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The effect of make-up on the emotions and the perception of beauty

O impacto da maquiagem nas emoções e na percepção de beleza

El efecto del maquillaje sobre las emociones y la percepción de la beleza

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Patrícia de Souza Nuevo
ORCID: https://orcid.org/0000-0002-0546-2322
Universidade Positivo, Brasil
E-mail: patricianuevomakeup@gmail.com
Sandra Crestani
ORCID: https://orcid.org/0000-0002-8824-9059
Instituto de Biologia Molecular do Paraná, Brasil
E-mail: sancbio@gmail.com
João Luiz Coelho Ribas
ORCID: https://orcid.org/0000-0003-0545-5920
Universidade Positivo, Brasil
E-mail: jlcribas@yahoo.com.br

Abstract
A personal image is a key factor in communication and socialization of the individuals and exerts a positive influence on self-esteem when it is aligned with a positive self-image. In light of this, the purpose of this literature review is to explore the effects of makeup on brain activity and the neurobiology of emotions. Makeup is a device used every day by several people, and its use can be regarded as a widespread and long-standing practice that strengthens the self-esteem of many women by providing them with a feeling of security that enhances their image of themselves. It can be inferred that since makeup serves to highlight someone´s beauty, (and bearing in mind that beauty is an all-embracing concept), it may well closely related to the emotions. A number of studies have aimed at exploring our perception of someone wearing makeup, and how this affects our understanding, as well as the procedures involved in its application and its possible effects. In particular, the relationship between makeup, self-esteem, emotions and the brain cells which are involved in emotions and the way which they are expressed may be highlighted.
Keywords: Emotion; Feeling; Limbic system; Symmetry; Makeup.

Resumo
A imagem pessoal é um fator chave na comunicação e socialização dos indivíduos e exerce uma influência positiva na autoestima quando está alinhada com uma autoimagem positiva. Diante disso, o objetivo desta revisão da literatura é explorar os efeitos da maquiagem na atividade cerebral e na neurobiologia das emoções. A maquiagem é um dispositivo usado diariamente por várias pessoas, e seu uso pode ser considerado uma prática difundida e antiga que fortalece a autoestima de muitas mulheres ao proporcionar-lhes uma sensação de segurança que valoriza a imagem de si mesmas. Pode-se inferir que, uma vez que a maquiagem serve para realçar a beleza de alguém (e tendo em vista que a beleza é um conceito abrangente), ela pode estar intimamente relacionada às emoções. Uma série de estudos tem como objetivo explorar a nossa percepção de alguém que usa maquiagem, e como isso afeta nossa compreensão, bem como os procedimentos envolvidos em sua aplicação e seus possíveis efeitos. Em particular, pode ser destacada a relação entre a composição, a autoestima, as emoções e as células cerebrais que estão envolvidas nas emoções e a forma como se expressam.
Palavras-chave: Emoção; Sentimento; Sistema límbico; Simetria; Maquiagem.

Resumen
La imagen personal es un factor clave en la comunicación y socialización de los individuos y ejerce una influencia positiva en la autoestima cuando se alinea con una autoimagen positiva. A la luz de esto, el propósito de esta revisión de la literatura es explorar los efectos de la composición en la actividad cerebral y la neurobiología de las emociones. El maquillaje es un dispositivo que utilizan todos los días varias personas, y su uso puede considerarse como una práctica extendida y de larga data que fortalece la autoestima de muchas mujeres al brindarles una sensación de seguridad que realza la imagen de sí mismas. Se puede inferir que, dado que el maquillaje sirve para resaltar la belleza de alguien (y teniendo en cuenta que la belleza es un concepto omnipresente), bien puede estar íntimamente relacionado con las emociones. Varios estudios han tenido como objetivo explorar nuestra percepción de alguien que usa maquillaje y cómo esto afecta nuestra comprensión, así como los procedimientos involucrados en su aplicación y sus posibles efectos. En particular, se puede destacar la relación entre el maquillaje, la autoestima, las emociones y las células cerebrales que intervienen en las emociones y la forma en que se expresan.
Palabras clave: Emoción; Sentimiento; Sistema límbico; Simetría; Maquillaje.

