JOURNAL OF INTERNATIONAL CRISIS AND RISK COMMUNICATION RESEARCH
ISSN: 2576-0017
2024, VOL 7, NO S5

Neuroemotions and mental health: an analysis from Neuroscience

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Abstract
This study explores the world of neuroemotions, analyzing the questions: how do emotions influence brain activity, how do they affect emotional imbalances and generate mental health disorders, and how do emotions interact with brain processes, influencing mental health? The objective is to understand how emotions affect mental health, and their relationship between the limbic system, prefrontal cortex and emotional regulation in order to make interventions in mental health. The study variables include emotional behavior, cognition and decision making. The methods applied are analytical - synthetic in the review of neuroscientific studies on how emotions affect the brain and surveys on the emotional impact on daily life were analyzed. The results: in emotional behavior, a majority of respondents show behavioral changes when they feel overwhelmed, reflecting emotional vulnerability. In cognition, difficulty concentrating under emotional stress was observed, suggesting that emotional state affects cognitive performance. Regarding decision making, intense emotions complicate the making of important decisions, evidencing the need for emotional regulation strategies. Conclusions: emotions significantly influence behavior, cognition and decision making. Developing emotional regulation skills and fostering
Keywords: neuroemotions, therapies, mindfulness, behavioral changes, neuroplasticity, behavior, cognitive and decision making.

Introduction

Emotions are part of human life and play an important role in daily activities, influencing not only behavior, but also cognition and decision making. Neuroscience shows that emotions have a complex biological basis, mainly linked to the limbic system, cortical areas and the prefrontal cortex. According to LeDoux (2000), "emotions are the result of neural activity in the brain, particularly in subcortical areas that interact with the prefrontal cortex".
Furthermore, (Gross, 2013) states that, "emotional regulation is intrinsically related to mental health, in the inability to adequately manage emotions producing psychological disorders such as anxiety and depression".

By studying the concept of "neuroemotions" it refers to how emotional processes interact with neurobiology to influence behavior and psychological well-being. This area of study has gained relevance in recent years, especially in research on the relationship between chronic stress, affective disorders and neuroplastic changes in the brain (Davidson & McEwen, 2012).

To measure neurobiological indicators, functional magnetic resonance imaging (fMRI) has been used to observe activation in areas of the brain (amygdala, prefrontal cortex) during exposure to emotional stimuli. Through Electroencephalography (EEG) to measure brain electrical activity associated with emotional response. Also, the volume of gray matter in areas related to emotional

regulation, such as the prefrontal cortex, is measured using structural fMRI. Other equipment used to measure heart rate variability (HRV) an indicator of the balance between the sympathetic and parasympathetic systems that are related to emotional response and stress.

To measure psychological and behavioral indicators, Emotional Self-Assessment Scales are used such as: Emotion Regulation Questionnaire (ERQ) to measure emotional regulation; or Perceived Stress Scale (PSS) to assess perceived stress levels. To measure the Anxiety and Depression Scale, the Goldberg Anxiety and Depression Scale GAD-7 for anxiety and PHQ-9 for depression are used to identify symptoms of emotional disorders. The measurement of emotional resilience is also used, through questionnaires of the Connor-Davidson Resilience Scale (CD-RISC).

Intervention indicators allow us to measure the frequency and duration of mindfulness or CBT sessions and to observe their impact on activity.

Interventions focused on neuroplasticity, such as Cognitive Behavioral Therapy (CBT) and mindfulness, have been shown to have a positive impact on mental health by promoting changes in the neural circuits responsible for emotional regulation. These practices rely on the brain's ability to reorganize itself and form new connections, a process known as neuroplasticity. The following explains how these interventions work and provides practical examples of how they improve mental health.

Cognitive Behavioral Therapy (CBT) is based on the idea that thoughts, emotions and behaviors are interrelated. Dysfunctional thought patterns, such as catastrophizing or overgeneralizing, can activate neural circuits that perpetuate negative emotions such as anxiety and depression. CBT helps patients identify and modify these thoughts, which affects the way emotions are regulated at the neural level. Functional magnetic resonance imaging (fMRI) studies have shown that after several weeks of CBT, amygdala activity decreases, while functional connectivity between the amygdala and prefrontal cortex increases (Goldin et al., 2013). This indicates an increased ability to regulate fear and anxiety through improved communication between these brain regions.

Mindfulness is a technique that focuses on mindfulness and awareness of the present moment, without judgment. This practice helps improve emotional regulation by modifying brain activity patterns in response to negative or stressful emotions. Over time, mindfulness can induce plastic changes in areas of the brain related to emotional regulation, attention and self-control. Studies have shown that regular mindfulness practice increases gray matter density in areas such as the dorsolateral prefrontal cortex and hippocampus, key regions for stress regulation and self-control (Holzel et al., 2011). By strengthening these areas, people are better able to respond calmly and clearly to stressful situations, rather than reacting impulsively.

