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## REVIEW PAPER

### Contemporaneous Emotion Regulation Theoretical Models: A Systematic Review

*Modelos Teóricos Contemporáneos de Regulación Emocional: Una Revisión Sistemática*

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#### ABSTRACT

**Background:** Emotions and their regulation are a phenomenon present in everyday life. Despite its relevance and growing interest, a consensual and univocal definition has not yet been reached. **Objective:** This paper aims to review contemporary theoretical models of emotion regulation, looking for agreements and divergences between authors. It seeks to identify the main processes considered when working with emotional dysregulation. **Method:** Our team conducted a systematic review in the form of a narrative synthesis following the guidelines of the PRISMA statement. The database used were SCOPUS, PUBMED, and Dialnet. We included articles published between 2018 and 2020, which have been peer-reviewed in indexed scientific journals, whose central theme was the theoretical presentation of the construct of emotional regulation. We excluded articles that conceptualized only one dimension of the construct focused on specific populations and empirical studies without a theoretical conceptualization of the construct. The information was systematized in a table identifying authors' information, country of institutional affiliation, main characteristics of the given definition of emotion regulation, regulation skills mentioned, and underlying theoretical frameworks. **Results:** We identified ten different theoretical frameworks that propose models of emotion regulation. The main components found in the definition were the complexity of the construct, goal orientation, intra- or interpersonal regulation, the proposal of moderators, and its voluntary character. **Discussion:** There is a consensus on the use of emotion regulation strategies to adapt to environmental demands, achieve goals and increase well-being. We identify that people's learning history is an important factor in the development of emotional regulation skills. In addition, context and personality traits are proposed as moderators of the therapeutic efficacy of interventions focused on emotional regulation. Further studies along these lines would favor the implementation of preventive interventions and the personalization of treatments. **Keywords:** Emotional Regulation; Mental Processes; Theoretical Models; Systematic Review; Clinical Psychology.

#### RESUMEN

**Antecedentes:** Las emociones y su regulación son un fenómeno presente en la vida cotidiana. A pesar de su relevancia y creciente interés, aún no se ha alcanzado una definición consensuada y unívoca. **Objetivo:** El presente trabajo pretende revisar los modelos teóricos de regulación emocional contemporáneos buscando acuerdos y divergencias entre

autores. Se busca identificar los principales procesos tomados en cuenta para el trabajo con la desregulación emocional. **Método:** Nuestro equipo realizó una revisión sistemática en forma de síntesis narrativa siguiendo las directrices de PRISMA. Las bases de datos utilizadas fueron SCOPUS, PUBMED y Dialnet. Se incluyeron artículos publicados entre 2018 y 2020, que han sido revisados por pares en revistas científicas indexadas, cuyo tema central fuera la presentación teórica del constructo de regulación emocional. Se excluyeron artículos que conceptualizaban una sola dimensión del constructo, se enfocaban en poblaciones específicas y estudios empíricos sin una conceptualización teórica del constructo. La información fue sistematizada en una tabla identificando información de los autores, país de afiliación institucional, características principales de la definición dada de regulación emocional, habilidades de regulación mencionadas y marco teórico de base. **Resultados:** Se identificaron diez marcos teóricos diferentes que proponen modelos de regulación de las emociones. Los principales componentes encontrados en las definiciones fueron la complejidad del constructo, la orientación a metas, la regulación intra o interpersonal, la propuesta de moderadores y su carácter voluntario. **Discusión:** Existe un consenso sobre el uso de estrategias de regulación de las emociones para adaptarse a las demandas del entorno, alcanzar metas y aumentar el bienestar. Identificamos que la historia de aprendizaje de las personas es un factor importante en el desarrollo de las habilidades de regulación emocional. Además, el contexto y los rasgos de personalidad son propuestos como moderadores de la eficacia terapéutica de las intervenciones centradas en la regulación emocional. Más estudios en esta línea favorecerían la implementación de intervenciones preventivas y la personalización de los tratamientos. **Palabras clave:** Emociones; Procesos Mentales; Modelos Teóricos; Revisión Sistemática; Psicología Clínica.

