



Self-Empathy as a Necessary Element for Regulation of Emotions

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Abstract

The need to care about each other, identifying ourselves with what we have in common, as living beings, human beings on this planet, is currently becoming a focus in studies and reflections among researchers in neuroscience, behaviour, emotions and social relationships, to name a few. In the area of health promotion and psychotherapy, it is no different. Particularly in the last two decades, the expansion of knowledge about the brain and nervous system in neuroscience research has provided information to relate these areas to understanding of the individual and their relationships, contributing to reflections, understanding and proposals for action and possible release from human suffering. Thus, the purpose of this qualitative article is to reflect, based on a Narrative Review of recent literature, on the possibility of understanding empathy as originating from primary or natural emotion. In conclusion, the importance of regulating emotions becomes evident, considering self-empathy so that its function of regulating our instincts with the purpose of survival, well-being and evolution, can happen, in the individual and social fields.

Keywords

empathy, self-empathy, emotions, default system, neuroscience, narrative review

Introduction

The need to care for each other, identifying ourselves with what we have in similarity, as living beings human beings on this planet, is currently becoming a

common focus in studies and reflections among researchers in neuroscience, behaviour, emotions, and social relationships, to name a few.

In the area of health promotion and psychotherapy, activities that I have performed for forty years as a teacher, psychotherapist and facilitator of training in transactional analysis, it is no different. Especially in the last two decades, the expansion of knowledge about the brain and nervous system in neuroscience research has provided a link between these areas of understanding of the individual and their relationships, contributing to reflections, understanding and proposals for action and possible liberation from human suffering.

Thus, the purpose of this article is to reflect, based on a narrative review of recent literature, on the possibility of understanding empathy as originating from primary or natural emotion. And, in this context, to reflect on what self-empathy would be, if we can name it that way, preceding and facilitating the empathic connection.

To this end, it is imperative to deepen our understanding of human emotions and feelings, emotional awareness, empathy, relating to recent findings involving the default mode network, the default system.

In the literature review, we will approach the themes of emotions, emotional awareness and feelings, standard system, empathy and self-empathy, from the presented approaches, and weave the considerations.

Literature And Discussion

In a previous article (Costa, 2018) we reflected on natural emotions, including, from Damasio (2004) and Maturana & Varela (2005), the emotions of anger, fear, sadness, joy and love as natural or primary emotions that we will call root emotions, by their nature shared with several living beings and

with all human beings. So, it seemed appropriate to understand them as biocybernetic mechanisms of regulation of instincts with the purpose of survival, well-being and evolution.

In this perspective, from the reflection of authors and articles mentioned below, we relate empathy as a social root emotion, originated in the emotion of love in the conception of Maturana & Varela (2005), contributing to the understanding of its importance in social relationships. From the vast literature on the subject, we selected researchers whose vision can be associated with the guiding thread of our proposal for reflection.

There are a few number of studies reflecting on the fundamental character of self-empathy, an emotion that is also root, in the facilitation of empathy as a social emotion, promoting survival, well-being and evolution, although preventive health practice and individual and group psychotherapeutics seem to show this fact.

Emotions

When we find ourselves in emotionally intense situations, we produce substances and experience physical sensations, whether positive or negative, and we are often immersed in them even when we are not aware of what is happening.

António Damasio (2004, 2018), among other authors such as Panksepp (2011), Zak (2012), within his scientific production in the field of neuroscience has addressed the precedence of emotion over feeling, referring to a complex chain that starts with life. According to him, every living organism, from the amoeba to the human being, is born with enough to solve the basic problems of life; that is, to find sources of nutrition, incorporate and transform this nutrition, maintain a chemical balance compatible with life, replace components that age and die, maintaining the body's structure and defending it from physical injury. This happens automatically, ensuring homeostasis. This base, common to every living being, constitutes the roots of a tree, according to the analogy of Damasio (2004), through which we develop emotions themselves, considered the gems of the instinctive regulation of life.