Neurobiological mechanisms of improvement with interventions such as CBT and mindfulness have several key effects on the brain that improve mental health by restoring neural circuits:
1. Strengthening of the prefrontal cortex: these interventions strengthen the prefrontal cortex, which improves the capacity for emotional regulation. This brain region helps control the automatic responses of the amygdala (linked to emotions such as fear and anxiety).

Reduced amygdala reactivity, CBT such as mindfulness reduces the excessive activity of the amygdala, which is overactive in people with anxiety or depression. This decrease helps to reduce the intensity of negative emotions.

Positive neuroplasticity the continuous practice of these interventions facilitates the formation of new neural connections and the reorganization of brain networks. This process allows areas related to emotional regulation to strengthen and adapt to new ways of processing thoughts and emotions.

4. Balance between the sympathetic and parasympathetic systems through the mindfulness technique has been shown to improve heart rate variability (HRV), which reflects a balance between the sympathetic nervous system (responsible for the stress response) and the parasympathetic (responsible for calm). This balance is crucial for better mental and emotional health.

Neuroplasticity-focused interventions, such as CBT and mindfulness, improve mental health by rewiring neural circuits involved in emotional regulation. By strengthening connections between the prefrontal cortex and limbic system, these practices enable better emotion management, reduce stress reactivity, and promote greater emotional resilience. Neuroscientific evidence supports the ability of these interventions to induce lasting plastic changes in the brain, thus improving long-term psychological well-being.

The conclusion is to understand how emotions impact mental health, and their relationship between the limbic system, prefrontal cortex and emotional regulation in order to make mental health interventions. Study variables include emotional behavior, cognition and decision making.

Methodology

This article conducts a literature review based on studies published between 2000 and 2023 on the relationship between emotions, neurobiology and mental health. Databases such as PubMed, Scopus and PsycINFO were used to obtain articles addressing the neurobiology of emotions and their impact on psychological disorders. Neuroimaging studies, systematic reviews and clinical trials focusing on the relationship between the limbic system, the prefrontal cortex and emotional regulation were included. We excluded research that did not include empirical evidence or that focused solely on psychological aspects without considering neurobiology. In the context, the study of the article "neuroemotions and mental health", the variables and indicators are related to the interaction between emotional processes and neurobiological mechanisms. The independent and dependent variables and indicators are detailed below:

1. Independent Variable (VI): emotional behavior.
Type of emotion: emotions are categorized into positive (joy, calm) and negative (anxiety, sadness) through fieldwork.
Chronic stress: the degree of exposure to prolonged stressful events is recorded through fieldwork.
Cognitive-behavioral therapies (CBT) or mindfulness: whether there is the presence or absence of intervention based on CBT or mindfulness, through fieldwork.
2.Dependent Variables (DV): effects on cognition and decision making.

Brain activity in specific regions: changes in limbic system activity (especially amygdala and hippocampus) and prefrontal cortex (especially ventromedial) through literature reviews).

Neural connectivity: level of functional connectivity between the limbic system and the prefrontal cortex, through literature reviews.
Emotional regulation: ability to manage or control emotions in stressful or provocative situations, through field work.

The research instrument applied for the fieldwork was the survey to 600 students aged 18 to 65 years, with gender equity, 50% men and 50% women to be equitable in their responses, distributed in 12 items in the three variables: emotional behavior, cognition and decision making, on a Likert scale: (1) Never, (2) Rarely, (3) Sometimes, (4) Often and (5) Always. The questions were sent in an online questionnaire using social networks of WhatsApp groups, of university students, teachers and employees of two universities in the province of Chimborazo: Escuela Superior Politécnica de Chimborazo and Universidad Nacional de Chimborazo. Then we proceeded to an analysis with descriptive statistics for the presentation of results and their analysis and interpretation, to relate with the theory and establish the conclusions of the research objectives.

Results

The survey was designed to identify how emotions affect emotional behavior, cognition and decision making. The responses allowed the detection of emotional patterns and their impact on different aspects of daily life, for future interventions to improve emotional regulation and mental health.

Variable 1: Emotional behavior

1. When you feel emotionally overwhelmed, do you tend to change your usual behavior?

Table 1. You modify your behavior when you are emotionally overwhelmed.

Question 1:	Relative frequency (%)
Never (1)	5
Rarely (2)	6
Sometimes (3)	13
Often (4)	65
Always (5)	11
Total	**100**

Table 1 shows the results in absolute frequency of the participants' responses to this question, which allows us to analyze how people modify their behavior when they are emotionally overwhelmed.

Main trends: the majority of participants (65%) indicate that they "often" change their usual behavior when they feel emotionally overwhelmed. This larger group suggests that changes in behavior are common in the face of intense emotional situations. An additional 11% of respondents answer "always", which means that a total of 76% of people tend to change their behavior frequently (either "often or always") when they feel overwhelmed.

Moderate group: 13% of the participants indicate that they "sometimes" change their behavior. This group may represent people who experience occasional changes in their behavior, depending on the intensity of the emotions they face.