1. Introduction

Make-up is an ancient cosmetic device that has been used for many purposes such as a strategy for social diversification and a means of defining hierarchies, as well as identifying cultures, beliefs, rituals and techniques of embellishment (Etcoff, Stock, Haley, Vickery & House, 2011; Vita, 2009). In ancient times, the Egyptians had already resorted to several methods and formulas aimed at making someone more beautiful and several of these can still be found in the cosmetics currently used today (Walter et al., 1999). The act of putting on make-up is a process that improves one's appearance, as well as adding to one's personality and feeling of being human. Its purpose is to give tone to one's face and enhance its natural beauty by creating a presentable image which combined with behavioral patterns, can convey greater self-confidence (Molinos, 2010).

With that in mind, beauty can be regarded in broader terms that go beyond physical attraction. According to the concepts of "Visagism', beauty is a harmonious combination of the "outer" and "inner" or in other words, it can vary in accordance with individual concepts and the emotional state of each person (Trindade, Trindade, André, Moliterno, Vita, Abdelmalack, Bez, 2017a). On the basis of studies of phi (Φ) or irrational numbers, Stephen Marquardt designed the Marquardt Mask, according to which a face can be regarded as attractive, regardless of race or age, provided that it corresponds to the facial lines of expression and its dimensions accord with the golden ratio (Rupesh, Rakesh, Winnier, Kaimal, John, Prasannan & Jeyaprakash, 2014).

In light of this more comprehensive idea of beauty, it can be suggested that beauty is very closely linked with the emotions and since the purpose of make-up is to enhance people´s beauty, it has a direct influence on them (Braghirolli, Bisi, Rizzon & Nicoletto, 2014).

Emotions are the outcome of complex states of arousal which involve the whole organism, including physiological and cognitive features that have an influence on behavior (Braghirolli, et al., 2014). In the opinion of Coon (2006), emotion is when people are moved by something, with the purpose of aiding survival. In addition, it is able to issue commands for actions, speech and thoughts in the first thousandths of a second which can make one well prepared to face important events (Ekman, 2011).

In physiological terms, emotions are linked to particular areas of the brain, which together comprise the complex limbic system (LS) (Carter, 2003). The LS is a series of cortical structures (Machado & Haertel, 2013) such as the hippocampus, cingulate cortex, olfactory cortex and other structures which are connected like the mammillary bodies (through the fornix), septal area (including the nucleus accumbens) and amygdala (Rolls, 2016). The orbitofrontal cortex is closely linked to these regions and can be considered to be a part of the limbic structures, as well as the hypothalamus. These cerebral regions allow the body to express in some way, the emotions felt through the nerve impulses transmitted to the autonomic nervous system (Rolls, 2016).

Since the beauty perception could be related to the emotion and concomitantly with the limbic system, influencing the self-esteem and well-being of the people, the present work aims to analyze the effects of make-up on the perception of beauty and how the emotions can be altered in view of this.

2. Methodology

To carry out this work, a qualitative bibliographic survey (Pereira, et al. 2018) was performed. The articles and works for their execution were found in the following databases: BVS, PubMed, Scielo and Science direct. The descriptors used were: emotion, feeling, limbic system, symmetry and makeup.

The inclusion criteria were articles with human study or bibliographic reviews that are between the years 2000 to 2020. The selected languages were Portuguese, Spanish and English. In all, 65 articles were found in the databases searched with the above keywords and inclusion criteria.

3. Results and Discussion

3.1 Make-up v visagism

Since primitive times, women and men have used mixtures of clay, minerals, plant extracts and even the blood of animals to paint their faces and bodies for magic rituals, or the worship and sanctification of gods, as well as to celebrate different stages of life, identify tribes and establish divisions between the social classes (Cezimbra, 2005).

The use of make-up still plays a key role for different people, while in modern societies it is extremely important for women as it acts as a means of providing a uniform skin tone, enhanced beauty and feminine attributes (D'Allaird et al., 2017). In addition, the use of make-up modifies visual features and is closely related to enhancing attractiveness (Samson, et al., 2010). On the basis of a study undertaken by Ueno, et al. (2014), which found evidence that made-up faces are thought to be more attractive than those without make-up, it could be shown that neuronal activity in the orbitofrontal cortex (OFC) and the hippocampus are associated with attractiveness. The study was conducted with the aid of functional magnetic resonance imaging (fMRI) for analysis while the image was being visualized and, at the same time, the volunteers decided what mark should be awarded to categorize the attractiveness of the image.