Emotions themselves influence hungers, drives, needs and vice versa. Fear and sadness, for example, inhibit hunger and sexual activity. Joy promotes hunger and sexual activity. Satisfying the instincts causes joy and blocking the satisfaction of the instincts can cause anger, despair and sadness. For the authors, all these reactions are automatic, aiming, directly or indirectly, to regulate life and promote survival throughout biological evolution, in a determination of self-preservation present in any living being, the fight against threats, for the

maintenance of the coherence of their structures and functions, in order to remain the same individual. This determination is related to the mechanism referred to by Maturana and Varela (2005) as autopoiesis, which occurs in the domain of internal structural dynamics. The other domain, for these authors, is relational dynamics, in which we exist as living beings in the realisation of our living. In these two domains we exist as the class of living beings that we are. In the domain of relational dynamics, while a unit does not enter into a destructive relationship with its environment, between the structure of the environment and that of the unit there is a compatibility, in which both act as sources of mutual disturbances, triggering changes of state.

For these recurring interactions to happen, the emotion that constitutes them is love, as the space of conduct that accepts the other as a legitimate other in coexistence. Rejection, on the other hand, constitutes the space of conduct that rejects the other as a legitimate other in coexistence. Love and rejection, understood in this approach, constitute root emotions, such as anger, sadness, fear and joy.

Emotions, therefore, are relational. So, although still little researched by scholars of emotions, such as Damasio, (2004), LeDoux (2001), and Panksepp (2011), based on the biology of knowledge (Maturana and Varela, 2005), it is possible to encourage research in the field of neuroscience, among others, about the root emotion love, understanding it as present in the interaction between the elements that compose the unicellular beings. And, as a social or relational emotion, present at the origin of biocybernetic mechanisms of life regulation with the purpose of survival, well-being and evolution.

Damasio (2018), opens this reflection when he says that: "Care and rearing of offspring is also a powerful impulse, complemented, on the side of those who are cared for and raised, by bonds of affection and love, the kind of bonds whose interruptions lead to panic and suffering." (p.135).

Understanding the brain mechanisms underlying emotions expands our possibilities of appropriation and options for action and interaction in the emotional sphere. And there is not a single emotional brain or physical system to understand the origin of emotions, but several systems, operating outside the sphere of consciousness (LeDoux, 2001). Several brain regions are identified as involved in or triggering emotion, such as the amygdala, located in the temporal lobe, a part of the frontal lobe called the ventromedial prefrontal cortex, and a frontal region in the cingulate cortex. These are regions that come into action as a result of natural stimuli or artificially created stimuli.

From the observation, in studies cited by LeDoux (2001) we know that people with lesions of the amygdala cannot trigger fear or anger and, consequently, do not have the feelings that correspond to them. Also, the normally functioning amygdala comes into play even when we are unaware of having perceived something threatening.

In any emotion, the multiple waves of chemical and neural responses alter the interior environment, the state of the viscera and the state of the muscles during a certain period with a certain profile. Emotion is a disturbance of the body (positive or negative valence) that spreads and is amplified. This extension and amplification occur because the presence of an initial external or internal stimulus often leads to the evocation of related stimuli that also provoke emotion.

Emotional Awareness and Feelings

Why is it essential to distinguish emotions from feelings and feelings from emotions?

What we call feeling originates in the basic homeostatic reactions of the regulating flow of life. In this regard, Damasio (2004, 2018), Siegel (2012), LeDoux (2001), Panksepp (2011), to name a few researchers, have similar reflections and approaches.

However, the understanding that emotions are public and feelings are private (Damasio, 2004), is fundamental to build the idea of this work, due to the fact that, when we reflect on what we feel, we do so immersed in the relational strategies created throughout the socialisation process to satisfy our needs for survival, well-being and evolution, inserted in the context of our individual development. In the words of Damasio (2018) "the processes that sustained feelings after minds emerged existed long before, and included the mechanisms necessary to generate the characteristic component of feelings: valence" (p. 145). We understand valence here as the inherent quality of experience, which we capture as pleasant, unpleasant, or something in between.

