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Review Article

DISSOCIATIVE TRANCE DISORDER: A CLINICAL ENIGMA

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ABSTRACT

Cultural influences give rise to challenges in the context of managing commonly presenting mental illnesses and dissociative trance or possession states capture the essence of the problem. Trance is an altered state of consciousness and possession is a conviction that the individual has been taken over by a spirit, power, deity, or other person. It remains an enigma for most of us. Unresolved stressful events and socio-cultural background are the vulnerability factors. Various cortical area and neurotransmitters are blamed for this condition. It can also be understood by religious perspective and psychoanalytic theory. A holistic view of paranormal experiences should be developed to tackle these phenomena.

Keywords: Dissociative Trance Disorders; Dissociative Identity Disorder; Possession States

INTRODUCTION

India is a country with a diverse range of cultures, ethnicities, race, religions and languages. These cultural influences sometimes give rise to challenges in the context of managing commonly presenting illnesses. Physicians are expected to take account of psychological, social and environmental factors that underlie some of the problems with which patients present, particularly where there are concerns about mental health. In cases where physical manifestations seem to stem from deep-seated influences relating to socio-cultural norms and expectations, some conditions can prove difficult to treat¹. Belief systems and moral values are intrinsic to human life, and for many people cultural and religious considerations exert strong, positive influences on their lives. Norms bound by culture and belief can also negatively impact on people in terms of mental and physical well-being. Culture-bound syndromes are not uncommon within primary care in India and Asian communities more generally, with cases arising that display psychiatric and associated somatic symptoms². Recognizing that there is an element of controversy surrounding the diagnosis, an example to consider is that of dissociative trance or possession-like state, most commonly encountered amongst young adult women³. Dissociation is posited to be a psychological mechanism for coping with internal and external stress. It is conceptualized as a compartmentalization of consciousness that varies in strictness of compartmental isolation and interaction. Compartments

serve to keep stressful internal knowledge out of one's consciousness and prevent conscious awareness of stressful external stimuli. It is generally believed that dissociation comprises a continuum of experiences found cross-culturally and, with some types, universally⁴⁻⁶.

Dissociative trance or possession states capture the essence of the problems and it remains enigma for most of us. It has been reported in Hong Kong, Singapore, Malaysia, India, Sri Lanka, Japan, and Haiti. Although there are several case reports⁷⁻⁹, and few reviews¹⁰⁻¹¹ the largest series of possession cases was reported by Yap¹². He described 50 women and 16 men admitted to Hong Kong Mental Hospital during a two-year period with signs of the possession syndrome (i.e., either believing that they were possessed or actually exhibiting another ego state characteristic of possession) ; this represented 2.4% of all first admissions. Although their ages were not significantly different from the general population, there was an overrepresentation of widowed and divorced persons. Diagnoses included hysteria (48%), schizophrenia (24%), depression (12%), and mania (6%). Some degree of clouding of consciousness, skin anaesthesia, identity alteration, and amnesia was exhibited by 38 patients. A follow-up of 41 cases revealed that those with hysteria and depression were well, but two-thirds of the schizophrenic patients remained symptomatic. A review of 28 articles reporting 402 cases of patients with DTD worldwide showed

an equal proportion of female and male patients, with a predominance of possession (69%), compared with trance (31%). Amnesia was reported by 20% of patients. Conversely, hallucinatory symptoms during possession episodes were found in 56% of patients and thus should feature as an important criterion. Somatic complaints are found in 34% of patients. Multiple explanatory models are simultaneously held and appear to be complementary¹³. Recently a study to determine whether classical culture-bound syndromes occur among psychiatric inpatients with dissociative disorders in North America reported a wide range of possession experiences and exorcism rituals, as well as the classical culture-bound syndromes of latah, bebainan, amok, and piblokto. The participants reported high rates of childhood physical and/or sexual abuse (87%), dissociative disorders (73%), and membership in the dissociative taxon (78%)¹⁴.

Trance

Trance is a phenomenon underlying both ritual trance possession and the dissociative disorders. It is an altered state of consciousness characterized by the presence of alter ego states¹⁵. Trance-like states occur during meditation, religious ritual, automatic writing, brain-washing/interrogation, sensory deprivation, day-dreaming, and medium ship, a nineteenth century phenomena, and channeling, its twentieth century counterpart. Trance is commonly confused with hypnosis, which is a type of a trance induced in a subject by a hypnotist. Alterations may occur in memory, mood, perception, identity and motor function during hypnosis. The matters revealed during hypnosis may be contaminated by fantasy, confabulation, or lying. Persons cannot be hypnotized against their will, and it is doubtful that they can be induced to do something against their moral code. Susceptibility to hypnosis occurs along a bell-shaped curve among the general population¹⁶.

