Psychoses induced by exceptional states of consciousness

Julia García-Albea[1]
Sara González-Vives[1]
Claire Tejeira[1]
Élida Castro[1]
Juan J. López-Ibor[1]
María I. López-Ibor[1]

[1]Instituto de Psiquiatría y Salud Mental
Hospital Clínico San Carlos
Universidad Complutense
Fundación Juan José López-Ibor
Madrid. España

INTRODUCTION

We include a series of pictures whose prototypes are psychoses provoked by meditation under the name of psychoses induced by altered states of consciousness. Other pictures, to which we attribute similar pathogenic mechanisms, are psychoses that appear in exorcism rituals, hypnosis, those associated to practices such as Qi-Gong, in ecstasies and in trances.

CLINICAL CASES

In the following, we present two prototypical clinical cases.

Case 1

S. is a 28-year-old female patient who was being monitored in a Day Hospital for eight months prior to the interview due to a psychiatric admission for psychotic decompensation of her baseline disease, this disease being paranoid type schizophrenia. On the other hand, in the last months, S. has become more interested in religiousness, and during the last week, she has attended mass every day. She has also attended sessions of exorcism and spiritualism, stating that she feels the presence of a malignant spirit within her.

On examination, she showed partial awaremess of the disease. She states that half of her symptoms are due to the disease she suffers and that the other half to something that she ignores but that she believes has a "spiritual nature."

She contacted a priest eight months ago through a webpage and has gone to eight sessions of spiritualism with him, experiencing significant improvement according to her report. She describes these sessions as "inductions to trance" in which she is urged to relax and to meditate while the clergyman prays for her. In sessions witnessed by her family, they state how she became twisted, was shouting and began to foam at the mouth.

Due to this situation, the family contacted the Day Hospital, and the day hospital got into contact with the exorcist to explain to him S's psychotic disease. However, the exorcist shares the belief that she is possessed. Negotiation was attempted in order to find a solution to minimize the harm that these activities cause in the disease of the patient, avoiding her rejection of psychiatric treatment.

During her attendance to the Day Unit, S. was conscious and oriented, approachable, collaborator, with good appearance. She maintained visual contact. She emphasized with the interviewer with good affective of resonance. She alternated her account between the description of plausible facts with delusional memories. Important interest for esoterism stood out. She described cenesthopathic hallucinations as an agent that twisted her stomach and entered and left her body. She denies having auditory hallucinations at this time although she reported having had them in the past. Impression is of encapsulated passional delusion. Without alterations in thought form and course.

Case 2

J., 18 years old, came to the emergency department of our hospital, brought by his parents due to behavioral disorders. The patient had disorganized behavior, with great psychomotor restlessness, globally incoherent speech with disconnected sentences and thought blockage. The few sentences that could be understood referred to peers he had in a center where he went to practice Reiki, among other practices of meditation and where he consumed ayahuasca in some sessions. His affect was inappropriate and gave the impression of psychotic symptoms. Collaboration of the patient was limited. He never showed aggressiveness. His attitude was unforeseeable but in general resigned. Without pathological anxiety.

His parents stated that the picture initiated three days earlier. They did not know if he had consumed any toxic agent, although they doubted that this had occurred in the last 48 hours, assuring that he had been at home. He began to be very restless and disorganized, without adequately performing any activities of daily life. He was not capable of doing anything, had global insomnia and lacked bladder sphincter control, urinating at any place in the home. His speech was increasingly more incoherent and when his parents observed that the picture did not abate, they decided to come to the emergency department.

As background, a similar episode some weeks earlier stands out. During that episode, he had been admitted for several days, with total remission of the symptoms. He did not receive treatment and was discharged due to family decision. His parents commented that they had begun to notice some changes in their son approximately 8 months earlier when he became interested in esoterism, spiritual practices and meditation techniques. He began to go to a Reiki Center with some frequency. They know that besides sporadic consumption of cannabis, he has taken ayahuasca in sessions organized by the center on several occasions as a way of favoring "trance induction."

They state that since then, his academic performance has decreased, and in the last few months he has stopped going to class.

It was decided to admit the patient to the psychiatric ward after ruling out organic or toxic disease. Antipsychotic medication was initiated, but after a few days the family requested voluntary discharge, practically without observing any improvement, so that his evolution is unknown.

WHAT IS CONSCIOUSNESS?

We must review what we understand by consciousness in order to understand well what the theme is of such varied and dispersed disorders in the current nosological categories.

In a first approach, consciousness is an abstract concept conceived from his absence. Consciousness is that which one has before being overcome by sleep or falling into a coma, in the same way that life is that which the alive being has before dying.

Consciousness (from Latin *conscientia* 'shared knowledge) is the knowledge that a person has about oneself, their existence, their state and action and of their world. Consciousness concerns both normal perception of the propioceptive and exteroceptive stimuli as well as more affective aspects and those that make reference to the world of values and therefore to moral one.

At any point in time, the state of consciousness has a multifaceted relation with perception, which organizes and gives meaning to that perceived. In the past, the facility of understanding reality has sometimes been distinguished from that of giving it a meaning. Therefore, Stoering[1] emphasizes the need to differentiate consciousness (Bewusstsein) from cognition (Besinnung).

Perception is made up of the sum of all impressions that reach the consciousness: spatiotemporal sensations, sensorial and extrasensorial perceptions, motor schemes or representations, pure mental images, autonomous thoughts, that is, lack of external stimuli, memories, mood state, motions and affects. The synesthesias also former a part of this list. Based on this, many definitions of consciousness have been given from very different perspectives: psychological (including psychology of development), neurobiological, evolutive, phenomenological, philosophical and theological.

On one extreme, consciousness exists as a simple scenario in which reality is developed with more or less clarity. This perspective serves to analyze the scale of these states of decrease of consciousness (somnolence, sopor clouding, lethargy and the different levels of coma). Also fitting into these are states of exaltation of the consciousness, generally accompanied by distortions of it. These were described for the first time as pervitin psychoses, induced by amphetamines in German Soldiers during the Second World War and that lead Zutt[2] to propose a bipolar structure of consciousness. This form of consciousness, called sensitive, would be to go a little beyond perception.

On the other extreme reflexive consciousness, also call abstract, is found. This includes structuring of the perceived reality in a coherent combination, which is not neutral from the affective point of view, full of meaning and constructed both from perception as well as from the different types of memory. This consciousness, more proactive, is conceived as more specifically human, although anthropology, etology and neuroscience have described rudiments in hominids and in different animal species, above all, the most socialized. Reflexive consciousness includes processes as the theory of the mind[3] and self-consciousness. This would specifically be the human capacity of *departing from the immediate dependence of the existence*,[4] that is, of reflecting on, of rising above the situation and considering, considering oneself in the characteristic circumstance as object of knowledge and deliberating on life, the situation and the development in the correct times.

For the purposes of this work, we have considered consciousness in its widest sense, in that of the German *Besinnung*, which means reflection, judgment, and also meditation.

The criticism of Husserl[5] about psychologism and the introduction of phenomenology clash with the difficulty of

assuming the perspective of the other to understand their consciousness states. In fact, with the exception of Ludwig Binswanger in his first documents and above all, in his last book,[6] the application of phenomenology to psychopathology has been adulterated to focus on the phenomenological reduction of the consciousness of the patient, something, by itself, unreachable, instead of confining itself to the consciousness of the investigator. Thus, the term existential analysis has prospered to refer to the study of the mental disease worlds.

This line culminates in Nagel[7] when he suggested that it is impossible to experience how one would feel as a bat, since to do so, it would be necessary to be one of them and because the subjective facts of this nature are beyond the reach of scientific-natural research.

Thus, two problems arise: 1) the states of consciousness have an experiential content, but it is not clear how the brain can generate experiences (problem of the **"qualia"**); 2) the contents of the consciousness refer to an objective reality and therefore are true or false.

In its simplest meaning, qualia are the subjective qualities of the sensory experiences, for example, the beauty of a beautiful object. It is a concept that aims to stress the explanatory void existing between the qualities of perception (subjective) and the brain as object (physical). In other words, that I perceive a red object as red and that others understand it and that there is an agreement to distinguish the objects by their colors does not mean that the experience of each person is the same. There is the possibility that the perception of someone is that of a green object, which the person will continue to call red. Thus, the qualities of the sensory experience are not cognoscible and are, by themselves, not communicable directly, since they share a common experience of an external object to which the quality is attributed.

The difficulty lies in the fact that we do not know how the brain can produce thoughts of this nature (problem of intentionality). One of us has dealt with the problem of truth in psychiatry, having reached the conclusion that the falseness of the delusion must be understood from the Heideggerian notion of *aletheia* (revelation), as an expression of a phenomenon that arises and is developed within a free interpersonal relation.[8]

For Penrose,[9] there are four ways of solving this problem:

17. Thought is computational. The impression of conscious perceptions is the consequence of making certain computations.
18. Consciousness is a property of the physical characteristics of the brain. These processes can be simulated with computational calculations, but the computations are not, themselves, consciousness.
19. There are physical processes in the brain that lead to consciousness, but that cannot be simulated with computational calculations. In this case, a new physics is needed.
20. Consciousness cannot be clarified scientifically, or physically or by computational simulations.

