

# Classification of Mental Disorders Based on Temperament

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Received 2015 June 1; Accepted 2015 August 15.

## Abstract

**Context:** Different paradoxical theories are available regarding psychiatric disorders. The current study aimed to establish a more comprehensive overall approach.

**Evidence Acquisition:** This basic study examined ancient medical books. "The Canon" by Avicenna and "Comprehensive Textbook of Psychiatry" by Kaplan and Sadock were the most important and frequently consulted books in this study.

**Results:** Four groups of temperaments were identified: high active, high flexible; high active, low flexible; low active, low flexible; and low active, high flexible. When temperament deteriorates personality, non-psychotic, and psychotic psychiatric disorders can develop.

**Conclusions:** Temperaments can provide a basis to classify psychiatric disorders. Psychiatric disorders can be placed in a spectrum based on temperaments.

**Keywords:** Temperament, Mental Disorder, Classification

## 1. Context

Although psychiatry has made solid progress from the beginning, many more advances remain possible; while the field has provided considerable help to the people in pain, shortcomings still exist. Mood disorders have diverse and sometimes paradoxical definitions. Hagop Akiskal defines bipolar disorders along a spectrum that comprises eight types (1-4). The fifth edition of the "Diagnostic and Statistical Manual of Mental Disorders (DSM-5)" and the 10th revision of "The International Classification of Diseases (ICD 10)" provide somewhat different definitions of these disorders. In a more general sense, psychotic disorders do not have complete and comprehensive divisions. Schizophrenia seems not to be considered an illness in all circles and shows an asymmetric range with respect to severity; different divisions and classifications of the symptoms are always observed (5, 6). In DSM-5, in all these disorders, "psychiatric disorders: not otherwise specified" (NOS) are frequently diagnosed. Theories about psychiatric disorders, from personality disorders to neurotic and psychotic disorders, appear not to have been completed yet, leading to various paradoxical (and conflicting) diagnoses and perceptions of the relationship between symptoms and diagnosis.

### 1.1. The Cloninger Psychobiological Model of Personality

In the Cloninger psychobiological theory of personality, two psychological and biological aspects of the personal-

ity have been considered. Initially, Cloninger asserts that three aspects inform the personality: temperament, character, and psyche. Temperament is mainly genetic and includes four elements harm avoidance (HA), reward dependence (RD), novelty seeking (NS), and persistence (PS). The brain has neurotransmitters that are the biological equivalents (or representations and mediators) of each element. Furthermore, Cloninger states that each of the temperament items correlates with one of the four temperament characterizations in ancient Greek medicine (7-10).

### 1.2. Greek Medicine

According to Greek medicine, the human body consists of four elements earth, water, air and fire. Earth is cold and dry, water is cold and wet, air is hot and wet, and fire is hot and dry. The quality of being wet signifies a state, in which something can be scattered by stimulation, then revert to its initial shape; this quality facilitated plasticity, loss of shape, and reshaping. Dryness shows toughness in plasticity. Heat causes development and movement in the elements. Earth and water are heavy and play a role in the stability and balance of the parts. Air and fire are light and allow for effective movement of the parts (11-13). When the elements are combined, dry is mixed with wet. Dryness assumes the plasticity of wetness, while wetness is able to assume the stability and balance of dryness. In other words, when the elements are combined, they lose

some of their individual features and become more similar (13, 14). Temperament: Temperament is created when an element is mixed with another element and a reaction ensues. Two kinds of temperament are possible: a truly balanced temperament, in which the paradoxical qualities are equal in their presence. However, this never occurs. Instead, a temperament has some levels of imbalance, tending to coldness or heat, wetness or dryness in one or two qualities. Eight types of unbalanced temperament exist. The four simple unbalanced temperaments have an imbalance in only one quality (hot, cool, wet, dry). These four single temperaments are not stable and they tend to lead to compound temperaments. The four compound temperaments are composed of the following combinations: hot and wet, hot and dry, cold and dry, cold and wet (13). The human temperament is more balanced than those of other creatures. This balanced temperament has a wide range and does not limit itself to a specific area, but it does have some borders. Beyond these borders, it is not a human temperament but rather an animal's temperament (13). To put this in the context of psychiatric disorders, the greater imbalance a person experiences in his or her own temperament, the more severe the illness will be.

