Emotions in contemporary medicine and traditional medicines

Yosra Annabi, free researcher yosra.annabi@gmail.com

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Abstract: With this bibliographic work, the author illustrates the evolution of the perception of emotions by medicine. In traditional Chinese and Indian medicines, emotions are part of the science of energy. In contemporary medicine, advanced neurological studies and MRI images as well as EEG curves have made it possible to locate emotions as a brain activity, see article [1]. From a psychological point of view, emotions influence human character. They are treated either via a classic study on the unconscious cause, such as hypnosis, or via behavioral learning (character adjustment) as in NLP.

Key words: Emotion, Neurology, traditional medicine, NLP, hypnosis.

T he emotion is caused by the confrontation with a situation and the interpretation of reality In this, an emotion is different from a sensation, which is the direct physical consequence: heat, music, sweet food and keto. Sensation is directly associated with sensory perception. Emotions are electrochemical signals that come from the brain and lead to reactions in the body.

1 Emotions in modern medicine

Emotions are related to the nervous system. It consists of the central nervous system and the peripheral nervous system. The central nervous system, which includes the brain and spinal cord, and the peripheral nervous system, composed of nerves. From the anatomical point of view, the brain contains six lobes, see figure 1. The frontal lobe is the seat of speech, language and reasoning. It also has the function of managing limb movements. The temporal lobe is the area where language, memory and emotionality are located. Therefore, emotions modify the state of the brain and these changes persist for a longer or shorter time depending on the person. Specifically, emotions lead to changes in the functional connections between different areas of the brain, some being strengthened to the detriment of others. Studies carried out in this area using functional brain imaging could pave the way for new methods of diagnosis and treatment of psychiatric diseases. With the help of an MRI scanner, the researchers can follow the successive activation of the different regions of the brain during each session.

1.1 The senses

The senses connect humans to life, they make it possible to understand the world. there are five of them : hearing, smell, taste, touch and sight. Each sense corresponds to an organ : the skin (touch), the eye (sight), the ear (hearing), the nose (smell) and the tongue (taste). The signals received by these organs are transferred to the brain via the nervous system. They are processed in specific lobes. The temporal lobe has essentially somato-sensitive functions. It includes in particular the sensitive areas of hearing, smell, taste, and also part of the Wernicke area : source of language understanding, whether speech or comprehension. The temporal lobe also has roles in vision, memory and emotions. Several scientists are interested in the 5 senses, we quote Miyashita H. from Japan. He works on gustation using electricity [22]. In 2020, He makes a machine that share taste.

1.2 The emotions

Biologically, emotions depend on the activity of specific centers in the human brain: the limbic system. The latter is the center of emotions and memory, as schematized in the article [2]. It also contributes to

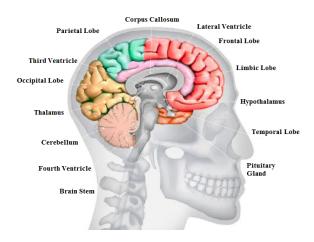


Figure 1: The lobes of the brain. Image extracted from [14]

memory and learning. Several structures compose it, those playing the main roles are: the hypothalamus, the thalamus, the amygdala and the hippocampus. The neocortex represents the center of higher cognitive functions and thus concerns, for example, strategy, spatial and long-term reasoning, perception, conscious thinking or language. However, it intervenes in the brain circuit of emotions. Psychologically, six basic emotions have been studied by scientists, see article [9]. They are connected to specific brain centers:

- 1. **Joy**: located at the front of the brain, the accumbens arouses an intense pleasant sensation by secreting dopamine.
- 2. **Anger**: the limbic system is a set of neural nuclei connected to both the reptilian brain and the cerebral cortex, the cortex. These neurons react to anger, while having a noticeable effect on behavior.
- 3. **Surprise**: located in the center of the brain, the small structures involved are mainly the hypothalamus, the nucleus accumbens (center of pleasure, belonging to the basal ganglia), and the amygdala (center of emotions such as fear or stress).
- 4. **Disgust**: passes through the area of the cerebral cortex called the insula, the pleasure zone the striatum and the dopamine system.
- 5. Sadness: the amygdala is a system that regulates actions in the face of sadness.
- 6. **Fear**: the amygdala and the cortex manage the emotion of fear. The amygdala is the system that regulates actions in the face of fear.