Possession

Possession is an age old concept with number of biblical references. Central Asian shamans participate in ritual trance possession. However, that possession phenomenon may be normal, and occur as an everyday part of cultural or religious experience¹⁰. According to anthropologist Erika Bourguignon¹⁷ there are three types of possession: non-trance possession belief, trance possession, and ritual possession. In non-trance possession belief, either the individual or close observer believes that one is possessed, usually by the devil or demons. In trance possession an altered state of consciousness usually of a god or spirit, alternates with the individual's normal identity. In ritual possession, trance possession occurs within a ritual, usually religious in nature. Trance possession and ritual trance possession occur on a worldwide basis and have been observed in 90% of 437 cultures in America, Europe, Africa, Asia and the Caribbean and Pacific Islands¹⁷. A study of 20 hospitalized Chinese psychiatric patients (mean age 37 years) who believed they were possessed revealed that most were women from rural areas with little education. Major events reported to precede possession included interpersonal conflicts, subjectively meaningful circumstances, illness, and death of an individual or dreaming of a deceased individual. Possessing agents were thought to be spirits of deceased individuals, deities, animals, and devils. Twenty percent of

subjects reported multiple possessions. The initial experience of possession typically came on acutely and often became a chronic relapsing illness. Almost all subjects manifested the two symptoms of loss of control over their actions and acting differently. They frequently showed loss of awareness of surroundings, loss of personal identity, inability to distinguish reality from fantasy, change in tone of voice, and loss of perceived sensitivity to pain.¹⁸ Similarly in 119 patients with spirit possession from Uganda had significantly higher number of reported potentially traumatizing events including lack of food or water, ill health, no access medical care, serious injury, forced isolation, being close to death, forced separation from family, murder of family member/friend, unnatural death of family member, murder of stranger, lost or kidnapped, torture and frightening life situation¹⁹. Trance and possession states also occur as part of formal religious practice in all of the world's major religions. Ritual trance may be associated with numerous methods of induction including music and/or drum beating, dancing, spinning, chanting, hyperventilation or hypoventilation and drug use. During such trance states it is not uncommon to have helpers or guides who protect the trancers from hurting themselves. Methods of terminating trance possession include inhaling smoke, being shaken and slapped or being exposed to noise. Usually, however, mediums simply come out of trance through the use of suggestion. Rituals have many functions. Ideological rituals, such as rites of passage, control individuals for the sake of the community. Salvation rituals, such as ritual possession or exorcism, repair damaged self esteem. Finally, revitalization rituals, such as religious revivals serve to create a better culture. The belief in possession and exorcism serves more specialized functions, including identifying and dramatizing unacceptable behavior, enabling social change to occur by isolative disruptive influences, reunifying deviant individuals with society when unacceptable behavior has ceased, reconfirming of a group's beliefs, resolving conflict, protecting of the community against disintegration, reenacting of death or resurrection, and demonstrating that living beings have control over the spiritual world²⁰⁻²¹.

NOSOLOGY: ICD 10 & DSM V:

Classification of trance and possession states is somewhat different in the two major classificatory systems. The ICD and the DSM present dissociative trance and possession disorder as a transient involuntary state of dissociation causing distress or impairment. The divergence between the ICD and the DSM is that in the latter classification the DTD is solely mentioned as an example of "Dissociative Disorder Not Otherwise Specified

ICD 10 F44.3 Trance and possession disorders

Disorders in which there is a temporary loss of both the sense of personal identity and full awareness of the surroundings; in some instances the individual acts as if taken over by another personality, spirit, deity, or "force". Attention and awareness may be limited to or concentrated upon only one or two aspects of the immediate environment, and there is often a limited but repeated set of movements, postures, and utterances. Only trance disorders that are involuntary or unwanted, and that intrude into ordinary activities by occurring outside (or being a prolongation of) religious or

other culturally accepted situations should be included here. Trance disorders occurring during the course of schizophrenic or acute psychoses with hallucinations or delusions, or multiple personality should not be included here, nor should this category be used if the trance disorder is judged to be closely associated with any physical disorder (such as temporal lobe epilepsy or head injury) or with psychoactive substance intoxication²².

DSM V: DSM V has included the pathological possession component into Dissociative Identity Disorder (DID). The pathological trance component remain in Other Specified Dissociative Disorder – Dissociative trance²³.

Diagnostic criteria of DID:

A. Disruption of identity characterized by two or more distinct personality states, which may be described in some cultures as an expression of possession. The disruption in identity involves marked discontinuity in sense of self and sense of agency, accompanied by related alterations in affect, behavior, consciousness, memory, perception, cognition, and /or sensory-motor functioning. These signs and symptoms may be observed by others or reported by the individual.

B. Recurrent gaps in the recall of everyday events, important personal information, and/or traumatic events that are inconsistent with ordinary forgetting.

C. The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

D. The disturbance is not a normal part of a broadly accepted cultural or religious practice.

Note: In children, the symptoms are not better explained by imaginary playmates or other fantasy play.

E. The symptoms are not attributable to the physiological effects of a substance (e.g. blackouts or chaotic behavior during alcohol intoxication) or another medical condition (e.g. complex partial seizures).

Dissociative Trance: This condition is characterized by an acute narrowing or complete loss of awareness of immediate surroundings that manifests as profound unresponsiveness or insensitivity to environmental stimuli. The unresponsiveness may be accompanied by minor stereotyped behaviors (e.g. finger movements) of which the individual is unaware of and/or that he/she cannot control, as well as transient paralysis or loss of consciousness. The dissociative trance is not a normal part of a broadly accepted collective cultural or religious practice.