3. Minority group: a small percentage of participants state that they "never" (5%) or "rarely" (6%) change their behavior when they are emotionally overwhelmed. These people may have a greater ability to maintain behavioral stability in the face of emotional pressure or simply experience less intense emotional changes.

Interpretation of results: the analysis suggests that most participants are significantly affected by their emotions, which causes frequent changes in their usual behavior. This indicates a lack of emotional regulation or high emotional reactivity to stress or overwhelming situations. From a "mental health" perspective, these individuals may need to develop effective emotional regulation skills to better manage their behavioral responses. Interventions such as "Cognitive Behavioral Therapy (CBT)" or mindfulness practices help those who tend to modify their behavior frequently or impulsively when they are emotionally overloaded with emotions. In addition, the minority group who rarely change their behavior represent people with greater emotional control or less affected by emotional stress.

2. How often do negative emotions influence your ability to maintain daily routines or activities?

Table 2. Do negative emotions influence your daily routines.

Question 2:	Relative frequency (%)
Never (1)	9
Rarely (2)	6
Sometimes (3)	17
Often (4)	51
Always (5)	17
Total	**100**

Table 2 shows the results in relative frequency (percentages) of participants' responses on how negative emotions affect their ability to maintain daily routines or activities.

Main trends: The largest group (51%) indicates that "often" negative emotions influence their ability to maintain their daily routines. This suggests that more than half of the respondents regularly experience difficulties in managing their negative emotions and carrying out their daily activities. Meanwhile, an additional 17% state that emotions "always" affect their ability to maintain routines, reflecting an even more consistent incidence of emotional interference. Combining these two groups, 68% of respondents indicate that "often" or "always" their negative emotions have a significant impact on their daily lives.

Moderate group: 17% of the participants report that "sometimes" emotions affect their ability to maintain their daily activities. This group experiences moderate emotional distress that occurs intermittently, depending on the context or intensity of the negative emotions.

Minority group: 9% of respondents say that "never" negative emotions affect their daily activities, while 6% say "rarely". These people seem to have a greater capacity to maintain their routines despite negative emotions, with greater emotional resilience or more effective strategies to manage stress and negative emotions.

Interpretation of results: The results indicate that a large majority (68%) of respondents frequently experience emotional impact that interferes with their ability to maintain their daily routines. This suggests that negative emotions, such as: sadness, anxiety or stress, have a considerable disruptive effect on daily life. Those who experience this interference "often or always" may benefit from interventions focused on improving emotional regulation. The 17% reporting "sometimes" affect indicates that a moderate proportion of people experience sporadic emotional influence, implying that negative emotions have an occasional but not constant effect. However, this could still be improved through strategies to manage emotions at key moments. The minority group who reports that "never or rarely" negative emotions influence their daily routines have greater emotional control or less impact of stress on their daily lives. These individuals appear to be more resilient to negative emotions and are likely to be more resilient in the face of negative emotions.

3. You tend to avoid certain activities or situations due to emotions such as anxiety or fear.

Table 3. Avoid certain activities or situations due to your emotions, anxiety and fear.

Question 3:	Relative frequency (%)
Never (1)	9
Rarely (2)	6
Sometimes (3)	17
Often (4)	51
Always (5)	17
Total	**100**

Table 3 shows the results and the relative frequency of respondents' responses on whether they tend to avoid activities or situations due to emotions such as anxiety or fear.

1. Main trends: 51% of respondents respond that they "often" avoid activities or situations due to emotions such as anxiety or fear. This majority group suggests that "emotional avoidance" is a common strategy in the lives of more than half of those surveyed, which may be affecting their ability to face challenges or stressful situations. An additional 17% indicate that they "always" avoid these activities, which means that almost 68% of participants avoid activities or situations due to negative emotions such as anxiety or fear on a regular basis whether "often or always."

2. Moderate group: 7% respond that "sometimes" they avoid activities or situations due to these emotions. This group represents people who experience avoidance intermittently, depending on the situation or the intensity of the emotion.

3. Minority group: 9% indicate that they "never" avoid activities or situations due to emotions such as anxiety or fear, while 6% "rarely" do so. These individuals have greater emotional resilience or less tendency to avoid situations out of fear or anxiety, which may be due to the use of healthy coping strategies or less emotional susceptibility.

Interpretation of results: the most significant result in the percentage of participants (68%) who avoid activities or situations due to emotions such as anxiety or fear, which shows a notable frequency. This trend of "emotional avoidance" is worrying, because avoidance can reinforce patterns of fear and anxiety, preventing people from facing and overcoming situations that they find uncomfortable or stressful. In severe cases, avoidance can lead to anxiety disorders or social phobia that affects your performance and quality of life. 17% avoid situations "sometimes" as it is not a constant, they still experience emotional avoidance at certain times, which could limit their opportunities or personal growth in some areas of their life. The minority group (15%, adding "never and rarely") has a better ability to manage their emotions without avoiding activities or situations, which could indicate greater emotional regulation or effective coping skills to deal with anxiety or fear.

4. You experience significant changes in your social behavior (e.g. avoiding interactions with friends, family, and others) when you feel emotionally affected.