The experiments of Libet[10] suggest that consciousness is an event that occurs every half second and much research supporting this notion exists. Somehow, the brain constructs realities every few hundreds of milliseconds, which occur successively, being compared with the perceptive stimuli. When there is significant discrepancy, alarms are sounded as the different forms of negativity secondary to the error[11] and the salient stimuli are modified.[12]

PSYCHOPATHOLOGY OF THE CONSCIOUSNESS STATES

The difficulty of finding a valid definition of consciousness does not prevent us from clearly defining some altered states of it in psychiatric clinical terms.

Abnormal states of consciousness in the symptoms may correspond to:

1. Alterations of sleep-awakeness rhythm with the appearance of somnolence and daytime drowsiness.
2. Decrease of consciousness level, which is generally accompanied by decrease of motor activity: somnolence, drowsiness, clouding, confusion, stupor and coma.
3. Distortions of consciousness: delusion, oniric state, twilight state, locked-in syndrome.
4. Dissociations of consciousness: dissociation of consciousness, trance states, hypnotic state. All these form a part of what we have called exceptional states of consciousness.

Etiopathogeny of the modification of the consciousness states

The state of consciousness can be modified due to natural causes and human-induced ones, which are often combined between both causes. Standing out among these are the consumption of intoxicating or psychedelic substances; meditation; contemplation and oration; ascesis and fasting; hyperventilation, conscious breathing (as the pranayama of yoga) and sensory deprivation; hypnosis; biofeedback; music and dance (e.g. that of the derviches); Raja-Yoga and some of its derivations such as Hatha-Yoga; Japanese koan; experiences close to death and psychoses.

Sleep deprivation

Forced reduction in the usual number of hours of sleep, especially if accompanied by other deprivations (freedom, meals, care of lesions) within the context of torture, may give rise to exceptional states of consciousness.

Sleep deprivation may also cause cognitive deterioration,[13] muscular tension and pain, blurry vision, daltonism, daytime somnolence, decrease in mental activity and in concentration, depersonalization and derealization, immune system depression, dizziness, bags under the eyes, tremors, restlessness, mental confusion, hallucinations and mnesic disorders. Sleep deprivation negatively affects brain function and therefore, hyperactivity, probably compensatory, of the prefrontal cortex, has been described.[14]

Non-REM sleep is necessary to recover sensitivity of the neurotransmitter receptors (norepinephrine, serotonin and histamine) giving them rest and recovery from the neuronal damage caused by free radicals. On the contrary, REM sleep improves mood state through mechanisms similar to those of the SSRIs.[15, 16]

Sensory deprivation

Sensory deprivation or perceptual isolation is the deliberate reduction of stimuli, generally of several or all of them. Simple methods, such as hoods, earmuffs or more complicated ones are used to reduce temperature, touch and gravity stimuli.[17] Sensory deprivation has been applied to the treatment of some diseases, but herein, we are interested in its negative effects. Among these effects are the appearance of hallucinations of faces or forms, increased olfactory sensitivity or sensation of presence (sometimes described as the devil) and delusional ideas, which generally disappear after the experience.

In sensory deprivation, hallucinations occur because the brain erroneously interprets the origin of the stimuli,[18] that is, these are deafferentation phenomena.

EXCEPTION STATES OF CONSCIOUSNESS.

The concept of exceptional states of consciousness is used to refer to modes of consciousness beyond wakefulness, sleep and dreaming, which do not correspond to the usual alterations of the level or structure of the consciousness. They overlap with twilight states that occur in epilepsy or that are a consequence of psychogenic alterations or induced by cerebral function alterations (for example, in the intoxications).

The notion comes from the German psychopathology (*Ausnahmezustände des Bewusstseins*), although Rudolf Steiner, in 1894, used the expression in another sense, that of the search for a state of consciousness that arises when one abandons concentration on a specific subject to devote oneself to the pure activity of thinking, that is, to the successive mental reproduction of the concept so that the objects become spiritual realities (mental). For Steiner,[19] that is how it is possible to achieve the divine experience beyond the process of thinking.

The definition of a state of specific consciousness is determined by the way it affects the subjective experience of the human being. An exceptional state of consciousness is a way of experiencing, whose characteristics are determined by a complex alteration of perceiving, of self-consciousness, of level of vigilance, of the capacity of acting and of intentionality.

Abnormal states of consciousness make the subject more vulnerable. According to Ferenczi,[20, 21] the trauma is especially dangerous when it occurs in a state of unconsciousness or another exceptional state of consciousness as the trance state. That is, when the person is very unprepared or when the person is not capable of defending him/herself.

The perception and grade of vigilance may be affected by environmental circumstances, among them cultural ones and those referring to idiosyncrasies of the individual and the individual's social group, or rather his *Weltanschauung* or cosmovision.

The clinical pictures in ICD-10 and the DSM-IV-TR

In the following, we proceed with the attempt to classify these exceptional states of consciousness into some of the categories of the ICD-10[22] and the DSM-IV-TR[23].

ICD-10

F23.0. Acute polymorphic psychotic disorder (without symptoms of schizophrenia), which include *bouffée délirante* and cycloid psychosis, without symptoms of schizophrenia or unspecified.

F23.1. Acute polymorphic psychotic disorder with symptoms of schizophrenia, which include bouffée délirante and cycloid psychosis, with symptoms of schizophrenia or unspecified.

F23.2. Acute schizophrenia-like psychotic disorder, which include: acute schizophrenia (undifferentiated), brief schizophreniform psychosis or psychosis and schizophrenic reaction.

F24. Induced delusional disorder

F43.0. Acute stress reactions

F44. Dissociative (conversion) disorders, among them:

F44.3. Trance and possession disorders

F44.80. Ganser's syndrome

F48.1. Depersonalization - derealization syndrome

In the ICD -10 the categories that most approach those of the pictures we are considering are, independently of the epigraphs for residuals cases of "not otherwise specified" are:

The **Acute psychotic and transient psychotic disorders,** for the presence of which a certain stress must be present. However, among the stressful circumstances, the performance of meditation is not listed.

In the case of **Induced delusional disorders**, the delusion must be shared by two or more persons with close emotional ties.

In **Trance and possession disorders**, there is temporal loss of sense of personal identity and of the full consciousness of the surrounding. In some cases, the patient acts as if possessed by another person, spirit, deity or "force." Attention to and consciousness of the surrounding may be limited to only one or two immediate aspects and there is often a small but reiterated combination of expressive movements, postures and manifestations. Herein, only those states of trance that are involuntary or not desired, which interfere in the daily activity because they occur outside of the accepted religious or cultural ceremonies or are a prolongation of them, are included.

DSM-IV-TR

298.8 Brief psychotic disorder: The symptoms last less than one month. It may be with severe precipitant (if the psychotic symptoms occur shortly after and in apparent response to one or more events that, alone or in combination, would be stressful to any person in similar circumstances) or, without severe precipitant grave

295.40 Schizophreniform disorder that is defined when the schizophrenia criteria last more than one month but less than 6 months.

297.3 Shared psychotic disorder

Substance induced psychotic disorder: alcohol (291.5); with hallucinogens (292.12); amphetamines (292.11).

308.3 Acute stress disorder principally when the symptoms dissociative symptoms are marked.

300.14 Dissociative identity disorder (previously called multiple personality)

300.6 Depersonalization disorder:

300.xx Factitious Disorder

In the DSM-IV-TR, we find the categories that are the closest:

1. **Brief psychotic disorder** describes a psychotic picture precipitated by some previous factors, and that would clearly be stressants for any person, under similar circumstances and within the same cultural context.
2. In the **Schizophreniform Disorder,** the psychotic symptoms should last between one month and six weeks. The existence of an affective disorders simultaneously as criteria A of the schizophrenia is obligatory to be able to speak about Schizoaffective Disorder.
3. In the case of **Shared psychotic disorders,** the subject shares the delusional ideas of another person with which the subject has a very close relation. In this code, the psychotic pictures of children produced by exorcism could be included.

In summary, it could be stated that there is no code in the current classifications that clearly include all the factors described for these pictures that appear in the exceptional states of consciousness associated to meditation and other circumstances of those described in this article.

PARTICULAR FORMS OF POSSIBLE EXCEPTIONAL STATES OF CONSCIOUSNESS.

In the following we mention the most important forms of the exceptional states of consciousness.

Yoga

Yoga, being an ancestral tradition that takes its initial concepts from the Vedics, derives into different forms of expression and has different practices. Its philosophical postulates have also been diversifying. The first mention of yoga as such, appeared in the Katha Upanishad about 2500 years ago. The description found in this text is the following: **"**A special state of concentration in which the senses are controlled.**"** Yoga has survived because it is a technique that intensifies physical, mental and spiritual capacities, because it is based on experience per se and because it can be practiced by anyone with independence of their circumstance.