VULNERABILITY FACTORS

All people facing unresolved stressful events will not enter a possession-trance. The social and cultural background of the individual exerts a significant etiological effect. Possession occurs far more often in primitive tribes or societies with folk belief of spirits and evil. In India 75% of psychiatric patients consulted religious healers about possession²⁴. Similarly, in a rural community of South Korea, 15 to 25% of psychotic patients were treated by shamanistic therapies, clearly indicating that primitive societies are more ready to accept possession as a kind of help-seeking behavior and spiritual intervention is a common and important alternative to standard medical treatment²⁵. Being possessed will allow the individual to seek help in another identity, which is culturally accepted. It

also offers strong social bonds and group support within a well-defined subculture²⁶. Another possible predisposing factor for possession is the individual's personality. Unfortunately, there are only a few studies investigating this aspect.

Lower extraversion scores and higher psychoticism, neuroticism, and lie scores were found in 58 dissociative trance disorder patients compared to the Singapore norms. Follow up of 47 subjects revealed that total episodes of trances that occurred over the 1-year period were positively correlated with neuroticism and negatively with extraversion scores. The high lie scores in individuals with dissociative trance disorder could be a reflection of their concern of how others perceive them. The motivation could be that of restoration of self-esteem or "face." The profiles in the EPQ could be used to predict the individual's frequency of trance states. Subjects with personality traits like nervousness, excitability, and emotional instability were more likely to have a higher frequency of trance states²⁷. Ten people who had undergone exorcisms for demonic possession were found to have many traits in common with patients with dissociative identity disorder²⁷. Furthermore, they were overwhelmed by paranormal experiences. Despite claiming possession by a demon, most patients managed to maintain normal social functioning. Rorschach findings showed that these persons had a complex personality organization. Some tended to oversimplify stimulus perception whereas others seemed more committed to psychological complexity. Most had severe impairment of reality testing, and six had an extratensive coping style²⁸.

On the Thematic Apperception Test the stories of dissociative participants were characterized by greater interpersonal distance and more trauma and dissociation responses than those of the controls. No significant differences were found regarding total number of emotional references, although references to positive emotions were almost nonexistent for the dissociative group. A post hoc analysis of the data found the testing behaviors of dissociative participants to be characterized by switching, trance states, intra-interview amnesias, and affectively loaded card rejections²⁹.

MECHANISM FOR DISSOCIATION

If dissociation is triggered autonomically by stressors, then there must be a physiological basis for it. It is a biogenetic structure that exists for contending with an abundance of external stimuli too complex for cognitive processing. Brains simplify information by filtering to render it consistent with preexisting information and thereby maintain psychological equilibrium. With self-awareness and language, the role of dissociation expanded in higher primates and especially humans. It is now also used to filter an overabundance of internal information for use in contending with social situations in the same manner. The fundamental and adaptive nature of dissociation is best implicated by its integral role as a facility of sleep and dreaming. While psychologist posited a partial mechanism for dissociation, constituting alternative neural pathways to those of normal consciousness, localization of other social intelligence mechanisms enable completion of the model. Studies have linked self-related operations, including self-awareness and mental-state attribution, to the

brain's right prefrontal cortex. Dissociation is the third primary aspect of social intelligence along with self-awareness and mental-state attribution, and it is directly correlated to the same cognitive mechanisms as other self-related traits. Demonstrations of contra-lateral self-face recognition (quicker recognition and identification of photos of oneself with the left hand than the right) have confirmed the localization of these in the right prefrontal cortex, as have studies of the loss of self-recognition, self-awareness, and mental-state attribution in Alzheimer's patients. Conjugated upward deviation of the eyes, as well as the so-called "rolling of the eyes", which are present during trances, are suitable entry points for the study of the anatomic substrate underlying these experiences. The thalamus, posterior commissure, pretectal zone, and Cajal and Darschewitsch nuclei are the anatomic zones related with the upward gaze, "eye rolling" and trance type changes of consciousness. Independently of these facts, at least three different types of trance behavior can be differentiated: the form that we call passive is present in physiological sleep, and consists of the eyes turning upwards spontaneously. In the form called active, the trance is linked clearly to the upward stare and ocular rotation. Finally, a form that we call intermediate in this study accompanies personality changes in multiple personality disorder and some cases of psychogenic flight. The conjugated upward deviation of the eyes can be, in the absence of another disorder, a first-order indicator of disorder of consciousness of the type found in dissociative disorders³⁰.

SHAMANISM AND POSSESSION TRANCE

Anthropologists believe self-induced stress is used cross-culturally as a form of healing³¹. In rituals and with medicinal plants, people push past normal limits in order to experience power, energy, and transformation. They do so through exposure to excessive or extremely low levels of stimulation. This can include many things, from the hyperkinetics of prolonged dancing and music to drug use to chanting or silent meditation to the localized, induced pain of acupuncture. Such self-induced stress is thought to release endorphins, which are biochemically similar to opium or morphine and known to reduce pain and relieve depression³². These rituals and stress-induction methods are part and parcel of cross-cultural shamanic and possession practices. Ross³³ believes that the psychobiological basis is the same as "trance and possession states found in most cultures throughout history." Indeed, a variety of such cultural rituals and behaviors are characterized by the dissociation. Foremost among them are shamanic trances, often soul journeys, and ceremonial possession trance. "Soul journey" describes an emic wherein the soul of the individual has left the body to commune with the spirits, generally about matters related to the health of clients or community issues. "Possession trance" involves the displacement of one's soul by an invading spirit that has come for similar purposes. These are among the more extreme forms of dissociation but are nonetheless non-pathological due to very structured cultural mediation. Culturally-mediated use of dissociation is believed to have occurred at least as far back as Paleolithic times. The prehistoric paintings depicting half-human, half-animal figures that populate caves around the world are believed to represent shamans in religious frenzies

