

# Critical review on the relevance of spirituality in Cloninger CR theory of personality (psychobiological model of temperament and character)

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## Abstract:

In this critical review outlines the place of spirituality in Cloninger's theory of personality and it explains the covert confusion that exist in this theory about this issue. This paper reviews certain limitations of this definite categorization of spirituality, and it explains some evidences that support from this idea that spirituality also can be categorized as a temperament component of personality. So it seems that spirituality has a three dimensions: temperament, character and psyche but the aspect of temperament hasn't see in Cloninger's personality theory.

**Keywords:** psychobiological, personality, temperament, character, spirituality

## Introduction

What is a spirituality? This question takes many times from scientists and there are many definitions about spirituality but there is no consensus about it. The hardest question is where is its origin? Is it a drive or instinct <sup>[1]</sup>? or Social and learnable component? And in general is it intrinsic phenomenon or extrinsic? Each of this has a fond. If we accept an intrinsic origin for this, then how can we explain it? In new theory of personality, Cloninger CR <sup>[2]</sup> allocated three place for spirituality: in one hand as a temperament and on the other hand as a character and psyche. One of them as a genetic and hereditary factor and two others as acquirable factor. But he has

never said that spirituality is a temperament and has cited spirituality in his famous "temperament-character-inventory" as a component of character and hasn't differentiated or discriminated three type of spirituality while deficit in this field and mixed definition of spirituality in this three field is a big barrier for extending research in spirituality <sup>[3]</sup>, but he without this discrimination has situated spirituality in his textbook in the temperaments table without any explanation <sup>[4]</sup>. So there is a question: why he has placed it there? And what determinations are distinguished spirituality as a temperament from other two type of acquirable spirituality (character and psyche).

in response to this critic after conversation with Cloninger CR, he emailed this response: " I refer to temperament as related to the body aspect, self-directedness and cooperativeness to the mental aspect (emotional and cognitive), and self-transcendence for the third aspect, spirituality. I kept spirituality as a character because Self-transcendence it is really the mental manifestation of spirituality and because it interacts with SD and CO so much in self-regulatory processes. Of course I have also found that all 3 aspects have equally strong heritability. So the presence of genetic and biological influences doesn't mean something is a temperament or instinctive. Self-transcendence is definitely a conscious process and operates through one of the 3 major

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systems of learning. we need to distinguish habit/procedural learning for temperament, semantic learning for SD and CO, and auto-noetic or self-aware/autobiographical consciousness for ST."

## Review of Researches and Discussion:

In this paper was reviewed some of weaknesses of this definite categorization:

Temperament has some characteristics that if spirituality has seen as a procedural component of personality such as other temperaments (harm avoidance, novelty seeking, reward dependence and persistence) it must be have those. This characteristic are: specific Neuroanatomy, Neuropsychology, Neurochemistry, Neurogenetics, and has Descriptors of Extreme Variants (high or low) and Effects of Positive (+) and Negative (-) Reinforcement on Emotional State of spirituality as a Temperament <sup>[2]</sup>. If some traits has this conditions, it can be considered as a basic component of personality and become a one type of temperaments. And another important feature of temperaments is long lasting trait that continuous over the whole of life and history of mankind. For supporting of this trait of spirituality, there are good evidences that spirituality have a long history (over 40000 years).

Now will be pointed some of reasons that spirituality may be a temperament:

**1. spirituality and Neuroanatomy:** some researches have stated that Neuroanatomical base of spirituality is the Limbic System and are related to activation of the amygdala, hippocampus, and temporal lobe <sup>[3, 5]</sup> but other study have showed that many region of brain involve in this process and there is no unique structure for spirituality, this conclusion was reflected in this statement: meta-stable patterns of neuronal interconnectivity among brain areas and systems are involved <sup>[3]</sup>. but more evidence support that activation of prefrontal cortex and temporal cortex and deactivation of parietal cortex are more involved in spiritual experience <sup>[3, 6, 7]</sup> that maybe these structures beside limbic system are cardinal for spirituality, although some researches were showed that effect size of this activation and deactivation of neuroanatomical strictures are medium and depend on specific spiritual practice <sup>[8]</sup> and maybe the cause of this extended structures was reported is that they have studied three type of spirituality(temperament, character, psyche) simultaneously and each specific spiritual practice stimulated one of them .