Table 4. Experience significant changes in behavior due to the effect of emotions.

Question 4:	Relative frequency (%)
Never (1)	9
Rarely (2)	8
Sometimes (3)	11
Often (4)	47
Always (5)	25
Total	**100**

The results in Table 4 reflect the frequency that respondents experience changes in their social behavior, such as avoiding interactions, when they are emotionally affected.

1. Main trends: the majority of respondents (47%) indicate that they "often" experience significant changes in their social behavior, such as avoiding interactions, when they are emotionally affected. This indicates that almost half of the participants socially isolate themselves in response to intense emotional states, which can aggravate mental health problems. Furthermore, 25% of respondents indicate that they "always" experience these changes in their social behavior,

while a total of 72% of respondents experience frequent changes in their social behavior when they are emotionally affected (sum of "often or always").

2. Moderate group: 11% of respondents state that "sometimes2 they avoid social interactions due to their emotional state. This group shows that, although the emotional impact is not constant, there are still times when their social behavior is affected by their emotional state.

3. Minority group: 9% indicate that they "never" experience significant changes in their social behavior when they feel emotionally affected, and 8% "rarely" do so. These participants appear to have a greater ability to maintain their social interactions even in times of emotional stress, which could be a reflection of greater emotional stability or effective skills to manage their emotions.

Interpretation of results: the results suggest that a considerable majority of participants tend to modify their social behavior significantly when they feel emotionally affected. This social avoidance may be a sign of "emotional disconnection" or "social withdrawal" as a coping mechanism. However, avoiding social interactions when you are emotionally upset can aggravate mental health problems, such as anxiety or depression, by reducing opportunities to obtain social support and share emotions. 47% "often" experience changes in their social behavior, reflecting that these people are prone to frequently isolate themselves, which can deteriorate their personal relationships and emotional well-being. The 25% who indicate that they "always" avoid social interactions suggests an extreme reliance on "social avoidance" in response to emotional distress, which could be indicative of greater difficulties managing emotional stress and social bonds. The minority group that indicates that they "never or rarely" change their social behavior under emotional pressure appear to have greater "resilience" or effective abilities to regulate their emotional state without affecting their social interactions, which indicates a good support network or better strategies for processing emotions without resorting to withdrawal.

Variable 2: Cognition.

5. You find it difficult to concentrate on a task when you are emotionally upset.

Table 5. Concentration when emotionally upset.

Question 5:	Relative frequency (%)
Never (1)	4
Rarely (2)	3
Sometimes (3)	9
Often (4)	69
Always (5)	15
Total	**100**

Table 5 shows the relative frequency of respondents' responses about difficulty concentrating when emotionally upset.

1. Main trends: 69% of respondents indicate that they "often" find it difficult to concentrate when they are emotionally upset. This reflects that most people experience a notable decrease in their ability to maintain attention and concentration in the midst of emotional disturbance. An additional 15% report that they "always" have difficulty concentrating under these circumstances, which suggests that 84% of respondents experience frequent problems with concentration when they are emotionally upset (add to those who respond "often and always").

2. Moderate group: 9% of participants state that "sometimes" it is difficult for them to concentrate when they are emotionally affected. This group experiences intermittent impairment in their concentration, possibly depending on the intensity of the emotion or the task they are performing.

3. Minority group: 4% of respondents respond that they “never” have problems concentrating when they are emotionally upset, and 3% indicate that this happens “rarely.” These people are resilient in the face of emotional disturbance and manage to maintain their ability to concentrate regardless of their emotional state.

Interpretation of results: 84% of respondents have recurrent difficulties concentrating when emotionally upset, suggesting that intense emotions, such as stress, anxiety or sadness, negatively impact their cognitive performance. This result is consistent with research indicating that intense emotions can affect neural circuits related to attention and executive function, hindering the ability to focus on specific tasks. Negative emotions often hijack attention, diverting it toward the source of emotional distress and affecting the ability to process information efficiently. The 9% who indicate that they "sometimes" experience difficulties suggests that these people may have a more moderate and circumstantial emotional impact. Although your concentration may be altered at certain times, it is not a constant difficulty. The minority group (4% “never and 3% rarely”) shows a greater ability to maintain concentration even when feeling emotionally upset. This could be due to greater “emotional regulation” or coping strategies that allow them to manage the impact of emotions on their cognitive ability.

6. You feel that negative emotions affect your memory, causing you to forget things that are important.

Table 6. Negative emotions affect memory.

Question 6:	Relative frequency (%)
Never (1)	4
Rarely (2)	3
Sometimes (3)	9
Often (4)	73
Always (5)	11
Total	**100**

Table 6 shows the relative frequency of responses to how negative emotions influence respondents' memory, specifically the ability to remember important things.

1. Main trends: 73% of respondents respond that “often” negative emotions affect their memory, causing them to forget important things. This response indicates that a large majority of people feel that the impact of negative emotions on their ability to remember is significant and frequent. An additional 11% indicate that they "always" experience this type of affectation. Adding these groups, 84% of respondents experience memory problems frequently or consistently when they are under the influence of negative emotions.