Humors: In Greek medicine, the humors are liquids produced from food in liver digestion. There are four kinds of humors: blood, phlegm, bile, melancholy. The temperament of the blood is like air, of phlegm is like water, of bile is like fire, and of melancholy is like earth. The changes of these humors in the body lead to changes of temperament that are oriented towards the dominant humor (13, 15).

### 1.3. Psychological Signs of Temperaments

Warmth is associated with anger, impatience and agitation, cleverness, lack of shame, optimism, hopefulness, heartlessness, speed, masculinity, activity, and being less impressionable. Coldness is the opposite of warmth and thus is associated with the opposite qualities of warmth. Dryness is associated with endurance in both anger and peace, being a dreamer, and with being reserved and impassive. Moisture has the opposite characteristics, particularly fleeting impressionability (13, 16).

### 1.4. Factors Affecting the Temperament

#### 1.4.1. Age

During childhood (birth onset to 15 years of age), the body has a hotter and wetter temperament; during early adulthood (15 - 30 years), the temperament is hotter and drier; midlife (30 - 60 years) confers a colder and drier temperament, followed by being colder and wetter in old age (60 years and older) (17).

#### 1.4.2. Location

The temperament of those who deal with water is wetter, while those who deal with fire have drier tempera-

ment. Residents of the equator and other latitudes are under the influence of the special temperaments of those areas. Elements of the terrain and the environment (the mountains, seas, the plains) can affect temperament (13)

#### 1.4.3. Seasons

The spring temperament is hot and wet, summer is hot and dry, autumn is cold and dry, and winter is cold and wet. Each of the four seasons can have its own effect on temperament (13).

#### 1.4.4. Weight and Color

An obese person, who has a high level of fat, has a cold and wet temperament; if the obesity is due to heavy muscles, he has a hot and wet temperament. A tawny thin person has a hot and dry temperament, while a white thin person has a cold and dry temperament (13).

#### 1.4.5. Food and Drugs

Food and drugs have their own temperament; each type of consuming food or beverage can affect the temperament (13).

#### 1.4.6. Gender

The temperament of men is hotter and drier than that of women (13).

#### 1.4.7. Psychological Factors

Excessive sadness, extreme fear, excessive happiness, and extreme joy cause coldness. Relaxation, sleep, and overeating can cause moisture. Movement, nightlife, and intercourse result in dryness. Anger, sadness and grief in moderation, and happiness and jubilation in moderation can elicit warmth (13).

### 1.5. Temperament Change

The synchronization or non-synchronization of the body's natural temperament with the characteristics of the surrounding environment can determine whether someone is sick or well. When a body's natural temperament matches up with the temperament caused by factors, such as age, the season, or other situations, illness occurs. Conversely, when a person with a specific temperament enters a situation in which the temperament of the environment or other situational elements is opposite his own temperament, he gets better (13).

### 1.6. Mental Illness in the Canon (18-20)

Distracted mind and delusion: This illness can be found in all temperaments. Ruined fantasy and illusion: In this illness, coldness of the mind leads a person to imagine things that do not exist. Mania: Leads patients to have anxiety and to frolic (be energetic and excitable); furthermore, mania also can manifest in extreme pessimism, ir-

ritability, and ferocity. Mania can be caused by all temperaments; however, the base temperament can make some difference in the symptoms.

**Rabidity (Da-ul-Kalb):** A kind of mania accompanied by gentleness and peace. With Da-ul-Kalb, pessimism is lower than with mania; its source is the blood humor (heat and humidity).

**Melancholia:** With melancholia (more commonly known today as simply “melancholy”), thoughts and imaginations are not normal. Melancholy is considered as one of the least-desired elements of temperament and is defined by pessimism, corrupted thought, and fear. Melancholy can be caused by all temperaments, and the main temperaments can change melancholic symptoms. When melancholy is caused by the blood humor, the patient keeps his happiness; by the phlegm humor, the patient experiences laziness and peace; by bile, the patient is anxious (this manifestation is similar to that of mania). If it is a pure melancholy, the patient is revengeful and agitated.

Given these circumstances, the need for further research to find comprehensive theories and models that explain and justify psychiatric disorders is completely felt. The current study aimed to find a more comprehensive theory of psychiatric disorders with regard to the past views and present ideas in psychiatry.