A feeling for Damasio is a perception of a certain state of the body, accompanied by the perception of thoughts with certain themes and by the perception of a certain way of thinking. Feelings of emotions are functionally distinct because their essence consists of thoughts about the body when surprised in the act of reacting to certain internal or external objects and situations. When this bodily essence is removed, the notion of feelings disappears. Feelings do not necessarily originate in the real state of the body, but in the real state of the brain maps that the somatosensory regions construct at each moment. The world of feelings is realised through perceptions performed on brain maps. Such maps are made

through an intricate network of hierarchical neuronal interconnections that, for this stage of our study, we will not delve into further.

For Damasio, feelings open the door to a new possibility: the voluntary control of what until then was automatic. This is the space in which the relational expands possibilities for evolution. Feelings are not just neural events. They are 100% simultaneous and interacting phenomena of the body and the nervous system. The flow of mental contents causes emotional responses, which occur in the domain of the body or its brain maps and which, ultimately, lead to feelings.

Research, currently, also points to the so-called second brain, the enteric nervous system, large in its structure and indispensable function, with evidence of an important role in feeling and mood (Damasio, 2018). Most of the neurons that make up this system are intrinsic, as in the central nervous system. One part is extrinsic and projects to the central nervous system through the vagus nerve. The dorsal trunk of the vagus nerve is widely addressed by Porges (2011) in the polyvagal theory, which suggests that, through the process of neuroception, we continually, without awareness, assess the context of a situation for its inherent threats to survival, equating physiological states of the body with social engagement, fight-flight-freeze, or standstill behaviours. This is not, however, the focus of this study at the moment and will not be discussed further.

According to Damasio (2018), feelings are related to the quality of the state of life inside the body, in any situation. It can be during rest or in the course of goal-directed activity or in response to thoughts we have, consciously or in the background of the mind, whether they are caused by a perception of the external world or a recollection of a past event. stored in memory.

Emotional clarity is defined by Shalev (2020) as the extent to which people unambiguously identify, label and characterise their own emotions. Most theories consider awareness and clarity of emotions to be the building blocks of emotion regulation. The author addresses six levels of regulatory control, indicating that the lowest level of regulation is the automatic level of somatic and visceral reflexes associated with body state. In research, only the sixth and highest level of regulation is associated with voluntary emotion regulation, with its activation depending on having an emotional goal and attempts directed at a strategic goal to suppress or re-evaluate emotional responses. This level is associated with top-down voluntary control over cognition, attention, and behaviour, which activates regions such as the

dorsolateral prefrontal cortex, dorsomedial prefrontal cortex, ventrolateral prefrontal cortex, and parts of the anterior cingulate cortex and posterior parietal cortex (Gross, 1998). This seems to be the level on which Damasio places his feelings. On the other hand, when emotion clarity is low, people tend to fail to regulate emotions or fail to effectively select and implement emotion regulation strategies.

Feelings are our individual, unique way, immersed in the cultural broth, of understanding the message of the root emotion related to survival, well-being and evolution.

Standard System

From studies in the 1990's, aided by techniques such as functional magnetic resonance imaging (fMRI), the so-called standard system began to be understood, according to its initial researchers (Raichle, MacLeod, Snyder, Powers, Gusnard, and Shulman, 2001), as a complete mental network that coordinates our movements with the senses. This network comes into play the moment we stop focusing our thoughts. Certain parts of the brain seemed to shut down when a focused task was initiated. These same regions were highly active during rest. These linked networks of the brain were called the standard mode network or standard system. It means the brain's pattern of functioning when we are not focused on something. As research continued, it became evident that the pattern system is primarily related to the areas of the dorsal and ventral medial prefrontal cortices, medial and lateral parietal cortex, and parts of the medial and lateral temporal cortices.