2. Moderate group: 9% of participants indicate that "sometimes" negative emotions affect their memory, suggesting that the emotional impact on memory occurs occasionally and not always under circumstances.

Interpretation of results: 84% of respondents report that negative emotions “often or always” affect their memory, reflecting those intense emotions, such as stress, anxiety or sadness, can considerably interfere with cognitive ability, especially in working memory and short-term memory. This finding is consistent with studies suggesting that emotional distress can distract attention, preventing adequate encoding of new information and affecting the ability to retrieve already stored information. The 9% who report that emotions “sometimes” affect their memory may be dealing with intermittent emotional impact, depending on the intensity of the emotions or the context in which they are found. The minority group (4% “never and 3% rarely”) seems to have a greater capacity to resist the negative effects of emotions on memory. These people

probably have effective emotional regulation strategies or face less stress in general, allowing them to keep their memory intact even when they are emotionally upset.

7. Has a hard time processing information or making decisions when experiencing intense emotions.

Table 7. Process information or make decisions when experiencing intense emotions.

Question 7:	Relative frequency (%)
Never (1)	7
Rarely (2)	18
Sometimes (3)	31
Often (4)	33
Always (5)	11
Total	**100**

The results in Table 7 show how intense emotions affect respondents' ability to process information and make decisions.

1. Main trends: 33% of respondents indicate that they "often" have difficulty processing information or making decisions when experiencing intense emotions. This group indicates that the emotional impact on decision making, and information processing is recurrent. An additional 11% respond that they "always" have difficulties in this regard. Adding these two groups gives a total of 44% of the participants experiencing frequent or constant difficulties in making decisions and processing information under intense emotions.

2. Moderate group: 31% of respondents affirm that they "sometimes" experience these difficulties. This group is situated at an intermediate point, where emotional intensity does not always affect, but when it does, it significantly impacts their ability to process information and make decisions. It may depend on the type of emotion or situation.

3. Minority group: 18% indicate that they "rarely" have difficulties making decisions or processing information under intense emotions, while 7% respond that they are "never" affected. These individuals appear to have greater control or resistance to emotional effects on their ability to make decisions, likely due to more effective emotional regulation strategies or cognitive resilience skills.

Interpretation of results: the fact that 44% of respondents stated that they "often or always" have difficulties processing information or making decisions under intense emotions suggests that emotional overload can directly interfere with cognitive functioning. Intense emotions, such as anxiety, fear, or anger, can activate fight-or-flight responses that make it difficult to access the cognitive resources necessary to rationally evaluate information and make sound decisions. This impact is common in high-stress situations, where people often act impulsively or avoid making important decisions. The 31% who report that they "sometimes" have difficulties reflect that, although not always, emotions can affect decision-making depending on the emotional situation or the context in which they find themselves. This group can handle emotional pressure better at certain times but is still affected when emotions escalate. The 25% who respond "never or rarely" face problems in decision-making under intense emotions reflect greater resilience or ability to maintain cognitive control in situations of high emotional stress. This could be due to greater experience in managing intense emotions or the use of effective strategies, such as self-control or the use of emotional regulation techniques.

8. Your emotions influence how you perceive or interpret everyday situations.

Table 8. Emotions affect their interpretation of everyday situations.

Question 8:	Relative frequency (%)
Never (1)	7
Rarely (2)	8
Sometimes (3)	11
Often (4)	55
Always (5)	19
Total	**100**

Table 8 shows how emotions affect the perception and interpretation of everyday situations in respondents.

1. Main trends: 55% of respondents indicate that their emotions "often" influence how they perceive or interpret everyday situations. This result shows that more than half of the participants regularly experience an emotional impact on their daily outlook. Furthermore, 19% indicate that they "always" perceive an emotional influence in their interpretation of situations. This suggests that, in total, 74% of respondents are significantly influenced by their emotions when interpreting their environment, whether "often or always."

2. Moderate group: 11% respond that "sometimes" their emotions influence their perception and interpretation of everyday situations. This group indicates that the emotional impact is variable and occurs at specific times, which suggests that, although they are affected, it is not a constant process.

3. Minority group: 7% of respondents indicate that their emotions "never" influence how they perceive situations, and 8% mention that this happens "rarely." These people are objective or resistant to emotional influence in their interpretation of everyday events.

Interpretation of results: 74% of respondents who report that their emotions "often or always" influence their way of perceiving everyday situations suggests that emotions have a strong impact on the interpretation of reality. This is in line with research showing that emotions not only affect mood, but also how we interpret the experiences and behavior of others. Intense emotions, whether positive or negative, tend to "modulate perception," which can lead to more "biased or extreme" interpretations of situations, such as viewing something neutral in a negative way when one is upset or anxious. 11% indicate that they "sometimes" experience this influence and show a less constant emotional affectation in their perception, which may depend on the situation or the emotional intensity at specific moments. The minority group (7% "never" and 8% "rarely") are less likely to be influenced by emotions in their interpretation of reality, which suggests greater objectivity and ability to separate their emotional states from their everyday judgments.