The root of yoga is the concept of avidya, which can be translated as not-knowing, or not-seeing, that is, incapacity of seeing reality as it is. The principal objective of yoga is to be able to have a precise vision, since if this clear vision is obtained, all human being would choose to do that which is correct, at the best time and place. How to reach this true

vision is the most important subject of the yoga. The key is to work on the perception, which can be achieved by asanas (ā*sana* are the different body postures that produce positive effects on the body and mind, as, for example, the lotus position), with meditation, with pranayama (prānāyama are breathing exercises aimed at the *prana* or "spiritual energy" contained in the breathing within the body), with self-reflection and self-knowledge, with sounds and chants and with other different techniques of personal analysis. The practices can vary from school to school and from individual to individual. If the mind is transparent, it has the capacity to reflect the reality, and thus the multiple practices of yoga seek to clarify the personal vision and promote intelligent action. The sources of knowledge are diverse, but their richness comes from very old texts such as the Sutras of Patanjali[24], Gheranda Samhita[25], Hatha Yoga Pradipika[26], Bhaghavad Gita[27, 28] and in the teachings of the great illuminated beings.

The dance of the dervishes

A dervish (from Persian *darvīsh*, 'beggar) is a member of a Muslim religious order or brotherhood (Tariqah) having an ascetic or mystic character (sufi). Originally, they were ascetic mendicants, that is, indifferent to material goods.[29]

There are several groups of dervishes, all of them founded by great ascetic and mystic Muslim who share the distinction by attire and rituals characteristics such as repetition of sacred sentences until reaching a state of self-hypnosis.

The order of the Mevlevi (from Arab *Mawlana*, 'our master, nickname of Rumí) or Whirling Dervishes (spinners) was founded by the disciples of the Sulfi poet and mystic Jalal al-Din Muhammad Rumi, nicknamed "our master." Their members practice the *Sema* or *Samá*, a dance accompanied by several musical instruments, among which the drums are not lacking. During this, the dancers turned round and around with their arms extended in "spiritual ascendance towards truth, accompanied by love and totally liberated from themselves." This represents the dance of the planets. In this way, they reach mystic ecstasies (uaÿd). In the words of Rumi, "the Samá' is the ornament of the soul that helps it to discover love, to experience shivering of the meeting, to relinquish the veils and to feel oneself in the presence of God."[30]

The koan.

In the Zen tradition, a *kōan* (Japanese: *kōan*, hineses: *gōng'àn*) is a problem that seems absurd since it has no logical solution. However, it must be resolved, elevating oneself above the daily rational consciousness, to a new awakening (*satori* or illumination). It is generally a test that the master proposes to the disciple. For example, if applause is the sound of two hands, "what would be the sound of one?

A *kōan* is largely equivalent to an aporia, a paradox or oxymoron, which are resources used by many Christian mystics such as St. John of the Cross:[31]

"That you may have pleasure in everything, seek pleasure in nothing. That you may know everything, seek to know nothing. That you may possess all things, seek to possess nothing. That you may be everything, seek to be nothing."

Illumination

Illumination, in its wide sense, means acquisition of new wisdom, which is generally accompanied by a sensation of understanding, of spiritual fullness and personal fulfillment. We consider it to be a more adequate word than the Anglicism of self-fulfillment. There is an intellectual illumination (in German, *Aufklärung*, "illustration") that make it possible to clarify it, to reach into the depth and to elucidate a subject or a doctrine. There is a spiritual illumination (in German, *Erleuchtung*, 'illumination, 'clarification') that refers to the experience, whether mystic or not, of the divine.

Apophenia

Apophenia (*apophania*, *apophenia*) is a concept introduced by Conrad in his description of incipient schizophrenia .[32]

The disease begins with a first phase of **trema** ('tremor) in which along with the experience that something is going to happen imminently, there is strong internal tension that grows and gives rises to a behavior without meaning, emotional blunting or depression, lack of trust or delusional mood that brings the simple schizophrenia to mind. This is followed by an **apophenic or apophenia** phase defined by paying attention to random perceptives or those without meaning, for which a relation is found with other perceptions ("*seeing connections without a motive*"), which is accompanied by the attribution of special meanings ("*specific experience of an abnormal meaningfulness* "). This is the hypothetic origin of delusional and hallucinatory activity, characteristics of the disease such as delusional perception, reference experiences, new diffuse consciousness of meaning, sonorization and other alterations of thought and body influence experiences.

Conrad called the third phase **anastrophe** or **anastrophic reversal** dominated by the paranoid view of the inner and outer world.

The fourth phase is the **apocalypsis**, in which there is a potential loss of one's own will and vital and psychic energy (that may give rise to the appearance of catatonic symptoms).

The last phase is residual in which the delusion is encapsulated, it is devitalized.

In recent year, interest has been renewed regarding apophania, but outside of the context of delusional activity, for example, in the artistic creativity and in the scientific disclosure in the context of a praising of skepticism and an attempt has been made to study the neurobiological base of the interpretation of patterns. Thus, Shermer[33] has defined "patternicity" as the tendency to find meaningful patterns in meaningless noise. However, the patterns described by this author and publicist are closer to the pareidolia and illusions of clusters than the experiences described by Conrad in incipient schizophrenia.

Ecstasy

Ecstasy (from Greek *éxtasis,* '*that which is outside oneself,*' 'shuddering:' from *exhistasthai,* '*to step outside oneself,*' 'to be outside oneself') is a state of alteration of consciousness in which maximum dedication and highest receptivity coincide on the same level. Being outside oneself in which the own sensations impose on the reality is associated to this.

Experiences of ecstasy are purposely sought. There are religious ones and others having a more philosophical nature. In the former, the celebrations linked to certain dates and sites play an important role, in which the rituals of music, chants and dances or practicing of intense mediation, play an important role. Consumption of intoxicating or hallucinogenic substances also have an important role. In the classical antiquity, the most prototypal were the celebrations of Delphi.

Ecstasy is a process that is reached step by step and is achieved with different mechanisms: ascesis, sensory isolation, fasting, oration, meditation or recurring to external influences such as music, chants and dance, especially if they are monotonically rhythmic, lighting effects, hyperventilation, sexual practices such as neotantra and natural and synthetic intoxicating substances.

Shamanism

For Mircea Eliade,[34] ecstasy is the central element of Shamanism. Shamanic trips are visionary states that are reached through rituals sometimes associated to consumption of certain vegetal origin substances (amanita, peyote, ayahuasca or cannabis). His objective was to obtain information of a reality beyond that of the daily one used to contact the Shaman.

Inebriation

The Dictionary of the Spanish Royal Academia[35] defines "Inebriations" as:

1. A temporary confusion of the senses due to excess intake of alcohol.
2. Mental derangement caused by something pleasurable: inebriation of the senses.

The first meaning includes toxic-origin inebriation although it ignores all but alcohol, we suppose that of ethylic. The second includes some exceptional states of consciousness mentioned in the present article, although only those having a pleasurable nature.

Inebriation has a pleasant and creative element that sometimes disappears with amazing ease in drunkenness. The inebriated person may be more productive and sociable, the person may take a break from daily concerns. They can, definitively, establish a distance that may make sense in a certain time. Drunkenness, is on the contrary, destructive. The involvement of the psychism closes the doors of consciousness, the doors of perception[36] in its best sense and it is not the faint dissolution of the social barriers that gives rise to a closeness that is imposed and bothersome. Anyone of us has had the experience of an overbearing, clinging and unavoidable inebriation. After certain degree of intoxication, there is a dissolution of the self as organizing structure, and not only of the self, since it also affects mobility, sensitivity, vegetative silence (they produce vomits) and personal autonomy. It also destroys the identity in the image of oneself.

Mysticism

The mystic (from Greek *myein*, 'closing," and *místikos*, 'closed," 'secret," 'mystery) is an extraordinary state of religious perfection, which essentially consists in a certain ineffable union of the soul with God by love, and is accidentally accompanied by ecstasy and revelations.[35] Mysticism is a form of knowledge, of approaching divinity or being fused with nature and personal fulfillment. Einstein himself recognized the cognitive aspect of mysticism[37] in a poem that begins:

"*The finest emotion of which we are capable is the mystic emotion.*

Herein lies the germ of all art and all true science."

Mysticism is also a creative force. According to José Ángel Valente «who writes in an exceptional state of consciousness, in a state of dilated consciousness and the mystics use this word, the *dilatio*, which corresponds to ecstasy, to going outside of oneself, and this is the moment

in which creation is produced » and adds «Without the experience of the desert, there is no poetry».[38]

Meditation

In the last decades, there has been growing interest on the techniques related with oriental mediation, these techniques being a thousand years old in their countries of origin.

Mediation is a complex process that implies a series of cognitive, perceptive, affective and organic changes (hormonal and nervous, principally).