Our brain is a complex integrative network of multiple functionally linked brain regions that are continuously sharing information with each other during the resting state, according to Van den Heuvel and Hulshoff (2010). Their studies show that this functional communication within the human brain is not just random, but organised according to an efficient topology that combines efficient local information processing with efficient global information integration. And the most pronounced functional connections are found between regions that are known to share a function, suggesting that fMRI oscillations in this resting state, known as the default system, may reflect ongoing functional communication between brain regions during rest.

Currently, researchers have observed that, under certain circumstances, brain activity in the resting state (default system) is characterised by greater activation when compared to how the brain is during experimental tasks. It seems that the brain, in some cases, works more in the basal condition. The default network is more associated with internal processing, as suggested by several studies on its involvement

in self-generated thinking, such as autobiographical memory, mind wandering, and thinking about the future (Wang, Kong, Kong, Liégeois, Orban, Deco, van den Heuvel, and Thomas Yeo, 2019).

In experiments by Messina and Sambin (2015), deactivating temporal areas allowed participants to avoid emotional memories that interfered with performing a working memory task. According to these authors, three mental processes have been considered to explain the functions of the standard system: semantic process, self-projection and floating attention. Semantic processes include memory retrieval and representations based on information from past experiences. Semantic processes allow a continuous retrieval of conceptual knowledge in the construction of conceptual models of oneself and relationships. The default system is activated when experimental tasks require semantic processes.

The default system is also activated when individuals perform tasks that involve the self, such as exposure to stimuli associated with the self, such as personality traits that the individual judges to be self-descriptive, and during introspection. In general, the data have shown that the standard system is involved in self-projection; that is, the ability to project itself from the present to the past, the future, or different places. This is a subliminal process of many functions of the human brain, including access to autobiographical memories (self-projection into the past), thoughts related to the future (self-projection into the future based on past experiences), and empathy (self-projection into the past) to the perspectives of others).

Another process associated with the standard system is floating attention, a form of unfocused attention designed to facilitate understanding of significant variations in the external environment, body state, and emotional states. It works in the background like a radar. While the dorsal attention system constitutes the neural substrate for voluntary attention, another attention system, called the ventral attention system, appears to be connected to floating attention. This partially coincides with the standard system. So, in the research of these authors, the data indicate that the predominance of activation of the standard system in the voluntary attention system implies that aspects of perception in the present are dominated by semantic aspects related to the past, excess of negative focus on the self and emotional avoidance.

This information leads us to infer that while our default system is activated, we are telling ourselves about ourselves and our interactions with others, our pains and our joys, our explicit and implicit memory, autobiographical, self-projection, our internal dial-

ogues, in the background of the mind, unconsciously or barely consciously.

Empathy

How is empathy possible? The acceptance of the other with us in coexistence is, for Maturana and Varela (2005), the biological foundation of the social. We are human in relational dynamics.

Interpersonal experience alters the structure of the brain and the connections between neurons, thereby shaping mental processes. According to Allen (2000), the plastic richness of the nervous system is due to its continuous transformation, which remains congruent with the transformations of the environment, as a result of each interaction that affects it.

The polyvagal theory (Porges, 2011) emphasises that the need to connect with others is a primary biological imperative for humans. And that, through connection, physiology is co-regulated to optimise physical and mental health. The theory underscores the role that the social engagement system plays in initiating and maintaining connection and co-regulation.

Emotion regulation appears to play a central role in empathy. It is an essential aspect of mental health and refers to processes that amplify, attenuate or maintain the strength of emotional reactions so that people are able to control their behaviour and/or accept and value emotional responses. Gross (1998) defines emotion regulation as “the processes by which individuals influence the emotions they feel, when they perceive them, and how they experience and express these emotions.” (p.271).

