s needs attempts to advance holistic nursing practice by showing that needs that may be dismissed from a medical perspective as merely psychosocial needs are actually biological in nature because they are represented in the human brain. The theoretical framework further proposes that the salience or relative importance of each need for an individual is much more dynamic than that inherent in the concept of a hierarchy of needs.

The introduction described a study in which nurses were asked how they would prioritize care for elderly patients in long-term care facilities if they had to substantially reduce the amount of time they spent on various aspects of care.\textsuperscript{22} Overall, the nurses indicated that they would try to maintain care pertaining to physiological and safety needs of patients by making the largest reductions in care to the higher-order needs (eg, self-esteem). The decision to do so reflects sound nursing practice. It is based on the nurses’ assessment of what type of care the patient needs most. It also reflects the realities of nursing practice with respect to the hospitals’ emphasis on physical outcomes, costs, and liabilities.

Although Maslow did not conceive of his hierarchy of needs as being strictly linear, this is how it has been presented in psychological and nursing texts. Given this conception, it is reasonable for a nurse to be less attentive to patients’ higher-order needs, since the nurse would believe these higher needs arise only after patients’ lower needs are met. However, since patients’ perceived needs may not reflect a hierarchy, nurses should be more attentive to patients’ higher

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needs, and ask patients about these and other needs. This is consistent with Nordy’s recommendation “that nurses should attempt to interpret patients’ needs from the patient’s perspective.”

It is essential for nurses to inquire about patients’ perceived needs because there may be a variety of situations in which the nurse’s assessment of the patient’s needs differs from the patient’s perceived needs, which are modulated by the interplay of the attachment system and ETAS. The aforementioned Swedish study on elderly emergency department patients provides a case in point. Although one would expect that the patients in this study would be most concerned about the primary problem that brought them to the emergency department, they mainly expressed a need for safety, which was not directly related to their physical problems.

Safety is frequently discussed in the nursing literature in the context of protecting patients from potential threats or risks of illness, disease, and physical harm. Without safety, according to Hughes, the brain’s “almost exclusive function is to reduce threat and create safety.” Although this overstates the case, providing and maintaining safety is a sufficiently important brain function in which both the attachment system and ETAS are involved. Safety from psychological harm appears to be mainly addressed in articles concerning patient dignity, which will be discussed next.

Incontinence provides a specific example in which a nurse might assess the patient’s primary need differently than the patient. Although the nurse may focus on the problem itself, patients may be more concerned about the threat the problem poses to their self-esteem. Another example might be an adolescent patient who, days after suffering a terrible car accident, wanted her legs shaved and toenails painted so she could “feel like a young attractive women again, rather than concerning herself with the broken bones in her legs.”

Dignity is defined as the quality or state of being worthy of esteem or respect, with self-esteem being the evaluative component of self-concept. Privacy, respect, and being in control are considered essential for maintaining patient dignity and self-esteem. Research has found that the invasion of privacy is the most frequently mentioned threat to self-esteem among patients, especially exposure of the body.

Patients’ need for love, belonging, and connectedness has been extensively documented by nursing researchers. Love and connection to others, especially friends and family, are commonly threatened and often thwarted by hospitalization. Visitor restrictions and limited visiting hours can be major barriers to achieving these needs.

The achievement of higher needs, such as artistic and intellectual needs, may also be thwarted, unless patients explicitly express them to the nurse or other staff members. An example is a woman who was unable to speak because she was on ventilation, and finally scribbled the word “puzzle” to communicate to the staff that she was desperate to do crossword puzzles. The need for self-actualization has been discussed more often with respect to nurses than to patients in the nursing literature. Yet, Cumbie argues that the practice of holistic nursing affords an opportunity for self-actualization among nurses and their patients.

SUMMARY

This article sought to delineate the interplay among Maslow’s hierarchy of needs, attachment theory, and ETAS theory and the neural underpinnings of individuals’ motivational systems and behaviors. A discussion of the nursing literature helped to explain why assessing and comprehending patients’ unique motivational needs might be especially crucial in trying to best address their medical and psychological functioning. The literature suggests that nurses may prioritize patients’ lower-order physiological and safety needs. Further research and anecdotal reports, however, suggest that patients may prioritize some higher-order needs over their more basic, lower-order needs. Delving into the intricacies of Maslow’s hierarchy of needs through attachment, ETAS theories, and a neural perspective helps to further parse out what the hospitalized patient may desire both from their medical professionals and from their close family members and friends. Both medical professionals and patients may benefit substantially from a more open dialogue concerning these important motivational needs.

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REFERENCES