## 2. Evidence Acquisition

The study aimed to find new relationships between psychiatric disorders that could explain some of the current knowledge related to these disorders and the controversies that inform this knowledge. The older and newer studies that form the basis of current books on psychiatry contain many flaws and inconsistencies. The personality theory of Cloninger and the personality elements mentioned by him (8, 9) are very useful and applicable. This theory and the temperament, character, and psyche elements have tried to make many problems and contradictions coherent; in many instances, cohesion is admirably brought about. However, many ambiguous points remain unexplained. Cloninger has referred to the coordinated elements of the temperament, which are consistent with those of the humor theories that formed classical Greek medicine (8). The study of ancient medicine provides many significant concepts in the theory of temperament that may help to resolve ambiguities. Considering this point, it was decided that studying this topic could be productive. Given the large number of books on this subject, authors tried to use newer books, determining which sources were more reliable and trustworthy in order to use (and draw conclusions from) better theories. Recent specific books are usually more comprehensive.

Avicenna (8, 21-26) enhanced the theories of temperament in Greece to the highest point (27). For this reason, “Canon of Medicine” by Avicenna was selected as a starting point for this study. This book is used for medical education at prestigious universities in Europe and the world (28). Avicenna’s work and the other related books from the same era

are the main sources of this current study. “Canon of Medicine” was available in Arabic, Farsi and English translations. The English version was incomplete; the Farsi version was used in this study and in some cases it was matched with the English one. At times, issues existed that needed more explanation or that were paradoxical (that is, contradictory) or ambiguous. For these issues, authors referred to the books of the same period or even older ones. Recent studies on traditional medicine were also used. Unfortunately, many of the books in the field were scarce or unavailable or proper translations did not exist. To summarize, “Canon of Medicine” by Avicenna and “Comprehensive Textbook of Psychiatry” by Kaplan and Sadock were the most important and frequently used books in this study.

## 3. Results

Instead of sanguine, phlegmatic, choleric, and melancholic humors and their modern equivalents, RD, PS, NS, and HA, it was opted to use their qualities or temperaments (i.e. warmth, coldness, dryness and humidity). According to the conditions caused by the warmth of nature, it was decided to use measurements of activity and energy in biology, physiology, and psychology. High activity and high energy in biology and high activity in psychology were used instead of warmth. Conversely, coldness referred to low bio psychological activity or inertia. For humidity, based on the defined status and characteristics, the term “flexibility in biological and psychological aspects” was used. High physiological and psychological flexibility or physical and mental adaptability was introduced instead of high humidity, while low flexibility or rigidity was used instead of dryness. Given these definitions, four groups of temperaments were obtained (Tables 1- 4, Figure 1). In addition, a variety of groups were considered as having a mixed status. Each group can have some qualities of any of the other groups. In more intense and ill-balanced conditions, the aforementioned temperament groups can lead to temperament (personality) disorders that have the same characteristics but with more severe qualities. These conditions, if they become more severe, will lead to non-psychotic psychiatric disorders, which can be placed in four main groups (Figure 1, Tables 1 - 4):

Group A: A spectrum of disorders with euphoric mania-like signs and symptoms

Group B: A spectrum of disorders with mixed mania-like signs and symptoms

Group C: A spectrum of disorders with depression and anxiety-like signs and symptoms

Group D: A spectrum of disorders with no equivalent in the DSM.

Increasing imbalances in bio psychological activity and flexibility lead to a disintegration of the human psyche system and create a situation that can be considered equivalent to psychosis. Psychosis can therefore happen in all four regions (i.e., A, B, C, or D), and based on their properties and

qualities, it can be associated with specific symptoms. It should be noted that bio psychological activity can determine different types of schizophrenia via positive or negative signs. Thus, a psychosis in areas A and B may have positive signs whereas it would have negative signs in areas C and D. The level of bio psychological flexibility determines the amount of anger and hostility or patience and compliance (Tables 1-4, Figure 1). It seems that this factor can also affect the types of delusions and hallucinations experienced:

Group A: Psychosis with a theme of manic symptoms

Group B: Psychosis with a theme of mixed mania symptoms

Group C: Psychosis with a theme of depression

Group D: Psychosis with a theme of negative signs.