Theories of emotion regulation are diverse and have their origins in the study of psychological defences with Freud in the 1930's. Currently, the field of emotion regulation integrates experimental research, clinical psychology and neuroscience to understand how emotions are generated and regulated to facilitate adaptation to the environment. LeDoux (2001), Panksepp (2011), Damasio, (2018), and Shalev (2020) are examples of scientists, among many others, who have dedicated their studies to this field.

The occasional discovery of mirror neurons from research with monkeys (Rizzolatti and Sinigaglia, 2008) has given rise to new speculations about imitation, relational skills and empathy, among other approaches to study. Subsequent research with human beings has brought more possibilities to understand the biological bases of our interpersonal relationship skills, showing their connection with complex affective phenomena such as empathy (Ferreira, Ceconello and Machado, 2017).

Another field of studies that has contributed to approaching the phenomenon of empathy is the Theory of Mind (ToM), developed from Piaget's contribution to understanding cognitive development.

According to Goleman (2014), empathy can be identified in three strands: cognitive empathy, which is the ability to understand another person's perspective; emotional empathy, which happens when we have the ability to feel what the other person feels; and, finally, empathic concern, which means the ability to feel what the other person needs from us. Goleman, in his research and books, emphasises the importance of emotion regulation as a path to emotional intelligence, in which one of the aspects is empathy.

A significant contribution to the understanding of the distinction and neural correlations between empathy, compassion and ToM was made by Preckel, Kanske and Singer (2018) (these terms can be associated respectively with what Goleman calls emotional empathy, empathic concern and empathy cognitive). In this review, the authors define these social functions and describe the neural networks associated with each of them. Based on the interaction between empathy and ToM, they evidence the importance of the self-other distinction (implemented in different temporo-parietal brain regions) in socio-affective and socio-cognitive processes, especially in the interaction with the suffering of the other. They report that the socio-affective and socio-cognitive paths to understand the other are mediated by independent and separable neural networks that, however, are necessary together in many complex social situations.

Preckel et al conceptualise empathy as “the process of sharing feelings, that is, resonance with the feelings of another person, regardless of valence (positive/negative), but with the explicit knowledge that the other person is the origin of that emotion” (p.19.1).

The first neuroscience studies aimed at understanding empathy investigated empathy in the pain domain, showing that directly experiencing pain and witnessing another person receiving painful stimuli results in shared neural activations in the anterior insula and anterior middle cingulate cortex.

Compassion is a complementary social emotion provoked by witnessing the suffering of another and is closely associated with feelings of concern and cordiality, linked to the motivation to help. Empathy and compassion also differ on a neural level: compassion activates the neural network previously associated with reward and affiliation processes, including the ventral striatum, nucleus accumbens,

ventral tegmental area, medial orbitofrontal cortex, and subgenual anterior cingulate. Congruently with these activations in networks associated with rewards and affiliations, compassion generates positive affect towards the suffering of others.

In contrast to socio-affective processes, socio-cognition refers to taking another person's perspective (also referred to as ToM, mentalisation, or cognitive empathy). Instead of an emotional state, ToM produces abstract propositional knowledge about the other's mental state. It describes the process of inferring and reasoning about the beliefs, thoughts or emotions of others. Crucial brain regions involved in ToM include the ventral temporoparietal junction, superior temporal sulcus, temporal poles, medial prefrontal cortex, and precuneus/posterior cingulate.

Distinguishing oneself and the other constitutes an important element of both empathy and ToM, as it allows differentiation between one's own emotional or mental state and states shared with others. Failure in the self-other distinction results in a combination of these states, thus inducing an egocentrism bias, the tendency to project one's own emotional or mental state onto someone else, or an altercentric bias, the influence of others' states on judgments of emotional states, and/or about yourself.

Sharing affective states with another person (empathy), feeling concern for another (compassion), and reasoning about another person's mental state (ToM) are separable at a conceptual, behavioural, and neural level; Strong empathys are not necessarily effective mentalisers, and each domain can be selectively impaired in psychopathologies such as autism or psychopathy, according to this review. In summary, the evidence supports a detailed view of the social mind, not as a monolithic 'social intelligence' but as a dynamic interaction between different functions and subservient neural networks that allow, in different ways, engagement in prosocial behaviour.