Meditation is integrated by a family of techniques that have conscious intention of focalizing attention non-analytically and the intension of not going deep into the reiterative mental discourses in common.[39]

Most of the religions have procedures or forms of mediation, however meditation per se is not only a religious or spiritual activity. There are many forms of meditation but in general, that which is sought is peace and tranquility, in more Western cultures and religious illumination in the more Oriental ones.[40]

We have observed a relation between meditation and psychiatric pictures in which there is mainly an alteration of the consciousness, whether self- or heteroinduced, which sometimes leads the individual to having psychotic symptoms. This form of psychosis is not included in any of the classifications that we presently use (ICD-10 and DSM-IV-TR), although there are pictures that are similar, such as the Trance and Possession Disorder (F.44.3 ICD-10) or the Acute and Transient Psychotic Disorders (F. 23 ICD-10).

In general, meditative practices that have been elaborated over the history can be grouped into two large groups:

Concentrative meditation

Concentrative meditation consists in focusing attention on a single stimulus, whether an object, breathing of the individual or a mantra, to reach a state of calmness and peace.[41] Linear concentration is obtained in which it is possible to access a very deep state of attention, but on a narrow and limited field. This type of meditation generates a great sensation of self-control in the patient[42], requiring important training to develop this technique.[43]

Mantra is a word of Sanskrit origin and is translated as mind or as liberation, thus it is said that a mantra is an instrument to liberate the mind from the constant flow of things that confuse it. A mantra can be one syllable, one word, a sentence or long text, which when recited and repeated carries the person to a state of profound concentration.

The **Om** (*aum* in old Sanskrit) or *omkara* ('syllable om') is probably the most sacred mantra of Hinduism or Buddhism. It is a sound from which all other verbal and musical ones are born. It represents and symbolizes Brahman and the whole universe. Therefore it is a sacred Monier-Williams syllable.[44]

Contemplative meditation

Contemplative, introspective or *mindfulness* meditation does not seek to limit the field of cognitive access but rather the contrary, to open it to a precise moment. It is a state of passiveness and creative quietude[45] in which the mediator only pays attention to the current moment, paying attention to the many visual and auditory perceptions, feelings and sensations that are simultaneously presented in the consciousness.[46]

With these techniques, an attempt is made it integrate the person with the world by a "decentralization of the self"[47] reducing the isolation and increase the feelings of understanding, happiness, serenity and self-fulfillment.[48] The most expanded of the contemporary techniques is that of **Buddhist Meditation** in which a state of maximum concentration and tranquility is sought, preferably in a place close to nature, as was recommended by Buddha himself, and normally adopting the Lotus position (crossed legs).

There are many techniques that use meditation and its effect to reach different states of relaxation, among them the best known being that of **Tai Chi**, which is a Martial Art in which an attempt is made to achieve relaxation through the body (adopting different postures) and mentalization.[49] **Reiki**, considered as alternative medicine in Japan, since it is based on healing through the imposition of the hands, transmitting in this way, the *universal vital energy* through the mind. This technique has been widely used in recent years throughout Europe, being used in many conditions.[50-52]

Qi-Gong and Falun Gong

Qi-Gong or Chi Kung is a group of techniques of traditional Chinese medicine that has three objectives: normalize the body through relaxation, regulate breathing until it is relaxed, constant and calm and finally, regulate the mind. They attempt to follow the doctrine of Confucius *"First you should be calm; then, your mind could be serene. Once your mind is serene, you will be at peace. Only when you are at peace, will you be capable of thinking of progressing finally."*

Their principal objective is to potentiate psychophysical health, using it in specific psychotherapeutic interventions.[53]

Table I Level of consciousness and activity of the EEG

Level of consciousness		Band	Frequency (Hz)
Elaboration of sensory perception		Gamma	40 to 80
Permanent predisposition to alarm			21 to 38
Vigilance and normal activity		Beta	13 to 21
Calm rest		Alpha	8 to 12
Relaxation plus profound drowsiness		Theta	3 to 8
Important decrease of consciousness		Delta	0.4 to 3
Exceptional states of consciousness	Meditation	Theta	3 to 8
	Trance, profound hypnosis	Delta	0.4 to 3

The psychological changes originated by Qi-Gong consist in pleasant sensations of heat or freshness, relaxation, drowsiness with sensation of floating and even heautoscopic alterations, visual pseudohallucinations or are generally transient and are dispelled when the exercise ends.[54] However, it sometimes originates a picture consisting in alterations of thinking, perception and behavior similar to that which occurs in schizophrenia. Regressive phenomena analogue to history, as well as dissociative phenomena, have also been described.[55] All these pictures are included in the so-called "*Qi-Gong deviation syndrome*," included in the third version of the Chinese Classification of mental disorders, in the section related with the culture.[56]

One modality of Qi-Gong is that of Falun Gong, founded by Li Hongzhi in 1992 in China. Its objective is to develop the moral character of those practicing Qi-gong in their daily life through meditation and purifying the body through physical exercises. He was born in the Popular Republic of China where its development seemingly reached such a large degree that the authorities became concerned (it is said that it had more followers than the Communist Party itself[57]. The case is that the movement was forbidden in 1999 and since then abuses of hospitalization and psychiatric establishments of its members have been reported. The complaints were investigated by the World Association of Psychiatry and by the Chinese Society of Psychiatry a little more than one decade ago, without manifesting the political reasons for these hospitalizations, some of which have been due to psychoses pictures induced by the practice of Qi-Gong.[58]

Dialectical Behavioral Therapy

Finally, it is interesting to stress how psychological therapies accepted for their beneficial effects have their origin in meditation techniques. Among these is *Dialectical Behavior Therapy*, created by Linehan[59, 60] initially for the treatment of borderline personality disorder. This is a combination of cognitive-behavioral techniques for emotional control and coping (*reality-testing*) with concepts such as tolerance to malaise, acceptance and *mindful awareness*) taken from Buddhism. *Mindful awareness* is the moment to moment process of openly observing physical, emotional and mental experiences of one's self in order to reduce the stress and provide sensation of well-being.

NEUROBIOLOGICAL EFFECTS OF MEDITATION

The EEG in the states of consciousness

In general terms, it can be said that cerebral activity and the level of consciousness are correlated acceptably. Thus, the higher the level of consciousness the better is the frequency of the registry of the background, as appears in Table 1.

There are many studies that have tried to observe the neurobiological effects of meditation and relaxation in general and their beneficial consequences in the body. However, it is true that there is a certain decline of the enthusiasm of the 1960's to use meditation as a "*cure it all*"[40], since as the controls of the studies increase, there were fewer differences with the controls.[61]

In general lines, all the studies are aimed at neurophysiological alterations that are produced during maximum relaxation and the brain zones involved in it as well as the physical changes associated to the decrease of the stress in the individual.

In general, the best known effects are the following:

- Decrease of heart and respiratory rate, and of blood pressure and muscle tone.[62]
- Decrease of activation level (*arousal*), with decrease of

oxidative stress and strengthening of immune system.[63, 64]

- Slowing of alpha rhythm and appearance of alpha, theta and beta spindle in the EEG. Consistent with a state of profound physical and mental relaxation, with decrease of perceptive capacity of the outer environment and disconnection in some sensory areas.[65]
- Increase of neuronal activity in the anterior ventral cingulate cortex and in adjacent areas.[66]
- Increase of blood flow in frontal, prefrontal areas and in anterior cingulate, measured with fMRI and PET;[67] decrease of flow in left parietal lobe. These differences could explain the alterations in the temporal-spatial orientation that may be experienced during meditation.[68, 69]
- Changes in neuroplasticity in attentional brain regions (right insula, putamen and prefrontal cortex) with increase in gray matter.[70, 71]
- Increase of GABA, melatonin and glutamate. This could explain mystic experiences and schizophreniform symptoms at toxic concentrations.[72]
- Increase of serotonin would be related with visual experiences, as illusions or even hallucination in absence of sensory stimulation.[73]
- Increase of dopamine up to 65% during the alteration of consciousness through Yoga.[74]
- Decrease of norepinephrine, CRH and basal cortisol levels.[75]

CLINICAL EFFECTS OF MEDITATION AND USES IN PSYCHIATRY

In general, the techniques of meditation originate a series of beneficial effects in patients who are motivated to learn and use them. In the same way, the modality of meditation to be used will be the one chosen by the individual and that the person feels the most comfortable with. In this way, the results will be better.[40]

Many authors show great enthusiasm for the use and benefits originated by the meditative techniques and recommend teaching them in the school and work places, to favor the performance of the individuals:[76]

- Decrease of stress, increasing the sensation of well-being and decreased anxiety.[77-79]
- Beneficial effects in patients with substance abuse, principally alcohol.[80, 81]
- Improvement of insomnia.[82]
- Concentrative meditation has been used to combat anxiety in patients with psychosis.[83] In the Chadwick study,[84, 85] meditation produced improvement in the clinical functioning and in the thinking of patients with paranoia, but no improvement was observed in the auditory hallucinations.