Finally, the following factors can affect mental illness in human beings:

1, Temperament; 2, Age; 3, Season; 4, Climate; 5, Foods, Drugs; 6, Psychological factors

The current study aimed to classify and identify psychiatric disorders with higher validity; that is, with a rigor that "clears the bar" and allows them to be confidently diagnosed as medical disorders. The goal was to create a rubric similar to (or even better than) the periodic table to allow the discovery and proper naming of the psychiatric diseases that currently fall under the classification of "not otherwise specified" or NOS. Returning to the Cloninger and Svrakic classification (8, 9), NS and RD, there is a high psychobiological activity for both factors of NS and RD; the difference lies in the internal and external pliability of these factors and their compatibility. In RD, in which the quality of sociability is added to a high level of activity, there is often a high level of adaptability in which the active, creative individual is able to adapt to different people and situations as well as their overall environment. In contrast, in the ones with high NS, hyperactivity is accompanied by rigidity and inflexibility that leads people in this group to be unable to adapt, precipitous, impulsive, fragile, aggressive and prone to mood changes. These facets are created by the individual's high energy when facing the obstacles of inflexibility and firmness. High HA and PS are factors that cannot be justified easily in this theory, unlike NS and RD. Being withdrawn is the result of low energy and lack of flexibility (maybe HA). The obsessive-compulsive personality disorder (OCPD) is the symbol of PS in the Cloninger and Svrakic theory (8, 9). Since high PS and OCPD arise from high rigidity, they cannot be an appropriate equivalent to low activity and high flexibility. The qualities of high withdrawnness and apathy may be selected for high HA and high PS states, respectively. According to Avicenna (13), the temperament components are in contradictory pairs and modulate each other, with the outcome determining the temperament. Although the parts of temperament are represented by these contradictory pairs, the properties of both are present in their components. This system can be concordant with Cloninger and Svrakic (8, 9) when he asserts that all four factors are present in all personality. According to the Avicenna theory (13), temperament may change with age, geographical region, and the impact of external stressors

and physical illness. Cloninger and Svrakic (8, 9) and some other researchers (29) consider the neurotransmitters and discuss the effect of different drugs and age for temperament. It can be concluded that these theories are closely related. In this classification, there are four main groups of temperaments. For personality disorders, there are three rough subgroups for each group. The four main groups can be delineated as follows (Tables 1-4, Figure 1):

Group A: This group is not currently in the DSM classification; they are people with high A and high F (sociable, hyper thymic, adaptable, and energetic). This group has three subgroups. For the midpoint between the vertical and horizontal axes, flexibility and activity are harmonious. Being closer to the vertical axis is associated with more flexibility and less activity; the opposite is true for those on the horizontal axis.

Group B: A group that is similar to group B personality disorder in the DSM; a group with high-energy but low adaptability. In this area, the more we move toward the F axis, the less adaptability and activity are observed.

Group C: This group closely aligns with the group C personality disorders in the DSM.

Group D: The group closely aligns with group A in the DSM. In this group, flexibility and inertia are high. During the seasons and regions with temperaments that match the temperament of a person with a temperament disorder, their temperaments worsen; conversely, when their temperament does not match those of their region or the current season, they improve (30). For example, people with the group B temperament experience their worst mental health in their youth, with hot and dry areas and during the summer. During the winter and in cold and wet areas, they exhibit their best performance. Some of the published literature favors this concept. Accordingly, it can be concluded that personality disorders may be more prevalent at certain ages and among those who live in certain areas. Temperament can change, which means that a person predominant with blood humor can also present with choleric, melancholic, or phlegmatic temperaments. The difference between the modified temperament and the main temperament of that area is that the new temperament has traces of the main temperament (13). With this description, in addition to the 12 subgroups described above, each of the main groups can change its temperament to resemble the temperament of the other three groups while they maintain the attributes of their main temperament. Therefore, there are roughly 12 mixed groups. These may be the equivalents of the NOS groups in the DSM. The theory of the temperaments (as well as some new theories (1) and some genetic studies (8) consider the relationship between personality disorders, the primary axis (8) and psychiatric disorders within the same range (1). According to Avicenna, psychiatric disorders appear when the temperament becomes ill and sick; as the temperament worsens, the illness is more severe. A part of the literature favors this idea (30). If the temperament deteriorates beyond a certain point, the patient experiences the temperament of animals,