According to research by Naor, Rohr, Schaare, Limbachia, Shamay-Tsoory and Okon-Singer (2020), by regulating our own emotions we can reliably use them in order to correctly interpret the content and valence of others' emotions. In this fMRI-based experiment, emotion regulation through reassessment of the displayed situation modulates the intensity of emotional bias, followed by empathy in relation to pain manipulation. There was an increase in activity on the right in the inferior frontal gyrus when painful emotions were regulated through reappraisal, differing from when there was no regulation through reappraisal.

Their current results suggest that accurate empathic judgment (i.e., unbiased empathy, if that is possible - such questioning would lead to another study) depends on a complex interaction between the neural regions involved in emotion regulation and regions associated with pain empathy. Those authors define empathy as the ability of an individual to vicariously experience the thoughts and feelings of another person, generating connections between human beings. As part of the empathic process, individuals use their own emotions and experiences as a reference point for understanding the mental states of others.

Paul Zak (2012), when addressing oxytocin, named by him as the molecule of morality, refers to the Human Circuit of Empathy mediated by Oxytocin (Circuit HOME). For this author, oxytocin maintains a balance between the self and the other, between trust and distrust, between approximation and distancing. The release of oxytocin, a hormone that modulates social life, by the brain shifts the balance towards empathy.

From a broad approach, including several areas of knowledge, it is worth mentioning Paul Bloom (2018), who elaborates an interesting reflection on empathy, in which he points out misconceptions and partial analyses about this concept in the fields of neuroscience, psychology, religion, politics, leading to a tendency to universalise the discourse of empathy as the greater good for a better human being. He argues that relying on empathy as an absolute good is not the right way to make a better world. The empathy he refers to has as meaning the act of experiencing the world in the way that the individual imagines that the other is experiencing it, suffering their pain, feeling their feeling. Through examples of past and current events, he evidences, in his thesis, that there is more goodness in morality than in empathy, which is also trained in the context of social standards, since we are social beings by nature. A question pointed out by this author is whether empathy is a reliable way to achieve aspirations and results or leads to overestimating present costs and underestimating future costs. His argument against empathy presupposes rationality, stating that, although we are influenced by instinctual feelings such as empathy, we are not its slaves. He considers that the recommendations of emotions must pass through the filter of knowledge and reason, in a productive partnership.

Self-Empathy

Siegel (2012) defines interoception as the perception of the interior of the "sixth sense", including signals emerging from Lamina 1 of the spinal cord that derive

from muscles, bones and viscera (heart, lungs, intestines). It may precede the ability to know what we are feeling, to become aware of changes in internal body states that influence our affective variation. This awareness seems to involve action of the right anterior insula on the prefrontal cortex and is correlated with the ability to empathise with the other's feelings. According to Siegel, interoception is the key to empathy and self-awareness.

On this subject, Shalev (2020) points out that emotion regulation is an essential aspect of mental health that refers to the processes that amplify, attenuate or maintain the strength of emotional reactions so that individuals are able to control their behaviour or accept and assess emotional responses. He notes that most research on emotion regulation has prioritised top-down strategies with the purpose of changing present emotions to desired emotions. However, he comments that little is known about emotion regulation under low emotional clarity.

Recent research has shown the association between interoceptive skills and emotion regulation. According to recent developments in neuroscience research there are two types of inputs: exteroceptive inputs associated with the perception of the outside body, based on multisensory integration; and interoceptive inputs, defined as the sense of the internal physiological state that supports the homeostatic regulation of the body, resulting in physiological integrity and associated affective states, impulses and emotions. Research in interoception and psychopathology indicates several associations between psychopathology and hypersensitivity or hyposensitivity to interoceptive cues.