The brain structures associated with each emotion are described in the figure 2. The brain structures associated with each emotion are described in the figure 2. There are psychological techniques that help to develop the ability to regulate emotions, by the person himself. For example, the 5 strategies of psychologist and researcher James Gross [12] from Stanford University are: situation selection, situation modification, attention diversion, cognitive reassessment and response modulation

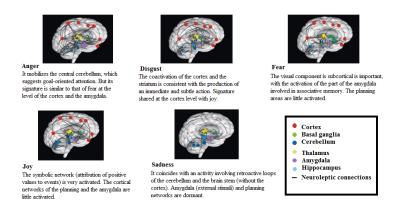


Figure 2: Brain centers according to emotion. Image extracted from [13]

The hormones

Depending on the emotion, the body releases hormones that activate the autonomic nervous systems.

- the hormones of happiness: There are 4 main ones: dopamine; serotonin; endorphin and oxytocin. Oxytocin: the hormone of pleasure. Secreted by the pituitary gland, it plays multiple roles in the brain. It first stimulates the amygdala (area of identification of emotions) to recognize a threat, then inhibits it to reduce pain or fear.
- the hormone of fear: adrenaline. During intense emotions or dangerous situations, the adrenal glands (located above each kidney) secrete this famous hormone into the blood: adrenaline. This hormone belongs to the same family as norepinephrine and dopamine.
- the hormones of anger: cortisol. It is also one of the stress hormones and comes a few minutes after the arrival of adrenaline. Useful for the transformation of fats into sugar, the hormone directs this energy to the leg muscles in the event of a running leak.
- the hormones of sadness: adrenaline, acetylcholine and norepinephrine. Sadness is explained by chemistryvia the sympathetic system, a release of adrenaline resulting in a knotted belly and accelerated breathing; in parallel, via the parasympathetic system, acetylcholine and norepinephrine are spilled into the body, which causes tears and prostration.
- the hormones of surprise :
- the hormones of disgust: cortisol, adrenaline. Faced with an unpleasant situation, the hypothalamus activates the production of cortisol, which calms the inflammatory reactions induced by adrenaline. If the stimulus is prolonged, cortisol causes tension in the body (anxiety ball, abdominal pain).

Anger, surprise, disgust, sadness and fear are emotions that cause stressful situations. As opposed to the emotion of joy, which it is the reflection of a situation of pleasure. Scientists have discovered the 3 stress hormones and the 4 pleasure hormones. During severe stress, the brain is filled with three hormones: adrenaline, orepinephrine and cortisol. During a pleasure situation, the brain is filled with four hormones: dopamine; serotonin; endorphin and oxytocin. These hormones play an important role on moods.

2 Emotions in traditional Indian and Chinese medicines

2.1 Indian Ayurvedic medicine

Ayurveda is one of the traditional medicines recognized and listed by the World Health Organization (WHO) as being a natural, traditional and integrative health system. She is originally from India. The term ayurveda comes from *ayus* which means *life* in Sanskrit and *veda* which means knowledge. Ayurveda can therefore be defined as a knowledge of life. Nowadays, several studies are carried out to modernize this discipline as in the article [21].

Ayurveda tends to balance the mind in relation to the body. It diagnoses imbalances in the body and in the mind that end up manifesting themselves in the form of diseases, malaises and other symptoms. It is thus a question of bringing back the balance in the body thanks to a lifestyle adapted to the person (diet, sleep, communications, interactions), the use of herbal formulas and other adapted natural remedies. This medicine is based on the Vedas which are sacred Indian texts. The main principles of Ayurveda are based on the theory of the 5 elements: Ether (Akasha)- subtle space; air (Vayu); fire (Agni); earth (Prithivi) and water (Jala). These elements make up the universe (macrocosm) and create the human body (microcosm). Therefore, the human being contains all the elements inside him and he is the reflection of the universe. The description of the human body in the texts of the Vedas explain that a person is not composed of a single body. Several bodies fit together, each with a different aura, to form the human being:

The physical body: dense, which is visible and palpable; it is the sum of all our organs.

The *etheric body*: is located just under the dense physical body, and its aura protrudes from the skin by a few centimeters. It consists of energy circuits (prana) called nadis (and named "qi" in Chinese medicine). The main energy circuit is sushumna and is located along the spine. This channel conveys the life force (kundalini) of an individual. It is often represented by a snake. When the nadis intersect, a chakra is formed. The major chakra corresponds to the crossing of 21 nadis. The human being consists of 7 major chakras, all implanted along sushumna. When 14 nadis intersect, a minor chakra is formed. Finally, a secondary chakra corresponds to the crossing of 7 nadis. This etheric body has several functions, in particular to animate the physical body, like a puppet, to act as an intermediary between the different dimensions of consciousness, to demonstrate the inseparability of the things that surround us.