like those of modern shamanic trance cultures and may be a part of the symbolic enactment of religious ceremony³⁴⁻³⁵. Furthermore, cultures differ in their manifestations of shamanic dissociation. In the Himalayas, shamans make soul journeys, whereas in Korea they utilize trances but not soul journeys per se. Hindu shamans achieve trance states by driving metal hooks into their bodies or walking on red-hot coals. Among the Sora of Orissa, the shaman's soul leaves her body while it is inhabited by a succession of dead ancestor "helper" spirits who speak to the living. Certain native peoples of North America are known for their dissociative "vision quests," where they go into the wilderness for a number of days to fast and seek the guidance of spirits who often take the form of animals. Similarly, the Mandan sweat-lodge may have served a similar purpose. South American shamans are renowned for their use of entheogenic plants such as *ayahuasca*, San Pedro, and tobacco to induce dissociation and visions, while peyote has been used in the U.S. Southwest. The Bushmen of the Kalahari were able to induce a trance and "climb to the sky," a practice reminiscent of the Sambia of the New Guinea Highlands³⁵. Most of these descriptions imply a dissociation induction method—i.e., pain, exhaustion, hypoglycemia, psychoactive drugs that can readily be defined as stressors.

DISSOCIATIVE TRANCE AND POSSESSION: IS THE PERSON MENTALLY ILL?

Shamans in the past were viewed as "mentally deranged" persons exploiting a cultural niche³⁶, and possession cults were labeled as refuges for the mentally ill³⁷. However, culturally-mediated dissociation is now acknowledged in the current classificatory systems. This extreme behavior, viewed as mental illness if unsupported by the community at large, is by contrast viewed as adaptive in supportive environments³⁷⁻³⁸. Despite this apparent social construction of mental health, DID can be compared particularly to possession trance on a psychological level. It is, in the face of severe trauma, an adaptive coping strategy for an individual. For example, comparing DID to cross-cultural possession trance in respect to childhood trauma, Ross³³ states that in their culture, the traumatized girl creates a tough secular adolescent male protector personality, while in another culture the protector would be a deity, spirit guide, or mythological figure. There is variation at the level of content, but the structure is probably universal. In possession trance cultures in which spiritual leaders are taken over by spirits, the individual is absolved from responsibility for behavior exhibited while possessed. This functionalist interpretation conceptualizes dissociation as a ritualized valve for venting personal and social pressure in an acceptable context. Dissent toward authority figures otherwise considered inappropriate for an individual to express is acceptable and even expected from a spirit. In this way, social problems can be voiced and changes implemented without individuals bearing the brunt of social disapproval³⁷. Yet this model of dissociation does not posit a closed and coherent system; rather it proposes that dissociation is a biological adaptation to self-awareness and mental state attribution (i.e., consciousness) that is culturally and psychologically malleable. To clarify this position, one can also point out that sexual intercourse and eating are biological

adaptations far more fundamental than dissociation, yet promiscuous intercourse can be used to selfishly or ignorantly hurt others and spread diseases. Likewise, overeating or poor nutrition can lead to poor health and social dysfunction. Continued non-ritualized possession is viewed as aberrant, and may be seen within the culture as mental illness. Spirits appear in ceremonial context to reinforce and maintain community needs, offering criticism with impunity directed toward social problems, government officials, or individuals. Possession trance is believed to provide power to the powerless. As such, it is more typical of developing than developed countries^{37,39}. To distinguish demon possession from mental disorder is an interesting and important topic to religious people. Koch⁴⁰, stated that, in addition to the criteria used by the Catholic Church, a true possession should also have the following features: internal conflict within an individual, sudden recovery after exorcism, and presence of the 'transfer phenomenon' — that is the transfer of the evil spirit from one person to another, or from a human being to an animal. Cooper⁴¹ maintained that possession included features which are not characteristics of mental disorder.

These included:

(a) history of previous involvement with the occult (b) resistance to prayer (c) tendency to curse or blaspheme (d) impaired consciousness so as to cut off spiritual help (e) clairvoyant powers (f) speaking in a different voice or language. With the rapid growth of the Charismatic Movement during the past decade, the number of reported possessions and successful exorcisms dramatically increased. It is not surprising to see that despite advances in medical knowledge, there is an increasing tendency, in the religious field, to attribute abnormal experiences to a spiritual cause¹⁰.