In the 2006 Cochrane study[86] on the effects of concentrative or introspective meditation in anxiety disorders in comparison with pharmacological treatments, other psychological treatments and meditation methods did not reach firm conclusions. However, it seems that the rate of drop-outs is high, there is no benefit on obsessive symptoms and the side effects are scarce

Adverse effects of meditation

In general, meditation is a very safe technique with fewer risks, although there are studies on the exacerbation of psychotic pictures or new appearance of psychoses and affective symptoms.[87]

Most of these episodes occur after long periods of meditation and with important sensory isolation, which would be in agreement with the experiences of meditative trances in yoghis of India or the functional psychoses induced by culturally spontaneous trances accepted as reactions to environmental stresses.

There is an extensive review[88] of 75 articles on psychological changes and the side effects that appear after meditation, including transcendental meditation. It must be taken into account that the defenders of these practices never reveal possible harmful effects, especially in the case of transcendental meditation that has been considered as an activity characteristic of the sect. In all, 62.9% of the persons practicing it report negative effects, among them anxiety and panic attack induced by the relaxation, the paradoxical reactions of tension, lack of vital motivation, sensation of boredom, pains, distortions of perception of reality, confusion and disorientation, feeling of being displaced, depression, negativism, mild disassociation, feelings of guilt, psychotic symptoms, grandiosity, euphoria, distractive behavior, suicidal feelings, sensation of helplessness, fear, irritability, fears and desperation.

In another study, Shapiro,[89] 7.4% of the negative effects were considered as serious and in general their presence did not correlate with the duration of the practice in spite of having detected hormone and metabolic changes up to one year after having begun the meditation.

The cultural factor is fundament in this type of picture. In non-western cultures, acute transient psychoses with complete recovery are ten times more frequent, as a consequent of the egocentrism and spiritual explanations for the psychosis. In the West, psychoses are considered incurable brain diseases and not curable spiritual experiences.[90]

Meditation may precipitate different psychiatric pictures which, in general, have an acute beginning and rapidly remit. Among these, are:

- Depressive episodes and suicidal ideas[91]
- Depersonalization symptoms[92-94]
- Exacerbation of obsessive and schizoid traits[43]
- Acute psychosis with polymorphic symptoms[95-97]
- Of pre-existing psychotic disorders[97]
- Epileptic attacks[98]

Psychosis and meditation

Within the psychotic pictures present in the clinical features, there are pictures precipitated by certain meditation techniques. These are acute pictures, with alteration of consciousness level, inappropriate affectivity, behavioral alterations, auditory and visual hallucinations, and delusions, principally megalomanac with mystic content.[95-97] Vulnerable factors for its appearance have been described. These pictures are more frequent in subjects with high dedication to meditation, that is, many hours or days in a row, and accompanied by decreased hours of sleep and fasting. Sensory deprivation is also associated with greater frequency of these pictures.[99] They appear, above all, in vulnerable personalities, above all schizotypal and severe obsessive personalities or any other trait that results in the subject being more easily captured by pseudo-religious movements.[100] There is an important cultural factor in the recovery and prognosis of psychoses, this being greater in the Oriental cultures than in the Western ones, perhaps because the former seek a spiritual explanation.[90] With treatment, the symptoms remit rapidly, although long-term sequels may remain, for example the sequels become worse or initiate obsessive manifestations and there are mood disorders.[101] In spite of the severity of the case, many patients who have suffered it continue to be attracted by these techniques and minimize their side effects. Psychotic symptoms caused by the practice of transcendental meditation have also been described.[102]

The psychiatric pictures of Qi- Gong

Qi-Gong is the practice studied most and its meditation may cause, when any of the previously described characteristics are fulfilled, a syndrome that presents abnormalities in thinking, behavior and affectivity. In a 1989 study, with 109 patients who practiced Qi-gong, the study described two groups after the meditation, one with neurotic alterations in form of dissociative pictures[55] and another with psychotic alterations.[54, 55] These alterations are so frequent in China that their classification of mental diseases includes "Mental disorders related with the culture."[56]

ACUTE PSYCHOSES

In a historic review of the psychotic pictures, we have found that 10% of them presented a prognosis and symptoms different from schizophrenia or affective disorders described.[103] They are pictures with acute onset, and quick remission, which initially were described by Magnan around 1880,[104-106] and which he called *bouffée délirante*, acute delusional psychosis or delusional psychosis of the degenerates. They consist in a sudden burst of polymorphic delusion, not systematized, with hallucinations of any type, depersonalization and derealization, with alteration of consciousness and accompanied by affective disorder in form of expansive mood or sadness. Later, different terms were coined for this psychotic pictures, among them:

- Bouffée délirante.[104-107] These pictures were linked to the idea of "degeneration" of Morel, who refers to a certain predisposition or diathesis that entails the possible appearance of these psychoses. The concept of degeneration does not mean that there will be deterioration in the patient but only that this predisposition would imply risk of relapses. These are sudden onset psychotic episodes, constituting variable and plurithematic polymorphic delusional pictures, with possible cloudiness of the consciousness and emotional instability, of rapid evolution and sudden end with complete recovery. Although recurrences are possible, there are no symptoms in the intervals.
- Acute hallucinatory paranoia (*Acute primare Verrücktheit*).[108]
- Oniric delusion.[109] Similarly to how clouding of the confusion can be compared to sleep in its different grades of deepness, delusion of confusion recalls daydreams: it is the confusional-oniric or simply onirism. This constitutes the delusional and typical hallucinatory experience of the confusional states.
- Acute interpretative states.[110] This delusion constitutes a type of reasoned insanity, in the sense that it obeys a need, up to a mania of explaining everything, of deciphering everything. They were called intellectual monomanics. They are pursued persons who permanently falsify their reality.
- Benign stupor of Hoch.[111] The authors distinguish between benign stupor, with a favorable prognosis and similar to that of manic-depressive psychosis and malignant stupor, schizophrenic-catatonic, having very unfavorable course.
- Oneirophrenic states described by Mayer-Gross in 1924[112], oneirophrenia [113], called this synonymous of

psychosis oneiroids: form of schizophrenic psychosis of acute course accompanied by clouding of the consciousness. Mayer-Gross considered that there was a confluence of hereditary schizophrenic and manic-depressive factors in these psychoses.

- Cycloid psychoses.[114] Kleist refers to different forms of confusion, mobility, anxiety and hypochondriac psychosis. Their principal characteristics, as he stated, were that they showed what he called an "affinity to cyclothymia" and "the similarities in their course." Because of their relation to circular dementia, these diseases "could also be called cycloid psychoses."
- Schizomania described by Claude in 1926.[115] A type of character in which emotivity, shyness, withdrawal, with tendency to meditation. It is often the consequence of repeated affective shocks in childhood.
- Schizoaffective psychoses described by Kasanin in 1933.[116] This is a more episodic psychotic disease with better prognosis than schizophrenia, with predominance of affective symptoms.
- Schizophreniform states described in 1939 by Langfeldt.[117]
- Curable acute schizophrenia described by Bleuler in 1950.[118]
- Benign schizophreniform psychoses.[119]
- Atypical psychoses.[120, 121] In comparison to the "typical" traditional schizophrenias
- Micropsychosis of the borderline structures.

HETERINDUCED PICTURES: EXORCISM

The meditations we have been speaking about up to now are self-induced or voluntary, but now we want to mention heteroinduced meditations. These are hypnosis and exorcism, which also can evolve with alteration of consciousness and produce psychotic pictures.

Exorcism is a form of meditation or suggestion, made from the religious point of view, to relieve suffering produced by malignant spirits, in subjects who maintain an attitude of passiveness. Exorcism assumes the existence of God, the existence of immaterial beings called spirits (pure-angels, discarnate-living beings), which can invade places, this being called apparitions if it is a physical space, or possessions if it is in a living being. If these premises are not present, it is not a diabolic possession but rather a possible psychotic pictures. There are many references to the malignant possession in the literature such as in the "the Brothers Karamazov" (122): "you are not a part of the reality, you are a lie, you are my illness, you are a phantom. I don't know how to destroy you and I see I must suffer for a time." Over history, an attempt has been made to explain the insanity by invasion of malignant spirits, exorcism being the method used to relieve the suffering of those possessed.

Invasion of the spirit goes against divine will and the method to expel it is invoking intervention by exorcism. It is supposed that the possessor is malignant. It consists in a cathartic and primitive method in which a depersonalization is produced that leads to a clinical pictures similar to dissociative disorder.[123] As we have already stated, the demoniac possession is considered an induced psychosis in children.[125]

Beginning with dissociative pictures, exorcism also produces psychotic pictures, which we find mentioned in the literature.[123-126] The psychotic picture produced is very similar to a schizophrenic picture, the onset is sudden, with significant psychomotor alterations. Fatal cases have been described after the exorcism, one of them being compulsive intake of salt water that led to the death.[127, 128] It is important to remember that this psychosis is heteroinduced, on the contrary to the previous cases reported. In cases where there was no diabolic possession, but there was a psychotic picture, obviously the exorcism maintains the initial psychosis. Moore[129] reminds about the importance of the collaboration between the Church and science, especially since the former is open to the possibility that the individual is ill and not possessed by the devil.

