

# The importance of ternary awareness for overcoming the inadequacies of contemporary psychiatry

A importância da consciência ternária para superar as inadequações da psiquiatria contemporânea

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## Abstract

Human beings have evolved in steps so that our consciousness has three major components – procedural learning of habits and skills, semantic learning of facts and propositions, and self-awareness of an identity that develops over time and place. Consequently, human consciousness involves growth in our subjective awareness integrating these three aspects of learning and memory. Contemporary psychiatry is substantially impaired by an anti-spiritual bias that is implicit in operational approaches to diagnosis, research, and treatment. Human subjectivity cannot be adequately deconstructed into a collection of mutually independent objects that are free of any psychosocial context, as is usually assumed in a “Chinese-menu” approach to diagnosis and structured interviewing. Materialistic perspectives predispose people to have an outlook of separateness that impairs the well-being of both mental health professionals and their patients. Progress in psychiatric diagnosis and treatment requires a person-centered approach that respects and appreciates human subjectivity and promotes the cultivation of human virtues like hope, love, and courage, along with judicious use of other psychobiological methods of treatment. Healthy functioning requires the development of self-transcendence in addition to self-directedness and cooperativeness. Without self-transcendence, people are consuming more resources than the earth can replenish. The pursuit of individual well-being in the absence of collective well-being is a self-destructive illusion. Consequently contemporary psychiatry needs to focus its attention on understanding human consciousness in a balanced ternary way rather than trying to reduce people to separate material objects.

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**Keywords:** Ternary awareness, self-directedness, cooperativeness, self-transcendence, psychiatry.

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## Resumo

Os seres humanos evoluíram em etapas, de modo que nossa consciência desenvolveu três componentes centrais – aprendizagem processual de hábitos e habilidades, aprendizagem semântica de fatos e proposições e autoconsciência de uma identidade que se desenvolve ao longo do tempo e do espaço. Consequentemente, a consciência humana implica o crescimento de nossa subjetividade, integrando esses três aspectos da aprendizagem e da memória. A psiquiatria contemporânea é substancialmente comprometida por um viés antiespiritual que está implícito nas abordagens operacionais de diagnóstico, pesquisa e tratamento. A subjetividade humana não pode ser devidamente desconstruída em uma coleção de objetos independentes entre si, livres de qualquer contexto psicossocial, tal como a que é habitualmente assumida em uma abordagem do tipo “menu chinês” utilizada para o diagnóstico e entrevistas estruturadas. Perspectivas materialistas predispoem os indivíduos a assumirem uma visão de separação que compromete o bem-estar tanto dos profissionais de saúde mental quanto de seus pacientes. O progresso no diagnóstico psiquiátrico, bem como nas formas de tratamento, requer abordagem centrada na pessoa, capaz de respeitar e valorizar a subjetividade humana e promover o cultivo de virtudes tais como esperança, amor e coragem, bem como o uso criterioso de outros métodos psicobiológicos de tratamento. O funcionamento saudável requer o desenvolvimento da autotranscendência, além do autodirecionamento e da cooperatividade. Sem a autotranscendência as pessoas estão consumindo mais recursos do que a terra pode repor. A busca do bem-estar individual, na ausência do bem-estar coletivo, é uma ilusão autodestrutiva. Consequentemente, a psiquiatria contemporânea precisa centrar sua atenção na compreensão da consciência humana por meio de uma via ternária equilibrada, em vez de tentar reduzir as pessoas a objetos materiais separados.

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**Palavras-chave:** Consciência ternária, autodirecionamento, cooperatividade, autotranscendência, psiquiatria.

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## Introduction

Human beings have evolved the capacity for ternary awareness, that is, knowledge of the physical, mental, and spiritual components of our being<sup>1</sup>. There is consensus that people perceive the material world with their physical senses and that they are able to adapt by intelligent cognitive processes. However, there is extensive controversy about the validity of the distinction between mental (“mind 1”) and spiritual (“mind 2”) phenomena<sup>2</sup>. In Chalmer’s terminology, “mind 1” refers to intellectual reasoning based on semantic learning whereas “mind 2” refers to creativity, free will, giftedness and other self-transcendent abilities like extrasensory perception (ESP)<sup>3</sup>. In this introductory article, I will first consider objective evidence of the evolution of ternary

awareness in human beings. Second, I will consider the historical and methodological reasons that have made spirituality controversial in mental health professions. Then I will consider the psychological mechanisms that motivate the persistence of inadequate materialistic paradigms. Finally I will describe why a more general approach to psychiatry based on ternary awareness is crucial to progress in psychiatry as both a scientific and a therapeutic field.