The concern with the image has ceased to be a superfluous matter and begun to become an asset of increasing value in recent times, since it is a resource that provides a state of well-being and improves self-esteem and has had positive effects in the opinion of anyone who has observed it (Cash & Cash, 1982). Every image expresses concepts, sensations, intentions and emotions through the use of visual features such as lines, colors, lights, shapes and textures in accordance with what is intended. In light of this, every image will induce different emotions and feelings (Trindade et al., 2009).

Color is a key element in the composition of the image and in the case of make-up, it is essential to know how it functions and how to make use of it for desired effects. This device can be used to keep, increase or reduce the volume of the different parts of the face and in this way direct the eyes of the person looking at it, to the areas that the owner of the face wishes to be highlighted (Hallawell, 2009).

On the basis of this concept, the shade or darkness may conceal or create cavities and remove or alter contours (D'Allaird, et al., 2017). Brightness or light can either bring closer, highlight, illuminate or reveal what was hidden (D'Allaird, et al., 2017; Hallawell, 2009). In addition, facial contrasts can also be regarded as a visual aspect of attractiveness (Russell, 2003). The most significant features can be emphasized by contouring and the lines of the face or protuberance of the nose can be harmonized. The illusion that the facial features can be altered is effected through the use of make-up (Russell et al., 2019) and it is also possible to work on the lines and angle of the eyebrows and the size of the eyes (Russell, 2003).

Against this background, Visagism has proved to be a valuable tool for providing a harmonious and personalized image in a suitable way (Hallawell, 2009). The term Visagism derives from the French word visage, which means face or countenance and it is a concept that expresses a personalized image that reflects its principles and thoughts, and respects individuality and beauty itself without any constraints (Trindade, et al., 2017a).

Visagism postulates that the image of people can be harmonized with the image they wish to convey. In light of this, the face can be regarded as the place where someone's identity is located and everything this entails. If it fails to express the person's identity or even expresses a different identity, this individual probably has problems not only in relating to himself but also to other people (Hallawell, 2009). This is because the image is a part of a communication that is unspoken but recognized

and known as a visual language (Trindade, et al., 2017b; Hallawell, 2009).

On the basis of the concept of Visagism, this image is formed of lines, shapes, textures, colors and light, while being used to convey the aim of a personal image. Moreover, concepts, intentions and sensations are expressed through the image and these take account of harmony and aesthetic factors (Kao et al., 2014). Proportion, symmetry, design, aspects of personality and geometrical patterns are all underlie and form a part of Visagism (Hallawell, 2009).

In Visagism, the concept of beauty is something relative and changeable, although there is another line of thought that seeks to demonstrate from features of nature, that mathematics can explain what is visually beautiful. In this sense, objects like naturally occurring seashells, new curling fern leaves, the chameleon´s tail, the curved shape of an ivory elephant´s tusk, the growth patterns of sunflower seeds, among other examples, take the form of a perfect spiral that can be calculated by the Golden Mean, (the "Signature of God" in creation) (Trindade, et al., 2017a).

Inevitably the human figure follows this rule - the symbol of the Golden Proportion or Vitruvian Man, and studied during the Renaissance by Leonardo da Vinci, whose portraits show the importance of mathematics when composing the human form (Naini & Gill, 2017). A knowledge of the basic principles of Visagism and its links with mathematics can ensure one has the right support tools when searching for a face that is proportionally beautiful and pleasant. Added to this, are the Golden Ratio and the Marquardt Mask, where a face can be regarded as beautiful, regardless of race or age, so long as it corresponds to its facial lines (Rupesh, et al., 2014).