The astral body: is located more below the skin but its aura exceeds the aura of the etheric body. This is the body of desires and emotions, which are located in various astral planes. The majority of physical pathologies come from a disorder of this astral body.

The *mental body*: has its root deep in the physical body. It is the body of forms and thoughts. He is in close relationship with the astral body. It is our mind that dictates to us what must exist and what does not suit us. A small part of the pathological disorders of the physical body come from this mental body.

According to the theory of Ayurveda, each person is composed of five elements with different proportions. These 5 elements mix with a dominance of two elements. They give rise to 3 biological moods: the Doshas. They are responsible for physiological and psychological processes, i.e. the great vital forces that create the body, make it work and destroy it. These 3 energies are named: vata, pitta and kapha. The Ayurvedic constitution of each person is characterized by a specific combination of these 3 doshas that is unique to him. Depending on the dominant doshas(s), one can determine the physical and psychological type to which the patient belongs (Prakriti). When the doshas become unbalanced, malfunctions and diseases appear. Ayurveda restores the balance that is specific to each individual and maintains the optimal state of health of the organism.

In Ayurvedic medicine, the human being has several bodies. This hypothesis is no longer valid in modern science. However, there is another, more realistic notion: the aura. It is a "halo of light" surrounding the body of a living being. It is the reflection of several "energy fields". This notion can coincide with the thermal activity of the body observed by a thermal camera. Or, explained by the magnetic fields, induced by neuronal electrical activity, and surrounding the body.

2.2 Traditional Chinese medicine

The first written traces of medical terms in China date from 1700 BC, during the Shang Dynasty, on turtle shells. Nowadays, several studies are carried out on this subject; see the articles [19] and [20]. Traditional Chinese Medicine considers the human at the center of the universe as an antenna between the celestial and terrestrial elements. The cosmology of traditional Chinese medicine is based on equilibrium, harmony and energy. The notion of equilibrium comes from the theory of Yin and Yang. That of harmony is based on the theory of the five elements. And finally, the notion of energy is expressed by Qi.

The world is a single unit and its movement gives rise to Yin and Yang, the two main antithetical aspects. The real meaning of the term Yin and Yang is the "opposite", such as positive and negative. However, the Chinese believe that Yin and Yang are not absolute but relative. In accordance with the modern view of homeostasis, Yin and Yang are interchanged to meet the opinion that "Yang decreases and Yin rises" or "Yang rises to produce a decline of Yin".

Water, Earth, Metal, Wood and Fire are the five elements of the material world. The theory of the Five Elements has not always been applied in the history of Chinese medicine and its popularity has experienced ups and downs over the centuries. It became extremely popular during the time of the Warring States (481221 B.C.) and was applied to medicine, astrology, natural sciences, the calendar, music and even politics. From the Han Dynasty, the influence of the theory of the Five Elements in Chinese medicine began to decline. Thus, the great classic book of medicine written in the Han Dynasty (206 BC 220 AD) by Zhang Zhong Jing, Dealing with diseases due to Cold, does not mention the Five Elements. It was only during the Song Dynasty (960-1270) that the theory of the Five Elements experienced a resurgence in popularity and was applied systematically in Chinese medicine, in diagnosis, symptomatology and treatment.

The Qi is the breath or energy of life.

The human body consists of yin viscera (hollow zang: Liver, Heart, Spleen, Lung, Kidneys) and yang (full fu: Gallbladder, Small Intestine, Stomach, Large Intestine, Bladder). It is also a set of material Qi, such as blood (xue), organic liquids (jin ye), and immaterial, such as the qi itself (ancestral zong, defensive wei, nourishing rong) and the spirit (shen). To circulate, the qi borrows channels or meridians (jing).

Bodily substances (Qi, blood, liquids, moisture and Essence) and internal organ systems (Zang Fu) play an important role in the balance of Yin and Yang in the human body. The proper formation, maintenance and circulation of these energies are essential for health. When the two energies fall into disagreement, the disease develops. The doctor takes this concept into account when treating patients. Medicines, herbs, acupuncture or Tuina massage are used to correct this Yin-Yang imbalance in the human body.

The theory of meridians does not coincide with the theory of modern medicine. However, a similarity is noted between the notion of the nervous system and the channels of the meridians. The neural electrochemical impulses can approach that of the energy that circulates in the human body.