### Objective evidence of the evolution of ternary awareness in human beings

The possibility of life after death is the most ancient of all mysteries, as shown by the burial rituals of the earliest *Homo sapiens*<sup>4</sup>. In fact,

wonder about spirituality emerged along with the development of narrative language, art, and science. Human art, science, and spirituality are all basic expressions of the self-aware consciousness that is unique to modern human beings<sup>4-6</sup>. Hence a fundamental characteristic of human beings is our need to explore and understand the frontiers of the relationships among body, thought, and spirituality. In other words, human beings have a natural drive to develop ternary awareness.

Human beings have been aptly described as “evolution conscious of itself” in the insightful words of the anthropologist Sir Julian Huxley<sup>7</sup>. Accordingly it is natural for human beings to try to understand the nature of the cosmos and their place within it in order to know how to satisfy their needs and live well in health and happiness. In order to live our whole life well, it is necessary to recognize that the conscious experience of human beings includes learning how to adapt in a wide range of circumstances. In fact, human beings need to adapt to five major types of situations: sexual, material, emotional, intellectual, and spiritual<sup>5</sup>. Among these five adaptive situations, spirituality is the most recently evolved and its evolution may be incomplete, thereby resulting in marked differences between different people in traits like altruism and gifts like clairvoyance or extrasensory perception. Extraordinary examples of such paranormal giftedness are described and discussed in detail elsewhere<sup>2</sup>, and call into question the bias against the possibility of such phenomena in contemporary psychiatry.

Spirituality is defined as the search for what is beyond human existence<sup>6</sup>. Direct personal experience of the transcendent is an important and satisfying part of most people's lives. Most people have had peak experiences of inseparability or oceanic feelings regardless of their religious beliefs or doubts<sup>5,8</sup>. For example, most people report that they “sometimes have felt like I was part of something with no limits or boundaries in time and space” or “often feel so connected to the people around me that it is like there is no separation between us”. Furthermore, people spend more time on average in prayer or meditation than they do having sex<sup>5,9</sup>. The fact that such self-transcendent experiences are such a frequent and inspiring aspect of human life suggests science can never understand human nature well without investigating self-transcendent phenomena. Reconnecting science and spirituality is important for having a rational and comprehensive understanding of humanity and the world<sup>10</sup>, and as we will see later in this article are really essential for future progress in psychiatric diagnosis, research, and treatment.

### Why is spiritual awareness controversial?

Human spiritual needs have raised perennial questions about how to understand near-death experiences and the possibilities of life after death, such as reincarnation, wandering spirits of the dead, and states of spiritual possession or mediumship. These basic spiritual questions have great implications for our outlook on life, so it is not surprising that the suggested answers have led to much speculation and controversy. For example, Freud expressed doubt any belief in an afterlife because it could be explained as seeking satisfaction from a wishful fantasy. However, his skepticism about human spirituality was based on a logical error<sup>6</sup>. Just because we desire something does not mean it is untrue or wishful fantasy. People often desire food to satisfy their material hunger, but that does not mean that food is not real. The desires and needs of human beings exist because they serve a real function. The maturity of a human being requires integration of the full range of their sexual, material, emotional, intellectual, and spiritual needs in a coherent reality-based manner<sup>11</sup>.

What people believe and the assumptions they make about life and human nature are highly dependent on cultural influences. People who live in a single culture or who reject inquiry into other cultures can have a difficult time recognizing the narrow influence of their particular culture on their thinking. Actually, the materialistic assumptions that are dominant in modern Western cultures are atypical of other modern human cultures. Around the world belief in wandering spirits and reincarnation are commonplace and not

associated with any evidence of wishful fantasy<sup>12</sup>. Such facts do not tell us that such spiritual phenomena are true, but only that different cultures make different assumptions. As a result, a scientific person needs to establish reliable facts about spiritual phenomena and to test alternative ways of explaining the facts.