which according to Avicenna is melancholy and equivalent to psychosis. The space between the temperament and psychosis (or temperament similar to those of animals) was called the non-psychotic psychiatric disorders. Thus, there are four major categories of non-psychotic psychiatric disorders (Tables 1 - 4, Figure 1). All have the same signs of temperament and personality disorders in their respective categories, but they are more severe with higher declines in function. For depression and mania, there is a spectrum with each one on opposite ends; one end represents severe depression, the other end severe mania. A situation, according to Akiskal, is the same in the spectrum of mood disorders (1). Non-psychotic psychiatric disorders will be

also more frequent at a certain age and geographic location, which exists in the past and recent studies (8, 31). Thus, mania should have higher recurrence in spring and summer, and depression should be more prevalent in autumn and winter. Psychosis occurs in extreme situations during which the temperament is at its worst (Tables 1 - 4, Figure 1). But psychosis in each region is associated with the characteristics of the background region. Again, it can be concluded that these psychotic disorders happen at certain ages and certain geographical locations. Therefore, the depressive type of schizoaffective disorder should have higher recurrence in older patients, and the bipolar type should be more prevalent in young adults (31).

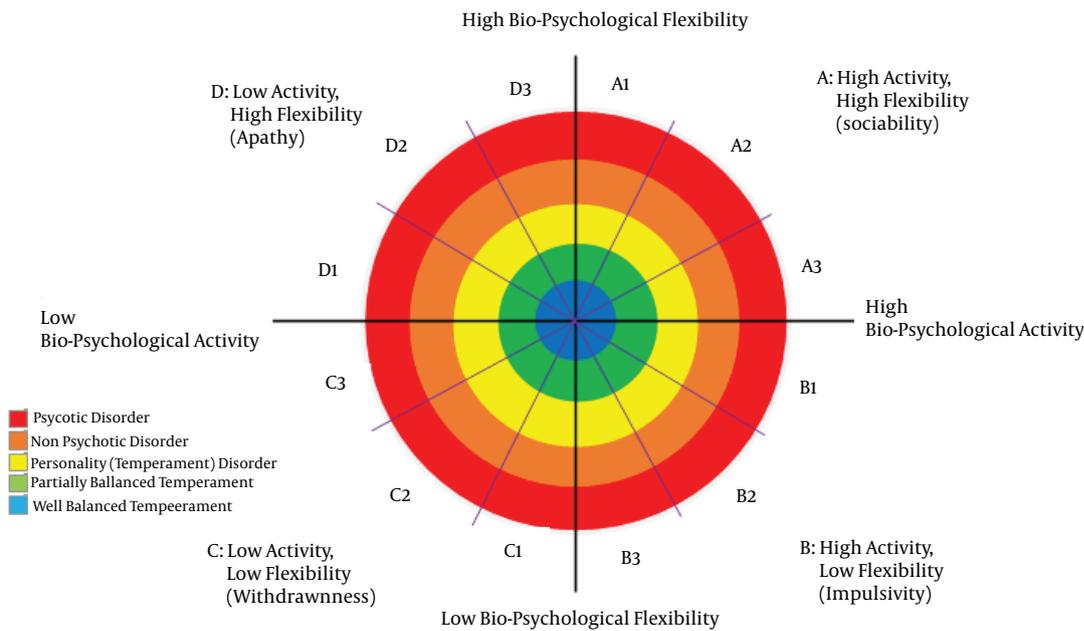


Figure 1. A Classification of Mental Disorders Based on the Level of Bio psychological Activity and Flexibility

Table 1. Group A: High Bio Psychological Activity and Flexibility, Characteristics and Disorders

Element	Air
Humor	Blood
Temperament	Hot and wet
The Cloninger Temperament	Reward dependence > harm avoidance
Psychological feature	Affable, strong, light-hearted, superior, joyful, and self-confident
Non-psychotic disorder	Euphoric and mania-like, with symptoms such as high energy, excessive laughter and joy, talkative, high sex drive, overeating, adaptable, and sociable
Psychotic disorder	A mixed state of schizophrenia and mania, such as bipolar or manic schizoaffective disorder, schizophrenia with good compatibility, lack of anger and violence, and elevated mood
Subtype A1	(Persistence > novelty seeking) More flexibility, adaptable, sociable, and peaceful
Subtype A2	(Persistence = novelty seeking) Intermediate between subtypes A1 and A2
Subtype A3	(novelty seeking > Persistence) More activity, energetic, irritable, prone to anger and violence