Anthropological Model of Dissociation

Anthropology views dissociation as an adaptation that is only psychopathological under extreme and often culturally-relative circumstances^{17,42}. It does not presume the psychiatric ideal of integration being the norm³¹. When severe dissociation occurs in an individual due to a history of traumatic experiences, a fine line between being personally adaptive and socially maladaptive exists. That line may be crossed when an individual's dissociation is so severe as not to be confined to culturally-condoned parameters and leads to social marginalization or institutionalization. It is therefore possible that a community that ceremonially practices a form of dissociation, such as spirit possession, may provide a supportive, complementary environment for someone prone to trauma induced, severe dissociation. The opposite could be true in Europe and U.S., where such people find themselves labeled as outsiders or mentally ill¹⁷.

A culturally and anthropologically-oriented definition of dissociation was given by Krippner⁴³: "Dissociative" is an adjective that attempts to describe reported experiences and observed behaviors that seem to exist apart from, or appear to have been disconnected from, the mainstream, or flow of one's conscious awareness, behavioral repertoire, and/or self-identity. "Dissociation" is a noun used to describe a person's involvement in these reported dissociative experiences or observed dissociative behaviors. This is a sound assessment based on cross-cultural comparisons, yet a biocultural

perspective suggests a slight revision³¹. Institutionalized forms of trance, such as those of yoga, create alternative neural pathways of long-term potentiation through repeated use⁴⁴. In this sense, dissociation is less an altered state of consciousness than an alternative state of consciousness and not necessarily "disconnected from the mainstream." The dissociation phenomenon encompasses forms that are both culturally normal and abnormal⁴² and that can be short-term, infrequent aberrations or reinforced through long-term potentiation. Sometimes information is rigidly separated and results in amnesia; sometimes it is only partially separated. Haitian Vodou and DID offer striking examples of the former, whereas hypnosis and meditation are good examples of the latter. A definition of such a generalized phenomenon must also be broad and avoid stipulating what is normal or mainstream.

Lynn³¹ has revised Krippner's definition to read as follows: "The word *dissociative* attempts to describe reported experiences and observed behaviors that seem to have been *partitioned* from conscious awareness, behavioral repertoire, and/or self-identity; the word *dissociation* is an etic used to describe a person's involvement in these reported dissociative experiences or observed dissociative behaviors, which encompass a variety of emics." Healthy people dissociate every day of their lives. In fact, not only can excessive dissociation be maladaptive, so can an inability to dissociate. Intermediate between these extremes is a range beginning with few, very mild dissociative experiences and progressing through many, severely dissociative experiences. Mild experiences are those of focused attention (e.g., daydreaming) from which a person may easily be distracted. Severe dissociation involves amnesia as a person passes from one dissociative state to another. A population mean of type and quantity should therefore equate positive well-being—i.e., good mental health³¹.

Possession with Evidence of Paranormal Knowledge

Possession states occur widely in India⁴⁵. Psychiatrists have emphasized the similarities between cases of the possession type and diagnostic entities such as DID and hysteria. Accordingly, they tend to use phrases such as "possession syndrome" and "hysterical possession." They also offer motivational explanations of the condition that depict it as beneficial to the affected person in improving his status and perhaps besolving internal and external conflicts. Lewis⁴⁶ wrote: "Nothing after all is easier than leaping to conclusions and projecting our own psychological assumptions and interpretations onto exotic evidence which may correspond only in superficial detail with apparently similar data in our own culture".

The question arises of whether some ostensibly possessed persons show knowledge about the life of a deceased person that they could not have obtained normally. In a small number of cases the subjects do show such knowledge. Cases of this kind are rare, and yet sufficiently well known in India so that the Hindi word *parakayapravesh* ("entering into another body") exists for designating them. The ostensibly possessing personalities (when not gods or godlings) are usually persons known to the subject or about whom the subject may easily have learned normally. In cases of this type it is difficult to

obtain satisfactory evidence of the subject's having knowledge paranormally acquired.

Dissociation and Trauma

Dissociation is experienced as part of the normal cultural construction of self, local cosmology and society in many cultural settings. However, in Psychiatry, dissociation is treated as pathological and associated with traumatic experiences⁶. Although some have disputed the relationship between dissociative symptoms and traumatic experiences, others have confirmed the association⁴⁷. Retrospective studies in Western countries suggested a relationship between manifestations of dissociation and recalled potentially traumatizing events⁴⁸⁻⁴⁹. Retrospective studies in Turkey and among Bhutanese refugees in Nepal also found that individuals reporting overwhelming events had more dissociative symptoms than controls. Several authors concluded that potentially traumatizing events can be predictors of dissociative symptomatology, particularly when the events are severe and recurrent, when they involve threats to the body from a person or betrayal and when they involve an individual who is young or who was previously traumatized⁴⁵. Prospective and longitudinal studies have found causal associations between documented traumatization and dissociative symptoms⁵⁰. Historical connections are suggested between the domination of one culture by another and dissociative spiritual and religious responses to that oppression. Connections are drawn between colonial oppression, trauma, and three examples of dissociation and spirit possession: the Zar cult of Southern Sudan, "Puerto Rican syndrome" or *ataque*, and the Balinese trance dance. The role and functions of spirit possession is postulated to be a means of escape from unbearable reality, where it becomes a form of the expression of needs and desires forbidden by authorities, a way of entering an identity not subject to traditional authorities, and reenactment of traumatic experience⁵¹.