**2-spirituality and Neurochemistry:** many neurotransmitters have been postulated that those have a role in spirituality such as: Glutamate system Dopamine system and Serotonin, Opioid and Acetylcholinergic system <sup>[3]</sup> and activation of dopamine system and deactivation of serotonergic system have a most evidence in spirituality <sup>[3, 9]</sup>.

**3- spirituality and Neurogenetics:** vary studies have reported that genetic can explain 50% percent of variation in spirituality and spirituality is a heritable <sup>[3]</sup> and some specific gene was linked to spirituality <sup>[10]</sup> what some research are

named Abrahamic DNA <sup>[11]</sup> this finding explain the genetic basis for spirituality but half of variation doesn't explainable by genetic and environmental factor may be influence on it and maybe a acquirable trait. Although in communication with Cloninger CR, he said that this reason for considering some components as a temperament is a weak reason and other structures of personality in his theory (character and psyche) have strong genetic component and he sent me two articles for this claim <sup>[12]</sup> in these papers he was showed that "the temperament explained 10% of variance of self-transcendent as a basic component for spirituality and "33% of total variance of self-transcendent was also explained by the other two dimension of character", "as well as a moderate correlation (0.26) between Persistence and Self-transcendence"<sup>[12]</sup>. Now there is a question: why only persistence is correlated with base of spirituality (self-transcendent) in Cloninger CR theory of personality? May be a one answer is: the persistence temperament has a complex trait that some aspect of them is a related to spirituality temperament that was included in this temperament wrongly. because some description of this temperament such as: Steadfast, Perfectionistic vs. Pragmatic <sup>[4]</sup> are alike definitions of spirituality such as: endless searching for meaning through whole of life <sup>[13]</sup> endless trying for meaning and closing to god or ultimate creator <sup>[14]</sup> and the form of this "the partial reinforcement extinction effect- (PREE)" of this trying is a synonymous of persistence definition. So whether there is a type of persistence that is related to spirituality or there is a different type of perfectionism: one is related to ultimate material goal and another is related to ultimate transcendent goal? And these two types are merged in an inquiry and questionnaires form of persistence temperament without differentiation. Although there is no clear evidence for this hypothesis and need more researches.

**4- spirituality and Neuropsychology:** it was showed that prescription of oxytocin increased spirituality and this effect moderated by the oxytocin receptor gene (OXTR rs53576) and CD38 (rs6449182 and rs3796863 <sup>[15]</sup>. And Electrical brain activity is altered during spirituality, studies show high amplitude of alpha and theta waves <sup>[16]</sup> and increase coherency of this waves iter and interhemispheres <sup>[17]</sup>. in spirituality experiences the psychophysiological pain processing in the brain will be hyperactive that in contrast this activation decrease pain, although there is no clear explanation for this phenomenon <sup>[18]</sup>. As see some Neuropsychology factor can be specific for spirituality partially.

**5-spirituality and Descriptors of Extreme Variants:**

In some researches were showed continuity of spirituality that in the one side is baseline reality and in the other side is the sense of wholeness <sup>[19]</sup>. from materialism to intrinsic spirituality <sup>[20]</sup>. As Cloninger CR has showed in his worth book, this continuity can be expanded from Hopeful to Peaceful or from Shy vs. Beguiling to Perfectionistic vs. Pragmatic and Peaceful <sup>[2, 4]</sup>.

## Conclusion:

As was showed above. It seemed that spirituality as a temperament could be had a specific quality's that differenced it from other two types spirituality. Although Cloninger CR has cited spirituality as a character in his "temperament-character-inventory" and he has said that it has three items that include:

1-self-forgetful vs. self-conscious experience 2-transpersonal identification vs. self-isolation

3-spiritual acceptance vs. rational materialism <sup>[21]</sup>.