## BACKGROUND

Currently, two main trends are being developed in relation to the definition of emotions. First, a line that takes emotions as natural phenomena (Colombetti, 2009; Ekman, 1984; Izard, 1977; Tracy and Randles, 2011), and second, one that conceptualizes emotions as the conscious result of a categorization process (Barrett, 2006a,b; Fehr and Russell, 1984; James, 1884; Russell, 2009). The first considers the existence of a group of basic, innate, universal emotions shared with other animals. It also defends the existence of brain circuits specific to each emotion that would allow them to be differentiated and classified. On the other hand, the second approach conceptualizes a nuclear affect (a combination of physiological, environmental and behavioral variables), the capacity of human beings to learn categories and emotion as a categorical label given to internal states when they resemble a learned category. This position argues that emotional experiences present cultural variations and that it is not possible to objectively measure the emergence of a specific emotion.

Despite the lack of a consensus definition of what emotions are, there is some agreement that they are involuntary reactions that are triggered by emotionally relevant stimuli, have a short duration, and bring with them an impulse to act (LeDoux, 2012). Humans cannot choose when to have an emotion, but we can implement different regulation strategies to convert emotions into valuable information and be able to direct our behavior towards desirable goals (Papa and Epstein, 2018).

Emotional regulation has traditionally been defined as the process by which individuals influence what emotions they have, when they have them, and how they experience and express them (Gross, 1998). It has been theoretically and empirically associated with a variety of dysadaptive behaviors such as self-injury, substance abuse, and criminal behavior (Garofalo et al., 2020; Linehan, 1993). In turn, emotional dysregulation has been identified as an underlying process involved in the emergence and maintenance of many mental disorders (Kring and Werner, 2004; Lukas et al., 2018; Sauer-Zavala et al., 2017) and especially of so-called emotional disorders (Campbell-Sills and Barlow, 2007). Emotional disorders have been identified as the most prevalent in various cultures (Cía et al., 2018; Kessler,

2003; Lamers et al., 2011).

Due to the preponderant role that difficulties in emotion modulation play in emotional disorders, different intervention strategies have been designed for patients with such diagnosis, focusing on providing consultants with emotional regulation strategies (Barlow et al., 2011; Kristjánsdóttir et al., 2015; Linehan, 1993).

Furthermore, due to the importance of assessing emotional regulation and its evolution over time, a large number of psychometric instruments have been developed to measure this construct (e.g., Catanzaro and Mearns, 1990; Garnefski et al., 2001; Gratz and Roemer, 2004; Gross and John, 2003; Hofmann et al., 2016; Newhill et al., 2004; Niven et al., 2011; Preece et al., 2018). This variety of instruments shows a high heterogeneity in the different aspects that are considered central to the phenomenon of emotional regulation. While some instruments focus on measuring cognitive dimensions of emotional regulation, others are focused on behavioral dimensions. Similarly, some instruments focus on intrapersonal regulation, while others also include interpersonal aspects. This variability in the dimensions included in the different scales designed to measure emotional regulation reflects the complexity of the construct, not only in the strategies of its operationalization but also at the level of its conceptualization: each instrument highlights or makes invisible different elements of emotional regulation in terms of the theoretical understanding of the construct.

Since emotional regulation is a process of great importance, both for psychopathology and for the approach to pathological processes, it is necessary to have an operational definition of the process of emotion regulation that allows its study in an adequate way. For these reasons, the aim of this paper is to systematically review contemporary models of emotion regulation, i. e., those present in the literature of the last three years, looking for commonalities and divergences in the different conceptualizations of this notion presented by different researchers.

## METHOD

### Protocol design and recording

To achieve the proposed objective, a systematic review of the

scientific literature was carried out under the narrative synthesis modality (Popay et al., 2006) following the guidelines of the PRISMA statement published in 2009 (Moher et al., 2009). It consists of a list of 27 items and a four-phase flowchart to be considered to ensure transparency and clear reporting of the data considered for systematic reviews. The protocol of our study was not previously published in any repository.

### Search strategy

The studies were identified by searching electronic databases: SCOPUS, PUBMED and Dialnet. The search was conducted on August 10, 2020. The search strategy in Spanish was: "Regulación Emocional OR Regulación Afectiva OR Desregulación Emocional OR Desregulación Afectiva AND Modelos OR Concepto OR Definición". The search strategy in English was: "Emotion Regulation OR Mood Regulation OR Emotion Dysregulation OR Mood Dysregulation AND Models OR Concepts OR Definitions".