Some of our greatest scientists have been intensely preoccupied with understanding spiritual phenomena, including Newton and Wallace. At the end of the 19<sup>th</sup> century there was widespread interest in spiritual phenomena among academics until many supposed mediums were exposed as frauds<sup>13</sup>. Since then there has been great resistance among academics to even consider the possible reality of life after death as suggested by mediums and clairvoyants. Only the most courageous of empirical scientists like Hans Eysenck and Ian Stevenson have been outspoken about their findings supporting paranormal abilities like extrasensory perception or recall of past lives<sup>12,14</sup>. Although there are notable exceptions like Francis Collins<sup>15</sup>, most leading scientists in the USA today are highly materialistic and reject belief in anything transcendent, such as belief in God or life after death<sup>16</sup>. As a result, there is great social pressure among scientists to reduce all scientific explanations to material mechanisms and to reject consideration of any phenomena that cannot be explained by materialistic mechanisms as an impossible foolishness or the result of inadequate scientific rigor in observation. Despite persistent pressure from a materialists<sup>16</sup>, an increasing majority of people in the general population have a spiritual awareness of something beyond human existence, even if they are not religious<sup>8</sup>. Whereas nearly 75% of the academic elite in the USA reject transcendent phenomena, more than 85% of the general population accept them<sup>16,17</sup>. Interesting, the rejection of transcendent phenomena by academics is related to their social background rather than their intelligence and scientific expertise<sup>17,18</sup>. Their reasons for lack of faith are often deeply personal and philosophical, such as wondering about the origin of evil in the world<sup>19</sup>.

Fortunately, substantive progress is being made at a philosophical and empirical level to redress the explanatory gap between physical and subjective accounts of consciousness in the understanding of mind-body relationships. Nevertheless, the burden on alternative paradigms is to show the greater utility and explanatory power of more general models that allow for the three components of human beings – body, thoughts (“mind 1”), and psyche (“mind 2”)<sup>5</sup>. The greatest problem of alternative models has always been the fact that paranormal phenomena often involve veridical functions along with wishful fantasy and/or fraud. Of course it is a logical error to conclude nothing is real because some examples are not, but how can scientists exclude the noise of specious claims by some people who falsely proclaim paranormal abilities?

When I was developing a measure of spirituality called the self-transcendence scale as a component of the Temperament and Character inventory<sup>20</sup>, I was chagrined to find that belief in paranormal abilities like ESP was a reliable indicator of high self-transcendence, as I have previously described<sup>2</sup>. The belief in ESP is as characteristic of self-transcendence as are peak-experiences of boundlessness and inseparability<sup>5</sup>. I considered just eliminating such paranormal items to avoid criticism from materialists, but chose to respect the truth and reliability of my findings by describing the phenomena I was observing in an open-minded way. I am glad that I did so because otherwise I might have overlooked or misunderstood some clinically important phenomena about the expression of spirituality.

High self-transcendence is characterized by creativity and wisdom when it is combined with high Self-directedness, but it is characterized by magical thinking and perceptual aberrations when combined with low self-directedness<sup>5,21</sup>. In other words, appreciation of the wonders and mysteries of life always promotes good feelings, but some thoughts that make a person feel good can be wishful self-deceptions. Consequently, paranormal experiences can be produced by either healthy extraversion or unhealthy psychoticism using the terminology of Hans Eysenck<sup>14</sup>. For people to enjoy realistic and productive lives, they must combine imaginative inquiry with rigorous reality testing, as do creative artists, scientists, and mystics. Likewise

for reproducible results in science, people who report paranormal experiences need to be screened for the maturity and integration of their personality.

The dual nature of self-transcendence is at the crux of the scientific challenge of studying spiritual phenomena about consciousness. There are genuine and reproducible transcendent phenomena to be understood, but there is also much superstition and deception. The insincere make it difficult and challenging to identify the sincere, but it is a severe error of logic to dismiss what is real because of some examples of fraud or fantasy. Some instances of spiritual phenomena are difficult to dismiss by an open-minded person, as documented throughout this courageous and informative book<sup>2</sup> and this resulting Mind-brain series. Edgar Cayce, for example, is a particularly well-documented case of paranormal (i.e., transcendent) giftedness<sup>18</sup>. It is important to recognize that even such outstanding examples are not perfectly accurate, just as observers of real life events are not consistently precise.

### **What motivates the persistence of inadequate materialistic paradigms?**

It is useful to remember Plato's allegory of the cave in which most observers are like prisoners doomed to observing shadows of representations of reality, whereas only a few find their way to a direct and undistorted vision of reality<sup>22</sup>. In Plato's allegory the prisoners are chained to their chairs so they cannot turn around and walk out.

What are the chains that bind people so that they persist in proud adherence to inadequate materialistic paradigms? The chains are mainly the social conditioning of attitudes and beliefs within a culture or profession, often reinforced by reluctance to admit past mistakes and give up the pride and power that goes with the illusion of expertise. In short, it is the combination of conditioning, excessive desire for control, and false pride. As a result, paradigm shifts usually depend on the demise of the old guard and the emergence of a new generation of thinkers who are open to a radically new approach<sup>23</sup>.