Variable 3: Decision Making

9. You find it difficult to make important decisions when you are emotionally affected.
Table 9. Make important decisions when you are affected (extreme happiness or anger).

Question 9:	Relative frequency (%)
Never (1)	8
Rarely (2)	8
Sometimes (3)	11
Often (4)	55
Always (5)	18
Total	**100**

Table 9 shows the distribution of responses about the difficulty in making important decisions under an affected emotional state.

1. Main trends: 55% of respondents respond that they "often" find it difficult to make important decisions when they are emotionally affected, indicating that more than half of participants feel that their emotional state significantly affects their ability to make decisions. crucial decisions. An additional 18% indicate that they "always" have difficulties in these situations. The sum of these two groups is 73% of respondents experience frequent or constant problems making important decisions under the influence of intense emotions.
2. Moderate group: 11% indicate that they "sometimes" have difficulty making important decisions when they are emotionally affected. This group states that emotional affectation does not always interfere, but when it does, decision-making becomes complicated.

3. Minority group: 8% indicate that they "never" have problems making decisions under an affected emotional state, and another 8% respond that they "rarely" experience these difficulties. These people seem to have greater resilience or better strategies for managing their emotions, which allows them to make important decisions without being significantly influenced by their emotional state.

Interpretation of results: the 73% of respondents who indicate they have difficulty "often or always" making important decisions when they are emotionally affected reflects a significant impact of emotions on decision making. This aligns with research suggesting that intense emotions, especially negative ones such as stress, anxiety or sadness, "negatively affect executive function and logical reasoning," causing people to avoid making decisions or act impulsively. . When emotions take control, access to analytical and rational thinking can be hindered, resulting in indecision or decisions based on emotion rather than logic. The 11% who report difficulties "sometimes" reflect variability in the way emotions affect decision making. These people are likely to face difficulties only in emotionally charged situations or when the decisions to be made are particularly important. The minority group (8% "never and 8% rarely") represents those who appear to maintain cognitive control and mental clarity despite emotional disturbance. These people may have better abilities to regulate their emotions and maintain a "focused mindset" when making crucial decisions, or they might be less affected by intense emotions in their daily lives.

10. He has realized that his emotions drive him to make impulsive or poorly thought-out decisions.
Table 10. Emotions affect your impulsive decisions.

Question 10:	Relative frequency (%)
Never (1)	1
Rarely (2)	11
Sometimes (3)	12
Often (4)	73
Always (5)	3
Total	**100**

The results in Table 10 show how respondents perceive the influence of their emotions in making impulsive or poorly considered decisions.

1. Main trends: 73% of respondents say that their emotions "often" drive them to make impulsive or poorly thought-out decisions. This suggests that most participants regularly experience that intense emotions affect their judgment and lead them to act without thinking carefully. An additional 3% respond that they "always" make impulsive decisions under the influence of their emotions. When combining these two groups, it can be seen that 76% of respondents tend to make impulsive decisions frequently due to their emotions.

2. Moderate group: 12% of respondents indicate that "sometimes" their emotions drive them to make impulsive decisions, which indicates that these people are affected by their emotions on certain occasions, but not constantly.

3. Minority group: 11% respond that they "rarely" make impulsive decisions under the influence of emotions, and only 1% indicate that they "never" experience this type of behavior. These people seem to have better control over the impact of their emotions on decision-making, which indicates a greater capacity for emotional regulation.

Interpretation of results: 76% of respondents who indicate that they "often or always" make impulsive decisions under the influence of emotions reflects a clear tendency towards "emotional impulsivity". This may be related to the activation of the "limbic system, particularly the amygdala, which in situations of high emotional charge can dominate control over the prefrontal cortex, responsible for making rational decisions. When emotions are intense, people can be driven to act quickly, leading to unconsidered or hasty decisions. This impulsivity can be particularly common in times of anger, stress, or fear. The 12% who express "sometimes" make impulsive decisions under emotions reflects a variability in the emotional impact. These people are better able to regulate their emotions in certain situations, although they still face occasional difficulties avoiding impulsive decisions. The minority group (11% "rarely and 1% never") has a greater ability to control the effect of emotions on their decision making, which suggests that these people have developed effective skills of "self-control or emotional self-regulation, which It allows you to stay calm and think more reflectively before acting.

11. They often change their mind about a decision that had been made previously when their emotions change.

Table 11. Change of decision when emotions change.

Question 11:	Relative frequency (%)
Never (1)	7
Rarely (2)	11
Sometimes (3)	10
Often (4)	60
Always (5)	12
Total	**100**

The results in Table 11 show how emotional changes affect respondents' ability to maintain previously made decisions.

1. Main trends: 60% of respondents indicate that they "often" change their minds about previously made decisions when their emotions change. This finding suggests that a significant majority of participants feel vulnerable to the influence of their emotional states on decision making. In addition, 12% indicate that they "always" review their decisions based on emotional changes. Together, these groups represent 72% of respondents who tend to be influenced by their emotions when reconsidering decisions.