### Eligibility Criteria

Considering that the aim is not to provide a historical review of the construct of emotional regulation, but to explore the theoretical definition that is currently being used, it was decided to include articles published in the last three years. For the selection of documents, the following were taken into account as inclusion criteria: (a) articles published between 2018 and 2020, contemplating a range of three years; (b) articles published in indexed scientific journals that go through a peer review pro-

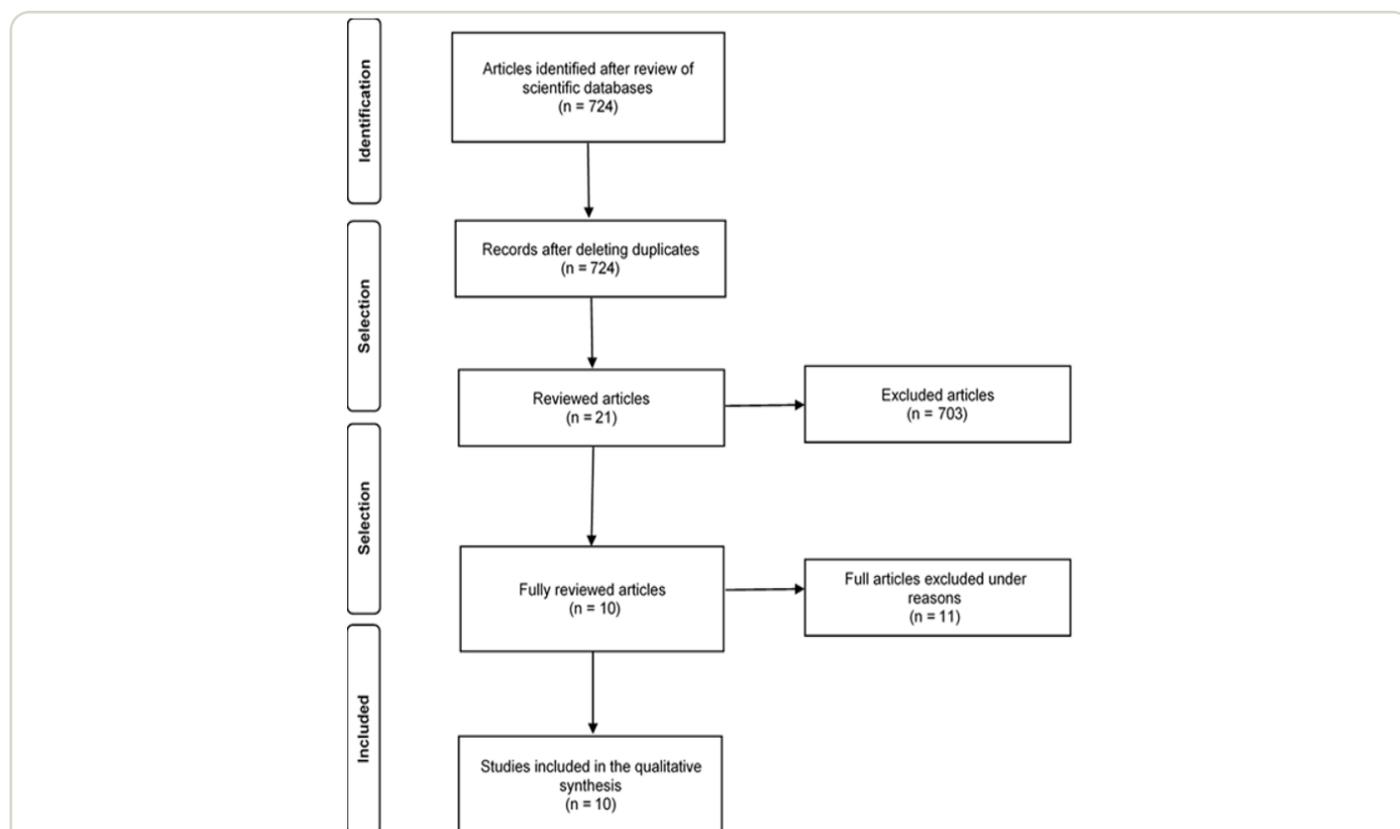
cess; (c) open and restricted access articles; (d) articles whose central theme was the theoretical presentation of the construct of emotional regulation. Articles were excluded that: (a) conceptualized one dimension of emotional regulation, leaving aside the global construct; (b) focused on emotional regulation strategies implemented by specific populations; (c) consisted of empirical studies that lacked theoretical conceptualizations of the construct. No language restrictions were imposed.