3.2 The Golden Ratio v the Marquardt Mask

Beauty arises from biological and anthropological meanings that are hereditary and interdependent and provide opportunities for cultural constructs based on human relationships (Camargos, Mendonça & Duarte, 2009). Currently, discussions about beauty seem to be governed by the idea of the relativity of this concept, or in other words, "beauty is relative" or even "beauty is in the eyes of the beholder" (Dolce & Pompeu, 2010). If one adheres to this concept, the question of beauty can be determined by different opinions, even though in certain points of the view this is not really the case (Camargos, et al., 2009).

Attributes as proportion, symmetry, even facial features, the appearance of the skin (i.e. a youthful look), cultural influences and hereditary factors must be taken into account before a face can be thought of as beautiful (Naini, 2013). Proportion is a key factor in the process of harmonizing the lines of beauty, while symmetry has formed one of the canons of beauty since classical times, when for the ancient Greeks and Romans it meant a correct proportion (Camargos, et al., 2009).

The Golden Ratio is a ratio between two lengths of a particular segment and this expression results in an irrational number (Anastacio & Ferreira, 2015). In the literature, this ratio is also known as the Divine Proportion, Golden Section, Golden Mean and Extreme and Mean Ratio. Some authors think that this number is the inverse of Φ (Dolce & Pompeu, 2010).

One concept that is related to the Golden Mean is the Fibonacci series, in which each number is the sum of its two preceding numbers; the sequence is infinite and appears in many natural phenomena as well as being widely used to create proportions that are deemed to be aesthetically pleasing (Anastacio & Ferreira, 2015; Pereira, 2008).

Some academic scholars state that the term "divine proportion" for the Golden Ratio was coined by Leonardo Da Vinci. In their opinion, the works of Da Vinci are harmonious because they took account of the Golden Mean when they were created. A good example of this is his famous work the Mona Lisa, several features of which can be fitted in a golden rectangle and whose facial measurements correspond to the number of Φ (Pereira & Ferreira, 2008; Paciole, 1988).

The Vitruvian man is another example of an application of the Golden Mean by Leonardo Da Vinci (Anastacio & Ferreira, 2015). Da Vinci designed the Vitruvian man in 1490 based on the writings of Marcus Vitruvius, a Roman architect

from the 1st Century B.C., who established the principle that related the proportions of beautiful architecture to men whose bodies were well formed (Cherem, 2005). This involved designing a model for the ideal human body the measurements of which were based on the Golden Ratio, thus showing the importance of proportion for the human form and is regarded as one of the main works of art that represent balance, harmony, beauty and perfect proportions (Gomes, Santos, Filadelpho & Zappa, 2009; Naini & Gill, 2017; Camargos, et al., 2009). The architect Vitruvius even postulated the theory that the face of a well-proportioned man can be divided into three symmetrical parts: the first begins at the front of the hairline and reaches the eyebrows, the second goes from the eyebrows to the tip of the nose and the last goes from the nose to the end of the lower jaw. The proportional measurements require that the width of the face should be two-thirds of its length and the distance between the eyes must be the same size as the base of the nose (Bozkir, Karakas & Oguz, 2004; Farkas, 1996).

Furthermore, the Golden Proportion is linked to the ideal size and according to the philosopher Pythagoras, can be used to explain the essence of beauty. A scientific analysis of facial beauty based on mathematical measurements raises the hypothesis that the kind of facial symmetry that is perceptible to the eyes, is what is most pleasing aesthetically (Bertollo et al., 2008).

With the aim of proving the effectiveness of the Golden Proportion, the plastic surgeon Steven Marquardt, studied a technique which was adapted to human eyes by means of a mask called the Φ or Maquardt mask; this made the use of the Golden Proportion to translate what is beautiful through a mathematically perfect face. The Marquardt mask, which is also designated as a formula of beauty, must be perfectly adjusted to each part of the face, since the measurements of the mask that are needed for the facial plastic surgery to attain the results required, are those of a face that best fits the standard of beauty that is established. This mask serves as a valuable instrument for research into aesthetics and areas where human visual appeal is a key parameter, such as anthropology, biology, the arts, make-up and fashion (González, Zárate & Rosales, 2016; Rupesh, et al., 2014).