**Table 2.** Group B: High Bio Psychological Activity and Low Flexibility, Characteristics and Disorders

Element	Fire
Humor	Yellow bile ( choleric)
Temperament	Hot and dry
The Cloninger temperament	Novelty seeking (novelty seeking > persistence)
Psychological feature	Irritability, short temper, fieriness, nervousness
Non-psychotic disorder	Mixed (dysphonic) mania-like qualities, including inadaptability, impulsivity, aggression, anxiety, restlessness, instability, fragility, irritability, intense anger, and high energy.
Psychotic disorder	A mixed state of schizophrenia and dysphonic mania; schizophrenia associated with aggression, irritability, restlessness, violence, and impulsivity.
Subtype B1	(Reward dependence > harm avoidance) Higher energy levels and increased bio psychological activity
Subtype B2	(Reward dependence = harm avoidance) Intermediate between subtypes B1 and B2
Subtype B3	(Harm avoidance > reward dependence) Greater rigidity and inadaptability

**Table 3.** Group C: Low Bio Psychological Activity and Flexibility, Characteristics and Disorders

Element	Earth
Humor	Black bile (Melancholia)
Temperament	Cold and dry
The Cloninger Temperament	Harm avoidance (harm avoidance > reward dependence)
Psychological Features	Depression, dejection, anguish, gloom, rigidity, and low energy
Non-Psychotic Disorder	Depression and anxiety, with symptoms including low mood, low energy, irritability, taciturnity, withdrawal, and isolation
Psychotic Disorder	A mixed state of schizophrenia and depression similar to depressive schizoaffective disorder
Subtype C1	(Novelty seeking > persistence) Greater rigidity, anxiety, and restlessness
Subtype C2	(Novelty seeking = persistence) Intermediate between subtypes C1 and C2
Subtype C3	(Persistence > novelty seeking) Greater inertia, sedentariness, inaction, and lower energy

**Table 4.** Group D: Low Bio Psychological Activity and High Flexibility, Characteristics and Disorders

Element	Water
Humor	Phlegm
Temperament	Cold and wet
The Cloninger temperament	Persistence (persistence > novelty seeking)
Psychological features	Slowness, sluggishness, laziness, apathy, cautiousness.
Non-psychotic disorder	A group with no DSM-disorder equivalent; characterized by low energy, low mood, taciturnity, high flexibility, high compatibility, high tolerance, and slowness
Psychotic disorder	Psychosis similar to simple schizophrenia (also known as defective schizophrenia); schizophrenia with compatibility, low-energy, and mostly negative symptoms
Subtype D1	(Harm avoidance > reward dependency) Greater inertia and inaction
Subtype D2	(Harm avoidance = reward dependency); Intermediate between subtypes D1 and D2
Subtype D3	(Reward dependency > harm avoidance); Greater flexibility, adaptability, and compatibility

#### 4. Conclusions

According to this theory, each person, based on his or her temperament, is prone to certain psychiatric disorders. But temperament may change and the new temperament is prone to its specific disorder, while retaining some of its original temperament features. But what is the most contemporary scientific term for this factor? Is (as some people believe) warmness

the same as high basal metabolism? Is wetness due to high intercellular or intracellular hydration? Future studies are needed to provide an answer to some of these questions. The current study needed a lot of books and articles that were unavailable and authors were deprived of their use. In addition, sometimes the available books were flawed or untranslated.

## Acknowledgments

The authors thank all those who helped to conduct this study.

## Footnotes

**Authors' Contribution:** Developing the original idea and the protocol data analyzing, writing the manuscript, and the guarantor: Mohammad Nadi Sakhvidi; developing of the protocol, data abstraction, and preparing the manuscript: Fatemeh Hosseini and Lida Jafari.

**Funding/Support:** This study was supported by a grant of Shahid Sadoughi University of Medical Sciences, Yazd, IR Iran.

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