### Selection process and data collection

The articles were reviewed manually and independently by the first author. Once the articles to be included were identified, an ad-hoc table was created in which information was extracted regarding the authors, the country of the institution of affiliation, the main characteristics of the given definition of emotional regulation, the regulation skills included as part of the construct, and the theoretical framework from which the authors proposed to start.

### Synthesis and analysis of information

From the table created, the concepts and constructs included in the conceptualizations of the models were identified (see supplementary material 1). They were grouped by categories to calculate the relative frequencies of inclusion in the theoretical models and to achieve a better theoretical comparison. In turn, they were used to propose a functional definition of the process of emotional regulation.



**Figure 1.** Flowchart on study selection.

*Note.* Flowchart on the selection of studies. The diagram represents the process of study selection and the details of the articles included and excluded (Moher et al., 2009).

### Ethical aspects

Our study is a systematic review of published articles, so it does not represent an ethical risk for humans, since it does not collect primary data.

## RESULTS

### Study selection

The initial search yielded 724 articles (555 in SCOPUS, 116 in PUBMED and 53 in Dialnet). These were reviewed by title and abstract when more information was needed to determine whether they met the inclusion criteria. We ended up identifying 21 studies relevant to the review by topic, which were evaluated by full text. Of these, 11 were discarded because they were empirical studies and not theoretical elaborations. Finally, ten articles of theoretical conceptualizations were selected for the review (see Figure 1).

### Studies features

Of the ten articles included, James J. Gross co-authored three of them (McRae and Gross, 2020; Harley et al., 2019; Yih et al., 2019) and Jamie L. Taxer co-authored two (Harley et al., 2019; Yih et al., 2019), while the other identified authors only participated in the proposal of one model. Regarding institutional affiliations, six of the articles involved researchers from the United States (Barthel et al., 2018; Harley et al., 2019; Martins-Klein et al., 2020; McRae and Gross, 2020; Thompson, 2019; Yih et al., 2019), three involved researchers from England (Burkitt, 2018; Hughes et al., 2020; Kobylińska and Kusev, 2019), one with researchers from Belgium (Nozaki and Mikolajczak, 2020), one with a researcher from Poland (Kobylińska and Kusev, 2019), one with a researcher from Canada (Harley et al., 2019), one from Germany (Harley et al., 2019), and one from Australia (Harley et al., 2019). In terms of years of publication, 20% were published in 2018, 40% in 2019, and another 40% in 2020.

### Theoretical frame of reference and new model proposals

60% of the included articles started from Gross's (2015) process model to propose a new model of emotional regulation (Harley et al., 2019; Hughes et al., 2020; Kobylińska and Kusev, 2019; McRae and Gross, 2020; Martins-Klein et al., 2020; Nozaki and Mikolajczak, 2020). According to this model, when a discrepancy appears between a desired and current emotional state, the situation is perceived as an opportunity to initiate an emotional regulation process. A regulation strategy is chosen, implemented, and success is monitored.

Regarding the possible strategies to be used, the model proposes a different strategy for each moment of the emotional regulation process (Gross, 2015). First, at the moment of situational selection, the possible strategy is avoidance (declining involvement in emotionally relevant situations). Then, for situational modification, a direct request (taking action to modify the situation once one is already involved) can be used. When the emotion starts to increase, attentional focus change or cognitive change can be used. To change the attentional focus, it is possible to resort to distraction (focusing attention on an external object or on other thoughts) or to rumination (recurrently directing attention to causes and consequences of the

emotion). As for cognitive change, one can reinterpret the emotional situation or accept the emotions without judging them. Finally, once the emotion is established, possible strategies to regulate it are suppression (avoiding expressing what one is feeling) or intervention in physiological activation (decreasing activation with actions or substances).

Of the six articles that took Gross's (2015) model, 4 (66.6%) combined it with other theories to propose a new model of emotional regulation (Harley et al., 2019; Hughes et al., 2020; Kobylińska and Kusev, 2019; Martins-Klein et al., 2020). Martins-Klein et al. (2020) combined Gross's (2015) model with Braver's (2012) dual control mechanisms perspective. According to this theoretical framework, cognitive control operates in two modes: one is characterized by anticipatory preparation (proactive) and the other by flexible in-situ control (reactive). Thus, Martins-Klein et al. (2020) differentiate proactive emotional regulation (behaviors carried out before the onset of the emotion to prevent the emotion from rising) from reactive regulation (strategies implemented once the emotion has set in to diminish it). At the same time, they propose that the moment of the process in which an emotional regulation strategy is implemented is of great importance and that any strategy could be used at different moments.