DISCUSSION

It must not be forgotten that most of the times, meditation produces positive and desirable effects, as greater cognitive flexibility, better empathy, etc., and that better therapeutic results have been obtained in psychiatrists who meditate compared to those who do not.[130] Simultaneously, attention is drawn to the current press that meditation has and the frequency of its practice. Not everyone can do meditation, and the psychiatrists should keep this in mind and be familiarized with its secondary effects. It is necessary to consider it because most of the psychiatrists have not adopted meditation as a coadjuvant tool in their clinical practice. It seems that Western therapists are not familiarized with these Oriental techniques, and there is great ambivalence between the techniques developed to improve the well-being and the treatments used to relieve mental diseases. The origin of meditation was not for the use of this technique in neurotic, psychotic or other persons but rather for well-adapted subjects with spiritual sensitivity.

In spite of the studies and the beneficial effects, there are serious doubts on the nature of the efficacy of meditation, largely because of methodological problems and limitations in the study designs. More studies on this subject are needed as well as more psychiatrists who are interested in being able to advance and the research.[61] Furthermore,

almost all the studies are contaminated by drugs. It is still necessary to identify the benefits that can be specifically attributed to the active meditation besides the possible benefits of being seated, and doing nothing, with the expectation of reaching some benefit.[131] In many studies, the variables of the sample population as well as the bias of self-selection, socioeconomical level, psychosocial history, and other individual characteristics such as motivation, commitment, discipline, etc. are not adequately controlled[132,133]. More studies with stricter methodology, which accurately define the sample that is going to be used and therefore correctly isolate the independent variable and create an appropriate control group, are needed[77].

To finish, it is complicated to describe the picture specifically and definitory diagnostic criteria. The pictures found are very varied and polymorphic. We do not accurately know the prognoses and course.

CONCLUSIONS

"Meditating is living simply and honestly in the world such as it is."[134] Psychological health may be partially correlated with the grade in which, naturally, the actions of attending and not judging are carried out.[132] The work of Linehan,[59, 60] which developed the dialectic-behavioral therapy, is an example of successful integration of meditation and mindfulness with the psychotherapy for the treatment of conditions such as depression, addiction, and eating disorders.[135] Furthermore, it is necessary to develop a coherent sense of oneself, to maintain some relations of healthy object, to be able to reach a deeper understanding through meditation. That is, "it is necessary to be someone before one can become no one".[42] If these premises are not fulfilled, meditation can precipitate psychotic pictures, exacerbate obsessive and schizoid traits.[43] The common practice of meditation generally has three immediate consequences: greater discipline, regulation of style of life, and greater commitment to the care of oneself.[132]

On the other hand, the present work has focused on the condition precipitated by meditation. We are seeing a disorder of the level of consciousness that occurs with psychotic phenomena. Meditation in general is self-induced, except in the cases commented on such as hypnosis and exorcism. The psychopathological picture produced by these techniques could be a new picture and perhaps we should create a new code in the international classifications of mental diseases. We should be more careful with concentrative and passive meditations, and those in which visualizations are performed, because they entail greater risk of side effects. The cognitive structure of these experiences depends partially on the symbolic context assigned to them and on the conceptual frame in which they are developed. A person imbued in a mystic oriental type doctrine may consider the experience of depersonalization as an aspect of overcoming the chains of the self, that is, something desirable and good. It also depends on the strength of the self, and the grade of development of the individual. A certain grade of self-development is necessary for the individual to be able to use these experiences constructively.[101] The purpose of the mediation is different according to the culture, it having a more spiritual purpose in the East and one of relaxation and peace in the Western cultures. The psychopathological pictures resulting from meditation are increasingly more frequent in the psychiatric emergencies and medical visits, so that they should be known in greater depth by all the psychiatrists.

REFERENCES

1. Stoering GE. Besinnung und Bewusstsein. Stuttgart: Thieme,1953.
2. Zutt J. Über die polare Struktur des Bewusstseins. In: Auf dem Wege zu einer anthropologischen Psychiatrie Berlin-Göttingen-Heidelberg: Springer Verlag: 1963. pp. 406-10. Also in: Nervenarzt 1943;16:145.
3. Baron-Cohen S. Precursors to a theory of mind: Understanding attention in others. In Whiten A, ed., Natural theories of mind: Evolution, development, and simulation of everyday mindreading. Cambridge: MA: Basil Blackwell,1991; pp. 233-51.
4. Guardini R. Die Situation des Menschens. Die Künste im technischen Zeitalter. R. Oldenburg Munich: Bayerische Akademie der schönen Künste, 1956.
5. Husserl E. Invitación a la fenomenología. Barcelona-Buenos Aires-México: Paidós, 1992. Husserl E. Philosophy as Rigorous Science, translated in Quentin Lauer, editor, [1910] Phenomenology and the Crisis of Philosophy. New York: Harper & Row, 1965.
6. Binswanger L. Wahn. Pfullingen: Günther Neske, 1965.
7. Nagel Th. What is it like to be a bat? The Philosophical Review. 1974;83(4):435-50. http://members.aol.com/NeoNoetics/Nagel_Bat.
8. López-Ibor Jr JJ. El problema de la verdad en Psiquiatría. Anales de la Real Academia Nacional de Medicina. Instituto de España, Año 2000-Tomo CXVII, Cuaderno Tercero, pp. 673-86.
9. Penrose R. La Nueva Mente del Emperador. Barcelona: Mondadori, 1991. Penrose R. The Emperor's New Mind. Concerning Computers, Minds, and the Laws of Physics Oxford University Press, 1989.
10. Libet B. Mind Time. Mind time: the temporal factor in consciousness. Harvard University Press, 2004.
11. van Veen V, Carter CS. Error data and theories detection, correction, and prevention in the brain: a brief review of data and theories. Clin EEG Neurosci. 2006 Oct;37(4):330-5.
12. Jensen J, Kapur S. Salience and psychosis: moving from theory to practice. Psychol Med. 2009;39(2):197-8
13. Alhola P, Päivi Polo-Kantola. Sleep deprivation: Impact on cognitive performance. Neuropsychiatr Dis Treat. 2007;3(5): 553–67.
14. Drummond SP, Brown GG, Gillin JC, Stricker JL, Wong EC, Buxton RB. Altered brain response to verbal learning following sleep deprivation. Nature. 2000 10;403(6770):655-7.
15. Siegel JM. Clues to the functions of mammalian sleep. Nature. 2005 27;437(7063):1264-71.
16. Siegel JM. Why We Sleep. Scientific American. 2003;289(5):92-