3.3 Emotions v facial expressions

Emotions can be regarded as the interface between an organism and its behavior, which constantly mediates changing events, the social context, the responses of individuals and previous experiences (Scherer & Moors, 2018; Mulligan & Scherer, 2012). There is a general agreement that emotional expressions entail a number of different factors such as an assessment of a situation, preparation for action, physiological responses, a significant kind of behavior and subjective feelings (Scherer & Moors, 2018).

According to Arruda (2014), there is no kind of action or behavior that is not driven by our emotions. Damasio, Grabowski, Frank, Galaburda & Damasio (2005) believes that emotions are aroused by a stimulus and puts people in a position to respond so that they can react in a way that is suited to their own particular environment. Emotions can cause several kinds of reaction: some are of a positive kind and for this reason can encourage them to repeat their behavior, while others are negative and their resulting behavior has to be rejected. It can also be the cause of self-interested behavior which has led several authors to believe that the only common factor between different types of emotions is the stimulus that triggers or reinforces them and allows the emotional experience to be either prolonged or terminated (Ferreira, 2014; Lent, 2001).

With regard to the notion of reinforcement, positive emotions are those that induce pleasure, while negative emotions cause dissatisfaction (Lent, 2001). Each emotion is expressed in particular physiological ways that are coordinated autonomic responses by the autonomic nervous system, which may vary depending on the type of emotion and subject involved and might even involve other parts of the organism (Lent, 2001; Machado & Haertel, 2013).

There is a direct correlation between facial expressions and emotions since both are controlled by the central nervous

system (SNC) and, as mentioned earlier, especially by the autonomic nervous system. Most of the authors believe that the emotions are mediated in the LS through the following: the amygdala, hypothalamic areas, the septal area, the previous nuclei of the thalamus, the cingulate cortex and the associative-limbic cortex. The amygdala receives all the necessary information about the sensory system by means of its connections with the orbitofrontal cortex and previous cingulate rotation, and thus plays a key role in social behavior because it is involved in manifestations of emotions through facial expressions (Guyton & Hall, 2017). The thalamus (the region where the images are recorded in the brain) is the gateway of the feelings. The information is sent from the thalamus to the amygdala, which interprets the emotional meaning of the non-verbal message and through this pathway, is able to understand the emotional aspect of everything that can be noted (Goleman, 2006).

A number of behavioral factors that express emotion can be taken into account - such as the tone of voice, gesticulations and changes in facial expression. The last of these has been the source of a good deal of research, mainly because, as well as being a highly visible region, the face can also rely on a huge number of anatomophysiological resources which allows it to express itself (Miguel, 2015). With regard to this, it can be inferred that a kind of non-verbal expression can be established through facial expressions and that this allows various feelings to be "externalized" such as happiness, sadness, anger, disagreement or approval (Ekman & Cordaro, 2011).

Expatiating on the emotions and the respective ways in which they are expressed is a somewhat complex task, particularly in light of the fact that the literature itself does not have a standard classification with regard to their number or identifying features. However, most of the authors refer to happiness, sadness, anger, fear, disgust and surprise (Ferreira, 2014). Bez, André, Trindade, Trindade, Moliterno, Vita and Abdelmalack, (2017), also include the "neutral emotion", while Freitas (2013) add dislike, rage and contempt. In this context, Chart 1 shows the characteristic of facial expressions according to different emotions, following the international face coding standardized by the Moving Picture Experts Group (MPEG-4).

As can be observed in Chart 1, key factors to differentiate the facial expressions among each other encompass mainly the eyebrows and lips, enabling distinguish the types of emotion. Happiness is an emotion characterized by satisfaction with life, well-being, and content (Rotter, 2000). Favorable events can trigger the emotions either directly or indirectly and induce positive feelings in those who experience it (Silva, 2011). Pleasant sensations are able to release cerebral neurotransmitters like dopamine and noradrenaline. Dopamine is produced in dopaminergic neurons derived from tyrosine amino acid. The way it acts is related to motor activity, cognition, motivation (Dunlop & Nemeroff, 2007), a feeling of pleasure and the notions of reward and motivation (Lundy-Ekman, 2008). When there is a large amount of dopamine in the frontal lobe, it is also able to alleviate pain and heighten pleasure (Guyton & Hall, 2017). Noradrenaline acts in the regions of the brain that are responsible for emotion and cognition and is a factor in the regulation of appetite, response to pleasure, sexual satisfaction and aggressive behavior (Moret & Briley, 2011; Freitas, 2007).