For their part, Kobylińska and Kusev (2019) combined Goss's (2015) model with person-situation models from social and personality psychology (Cervone, 2004; Mischel & Shoda, 1995). Kobylińska and Kusev (2019) propose that effective emotional regulation will depend on the interaction between the type of strategy, the situation, and personality patterns. Consequently, the ability to choose different strategies in a flexible way would be associated with higher levels of well-being.

Harley et al. (2019) take Gross's (2015) model and the control-value theory of achievement emotions (Pekrun, 2006) to propose a comprehensive model of emotional regulation for achievement-oriented situations. The control-value theory of achievement emotions (Pekrun, 2006) focuses on the generation of an emotion following the person's perception of having the necessary resources to meet the challenge (control) and the personal value that the achievement has (value). It takes into account three factors that will determine the emotion: the focus (prospective, retrospective, present), the value (positive/success, negative/failure) and the level of control (high, medium, low). For example, if a student has the feeling of not knowing enough for an exam they will feel anxiety, while if they feel prepared, they will feel hopeful.

The comprehensive model of emotional regulation for achievement-oriented situations (Harley et al., 2019) proposes that emotions that arise in situations where certain competencies are required to achieve goals are generated in a four-phase process (situation, attention, appraisal, and response). The process begins with a challenging situation in which one evaluates how one believes the situation will impact one's goals. Then, it contemplates the same phases of Gross's (2015) model with the novelty that the selection of regulation strategies will be guided by the determinants of emotion (Pekrun, 2006). Thus, for example, the cognitive change strategy may be oriented toward modifying one's perception of being able to pass the exam.

The last model that combined that of Gross (2015) with another theory is the one proposed by Hughes et al. (2020). These authors take the Big Five model (DeYoung, 2015) that proposes the existence of five categories of personality traits (neuroticism, extraversion, openness, agreeableness, and conscientiousness). Combining both proposals (Gross's and DeYoung's), they argue that personality traits influence the detection of emotions and assessment of the need to regulate them. For example, people with high neuroticism are sensitive to negative effects and try to diminish it immediately.

Among the works that did not take Gross' model, Thompson (2019) proposed a model of emotional regulation based on a developmental perspective. For this author, the selection of emotional regulation strategies will be mediated by learning history. Each person will tend to use strategies that in the past helped them to reduce discomfort in the short term. At the same time, he argues that there are no adaptive or maladaptive strategies per se, but that this will depend on the context in which they are used.

On the other hand, Yih et al. (2019) started from the work of Richard Lazarus (1974) on the role of cognition in stress and coping modes to propose a perspective that integrates the interpretation of a situation and situational emotional regulation. The authors argue that in order to understand the process of emotional regulation it is indispensable to take into account one's interpretation of a situation (in terms of relevance, valence, probability, agency and coping potential) since this background will give rise to the processes of emotion generation and regulation. Interpretation and regulation are presented as processes that feedback on each other in a loop until the desired goal is achieved.

Barthel et al. (2018) take social baseline theory (Coan and Maresh, 2013), Zaki and Williams' (2013) interpersonal model, and social-self theory (Hofmann and Doan, 2018) to propose a model of interpersonal emotional regulation. Barthel et al. (2018) argue that human responses to stimuli are made under the assumption that we are in a social environment. In this line, they mention three components involved in emotional regulation with others: risk sharing (risk appears lower when accompanied), burden sharing (feeling supported by others), and capitalization (contagion of positive emotions). In turn, they identify four ways in which people use others to regulate themselves. First, to increase positive emotions. Second, to gain perspective on a situation. Third, to calm each other down. Fourth, to imitate regulation strategies used by others.

Finally, Burkitt (2018) took elements from the relational perspective of Campos et al. (2004; 2011) and Kappas (2011) to propose a model in which he positions emotions as a person's relationship with circumstances, events, and other people. Emotional regulation would be nothing more than a stage in the process of emotions. The author suggests that we should stop using the term regulation and start using the notions of generation and restriction of emotions, as a relational and interactive process in which interrelated people affect each other in situations that have specific cultural meanings.