Often it is difficult even for people who are open-minded to recognize how they are being chained to outmoded and ineffective ways of thinking. There is widespread bias against spirituality in psychiatry and psychology as a result of the desire to emulate the rigor and precision of the physical sciences and as a result of the influence of religious skeptics like Freud and Skinner<sup>2</sup>. This bias is attractively disguised in the garb of positivism and operationalism, which appeal to aspirations for status and respect by pretensions to objectivity and rigor. However, contemporary "operationalist" epistemology does not address the crucial need for an appreciation of psychosocial context and subjectivity in psychiatry<sup>24-26</sup>. Even the originators of the check-list approach at Washington University had a more person-centered understanding of the process of psychiatric diagnosis than was implemented in DSM in 1980<sup>27</sup>. Human subjectivity cannot be adequately deconstructed into a collection of mutually independent objects that are free of context within the subjective consciousness of a person, as is usually assumed in a "Chinese-menu" approach to diagnosis and structured interviewing<sup>28,29</sup>. Consequently, check-list medical diagnosis is a clear example of the anti-spiritual bias in contemporary psychiatry, as has been popularized in successive versions of DSM since 1980 to the present<sup>30,31</sup>. It subtly influences us to think of the episodes of the narrative of a person's life as separate objects or as a collection of such objects. In turn, this objective approach conditions us to have a dehumanizing perspective, an outlook of separateness that stigmatizes another person as a defective object. An outlook of separateness always emerges when we neglect the immaterial spiritual connections that bind all things in a holistic unity within subjective consciousness.

Empirically there are no sharp boundaries ("zones of rarity") separating the clinical syndromes of psychiatry<sup>32,33</sup>. When there is any separation at all, it is incomplete (both weak and transient)<sup>34,35</sup>, and can be explained as meta-stable configuration of a non-linear dynamic system<sup>5</sup>. Even DSM-IV explicitly acknowledges that its "disorders" should not be assumed to have sharp boundaries, but then

requires specific numbers of items from a Chinese-menu as cut-offs, thereby providing an illusion of precise separation where none really exists<sup>30</sup>. These illusory distinctions are then reified in practice so that the DSM is described as the "bible" of contemporary psychiatry.

Why do intelligent people continue to repeat their mistakes over and over again? I suggest that the main reason can be found in a weakness of individuals with organized character profiles, which is the socially favoured profile in secular Western cultures<sup>36</sup>. People are born with a natural need for virtues like fairness and equality that is expressed as self-aware consciousness develops<sup>37</sup>. However, in Western cultures social norm-favouring leads to increases in self-directedness and cooperativeness along with decreases in self-transcendence between the ages of 20 and 45 years; self-transcendence only rises again later as people face ultimate situations like their own mortality<sup>36</sup>. Unfortunately, organized characters are not self-transcendent: they are largely motivated by their self-interests and the interests they share with those close to themselves. As a result, they strive to maintain their own power and wealth regardless of the consequences for others who are remote. They want to believe that their efforts can allow them to maintain the conditions that have brought them success, so they are also easily manipulated by disinformation from others in positions of power and influence.

As a result, we choose leaders with organized characters who frequently serve special interests rather than attending to the well-being of those they were supposed to serve. People who are supposed to be experts want to maintain their status so they persist in the paradigm that has given them influence. The resistance of inadequate scientific paradigms to change is similar to the denial of climate change by leaders of government who want to continue patterns of consumption that support their continued dominance, despite precipitating mass extinction on the planet. Spiritual phenomena really matter: unless humanity becomes more self-transcendent, we risk our own extinction<sup>38</sup>.

### **The crucial importance of ternary awareness for progress in psychiatry**

Sadly, the operational approach in medicine incorporates a strong bias to view sick people as defective objects because it is based on the assumption that the signs and symptoms of illness can be deconstructed into context-free objects that are mutually independent<sup>29</sup>. Contemporary psychiatric patients frequently complain of the lack of empathy and compassion of psychiatrists who do not listen to them more than they must to be able to renew or change psychotropic prescriptions. Others complain that their coercive and overmedicated treatment reduces them to a zombie, that is, a body without a soul or free will<sup>39</sup>.