2.3 Conclusion:

In conclusion, Chinese Medicine and Ayurveda have a very similar philosophy and principles, but the concepts and tools for treating diseases are different. Ayurveda uses massage with medical oils and herbal medicine. Traditional Chinese medicine uses acupuncture, herbal medicine and Tuina massage.

The psychology of energy exists in the theories of both traditional medicines. It is addressed at the same time to the vibrational matrix or vital energy, also called Ki, Chi, in Chinese or Prana in Sanskrit. As well as to the unconscious. The human brain seems to be neurologically wired in such a way that the stimulations operated on cause the psychic wounds to heal. When the energy circulates correctly, a feeling of well-being and fulfillment makes it possible to manage the vagaries of daily life. But when difficult situations, at whatever level, conscious or not, the energy system is disturbed and the body, mind and spirit can be affected and give way to disturbing, even painful sensations and emotions. At this moment, the psychology of energy intervenes by an original therapeutic approach which aims to quickly release disturbing or painful emotions. It is part of the movement of therapies focused on the balance and harmonization of body and mind that act on the psyche through the body's energy field. Among the techniques of energy psychology, there are: Traditional Chinese Energy TCM, Emotional Freedom Technique EFT, Tapas Acupressure Technique TAT, Be Set Free Fast BSFF and Eye Movement Desensitization and Reprocessing EMDR. They help to unblock the energy circuits thanks to tapping or by touching certain acupuncture points according to particular sequences that can be accompanied by verbalizations. Thus the emotional distress, accompanied by its procession of symptoms, subsides as the energy balance is restored.

3 Emotions in therapy: NLP and hypnosis

NLP, whether therapeutic or not, is a dynamic and interactive method. Neuro-linguistic programming is a brief therapy that brings together a set of communication techniques and self-transformation. On the other hand, hypnotization, whether therapeutic or not, is a semi-conscious method. That is to say it consists in modifying the state of consciousness of a person, who finds himself in a state of semiconsciousness: between sleep and the awake state. The objective of the two techniques is to accompany the patient to restore the balance between all parts of him, the alliance of the conscious and the unconscious, readjust the link with himself, others and the world.

3.1 The NLP

Neuro-linguistic programming (NLP) is a tool for personal development and support for change. It is an approach to communication and change, a set of self-transformation techniques that is interested in reactions rather than the origins of behaviors. NLP is a brief therapy developed in the 1970s in the United States by John Grinder.

We will briefly present the four techniques of NLP. The first is dissociation. This technique of NLP allows to manage negative emotions using the example of stress and fear. The second technique is content cropping. It consists in considering the strengths of a fact in the event of a rather complex situation. The third technique is anchoring. It is mainly used in NLP to get some kind of emotional reaction to something a person do or say. For example, it is possible for the person to start smiling unconsciously when the practitioner touch his shoulder. This is a very useful technique in NLP because he can instantly change the way the person feels. This helps in many situations, especially when the person feels insecure or upset. The practitioner can simply anchor a positive emotional response and pull the anchor when you see the person getting upset. The fourth technique is rapport. This is a very important skill and quite easy to master and which allows the practitioner to get along with any type of person.

There are several ways to bond with people: follow a person's breathing patterns, mirror their body language (not too much) or use similar words that the other person uses. It is also possible to evaluate the main sensory perception of the interlocutor, be it visual, kinesthetic or auditory, and then use the same perception by talking to the person and paying attention to what kind of words the person uses. For many years, the psychologist Viviane Dubos[11] has been successfully using neuro-linguistic programming. It

offers managers and employees of companies to better manage their emotions to face stress, anger and improve their self-confidence.

3.2 Hypnosis

The term "hypnosis" comes from the Greek word "hupnoein" which means to fall asleep. Hypnosis refers to a modified state of consciousness also called "trance", during which the individual is between the state of wakefulness and sleep. This state is natural and experienced every day when we read a good book or watch a movie that transports us. Hypnosis therapy aims to make accessible to the subject the little exploited resources of his brain and to activate his powers of self-healing with the help of suggestions made during this modified state of consciousness. All types of hypnosis are induction systems that convey images and social myths. They differ very little:

Classical hypnosis: Classical hypnosis dates back to 1841 and works with direct suggestions ("spiders are harmless beasts", for example) which are the same for all subjects with the same objective. Authoritarian and direct, classical hypnosis is the most used. Its usefulness is recognized for a multitude of behavioral problems, such as phobias, and to modify body feelings.