With respect to cognition, there is evidence that embodied cognition is influenced by various sources of information, including innate processes, personal history, and culture. The general idea is that contextual exteroceptive cues activate associated mental representations, suggesting that activation automatically spreads from concepts driven by experiences in the physical world to their metaphorically related concepts.

Messina, Bianco, Cusinato, Calvo and Sambin (2016) reviewed the abnormal functioning of the standard system in depression, focusing on emotion regulation. Depression is generally understood to result from difficulties in regulating emotions. Based on neuroimaging studies on voluntary emotion regulation, the neurobiological models evaluated focused on the concept of cognitive control, considering emotion regulation as a shift towards involving controlled processes associated with the activation of prefrontal and parietal executive areas, rather than automatically responding to stimuli.

According to these models, the weaker performance of the executive area observed in depressed patients is attributable to the lack of cognitive control over negative emotions, which is directly related to Shalev's findings.

In Messina et al's review, in addition to the concept of cognitive control, following psychodynamic models means understanding the development of individuals' ability to regulate their emotional states from mother-infant interactions in childhood, through the construction of the representation of themselves and others. and of relationships. The researchers then linked these experiential psychodynamic models with recent findings about the abnormal functioning of the standard system in depression. The psychological functions associated with the pattern system include self-related processing, semantic processes, and implicit formulations of emotion regulation. The abnormal activation of the pattern system seen in depression may explain the dysfunctional aspects of emotion regulation typical of the condition, such as exaggerated negative self-focus and rumination about problems with self-esteem.

They also discussed the clinical implications of these findings with reference to the therapeutic relationship as a key tool for revisiting impaired or distorted representations of the self and relational objects. While psychodynamic models of emotion regulation emphasise the importance of internal representation of the self and others to explain emotional disorders, neuroscience has focused more on emotion regulation as a form of cognitive control, neglecting the importance of semantic representations over which process control can act.

Self-projection underlies many processes that may be associated with emotional dysregulation, such as access to autobiographical memories (self-projection into the past) or future plans (self-projection into the future), but also with empathy and ToM (self-projection from perspectives of others). Intriguingly, the overlap between brain structures that are activated by self-representation and ToM seems to confirm the psychodynamic view of a common source for representations of self and others constructed in primary relationships with caregivers in childhood.

The emerging idea from the review is that the default system is abnormally activated in patients with depression, consistent with the observation of negative autofocus and rumination in these patients. In line with clinical models derived from psychodynamic theory, these difficulties in emotion regulation can be associated with the existence of rigid and negative internal representations about oneself and others. Considering these processes in

neurobiological models of emotional dysregulation helps to build bridges between the theories behind clinical psychology and neuroscience. Grecucci, (in Grecucci, Fredrickson and Job, 2017; Grecucci, Messina, Amodeo, Lapomarda, Crescentini, Dadomo, Panzeri, Theuninck and Frederickson, 2020), basing an emerging model on dynamic-experiential regulation of emotion, and based on data from affective neuroscience, addresses the regulation of emotions through a biological mechanism, explaining that emotions increase in intensity, peak and then are stable when the action tendency of the adaptive emotion has been expressed. He points out that emotions are not inherently dysregulated and that dysregulation results when emotions are associated with excessive conditioned anxiety, or when affects are triggered by certain defensive strategies, both of which lead to dysregulated affective states. He concludes that further research is needed to clarify these mechanisms and how to integrate them. His hypothesis is that both processes act as a dual system to promote top-down (cognitive) regulation and bottom-up (experiential) regulation. The clinician can choose, according to the moment, whether regulation would be better promoted by top-down (cognitive) or bottom-up (experiential) strategies.

The ability to be attuned to another's emotional state is likely to be a function of the ability to understand one's emotional experience, which is itself a function of how such emotional experiences have been represented and communicated to others in the past.