In other words, operational diagnosis and somatic therapies alone fail to recognize or to promote the essential role of human virtues like hope, courage, and love in the development (or recovery) of well-being<sup>40</sup>. The development of well-being is the noble journey of a hero. That journey occurs in self-aware consciousness as our personal identity grows in awareness of how to adapt to life's trials and opportunities.

In any culture, the healthiest and happiest individuals have a "creative" personality configuration characterized by high development of self-directedness, cooperativeness, and self-transcendence as measured by the Temperament and Character Inventory<sup>5,41</sup>. Nevertheless, as previously mentioned, longitudinal studies in secular cultures show that self-directedness and Cooperativeness increase, but self-transcendence decreases, between adolescence and age 45. That is, the influence of secular culture often works to reduce self-transcendence up to middle age, even though self-transcendence is characterized by being more unified in one's perspective on life and happier for all configurations of other personality traits<sup>41</sup>.

In the general population, poor development of self-transcendence is characterized by unhappiness, reduced self-worth, and feelings of emptiness and alienation from other people and the world as a whole. Neglect of transcendent phenomena in science is also likely

to have a high cost, particularly in efforts to reduce consciousness to the zombie-like state of physical mechanisms alone in which subjectivity, self-directedness, and free will are regarded as illusory<sup>3</sup>.

The importance of all three traits of character is further evidenced by the findings of “third-wave psychotherapies” that have sought to address the limitations of earlier “behavioural” and “cognitive-behavioural” approaches<sup>5,11,42</sup>. Cognitive-behavioural therapies are effective in promoting self-directedness and to some extent cooperativeness, but do not address self-transcendence. In contrast, third-wave psychotherapies, such as Mindfulness-based Cognitive-behavioural therapy, Dialectical Behaviour Therapy, and Acceptance and Commitment Therapy, reduce drop-outs and improve physical, mental, and social health outcomes by adding mindfulness and related spiritual practices that also promote self-transcendence<sup>5,11,42</sup>.

## Conclusion

Contemporary psychiatrists need to be clearly reminded that strict materialism is a specious and inadequate paradigm -- the unhealthy and naked emperor of our overly materialistic scientific era<sup>2</sup>. To restore balance to scientific inquiry we need only recognize that the consciousness of human beings has a ternary nature, one that has developed hierarchically over our long evolutionary history, including procedural learning of habits and skills in our early vertebrate ancestors, semantic learning of symbols and facts in anthropoid apes and early humans, and self-aware learning of narrative language, art, science, and spirituality in modern human beings<sup>1,4</sup>.

In my own opinion, we can best serve scientific truth by open-minded inquiry into the powerful interactions among material, cognitive, and spiritual mechanisms because the ternary components of consciousness never operate in isolation from one another<sup>43</sup>. A scientist cannot control what s/he does not measure or chooses to ignore by denial of its reality. In contrast, we can avoid the pitfalls of reductionism by using an integrative psychobiological approach, thereby staying alert to the full range of phenomena that can inform us about the ternary nature of human awareness.