Ericksonian Hypnosis : Developed in the mid-twentieth century by the American psychiatrist and psychologist Milton Erickson [15], Eriksonian hypnosis includes classical hypnosis, but does not work linearly. For its creator, a psychophysical structure is much too complex for anyone to decide how to intervene with a symptom. He therefore proposed to solicit the creativity of the unconscious and invite it to express what could be changed to make a certain situation less difficult. This type of hypnosis follows the "erratic" path of the unconscious. In addition, she draws from several communication techniques in order to provoke a dialogue between it and the conscious: metaphors; reframing; activation of dreams; indirect or compound suggestions; sensory alteration.

EMDR hypnosis: Neuro-emotional integration through eye movements or more commonly EMDR, according to the English Eye Movement Desensitization and Reprocessing, is a type of psychotherapeutic intervention developed by Francine Shapiro from 1987. EMDR therapy is also part of hypnosis therapies since it allows the brain to be reprogrammed by acting on neurons.

Hypnosis is effective in many problems. Some have been the subject of scientific studies: Hypnosis to lose weight[16], Hypnosis to treat stress[17], Hypnosis to quit smoking, Hypnosis to facilitate pregnancy and childbirth, Hypnosis to treat irritable bowel syndrome. Moreover, it seems that these benefits persist in the medium term (2 years and more). In the longer term (5 years), the practice of hypnosis would contribute to an improvement in symptoms and a decrease in medication consumption.

The dangers and controversies around hypnosis, have their sources in the fact that no regulation or organization controls the practice of hypnosis, (caution is therefore required). It should be mentioned that during a hypnosis session, the individual remains aware of his actions and his words. Contraindications of hypnosis in psychotic subjects where the relationship to reality is altered, hypnosis should only be practiced by specialized doctors. For the same reason, although the effectiveness of hypnosis in the treatment of addictions is proven, it is not recommended for subjects who have consumed drugs or alcohol shortly before the session. Numerous studies, several of which are recent, have evaluated the applications of hypnosis in medicine. It is sometimes difficult to determine in what proportion the benefits come from the hypnotic effect itself or from the general context of the interventions. In addition, the lack of consistency in the terms used: hypnosis, self-hypnosis, imaging, hypnotherapy, et cetera. increases the difficulty of evaluating the scientific literature on hypnosis. Nowadays, hypnosis is taught in medical schools and increasingly used in hospitals.

Testimony

Testimony of a patient after three hypnosis session.

Age during session : 31 years Problem : stress and sadness

Identified cause: unhealthy romantic relationship

Question: How is the session going?

Response: The hypnosis session begins with lying down on a chair. The practitioner, begins to speak with words of relaxation and calmness, it gave me the impression that he is waiting for a reaction or words from me.

Question: Does hypnosis control the soul?

Response: I dont think that hypnosis controls the soul, since the person remains conscious. In my opinion, the choice to speak depends on the trust established between the patient and the therapist

Question: Why hypnosis?

Response: I didn't choose it, it was hypnosis that chose me.

Question: Is it beneficial?

Response: No, hypnosis has established fear and control. I think that this method must be explained to the patient before being practiced and above all be accompanied by psychological support to understand why the patient wants to do this and define the objective to be achieved.

Question: Do you recommend this experience?

Response: No. **Question:** Why?

Response: Because the care provided by the practitioners is not effective. A practitioner listens to other people's problems, he chooses to listen. And the session resembles a confidence with a parish priest in a church.

Question: I congratulate you for your testimony and courage for having tried the experiment. For many people, it is scary to talk to a psychologist in a conscious state, whereas to say to try the experiment in a semi-conscious state.

3.3 Conclusion:

Hypnosis is based on a semi-conscious state of the patient while NLP is practiced in a conscious state. NLP is a model that describes what he observes and proposes a model of change, via protocols. Milton Erikson [15] was able to develop a therapeutic method that links hypnosis to NLP in order to accompany instead of dominate. Both methods make it possible to learn to manage emotions, deficiencies or emotional overflow, on a conscious and unconscious level.

4 Conclusion

This article presents perceptions of different disciplines on emotional states. From neurology, through traditional medicines, the definitions are changing. In the first, emotions are the result of an electrochemical interaction, linked to hormones and neuronal signals. Emotions are taken into account in all psychological support, whether psychological or in a personal development framework. Two psychological methods are described: NLP and hypnosis.

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