### Definition of Emotional Regulation

Regarding the definition of emotional regulation given by the different authors, some ideas were observed that are repeated in several models. To begin with, all the works describe emotional regulation as a process composed of different stages or mechanisms. Some authors propose a sequential model in which some processes precede others. Others propose that emotional regulation is like an umbrella that houses different processes (or "strategies") that can be implemented at different times. But all of them refer to the fact that it is a complex construct made up of several components.

Another aspect to compare is whether people regulate individually or socially. 60% of the papers propose a model of intrapersonal emotional regulation (Harley et al., 2019; Kobylińska and Kusev, 2019; McRae and Gross, 2020; Martins-Klein et al., 2020; Thompson, 2019; Yih et al., 2019). These authors describe how a person experiences their emotions and influences them to achieve personal goals. Although they consider the context as a factor to which to adapt, they describe the process of emotional regulation as a phenomenon that people carry out on their own. Another 30% propose models in which regulation happens between people (Barthel et al., 2018; Burkitt, 2018; Nozaki and Mikolajczak, 2020). Some make more reference to the intentionality of influencing other people's emotions, while others propose that the emotions and actions of others will modulate how our emotions change. On the other hand, the Hughes et al. (2020) model presents a broader definition of emotional regulation in which people can regulate themselves alone or with others.

Another issue that the definitions have in common is the contemplation of goals. 80% of the authors define emotional regulation as a goal-oriented process (Harley et al., 2019; Hughes et al., 2020; Kobylińska and Kusev, 2019; McRae and Gross, 2020; Martins-Klein et al., 2020; Nozaki and Mikolajczak, 2020; Thompson, 2019; Yih et al., 2019). Most models view emotional regulation as a process necessary to modulate emotions in a way that allows people to act in a manner commensurate with achieving their goals and behaving in a socially expected manner. In contrast to this idea, Burkitt (2018) suggests that there would be no preset goals for which emotions should be modified. The author proposes that regulation is but one part of the process of emotions and that emotions will change along with the emotions and expressions of the people who are part of a context.

Finally, 90% of the models refer that the process of emotional regulation would consist of actively modifying what a person feels (Barthel et al., 2018; Harley et al., 2019; Hughes et al., 2020; Kobylińska and Kusev, 2019; McRae and Gross, 2020; Martins-Klein et al., 2020; Nozaki and Mikolajczak, 2020; Thompson, 2019; Yih et al., 2019). In the description of the models, the impression is given that people choose a strategy to decrease negative emotions as if it were a conscious and voluntary process.

### Emotional regulation strategies

Considering all the included studies, 13 regulation skills could be identified: nonjudgmental acceptance, decrease of physiological activation, distinction between subjective experience

and external emotional expression, distraction, avoidance, identification and understanding of emotions, situation modification, direct request, reinterpretation, withdrawal of attention, rumination, situation selection and suppression. In turn, the different models propose various moderators of the selection of emotional regulation strategies and of their efficacy.

McRae and Gross (2020) propose that the selection of strategies would be moderated on the one hand by the intensity of the emotion, and on the other by the culture in which the subject is immersed. In relation to the intensity, when the intensity is low, there would be a greater frequency of cognitive strategies, and when the emotion is intense, there would be a tendency to suppression or distraction. In terms of culture, suppression, for example, would be less frequent in contexts where emotional expression is valued and reinterpretation more frequent in those where self-reflection is valued. Similarly, two models (Kobylińska and Kusev, 2019; Nozaki and Mikolajczak) propose context as a moderator of strategy effectiveness. It is proposed that in some contexts some will work better than others, and hence the importance of flexible implementation of them.

Another moderating factor contemplated by two models is learning history (Barthel et al., 2018; Thompson, 2019). They propose that the type of emotional regulation strategies implemented will depend on the strategies used by their context during their development and how effective they were in the past. Along these lines, 50% of the models contemplate personality traits as moderators of the strategies chosen by the subjects (Harley et al., 2019; Hughes et al., 2020; Thompson, 2019; Kobylińska and Kusev, 2019; Nozaki and Mikolajczak). For example, Hughes et al. (2020) propose that people who score high on conscientiousness would tend to choose the problem-solving strategy, those who score high on openness would tend to use cognitive strategies (rumination and reappraisal), those who score high on neuroticism would tend to use avoidance and suppression, and people who score high on extraversion would tend to use environmental modification and reappraisal. On the other hand, with regard to interpersonal regulation, people high in extraversion would tend to use proactive strategies (environmental modification and cognitive change). In contrast, people with high levels of agreeableness would have a greater concern about worsening the state of others or offending them, so they would choose strategies that avoid confrontation.