Chart 1. MPEG-4 Standard (coding method) for expressions of the human face.

Type of emotion	Facial expressions involved in the manifestation of emotions
Neutral	Without any facial alterations.
Happiness	The eyebrows are relaxed. The mouth is open, and the corners of the mouth stretch out in the direction of the ears.
Sadness	The inner part of the eyebrows is arched upwards. The eyes are slightly closed. The mouth is relaxed.
Anger	The inner eyebrows are stretched downwards and knitted. The eyes are wide open in a fixed stare. The lips are either compressed or open up to reveal the teeth.
Fear	The inner eyebrows are stretched upwards and knitted, with wrinkles appearing on the forehead. As a result of the elevation of the upper eyelids, eyes, and mouth open.
Disgust	The eyebrows and eyelids are relaxed. The upper lip is lifted and curled, at times in an asymmetrical way.
Surprise	The eyebrows are raised. The upper eyelids are completely open while the lower eyelids are relaxed. There is a mandibular opening.

Source: Adapted from Bez & André (2017, p. 52-53).

Happiness is a striking feature in people with a good self-assessment who are at ease with themselves or, in other words, have a high degree of self-esteem (Freire & Tavares, 2011). Expressions of happiness are easier to classify than the other categories (Calvo & Lundqvist, 2008) and signal positive features to the observer. The facial expression of this emotion is displayed in the contraction of the greater zygomatic muscle, going from the lips to the maxillary region, and as a result, leads to a broadening of the smile (Bez, et al., 2017), with the corners of the mouth stretch out in the direction of the ear (Chart 1). The drooping of the skin between the eyelids and eyebrows causes a contraction of the orbital muscles which produces a genuine expression of happiness; however, a small number of people are able to make this contraction in a conscious way and thus induce a false emotion of happiness (Ferreira, 2014; Ekman, 2003).

Sadness is one of the most long-lasting emotions and is manifested through disappointment or considerable loss - either of something or somebody. Generally speaking, it leads to a feeling of abandonment or distress, and is most often demonstrated through withdrawal, silence and weeping (Denham, Mason & Couchoud, 1995). A chemical imbalance in the brain (for immaterial or psychic reasons) reduces the serotonin, which is an important neurotransmitter in the etiology of this emotion (Silva, 2011). The most important facial alterations can be seen in the drooping of the corners of the lips, while the mouth remains closed but contracted and the chin is set and perhaps scowling (Miguel, 2015). There is also a rise in the zygomaticus muscle which causes the eyes to open and a drawing together of the eyebrows (Chart 1), often accompanied by a downward look (Ekman & Cordaro, 2011).

Anger is an emotion that is provoked by an affront or feeling of injustice (Miguel, 2015). It should be noted that when reactions are accompanied by a rise in blood pressure, there is an acceleration of heart beats owing to the increase of adrenaline and other hormones which produce the energy needed for energetic conduct (Goleman, 2012). While this emotion prevails, there is evidence of considerable activity in the regions of the lateral orbitofrontal cortex (Beyer, Münte, Göttlich & Krämer, 2015). The eyebrows are drawn together (Chart 1) as a muscular response and they tend to droop in the center (Ekman, 2011; Freitas-Magalhães & Batista, 2009). The highest point of the eyebrow remains stationary while the other movements are carried out; the eyes are slightly closed in the middle, and the mouth a) seems smaller, b) is contracted and c) highlights the lips (Ekman, 2011; Freitas-Magalhães & Batista, 2009).

Fear is aroused at the moment when someone feels threatened either by the environment or by another person and this can create a feeling of uncertainty or loss of control which is also known as acute stress (Dumont, Yzerbyt, Wigboldus & Gordijn, 2003). Its purpose is protection since it has been linked to danger since birth and is commonly experienced in childhood and adolescence (Schoen & Vitalle, 2012). It might be short-lived or longlasting and its degree of intensity depends

on whether it is immediate or pending (Freitas, 2007).