2. Moderate group: 10% of respondents respond that "sometimes" they change their mind due to their emotions. This group suggests that your decision may be affected occasionally, but not consistently.

3. Minority group: 11% respond that they "rarely" change their mind about decisions due to emotional changes, and 7% indicate that they "never" experience this type of behavior. These people appear to have greater control over the influence of emotions on their decision making, which indicates a capacity for self-control and consistency in judgment.

Interpretation of Results: 72% of respondents indicating that they "often" or "always" change their minds about decisions due to emotional changes highlights the significant influence that emotions can have on the decision-making process. Emotions, when intense, can alter the perception of previous decisions, leading people to review or reverse decisions already made. This may be related to "affect theory," which suggests that emotions can serve as heuristics that guide our decisions and judgments. In situations where emotions change, individuals may reevaluate their decisions so that they reflect their current emotional state, which could lead to less consistent and more variable decisions. The 10% who indicate that they "sometimes" experience this behavior suggest flexibility in their decision making, which may be beneficial in situations where reassessment may be necessary. However, this flexibility also reflects a lack of firmness in judgment, depending on the situation. The minority group (11% "rarely and 7% never") represent those who maintain consistency in their decisions regardless of their emotional state. These people have developed effective emotional regulation skills that allow them to evaluate decisions objectively, even in times of emotional change.

12. Positive emotions (such as joy and enthusiasm) tend to influence them to make riskier decisions.

Table 12. Positive emotions influence risky decisions.

Question 12:	Relative frequency (%)
Never (1)	5
Rarely (2)	8
Sometimes (3)	10
Often (4)	61
Always (5)	16
Total	**100**

The results in Table 12 reflect how positive emotions affect respondents' willingness to take risks in their decisions.

1. Main trends: 61% of respondents indicate that positive emotions "often" lead them to make riskier decisions. This result suggests that a considerable majority feel driven to take risks when they are in a positive emotional state. An additional 16% say they "always" make riskier decisions when they experience positive emotions. Combining these two groups, 77% of the participants are susceptible to acting in a riskier way depending on their positive emotional state.

2. Moderate group: 10% of respondents respond that "sometimes" positive emotions influence their propensity to take risks. This indicates that there are specific situations in which they feel more inclined to make risky decisions, but not on a regular basis.

3. Minority group: 8% indicate that they "rarely" feel influenced by positive emotions to make riskier decisions, and only 5% respond that they "never" experience this influence. This small group may be more oriented toward caution or have a more rational approach to their decision making, regardless of their emotional state.

Interpretation of results: 77% of respondents who indicate that they "often or always" make riskier decisions under the influence of positive emotions reveal a strong link between positive emotions and willingness to take risks. This finding is consistent with psychological theory that suggests that positive emotions can "increase creativity," confidence, and motivation, which can lead people to feel safer when taking risks. In this context, joy and enthusiasm facilitate a mentality of openness to new experiences, promoting a greater propensity to experience situations or decisions that would normally be avoided. The 10% who indicate that "sometimes" positive emotions influence their willingness to make risky decisions suggests some variability in the

emotional response, which could depend on contextual factors, such as the nature of the decision or the social environment. The minority group (8% “rarely and 5% never”) has a conservative or reflective approach to making decisions, which could indicate a greater inclination towards evaluating risks and consequences. These people could have developed emotional regulation strategies that allow them to manage the influence of emotions on their decision making. The studies reviewed suggest that neuroemotions significantly influence mental health. Damasio's (2005) research shows that, “lesions in the ventromedial prefrontal cortex lead to dysfunction in emotional regulation, increasing vulnerability to disorders such as depression and anxiety.” Another key finding is the interrelationship between the limbic system, responsible for generating emotional responses, and the prefrontal cortex, responsible for regulating these responses (Ochsner & Gross, 2005).

Neuroimaging has shown that people with emotional disorders present altered patterns of neuronal connectivity between these regions, which causes the inability to adequately regulate emotions, which is a crucial factor in the appearance and persistence of these disorders (Etkin et al., 2015). Furthermore, prolonged exposure to stress has been linked to negative neuroplastic changes in the hippocampus and amygdala, key areas in emotional generation and modulation (McEwen, 2017).

Discussion

The results confirm that neuroemotions are deeply involved in mental health. The role of the prefrontal cortex in emotional regulation is crucial to preventing disorders such as depression and anxiety. However, brain plasticity suggests that early interventions and therapeutic approaches focused on emotional regulation can reverse or mitigate the negative effects generated by neuroemotional dysfunction.

A promising line of research is neuroplasticity induced by interventions such as cognitive-behavioral therapy (CBT) and mindfulness, which have been shown to improve prefrontal connectivity and decrease emotional reactivity (Holzel et al., 2011). These techniques could offer avenues for the treatment of chronic emotional disorders by strengthening emotional regulation abilities at a neurobiological level.