Spirit Possession and Trauma

Spirit possession, according to anthropologists, occurs more frequently among marginal, subordinate and underprivileged people and has been regarded as a response to intra-psychic tension, difficulties with relatives and situations associated with low expectations for aid and support or socioeconomic change⁵². Spirit possession concepts fall into broadly two varieties: one that entails the transformation or replacement of identity (executive possession) and one that envisages possessing spirits as (the cause of) illness and misfortune (pathogenic possession). 'Executive possession' entails the following features: (a) the presence of an incorporeal intentional agent in or on a person's body, that (b) temporarily affects the ousting, eclipsing or mediation of the person's agency and control over behavior, such that (c) the host's actions are partly or wholly attributable to the intentions, beliefs, desires and dispositions of the possessing agent for the duration of the episode. In contrast, 'pathogenic possession' - minimally entails the following set of conditions: (a) the presence of an agent in or on a person, that (b) either causes no (perceived) effects (i.e. the spirit is 'dormant') or causes physical effects, such as disease or illness, or psychological effects, such as depression or hallucinations, or existential

effects more broadly defined, such as financial misfortune, and that (c) may persist indefinitely or until a diagnosis is made and the agent is dispossessed of the host's body. This concept does not entail the displacement of the person's identity. It does not require, for example, that the person is addressed by a different name — the name of the possessing agent — as is commonly the case in executive possession episodes. The spirit's name is often not known until steps are taken to eliminate or mollify it. Indeed, ritual naming ceremonies frequently appear to concern the establishment of the possessing agent's identity as a person, no longer an unknown, unpredictable, and unbidable thing or force⁵³.

Trauma is considered as a risk factor for spirit possession in South Asia⁵⁴⁻⁵⁵. Common stressors for DTD in Singapore include problems with military life, conflicts over religious and cultural issues, domestic disharmony and marital woes⁵⁶. Trauma, early loss and recent loss were predictors of attacks of medically unexplained illness in a Bhutanese refugee camp. This involved alterations of consciousness, which were attributed to possession by spirits, rather than to traumatic experiences⁵⁷. A case-control study of 32 school girls aged 9-14 years afflicted with spirit possession and 34 matched controls in Thailand showed that being first-born from a small family, individual vulnerability especially psychiatric disorders, anxious and fearful character traits, histrionic character traits and dissociative tendency (history of recurrent trance states) were significant risk factors in the development of possession states in children⁵⁸.

Partial Trance among the Mediums

Most of 18 New Age trance channels in Los Angeles, retained partial memory of the channeling process during trance which for many of them included a feeling of blending with the channeled entity. For some group of mediums, partial awareness of physical body sensations and sensory functions were also present. In other words, unlike the full trance mediums, dissociation from the physical body process, including such functions as hearing, speaking, and feeling/sensing was only partial, while the inner experience seems often to have included the same richness of intuitive, emotional, and religious components described by the conscious full trance mediums. In semi-trance mediums afterward remembered "being there" and listening to what was said, there was often less than normal recall of the content of the communication and the medium retains some awareness of sensory input from the physical body and its surroundings during trance. In full trance by contrast, there seems to be, in both the conscious and unconscious varieties: no awareness of the external world or the vocal or motor apparatus of the physical body during trance, and except for an initial contact no memory of the process of spirit communication remaining in the mind of the medium at the conclusion of the trance⁵⁹.

Conscious Trance and Sensory Amnesia among the Yogis

While the English word "dissociation" can apply in a variety of psychiatric contexts⁶⁰, Yoga uses a specific Sanskrit term to denote trance-related dissociation. Dissociation (*pratyahara*) and trance (*samadhi*) are not emically equivalent terms in Yoga but the two processes commonly occur together. Samadhi refers to a deepening of engagement of one's awareness in the single aspect upon which the mind focuses.

The word pratyahara refers to the withdrawal of the conscious awareness from the senses and the objects of their perceptions. Most yogic meditation practices are done with closed eyes to encourage pratyahara, which makes meditation easier. Pratyahara tends to occur partially in deep meditation and more completely in samadhi. As samadhi deepens, dissociation increases. One of the older yogis in the community enters so deeply into samadhi that she cannot hear the alarm clock next to her ringing. Yogic practitioners have all heard stories about Yogis who enter high stages of samadhi for a number of days during which their bodies are fed and daily carried by their disciples to the river to be washed, all without arousing the yogi back to body consciousness. While the word "amnesia" implies that the failure is one of memory; the emic term "pratyahara" suggests that the minds of deeply entranced individuals simply fail to register certain types of sensory input; therefore they have no memory of it afterwards. Informants who experienced lower stages of samadhi reported no interruption of conscious awareness, but they did note that they would lose body awareness for a time, either partially or completely. Upon completing practice, for example they would suddenly notice that their leg was asleep, or they would suddenly notice in meditation that their breath had comfortably suspended, but they would not remember when those sensations had begun.

Trance and Mediumistic Investigation

Research on trance and mediumistic experiences has been seminal for understanding mind and its relationship with the body⁶¹. Resuming a rigorous, open-minded and comprehensive investigation of trance and mediumship may provide important evidence and many insights capable of advancing an alternative understanding of mind-brain relationships.