We are naming as self-empathy this empathic understanding of personal emotional experience, a function of the way emotional experiences with other people in the past, in their primary relationships, were represented and communicated. This includes cognitive (ToM), emotional (compassion) empathy, and concern. empathy, in accessing interoception, autobiographical memories and self-projection.

For further reading on this topic, the focus developed by Shustov and Tuchina (2019) regarding implicit memory and neuroscience of foresight and future memory related to the brain activity of the standard system is interesting. Those authors demonstrate how implicit and automated cognitive patterns escape cognitive control, triggering behaviours under archaic forms of emotion regulation.

Final Considerations

Emotion regulation is a condition for the experience and manifestation of empathy in its three aspects, cognitive, affective and empathic concern. Working actively with emotion has been empirically demonstrated to be of central importance in psychotherapy. There are several therapeutic models of different theoretical orientations

incorporating principles and techniques to work with dysregulated emotions. The connection with proprioceptive and interoceptive mechanisms is a recent area of research, complex and challenging. Scientific evidence is slowly and partially emerging, with still no consensus on the interpretation of early findings.

In agreement with Grecucci et al (2020), a question that arises is about these paths: cognitive (top-down) or experiential (bottom-up) regulation of emotions.

In order for love to be present in the relational dynamics as the space of conduct that accepts the other as a legitimate other in coexistence, it seems to be necessary for it to be present in the internal structural dynamics (autopoiesis). Hence, a fundamental look at self-empathy.

It is worth mentioning that, as part of the empathic process as already presented, individuals use their own emotions and experiences, in a more or less conscious way (high or low emotional clarity) to understand the mental and emotional states of others. Under low emotional clarity, the distinction and boundary between what is in the individual's inner field and what is in the other's inner field becomes blurred.

Internal processing, with self-generated thoughts, with autobiographical memory, self-projection and fluctuating attention and its relationship with the standard system, is a demonstration of the importance of differentiating the self from the other through a path that passes through interoception, validating, through the internal body panorama, the nature of the individual in its purpose of survival, well-being and evolution. Top-down cognitive regulation of emotions seems to be insufficient, whether through biomedical or psychosocial interventions. A level of validation of the nature and strength of emotions via bottom-up appears to be an important force in this process, validated by the research presented on the standard system and other neuroscience findings.

From the references discussed, the importance of regulating emotions, contemplating self-empathy, becomes evident so that its function of regulating our instincts with the purpose of survival, well-being and evolution, can happen, in the individual and social fields.

Social Impact

What is also placed in the current context of studies in different areas is, from the existing understanding of the moment, which path to prioritise when we think about psychotherapeutic, educational, preventive and rehabilitation practice in relation to the regulation of emotions, empathy, and mental and relational health.

It seems that, at the moment, the tendency is to prioritise a protocol within the biomedical model or the psychoeducational model. And, in each of these one or the other direction is emphasised, seeking top-down or bottom-up interventions.

Each model proposes different views on how emotions are generated, deregulated and regulated. These perspectives directly influence the way to approach these problems. The cognitive regulation model of emotions sees emotional dysregulation as a consequence of deficits in regulatory mechanisms and prioritises the modification or development of cognitive skills.

The experiential dynamic model postulates emotional dysregulation from the presence of disruptive mechanisms and prioritises the restoration of natural regulatory processes. In this model, self-empathy, understood as an empathic understanding of personal emotional experience, a function of the way emotional experiences with other people in the past, in their primary relationships, were represented and communicated, and which includes cognitive (ToM), emotional (compassion) empathy) and empathic concern, in accessing interoception, auto biographical memories and self-projection, seems to have a basic function.

Given the complexity of humans and their relationships, it is likely that combination and expansion will be possible based on the continuity of research and applications. Current research pointing to memory reconsolidation may offer ways to this process of combination.

From this point of view, seeking combination, increasingly evidenced by neuroscience allied to psychotherapeutic and educational practice, points to the professional and social relevance of this reflection.

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