The emotion of fear activates the autonomic nervous system and triggers associated neurophysiological responses including metabolic alterations such as an increase in insulin, a release of adrenaline and changes in heart beats (Freitas-Magalhães & Batista, 2009; Freitas, 2007). In the opinion of Garcia (2014), the physiological response to stress can be explained in a general way as a rapid response pathway in which the hypothalamus sends a message to the central nervous system through the spinal cord. This activates the sympathetic nervous system and induces the production of adrenaline through the adrenal gland which then mobilizes a number of body cells and endocrine glands (Lipp, 2000). This situation stimulates motivation, attention and force and prepares the person for a struggle or flight (Lima, Soares, Prado & Albuquerque et al., 2016).

If fear lingers on for a longer period of time, it gradually induces a physiological response which is mainly characterized by the production of corticotropin by the hypothalamus. This acts in the pituitary gland by inducing the release of the adrenocorticotropic hormone and activates the adrenal gland cortex which in turn releases cortisol into the circulatory system (Garcia, 2014). This hormone (also called the stress hormone) is responsible for a number of responses such as a rise in arterial blood pressure and the level of sugar in the bloodstream (Guyton & Hall, 2017). The expression of fear, as pointed in Chart 1, can be perceived through the opening of the jaw, the elongation of the lips in a horizontal direction and a raising of the eyebrows and surrounding area (Ekman, 2011; Rotter, 2000). The upper eyelids remain open while at the same time, there is slight tension in the lower eyelids which leaves the eyes dilated (Bez et al., 2017; Lipp, 2000).

Disgust is something undesirable and repugnant and sometimes referred to as “aversion” (Miguel, 2015). Cardiorespiratory alterations occur as a result of a significant degree of anxiety (Silva, 2011). Evidence shows that the globus pallidus and the insular cortex are responsible for this expression (Murphy et al., 2003). The facial reactions (Chart 1) are characterized by the puckered nose with open nostrils, a rise in the lower eyelids, a rise in the zygomaticus muscle and hence a contraction of the lips (Ekman, 2003).

One of the shortest expressions, which only lasts for a few seconds, is surprise, which is characterized by something happening very suddenly. The intensity of the emotional state of surprise is closely bound up with the fact that this kind of event is unexpected. It tends to be combined with either a positive or negative emotion depending on how the event is understood; if it is deemed to have no importance, it may not be followed by any emotion (Ekman & Cordaro, 2011; Silva, 2011; Rotter, 2000). As cited in Chart 1, the open mouth undergoes a slight lifting in the corners and the chin drops with the rise of the lower eyelids and the rise of the eyebrows; wrinkles can be seen on the forehead and the eyeballs become more distinct (Bez, et al., 2017; Ekman, 2003).

3.4 Main cerebral structures involved in the emotions

The wish to understand the basis of the emotions in the hydrocephalus is not something new and neuroscience has made this kind of investigation possible. Behavioral neuroscience is seeking to study the neural structures that cause different kinds of behavior and psychological phenomena like sleep and emotional behavior among other factors (Lent, 2001). It is an area of study that not only includes health professionals but also many other personnel. It is thus becoming an important multidisciplinary approach that involves various specialists with particular interests, although they all have the same objective which is to understand the function of the nervous system (NS), and how its behavioral patterns are increasingly benefiting modern research (Ximendes, 2010; Lent, 2001).

For a long time, it was believed that emotional reactions take place in the whole hydrocephalus but today it is known that the most significant encephalic regions are found in the hypothalamus, pre-frontal area and the LS (Barreto & Ponte e

Silva, 2010). The system of emotions, also known as the limbic system (LS), is designated as the neuronal circuit which is related to the emotional responses and motivational impulses (mainly with primary motivations that set out from a need or desire for survival) (Esperidião-Antonio et al., 2007; Pergher, Grassi-Oliveira, Ávila & Stein, 2006).