7.
17. Grassian. Psychopathological effects of solitary confinement American Journal of Psychiatry Online. 1983;140:1450-4.
18. Mason O, Brady F.The psychotomimetic effects of short-term sensory deprivation. Journal of Nervous and Mental Disease. 2009;197(10):783-5.
19. Steiner R. Die "Philosophie der Freiheit" 1894 und die Gegenwart. Dornach:Rudolf Steiner Verlag; 1978. Filosofía de la libertad. Madrid: editorial Rudolf Steine, 1999.
20. Ferenczi S. Psicoanálisis de las neurosis de guerra. En Obras Completas Psicoanálisis Tomo III. Madrid: Ed. Espasa-Calpe, 1984.
21. Frankel JB. Ferenczi's Trauma Theory. The American Journal of Psychoanalysis. 1998;58(1):41-61.
22. WHO. World Health Organization. International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10): Classification of Mental and Behavioural Disorders Clinical descriptions and diagnostic guidelines. Geneva:1992. O.M.S. Organización Mundial de la Salud. Clasificación Internacional de las Enfermedades 10ª edición (CIE 10). Trastornos Mentales y del Comportamiento. Madrid: Meditor, 1992.
23. APA. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders Fourth Edition, Text Revision (DSM-IV-TR). Arlington, VA: American Psychiatric Publishing, 2000. APA. American Psychiatric Association. Manual diagnóstico y estadístico de los trastornos mentales. Texto revisado (DSM-IV-TR). Barcelona: Masson, 2002.
24. Hartranft, C. The Yoga-Sutra of Patanjali: A New Translation with Commentary. Boston: Shambhala Eds, 1993.
25. The Gheranda Samhita (Trans.Mallinson, J). Woodstock, NY: YogaVidya.com, 2003.
26. Yogui Svatmarama. The Hatha Yoga Pradipika (Trans. Pancham Sinh). Allahabad: Panini Office, 1914.
27. Martín Diza, C. Bhagavad Gita, con los comentarios advaita de śankara. Madrid: Trotta, 1997 [6.ª edición: 2009].
28. The Bhagavad Gita. Harlow: Penguin Books, 1962.
29. MacDonald, D.B. "Darwīsh (Darwēsh)." In: Bearman Th, Bianquis CE, Bosworth E, van Donzel WP, Brill H. Encyclopaedia of Islam, 2ª edición: Boston y Tokio: P.Leiden, derviche, 2010.
30. de Vitray-Meyerovitch E. Mystique et poésie en Islam, Djalal Uddin Rumi et l'ordre des s tourneurs. París: Desclée De Brouwer, 1972.
31. San Juan de la Cruz. Subida al Monte Carmelo. En: Obras Completas de San Juan De La Cruz (2ª Ed.). Madrid: Biblioteca de autores Cristianos, 2002. St. John of the Cross: Ascent to to Mount Carmel. In: de Nicolas AT (Author, Editor). St. John of the Cross (San Juan de la Cruz): Alchemist of the Soul: His Life, His Poetry (Bilingual), His Prose. York Beach, Me: Samuel Weiser, 1996.
32. Conrad K. Die beginnende Schizophrenie. Versuch einer Gestaltanalyse des Wahns. Stuttgart: Thieme, 1958. Conrad K. La esquizofrenia Incipiente, Fundación Archivos Neurobiología. Madrid: Editorial Triacastela, 1997.
33. Shermer, M. Patternicity. Sci Am. 2008 Dec;299(6):48.
34. Eliade M. El chamanismo y las técnicas arcaicas del éxtasis. México: Fondo de Cultura Económica, 2009. Eliade M. Le chamanisme et les techniques archaïques de'l extase. Paris: Éditions Payot,1983.
35. Real Academia Española. Diccionario de la RAE Esencial. Madrid: Espasa-Calpe, 2006.
36. Huxley A. Las puertas de la percepción. Cielo e infierno. Traducción de Miguel de Hernani. Barcelona: Editorial Edhasa, 2009. Huxley A. The Doors of Perception and Heaven and Hell. New York: Harper & Brothers, 1956.
37. Bucky PA. The Pr José Ángel Valente Albert Einstein, Kansas City: Andrews & McMeel, 1992.
38. Lacalle Ciordia MA. La poética de José Ángel Valente. Pamplona: Fondo de Publicaciones del Gobierno de Navarra, 2000.
39. Shapiro DH Jr. Overview: clinical and physiological comparison of meditation with other self-control strategies. Am J Psychiatry. 1982 Mar;139(3):267-74.
40. Fenwick P. Can we still recommend meditation? Br Med J. 1983;287(6403):1401.
41. Stutley M, Stutley J. Eds. Harper's Dictionary of Hinduism: Its Mythology, Folklore, Philosophy, Literature, and History. New York: Harper & Row, 1977/1984.
42. Engler J. Therapeutic aims in psychotherapy and meditation: Developmental stages in the representation of self. J Transpersonal Psychol. 1984;16:25-61.
43. Deikman AJ. The Observing Self. Boston, MA: Beacon Press,1982.
44. Monier-Williams M. Sanskrit-English Dictionary (1819-1899). TheKrishnaStore.com
45. Shafii M. Silence in service of the ego. Int J Psychoanal. 1973;54:431-43.
46. Shapiro SL, Carlson LE, Astin JA, Freedman B. Mechanisms of mindfulness. J Clin Psychol. 2006;62:373-86.
47. Keen S. To a Dancing God. New York, NY: Harper & Row,1970.
48. Deshmukh VD. Neuroscience of meditation. Sci World J. 2006;6:2239-53.
49. Posadzki P, Jacques S. Tai chi and meditation: A conceptual (re) synthesis? J Holist Nurs. 2009 Jun;27(2):103-14.
50. Engebretson J, Wardell DW. Experience of a Reiki session. Alternative Therapies in Health and Medicine. 2002;8(2):48-53.
51. DiNucci EM. Energy healing: a complementary treatment for orthopaedic and other conditions. Orthopaedic Nursing. 2005;24(4):259-69.
52. Miles P. Reiki for mind, body, and spirit support of cancer patients. Advances in Mind-Body Medicine. 2007;22(2):20-6.
53. Cohen, Kenneth S. [Qigong: Chinese energy healing] El camino del Qigong. El arte y la ciencia de la curación energética china. Barcelona: La liebre de Marzo SL, 2004. Conrad K. Die beginnende Schizophrenie. Versuch einer Gestaltanalyse des Wahns. Stuttgart: Thieme, 1958,
54. Xu SH. Psychophysiological reactions associated with qigong therapy. Chin Med J (Engl). 1994 Mar;107(3):230-3.
55. Shan HH, Yan HQ, Xu SH, Zhang MD, Yu YP, Zhao JC, et al. Clinical phenomenology of mental disorders caused by Qigong exercise. Chin Med J (Engl). 1989 Jun;102(6):445-8.
56. Chinese Society of Psychiatry: The Chinese Classification and Diagnostic Criteria on Mental Disorders version 3 (CCMC-3). Jinan, 2001.
57. Benjamin P. The Past, Present and Future of Falun Gong, 2001. / www.nla.gov.au/grants/haroldwhite/papers/bpenny.html
58. Okasha A. Ethical Perpspective in Psychiatric Care and Research. In: Zukunftsperspektiven in Psychiatrie und Psychotherapie. Wolfgang Gaebel Ed.Basel: Birkhäuser; 2002 pp. 35-46.
59. Linehan MM. Dialectical behavior therapy for borderline personality disorder. Theory and method. Bull Menninger Clin. 1987 May;51(3):261-76
60. Linehan M. Dialectical Behavior Therapy in Clinical Practice: Applications across Disorders and Settings. New York: Guilford Press, 2007.
61. Caspi O, Burleson KO. Methodological challenges in meditation research. Adv Mind Body Med. 2005;21:4–11.
62. West MA. Physiological effects of meditation: a longitudinal study. Br J Soc Clin Psychol. 1979;18(2):219-26.
63. Tang YY, Ma Y, Fan Y, Feng H, Wang J, Feng S, et al. Central and