NEUROBIOLOGICAL STUDIES ON DISSOCIATION, POSSESSION, AND TRANCE

Penfield postulated that neural networks alone would be incapable of producing consciousness and stated that the mind had a distinct existence from the brain, although closely related to it. He added that there was no place in the cerebral cortex where electric stimulation could cause a patient to make a decision⁶². Neurofunctional findings in relation to psychotherapy, hypnosis and the placebo effect, taken as a whole, can be interpreted to challenge the hypothesis that the mind is a by-product or epiphenomenon of the brain⁶³. Studies of cardiac-arrest survivors found that 11 to 20% of patients reported experiences that can be used to support the hypothesis that the mind can express itself independently of neural functioning. In line with these findings, some theories associate the brain with the role of mediating concepts such as "spirits"⁶¹. Thus, we should not be dogmatic in taking an *a priori* monist or dualist approach based on as-yet embryonic neurofunctional research. Moreover, elucidating the neural circuits involved in subjective experiences such as prayer or mystical experience does not diminish their significance. Most studies in this field have focused on religious practices and their underlying neural circuitries. Findings suggest higher activity of the frontal cortex, prefrontal cortex⁶⁴⁻⁶⁵, and the limbic system and decreased activity in the parietal lobes during religious experiences⁶⁶. This indicates that mediumistic

and trance experiences as well as intense mystical, religious, and spiritual experiences, are distinct and mediated by several brain regions and systems. Increased activity in the frontal cortex may reflect focused concentration during the altered states of consciousness (ASC) experiences elicited by meditation practices, while the correlation between the dorsolateral prefrontal cortex and the superior parietal lobe may reflect a non-ordinary sense of space or time. Circuitries involved in sustaining reflexive evaluation of thought were found in religious experience⁶⁴⁻⁶⁶. Although spiritual, mystical, and religious experiences may be related to trance and mediumship manifestations, the actions of the main neurotransmitters during these practices remain poorly investigated and understood. Nevertheless, it has been proposed that higher activity of the dopaminergic system (DRD4) and parallel lower activity of the serotonin (5-HT) system may be involved in individuals who showed higher measures of spirituality⁶⁷. The latter postulated that their results might be due to the higher concentration of dopamine D4 receptor in the frontal cortex. However, it has been shown that the dopaminergic system is in part under the regulation of 5-HT projections. For instance, stimulating 5-HT1A or 5-HT2A receptors may elicit dopaminergic release⁶⁸. Therefore, it is too early to postulate a role for neurotransmitters in trance and religious experiences given the tiny number of studies conducted so far. From a psychophysiological perspective of trance and dissociation, dissociation involves the disengaging of the cognitive processes from their executive, higher-order, volitional faculties. Generalized psychophysiological correlates of what might be described as trance with dissociative aspects involve hemispheric lateralization that favors (in right-handed people) the right hemisphere of the brain (more closely associated with intuitive, emotive, non-logical, spatial, imaginative thought and perception) over the ordinarily dominant left hemisphere (associated with linguistic and rational processing). In shamans, a wide range of culturally-patterned induction techniques lead to generalized parasympathetic dominance in which the frontal cortex exhibits high-voltage, slow-wave, synchronous electroencephalographic (EEG) patterns (e.g., theta rhythms) that originate in the limbic system and proceed to frontal regions via limbic-frontal innervations⁶⁹. Some ASCs, such as some forms of meditation and hypnosis, exhibit small variances in EEG patterning, and similar differences also exist between voluntary and spontaneously induced states. Involvement of the limbic system is an important part of the neural architecture of dissociative trance⁶⁹. For instance, it has been implicated in the modulation of a variety of functions including basic survival drives and hypothalamic/pituitary release of neurotransmitter and endogenous opiates. The hypothalamic action, in turn, influences, among other things, dissociation trance-related hallucinations, analgesia, and amnesia. The hypothalamus also controls sympathetic (excitatory) and parasympathetic (inhibitory) nervous systems; the latter being associated with decreased cortical excitation and increased hemispheric synchronization. Evidence shows that parasympathetic dominance can be induced through excessive sympathetic activation; such as through drumming, dancing, and chanting, all of which are common features of

ritual practice and in which the homeostatic reciprocal action of the autonomic nervous system collapses. Rituals, such as those associated with shamanism and mediumship, therefore, not only provide psychological relief from social and environmental stressors, they are mechanisms that employ driving techniques that “tune” the nervous system through hemispheric lateralization, parasympathetic dominance, and cortical synchronization. Topographic brain mapping at midline scalp locations of healer-mediums revealed increased brain activity when the healer-mediums reported being incorporated by a “spirit,” compared to resting baseline conditions, suggesting the presence of a hyper-aroused brain state associated with the possession trance behaviors of the mediums⁷⁰. In contrast, a small sample of psychiatric patients monitored during involuntary possession trance revealed no high frequency brain activity.