The primary concept of the cerebral functions was examined by Pierre Paul Broca on the basis of observations of patients with cerebral damage and he coined the term 'limbic lobe' (Barreto & Ponte e Silva, 2010; Esperidião-Antonio, et al., 2007). In 1937, James Papez revealed the basic emotional circuits, which were amplified by Paul MacLean in 1949. Although there are agreements about these factors among some authors, there are disagreements among others with regard to the inclusion of some structures in terms of both their composition and conceptualization (Damasio et al., 2005). There is still a certain amount of controversy about the structures that form the LS, as well as the exact nature of each of their functions (Ledoux, 2000). In light of what is described by most authors as the structures that comprise the LS, Chart 2 provides a summary of the main areas with their respective functions (Machado, 2006).

Chart 2. Cerebral structures related to emotions.

Cerebral Structures	**Functions**
The cingulum bundle	Related to depression, anxiety, and aggressive behavior - its activity increases when someone lacks the facts which can assist the contents of their memory.
Hippocampal gyrus	Related to the storage of memory in the brain - harmful proceedings in this region cause isolated retrograde amnesia and preserve the storage capacity of new memories.
Hypothalamus	One of the most important structures of the LS; it controls many functions of the visceral organs and endocrine system of the body and behavioral factors.
Hippocampus	It is related to behavior, memory and decision-making. Different areas of the hippocampus can stimulate different patterns of behavior such as pleasure, anger, and passiveness. It is more responsible for the consolidation of memory, including the emotions that are not involved in a determined way in the neural mechanisms of emotion.
Amygdala	This is related to emotional learning and the storage of affective memory, while also being responsible for forging a link between stimuli and rewards. It is active in notable situations like aggressive encounters or those of a sexual nature. It operates at a subconscious level and supplies information on the current state, environment, and thoughts of someone for the LS. Based on this information, it is believed that a behavioral response can be made that is suitable for each occasion.
Septum	This refers to anger, pleasure and neurovegetative control.
Pre-frontal Area	This assists in decision-making and more appropriate behavioral strategies; in addition, it seems to be linked to the capacity for following ordered sequences of ideas and controlling emotional behavior.
Cerebellum	This is regarded as a key coordinator in ensuring the motor, sensory and cognitive skills work together so that links can be forged with the responsible encephalic regions for the dynamics of these functions.

Source: Adapted from Cosenza, (1998); Machado, (2006); Lent, (2010); Guyton & Hall, (2017).

As can be observed in Chart 2, hippocampus, amygdala and pre-frontal área are strongly involved with the emotions, with cerebellum being related to the integration between motor, sensory and cognitive skills with their respective encephalic regions, to ensure the coordinated operation. The SNA is also of crucial importance for the expression of the emotions. Several nuclei of cranial nerves, either visceral or somatic, can be found in the encephalic trunk, as well as visceral centers such as the respiratory center and the vasomotor (Ferreira, 2014). The main function of the encephalic trunk is to be an effective agent and basically act in the expression of emotions (Ferreira, 2014). Although the most important encephalic centers for regulating the emotions are not in the encephalic trunk, these centers are influenced by the neurons which originate there (Ekman, 2003). Another region involved is the hypothalamus which controls most of the visceral and endocrine functions, as well as various aspects of emotional behavior and even takes part in coordinating the peripheral manifestations of the emotions (Ferreira, 2014).

4. Final Considerations

Make-up is a cosmetics device that is of great significance for different people and in the course of history has acquired great importance as a sign of modernity. Currently, it is being used to assist in harmonizing facial lines since it is possible to smooth out or highlight certain visual features. Moreover, it is of great importance in adding to people's self-esteem and the perception they have of their self-image, since it is increasingly attracting more space and becoming more significant. By making a more personalized and harmonious image possible, Visagism allows people to convey a required message through their image by referring to their appearance. In this way, it is stressed that the image is a part of a communication that is non-verbal but apprehended and known as a visual language since it based on visagism which consists of lines, shapes, textures and other elements that compose an image that expresses concepts, intentions and sensations through the image and even arouses emotions.

The wish to understand the basis of the emotions and their relation with the nervous system and emotional manifestations, is not something new and there is still much to be understood, particularly with regard to facial expressions. In this context, future works encompassing the study of activation of encephalic areas according to the facial manifestations of the emotion must be encouraged, as in the case of the auto perception of beauty after make-up.

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