But in spite of he has cited other two types of spirituality but he hasn't included items for them, and it is seemed that if this discrimination will occur, It can help for clarification in this field, and maybe the origin of this inconsistent results is that in any of this studies haven't differentiated these three types of spirituality and they have studied them simultaneously and as a result they have never reached to consensus definition to spirituality. Naturally this hypothesis needs for more researches.

## References

1. MacDonald DA. Spirituality: Description, measurement, and relation to the five factor model of personality. *Journal of personality*. 2000;68(1):153-97.
2. Cloninger CR. *Feeling good: the science of well-being*; Oxford University Press; 2004.
3. Fingelkurts AA, Fingelkurts AA. Is our brain hardwired to produce God, or is our brain hardwired to perceive God? A systematic review on the role of the brain in mediating religious experience. *Cognitive processing*. 2009;10(4):293-326.
4. Sadock BJ, Sadock VA. *Kaplan & Sadock's concise textbook of clinical psychiatry*; Lippincott Williams & Wilkins; 2008.
5. Joseph R. The limbic system and the soul: Evolution and the neuroanatomy of religious experience. *Zygon®*. 2001;36(1):105-36.
6. Johnstone B, Cohen D, Konopacki K, Ghan C. Selflessness as a foundation of spiritual transcendence: Perspectives from the neurosciences and religious studies. *The International Journal for the Psychology of Religion*. 2016;1-17.
7. Pluess M. *Genetics of Psychological Well-Being: The role of heritability and genetics in positive psychology*; Oxford University Press, USA; 2015.
8. Fox KC, Dixon ML, Nijeboer S, Girn M, Floman JL, Lifshitz M, et al. Functional neuroanatomy of meditation: A review and meta-analysis of 78 functional neuroimaging investigations. *Neuroscience & Biobehavioral Reviews*. 2016; 65:208-28.
9. Previc FH. The role of the extrapersonal brain systems in religious activity. *Consciousness and cognition*. 2006;15(3):500-39.
10. Comings DE, Gonzales N, Saucier G, Johnson PJ, MacMurray JP. The DRD4 gene and the spiritual transcendence scale of the character temperament index. *Psychiatric Genetics*. 2000;10(4):185-9.
11. Davis JJJ. A Brief Introduction to the Neuro-Genetics of Spirituality towards a Systemic Peace Propagation Model. *Scientific GOD Journal*. 2016;7(5).
12. Gillespie NA, Cloninger CR, Heath AC, Martin NG. The genetic and environmental relationship between Cloninger's dimensions of temperament and character. *Personality and Individual Differences*. 2003;35(8):1931-46.
13. Martin J, George R. What is the point of spirituality? *Palliative medicine*. 2016;30(4):325-6.
14. Paloutzian R, Ellison C. *Spiritual well-being scale. Measures of religiosity*. 1982:382-5.
15. Van Cappellen P, Way BM, Isgett SF, Fredrickson BL. Effects of oxytocin administration on spirituality and emotional responses to meditation. *Social Cognitive and Affective Neuroscience*. 2016;11(10):1579-87.
16. Cahn BR, Polich J. *Meditation states and traits: EEG, ERP, and neuroimaging studies*. 2013.
17. Hebert R, Lehmann D, Tan G, Travis F, Arenander A. Enhanced EEG alpha time-domain phase synchrony during Transcendental Meditation: Implications for cortical integration theory. *Signal Processing*. 2005;85(11):2213-32.
18. Nakata H, Sakamoto K, Kakigi R. Meditation reduces pain-related neural activity in the anterior cingulate cortex, insula, secondary somatosensory cortex, and thalamus. *Frontiers in psychology*. 2014; 5:1489.
19. d'Aquili EG, Newberg AB. The neuropsychology of aesthetic, spiritual, and mystical states. *Zygon®*. 2000;35(1):39-51.
20. Swinyard WR, Kau A-K, Phua H-Y. A meta-analysis of the relationships between happiness, materialism and spirituality in the US and Singapore. *AP-Asia Pacific Advances in Consumer Research Volume 5*. 2002.
21. Cloninger CR, Svrakic DM, Przybeck TR. A psychobiological model of temperament and character. *Archives of general psychiatry*. 1993;50(12):975-90.