Rhythmic brain electrical oscillations as measured by EEG may also have functional implications for the dynamics associated with cortical networks. EEGs reflect changes in attention, sensory processing, and cognitive processes highlighting the different cortical network interactions⁷¹. A correlation of self-reported dissociative experiences and theta power, a positive relation between dissociation and delta activity, while cortical power within the alpha range was inversely related to dissociative symptoms was reported⁷². Consequently, the combining of neurophysiological and phenomenological assessments in a qualitative investigation of mediumistic experiences is essential to develop a more precise understanding of the neurobiological substrate of its manifestation and disruption of the integrated functions of consciousness. Biological mechanisms common to all human beings may well underlie possession and trance phenomena. Since trance and mediumship have so rarely been investigated from a neurobiological perspective, these mechanisms are not clear⁷³.

RELIGIOUS PERSPECTIVE OF POSSESSION

Early descriptions of possession and exorcism can be found in the Old Testament of the Bible. Interestingly, although insanity, epilepsy, and possession are commonly seen as a result of sin, the Bible has distinct descriptions for each of them. There are also stories about possessed persons who suffered from epilepsy and after the demon was driven out, the epilepsy was cured¹⁰.

Possession and sin

In medieval times the relationship between sin, possession, and insanity was far more complicated¹⁰. A systematic review of a sample of secular and religious texts, and chronicles sources, successfully extracted every reference to mental illness. In 25 of the 57 episodes of mental illness, there were roughly equal numbers of bouts of madness alone, possession alone, and madness combined with possession. Only about one-sixth of these episodes were attributed directly to sin. Sin was most commonly implicated as the cause of madness or epilepsy combined with possession, while possession alone was attributed to sin in only a single case. Madness without possession was rarely attributed to sin⁷⁴. This finding contrasted with Zilboorg's⁷⁵ simple conclusion that all mental illnesses were believed to be a result of sin in the middle ages. The difference may be due to the different sources studied¹⁰.

Exorcism

During the Renaissance, a great reformation occurred in Christianity. Protestants believed that every believer who prayed would be granted the power of exorcism by God, while the Roman Catholics believed that Jesus Christ had given such power to his apostles and then to the Church. Today the Catholic and Protestant Churches still have divided opinions on the way to identify demon possession. The Catholic Church relies heavily on identifying features such as abnormal physical strength, rejection of sacred things, clairvoyant powers, and ability to speak in a different voice or language, together with the test by ‘Holy Water’ to ascertain a suspected possession. So the haunting spirit can be reliably tested for its identity by directly asking it in the name of God¹⁰. The signs of possession by a demon, suggested by Nevius, included change of personality with a different set of characteristics, and possession of knowledge and intellectual power not belonging to the original person^{10,76}.

DIFFERENTIAL DIAGNOSIS

Although hysterical dissociation is often the diagnosis on referral, different psychiatric disorders including schizophrenia and depression have been cited to attempt to explain different possession symptoms. Descriptions of visions, voices, and ‘dreams’ in chronicles from the Middle Ages, autobiographies and correspondence between France and England, in 134 documents revealed that about half were descriptions of people in a twilight state and the other half were associated with an organic confusional state as a result of fever, starvation, or terminal illnesses⁷⁴. It is interesting to note that psychiatric disorder is not always diagnosed among possessed people. In a 4-5 year follow up study of 36 young men with possession-trance, none of the 26 who could be contacted at the end of the study showed any evidence of psychiatric illness^{10,77}.

TREATMENT

Review of data relating to treatments for 114 patients in 19 articles, which can be organized in 6 major approaches:

- (1) Traditional medicine involving folk healers, faith healers, shamans, but not labeled as exorcism
- (2) Exorcism
- (3) Psychotherapy
- (4) Medications
- (5) ECT
- (6) Hospitalization in a psychiatric ward.

Psychotherapy was the most commonly used treatment (59%) and seems to provide relief in all patients except for one who chose to end the follow-up. Traditional medicine was used by 30% of patients of the sample and was reported as efficient for all but two. One patient benefited from an initiation to becoming a shaman. Exorcism was performed in 7% of the patients, with variable reported efficiency. Medications were prescribed in 30% of patients. Nine patients were prescribed antipsychotic medication, with five showing clinical improvement, of whom two were receiving low doses. Of note, four patients showed no improvement. Two patients were prescribed antidepressants, showing clinical improvement. In contrast, one patient suffering from "dissociative epileptic disorder" was treated with the antidepressant nortryptiline, which interrupted the disorder

and resulted in the new onset of a DTD (possession type). Anxiolytics were prescribed to three patients and brought about some relief. In the 19 remaining patients, the authors do not specify the drug that was prescribed. ECT was used in one patient without success. Six patients were hospitalized¹³.

CONCLUSION

Although there is a growing trend this century to attribute possession phenomenon to mental disorder, controversial opinions remain. We, as psychiatrists, should be able to develop a holistic view of paranormal experiences so that we are competent to give professional advice to patients troubled with apparent spiritual issues. We sincerely hope that there are more psychiatric researches in this area and spiritual issues are no longer taboo in medical science. It is in this context of strong emotion that we study possession and dissociation. Questions arise about who is qualified to discern possession, what professional works with what type of subject, what is an effective working relationship and which technique are truly effective. These are all good research questions which can only be solved in an atmosphere of openness and collegiality between diverse groups of professionals. Hopefully, increased exposure to one another's work will enrich our experiences and help those whom we wish to serve.

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