Applied interventions such as neuroplasticity, Cognitive-Behavioral Therapy (CBT) and mindfulness have been shown to have a positive impact on mental health by promoting changes in the neural circuits responsible for emotional regulation. These practices rely on the brain's ability to reorganize itself and form new connections, a process known as neuroplasticity.

Conclusions

It is concluded that the results of the emotional behavior variable indicate that a large percentage of respondent’s experience changes in their behavior when they feel emotionally overwhelmed. This finding highlights the importance of addressing “emotion regulation” and its impact on behavior, especially for those who indicate that their behavior changes “often or always” in these circumstances. Most participants experience negative emotions that significantly interfere with their ability to maintain their daily routines and activities. This finding highlights the importance of implementing “interventions focused on emotional regulation”, such as Cognitive-Behavioral Therapy (CBT) or mindfulness, to help people better manage negative emotions and reduce their impact on daily life. Developing skills to manage emotions could significantly improve the quality of life and daily functioning of those who are “often or always” affected. There is a high incidence of emotional avoidance observed in this analysis suggesting the need for therapeutic interventions that help participants face their fears and manage anxiety more effectively. Techniques such as “gradual exposure” used in Cognitive Behavioral Therapy (CBT) are useful in reducing avoidance and helping individuals confront the situations they fear, improving their mental health and their ability to fully participate in their daily activities. Mindfulness practice could also be beneficial for those seeking to reduce emotional reactivity without resorting to avoidance. A large majority of respondents experience changes in their social behavior when emotionally affected, suggesting

that negative emotions significantly impact their interactions with friends, family, and others. This tendency to avoid interactions could be a sign of "emotional vulnerability" and reflects the importance of promoting "emotional regulation" skills and strategies to maintain social contact in times of emotional stress to reduce this tendency toward social isolation, thus improving the quality of interpersonal relationships and emotional well-being.

It is concluded in variable 2 Cognition that the majority of respondents have difficulty concentrating when they are emotionally upset, which suggests a strong interrelation between emotional state and cognitive performance. These results highlight the importance of applying emotional regulation strategies to mitigate the negative impact of emotions at work or study to manage your emotions effectively, thereby reducing emotional interference in your ability to concentrate and improving your performance on cognitive tasks. important. Also, a large majority of respondents feel that negative emotions significantly impact their memory, indicating that emotions not only influence the emotional state, but also cognitive abilities such as "the retention and retrieval of important information." These results highlight the need to develop emotional regulation skills and strategies to manage the impact of negative emotions on memory to help people manage emotional stress, thereby reducing the impact on memory and improving their ability to remember crucial information. Difficulty processing information and making decisions under intense emotions is common among respondents, with almost half of them (44%) experiencing these difficulties frequently. This highlights the importance of developing skills to manage the emotional impact of decision-making, especially in times of stress to improve people's ability to make rational decisions even when experiencing intense emotions, thereby reducing the risk of making impulsive or wrong decisions. The majority of respondents (74%) perceive that their emotions have a significant influence on how they interpret everyday situations, reflecting the importance of emotions in the way daily life is experienced. This result highlights the need to learn how to "manage emotions" to avoid biased interpretations or exaggerated emotional reactions in normal situations to help people become aware of how emotions influence their perception in order to foster an objective and balanced interpretation in everyday situations.

It is concluded in the Decision-Making variable, the majority of respondents (73%) find it difficult to make important decisions when they are emotionally upset, suggesting that the emotional state has a strong impact on decision making. This highlights the importance of applying emotional regulation strategies and decision-making techniques that allow us to deal with the impact of intense emotions, to improve decision-making under difficult emotional conditions, allowing a clear and rational approach even in times of stress or anxiety. Also, a large majority of respondents (76%) experience a strong influence of emotions in making impulsive decisions. This finding highlights the importance of teaching emotion regulation strategies to prevent intense emotions from dominating the decision-making process to help people make more thoughtful decisions, even when they feel emotionally overwhelmed, which reduces the risk of acting impulsively and make mistakes. It is indicated that a large part of those surveyed (72%) feel influenced by emotional changes when reconsidering decisions. This highlights the importance of "emotional self-awareness" and emotional regulation in the decision-making process. Developing skills to manage emotions can be essential to maintain coherent and reflective decision making to help people become more aware of how their emotions affect their decisions, promoting greater "consistency and reasoning" in the decisional process. The results show that a large portion of respondents (77%) feel that positive emotions significantly influence their willingness to make riskier decisions. This underlines the importance of "emotional self-awareness" in the decision-making process and suggests that fostering a positive emotional state can facilitate greater openness to new opportunities and experiences. To help people understand and manage the relationship between their emotions and their willingness to take risks, promoting a balanced and conscious approach to decision-making in times of high emotional charge. Finally, the study of neuroemotions provides a deep understanding of how emotions and the brain interact in mental health. Evidence suggests that emotional disorders are closely linked to dysfunctions in neural connectivity between the limbic system and the prefrontal cortex, which hinders emotional

regulation. Interventions focused on neuroplasticity, such as CBT and mindfulness, can be key to improving mental health by restoring these neural circuits.

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