## References

- Cloninger CR. The evolution of human brain functions: The functional structure of human consciousness. *Aust NZ J Psychiat*. 2009;43:994-1006.
- Moreira-Almeida A, Santos FS (eds.). *Exploring frontiers of the mind-brain relationship*. New York: Springer; 2012.
- Chalmers DJ. *The conscious mind: in search of a fundamental theory*. New York: Oxford University Press; 1996.
- Sussman RW, Cloninger CR (eds.). *Origins of cooperation and altruism*. 1st ed. New York: Springer; 2011.
- Cloninger CR. *Feeling good: the science of well-being*. New York: Oxford University Press; 2004.
- Cloninger CR. Spirituality and the science of feeling good. *South Med J*. 2007;100:740-3.
- Huxley J. Foreword. In: Chardin PTd, ed. *The phenomenon of man*. New York: Harper & Row; 1959.
- Hay D. *Something there: The biology of the human spirit*. Templeton Press; 2007.
- Hamer D. *The god gene*. New York: Doubleday; 2004.
- Walach H, Reich KH. Reconnecting science and spirituality: toward overcoming a taboo. *Zygon: J Relig Sci*. 2005;40:423-39.
- Cloninger CR. The science of well-being: An integrated approach to mental health and its disorders. *World Psychiatry*. 2006;5:71-6.
- Stevenson I. American children who claim to remember previous lives. *J Nerv Ment Dis*. 1983;171:742-8.
- Kottler MJ. Alfred russel wallace, the origin of man, and spiritualism. *Isis*. 1974;65:145-92.
- Eysenck HJ, Sargent C. *Explaining the unexplained: mysteries of the paranormal*. London: Prion; 1993.
- Collins FS. *The language of god: A scientist presents evidence for belief*. New York: Simon and Schuster; 2006.
- Larson EJ, Witham L. Leading scientists still reject god. *Nature*. 1998;394:331.
- Ecklund EH, Long E. Scientists and spirituality. *Sociology of Religion*. 2011;72(3):253-74.
- Evans JH, Evans MS. Religion and science: Beyond the epistemological conflict narrative. *Ann Rev Sociology*. 2008;34:87-105.
- Numbers RL (ed.). *Galileo goes to jail and other myths about science and religion*. Cambridge, MA: Harvard University Press; 2009.
- Cloninger CR, Svrakic DM, Przybeck TR. A psychobiological model of temperament and character. *Arch Gen Psychiatry*. 1993;50:975-90.
- Smith MJ, Cloninger CR, Harms MP, Csernansky JG. Temperament and character as schizophrenia-related endophenotypes in non-psychotic siblings. *Schizophr Res*. 2008;104:198-205.
- Plato. *The republic of plato*. New York: Oxford University Press; 1977.
- Kuhn TS. *The structure of scientific revolutions*. Chicago, IL: University of Chicago; 1962.
- Mezzich JE, Kirmayer LJ, Kleinman A, Fabrega H Jr, Parron DL, Good BJ, et al. The place of culture in DSM-IV. *J Nerv Ment Dis*. 1999;187:457-64.
- Chodoff P. Dynamic psychotherapy: a 50-year perspective. *J Am Acad Psychoanal Dyn Psychiatry*. 2006;34:19-27.
- Mezzich JE, Salloum IM, Cloninger CR, Salvador-Carulla L, Kirmayer LJ, Banzato CE, et al. Person-centred integrative diagnosis: Conceptual bases and structural model. *Can J Psychiatry*. 2010;55:701-8.
- Cloninger CR, Svrakic DM, Przybeck TR. Can personality assessment predict future depression? A twelve-month follow-up of 631 subjects. *J Affect Disord*. 2006;92:35-44.
- Jaspers K. The phenomenological approach in psychopathology. *Br J Psychiatry*. 1968;114:1313-23.
- Parnas J, Sass LA, Zahavi D. Rediscovering psychopathology: the epistemology and phenomenology of the psychiatric object. *Schizophr Bull*. 2013;39:270-7.
- APA. *Diagnostic and statistical manual*. Washington, DC: American Psychiatric Association; 1994.
- APA. *Diagnostic and statistical manual (DSM-V)*. Washington, D.C.: American Psychiatric Association; 2013.
- Kendell RE. The choice of diagnostic criteria for biological research. *Arch Gen Psychiatry*. 1982;39:1334-9.
- Kendell R, Jablensky A. Distinguishing between the validity and utility of psychiatric diagnoses. *Am J Psychiatry*. 2003;160:4-12.
- Cloninger CR, Sigvardsson S, von Knorring AL, Bohman M. An adoption study of somatoform disorders. Identification of two discrete somatoform disorders. *Arch Gen Psychiatry*. 1984;41:863-71.
- Cloninger CR, Martin RL, Guze SB, Clayton PJ. Diagnosis and prognosis in schizophrenia. *Arch Gen Psychiatry*. 1985;42:15-25.
- Josefsson K, Jokela M, Cloninger CR, Hintsanen M, Salo J, Hintsala T, et al. Maturity and change in personality: developmental trends of temperament and character in adulthood. *Dev Psychopathol*. [in press]
- Fehr E, Bernhard H, Rockenbach B. Egalitarianism in young children. *Nature*. 2008;454:1079-83.
- Cloninger CR. What makes people healthy, happy, and fulfilled in the face of current world challenges? *Mens Sana Monogr*. [in press]
- Gould M. Mental health patients complain of “zombification”. *United Kingdom: The Guardian*; 2011.
- Cloninger CR, Cloninger KM. Person-centered therapeutics. *Int J Per Cent Med*. 2011;1:43-52.
- Cloninger CR, Zohar AH. Personality and the perception of health and happiness. *J Affect Disord*. 2011;128:24-32.
- Cloninger CR, Zohar AH, Cloninger KM. Promotion of well-being in person-centered mental health care. *Focus*. 2010;8:165-79.
- Cloninger CR, Cloninger KM. Development of instruments and evaluative procedures on contributors to illness and health. *Int J Pers Cent Med*. 2011;1(3):456-59.