autonomic nervous system interaction is altered by short-term meditation. Proc Natl Acad Sci U S A. 2009 Jun 2;106(22):8865-70.
64. Kim DH, Moon YS, Kim HS, et al. Effect of Zen meditation on serum nitric oxide activity and lipid peroxidation. Prog Neuropsychopharmacol Biol Psychiatry. 2005;29(2):327-31.
65. West M. Meditation and the EEG. Psychol Med. 1980;10:369-75.
66. Cahn BR, Polich J. Meditation states and traits: EEG, ERP, and neuroimaging studies. Psychol Bull. 2006;132:180–211.
67. Chan-Ob T, Boonyanaruthee V. Meditation in association with psychosis. J Med soc Thai. 1999 Sep;82(9):925-30.
68. Newberg A, Alavi A, Baime M et al. The measurement of regional cerebral blood flow during the complex cognitive task of meditation: a preliminary SPECT study. Psychiatry Res. 2001;106(2):113-22.
69. Newberg A, Pourdebnad M, Alavi A el al. Cerebral blood flow during meditative prayer: preliminary findings and methodologicals issues. Percept Mot Skills. 2003;97(2):625-30.
70. Lazar SW, Kerr CE, Wasserman RH, et al. Meditation experience is associated with increased cortical thickness. Neuroreport. 2005;16(17):1893-7.
71. Pagnoni G, Cekic M. Age effects on gray matter volume and attentional performance in Zen meditation. Neurobiol Aging. 2007;28:1623-27.
72. Jevtovic-Todorovic V, Wozniak DF, Benshoff ND, Olney JW. A comparative evaluation of the neurotoxic properties of ketamimine and nitrous oxide. Brain Res. 2001;895:264-7.
73. Vollenweider FX, Vontobel P, Hell D, Leenders KL. 5-HT modulation of dopamine release in basal ganglia in psilocybin-induced psychosisi in man-a PET study with (11C) raclopride-. Neuropsychopharmacology. 1999;20:424-33.
74. Kjaer TW, Bertelsen C, Piccini P et al. Increased dopamine tone during meditation-induced change of consciousness. Brain Res Cogn Brain Res. 2002;13(2):255-9.
75. Infante JR, Torres-Avisbal M, Pinel P, et al. Catecholamine levels in practicioners of transcendental meditation technique. Physiol Behav. 2001;72:141-6.
76. Fortney L, Taylor M. Meditation in medical practice: a review of the evidence and practice. Prim Care. 2010 Mar;37(1):81-90.
77. Shapiro DH, Giber D. Meditation and psychotherapeutic effects: Self regulation strategy and altered state of consciousness. Arch Gen Psychiatry. 1978;35:294–302.
78. Weis M, Nordlie JW, Siegel EP. Mindfulness-based stress reduction as an adjunct to outpatient psychotherapy. Psychother Psychosom. 2005;74:108-12.
79. Evan S, Ferrando S, Findler M, et al. Mindfulness-based cognitive therapy for generalized anxiety disorder. J Anxiety Disord. 2008;22(4):716-21.
80. Dakwar E, Levin FR. The emerging role of meditation in addressing psychiatric illness, with a focus on substance use disorders. Harv Rev Psychiatry. 2009;17(4):254-67.
81. Leigh J, Bowen S, Marlatt GA. Spirituality, mindfulness and substance abuse. Addict Behav. 2005;30:1335-41.
82. Ong JC, Shapiro SL, Manber R. Mindfulness meditation and cognitive behavioral therapy for insomnia: a naturalistic 12-month follow-up. Explore. 2009;5(1):30-6.
83. Davis LW, Strasburger AM, Brown LF. Mindfulness: an intervention for anxiety in schizophrenia. J Psychosoc Nurs Ment Health Serv. 2007;45(11):23-9.
84. Chadwick P, Hudges S, Russell D, Russell I, Dagnan D. Mindfulness group for distressing voices and paranoia: a replication and randomizes feasibility trial. Behaviour Cognitive Psychotherapy. 2009;37(4):403-12.
85. Arias AJ, Steinberg K, Banga A, Trestman RL. Systematic review of the efficacy of meditation techniques as treatments formedical illness. J Altern Complement Med. 2006;12(8):817-32.
86. Krisanaprakornkit T, Krisanaprakornkit W, piyavhatul N, Laopaiboon M. Meditacion therapy for anxiety disorders. Cochrane Database Syst Rev 2006;25;(1):CD004998.
87. González de Rivera. La terapia de relajación en la consulta psiquiátrica interdepartamental. Psiquis. 1981;2:33-36.
88. Perez-De-Abeniz A, Holmes J. Meditation: Concepts, Effects and Uses in Therapy. International Journal of Psychotherapy. 2000:5(1):49-59.
89. Shapiro DH Jr. Adverse effects of meditation: a preliminary investigation of long-term meditators. Int J Psychosom. 1992;39(1-4):62-7.
90. Castillo RJ. Trance, functional psychosis, and culture. Psychiatry. 2003;66(1):9-21.
91. Lazarus AA. Psychiatric problems precipitated by transcendental meditation. Psychologic Rep. 1976;39:601–2.
92. Kennedy RB. Self-induced depersonalization syndrome. Am J Psychiatry. 1976;133:1326-8.
93. Otis, LS. Adverse effects of transcendental meditation. In: Meditation: Classic and Contemporary Perspectives. Shapiro D, Walsh R, Ed. New York: Aldin Publications, 1984.
94. Castillo, RJ. Despersonalization and meditation. Psychiatry. 1990;53:158-68.
95. French AP, Schmid AC, Ingalls E.Transcendental meditation, altered reality testing, and behavioral change: a case report. J Nerv Ment Dis. 1975 Jul;161(1):55-8.
96. Walsh E, Moran P, Scott C, McKenzie K, Burns T, Creed F, et al; UK700 Group. Prevalence of violent victimisation in severe mental illness. Br J Psychiatry. 2003 Sep;183:233-8.
97. Kuijpers HJ, van der Heijden FM, Tuinier S, Verhoeven WM. Meditation-induced psychosis. Psychopathology. 2007;40(6):461-4.
98. Donaldson S, Fenwick PBC. Effects of meditation. Am J Psychiatry. 1982;139:1217.
99. Carrington, P. Meditation as an access to altered states of consciousness. Handbook of states of consciousness.. New York: Van Nostrand Reinhold Company, 1985.
100. Ng BY. Qigong-induced mental disorders: a review. Aust N Z J Psychiatry. 1999 Apr;33(2):197-206. Review
101. Garcia Trujillo et al. Meditación y psicosis. Psiquis.1992;13(2):75-9.
102. Carrington, P. Freedom in meditation. Nueva York: Doubleday/ Anchor, 1977.
103. Andersen J, Laerum H. Psychogenic psychoses. A retrospective study with special reference to clinical course and prognois. Acta Psychiatr Scand. 1980 Oct;62(4):331-42.
104. Magnan V, Serieux F.Le délire chronique à evolution systematique. Paris: Masson, 1882.
105. Magnan V. Leçons cliniques sur les maladies mentales, Paris: Editions du Progrès Médical; 1891. Magnan V. Clinical lessons on mental diseases. In: Anthology of French Language Psychiatric Texts In: Cousin FR,Garrabe J, Morozov D, Ed. Anthology of French Language Psychiatric Texts. –Institut Synthelabo, Le Plessis-Robinson, 1999.
106. Magnan V, Legrain P. The Immediate delusions. In: Anthology of French Language Psychiatric Texts In: Cousin FR,Garrabe J, Morozov D, Ed. Anthology of French Language Psychiatric Texts. –Institut Synthelabo, Le Plessis-Robinson, 1999.
107. Ey H. Estudios sobre los delirios. Madrid: Paz Montalvo; 1950
108. Westphal C. Über die Verrueecktheit. In: Gesammelte Abhandlungen. Westphal A. Ed. Berlin: Verlag von August

Hirschwald, 1892.
109. Regis E. Precis de Psychiatrie. Sixieme Edition. Paris: Librairie Octave Doin, Gaston Doin, 1923.
110. Sérieux P; Capgras J. Les folies raissonantes: le délire d´interpretation. París: Ed. Alcan, 1909.
111. Rachlin HL. A Follow-Up Study of Hoch's Benign Stupor Cases. Am J Psychiatry. 1935;92:531-58.
112. Mayer-Gross W. The Diagnostic Significance of Certain Tests of Carbohydrate Metabolism in Psychiatric. patients and the question of "oneirophrenia". Journal of Mental Science.1952; 98:683-6.
113. Meduna LJ von: Oneirophrenia: The Confusional State. Urbana, University of Illinois Press, 1950.
114. Kleist, K. Die gegenwärtigen Strömungen in der Psychiatrie. Allgemeine Zeitschrift für Psychiatrie 1925;82:1-41.
115. Claude H. La orme imaginative de la schizo-manie. Encephale 2006;32(3):97-105.
116. Kasanin J. The acute schizoaffective psychoses. 1933 Am J Psychiatry. 1994 Jun;151(6 Suppl):144-54.
117. Langfeldt G. Definition of "schizophreniform psychoses". Am J Psychiatry. 1982 May;139(5):703.
118. Bleuler M. Conception of Schizophrenia within the last fifty years and today Proc R Soc Med. 1963;56(10):945–52.
119. Welner J, Stromgren E. Clinical and genetic studies on benign schizophreniform psychoses based on a follow-up. Acta Psychiatr Neurol Scand. 1958;33(3):377-99.
120. Mitsuda H. The concept of "atypical psychoses" from the aspect of clinical genetics. Acta Psychiatr Scand. 1965;41(3):372-7.
121. Pauleikhoff, H. Psicosis atípicas. Intento de revisión de la sistemática de Kraepelin. Esquizofrenia y Ciclotimia. Madrid: Morata, 1972.
122. Dostoievsky F. Los hermanos Karamazov. Trad. José Baeza, Barcelona: Editorial Juventud;2002 Dostoevsky F. The brothers Karamazov. Transl. by D Magarshack . Harmondsworth: Penguin, 1958; pp. 749-68.
123. Ferracuti S, Sacco R, Lazzari R. Dissociative trance disorder: clinical and Rorschach findings in ten persons reporting demon possession and treated by exorcism. J Pers Asses. 1996 Jun; 66(3):525-39.
124. Schendel E, Kourany RF. Cacodemonomania and exorcism in children. J Clin Psychiatry. 1980 Apr;41(4):119-23.
125. Asch SS. Depression and demonic possession: the analyst as an exorcist. Hillside J Clin Psychiatry. 1985;7(2):149-64.
126. Dieckhöfer K [Catamnestic observations regarding the case of an obsession. Demoniac obsession nowadays] Confin Psychiatr. 1979;22(4):219-25. German
127. Hédouin V, Révuelta E, Bécart A, Tournel G, Deveaux M, Gosset D. A case of fatal salt water intoxication following an exorcism session..Forensic Sci Int. 1999 Jan 4;99(1):1-4.
128. Vendura K, Geserik G. Fatal Exorcism. A case Report. Arch. Kriminol.1997;2000(3-4);73-8.
129. Moore EG. Theories underlying exorcism: theological and psychic. JR Soc Med. 1979 Mar;72(3):220-1.
130. Grepmair L, Mitterlehner F, Rother W, Nickel M. Promotion of mindfulness in psychotherapists in training and treatment results of their patients. J Psychosom Res. 2006;60:649-50.
131. Kent RN, O'Leary KD, Diament C, Dietz A. Expectation biases in observational evaluation of therapeutic change. J Consult Clin Psychol. 1974;42(6):774–780.
132. McGee M. Meditation and Psychiatry. Psychiatry (Edgmont). 2008 January;5:28-41.
133. Beiman IH, Johnson SA, Puente AE, et al. The relationship of client characteristics to outcome for transcendental meditation, behavior therapy and self relaxation. In: Shapiro DH, Walsh RN (eds). Meditation: Classic and Contemporary Perspectives. New York, NY: Aldine, 1984; pp. 565-71.
134. Smith JC. Meditation: A Sensible Guide to a Timeless Discipline. Champaign, IL: Research Press, 1986.
135. Lau MA, McMain SF. Integrating mindfulness meditation with cognitive and behavioural therapies: The challenge of combining acceptance- and change-based strategies. Can J Psychiatry. 2005;50:863-9.