## DISCUSSION

### Main findings and interpretability

Emotional regulation is presented in the literature as a complex process composed of various components. As a consequence of its complexity, several models have been generated that focus on different aspects of the construct. The aim of this paper was to review the different contemporary theoretical models on the conceptualization of emotional regulation, presenting their common aspects and their differences.

In this way, we seek to provide a comprehensive view of the construct of emotional regulation that will help to propose future lines of research. By identifying common aspects included in the different theoretical models, such as possible moderators in the selection and efficacy of strategies, or the fact of con-

sidering others in the regulation process, may help to think of empirical studies that contrast these hypotheses. On the other hand, a better understanding of how the process of emotional regulation is currently considered to develop may help when considering intervention strategies in the clinic with patients who present difficulties in emotion regulation.

Taking into account the similarities of the models included in the review, it can be argued that emotional regulation is: (a) a complex process composed of several components; (b) moderated by various contextual and personality factors; (c) influencing the course of emotions; (d) helping to achieve personal goals or contextual demands; (e) that it can happen alone or with other people.

It can be established that there is a consensus on the purpose of emotional regulation. Most authors agree that people use various emotional regulation strategies to adapt to environmental demands, achieve personal goals, and increase well-being (Harley et al., 2019; Hughes et al., 2020; Kobylińska and Kusev, 2019; McRae and Gross, 2020; Martins-Klein et al., 2020; Nozaki and Mikolajczak, 2020; Thompson, 2019; Yih et al., 2019). However, a consensus proposal on effective means to achieve this is still lacking. Context and personality traits have been the moderators that appeared most frequently proposed (Barthel et al., 2018; Kobylińska and Kusev, 2019; McRae and Gross, 2020; Nozaki and Mikolajczak; Thompson, 2019). Following this line, it would be relevant to study the process of emotional regulation in context, considering different personality variables and socioenvironmental characteristics, in order to begin to better understand which strategies benefit each person the most. In this way, it would be possible to personalize the intervention of people with emotional disorders, maximizing its benefits.

Along this line, the conceptualization of context and learning history as moderators of the regulation process also becomes relevant. The fact of considering that the context in which a subject is immersed and the exposure to effective regulation experiences predict the levels of emotional regulation of a person, becomes a strong argument when proposing emotional education in schools.

Another issue to discuss is that the proposal of the presence of moderators with an effect on the strategies chosen by subjects is contradicted by most models presenting emotional regulation as a voluntary process (Barthel et al., 2018; Harley et al., 2019; Hughes et al., 2020; Kobylińska and Kusev, 2019; McRae and Gross, 2020; Martins-Klein et al., 2020; Nozaki and Mikolajczak, 2020; Thompson, 2019; Yih et al., 2019). If models can be built to predict which strategies subjects will use based on their personality traits or characteristics of their rearing context, it would be questionable to think of emotional regulation as a voluntary process. In this case, emotional regulation could be thought of as learned response patterns that arise in the presence of stimuli (set of emotions and goals). In this line, the emphasis of interventions could be placed on facilitating the activation pathway of strategies that are more functional for each subject and expanding their behavioral repertoire through rehearsal and reinforcement.

On the other hand, it is interesting that some models describe emotional regulation as a process that subjects carry out in-

dividually (Harley et al., 2019; Hughes et al., 2020; Kobylińska and Kusev, 2019; McRae and Gross, 2020; Martins-Klein et al., 2020; Thompson, 2019; Yih et al., 2019), while others present it as a social process involving more than one person (Barthel et al., 2018; Burkitt, 2018; Hughes et al., 2020; Nozaki and Mikolajczak, 2020). This issue may be particularly relevant for clinical practice as it proposes a new intervention approach. With this view, it is possible to think about intervening on the context in front of subjects presenting significant difficulties in emotion regulation.

### Implications for clinical psychology and health

Our study of current models of emotional regulation identified several issues relevant to applied psychology. To begin with, it was identified that the models take into account the context and learning history of the subject. In this sense, the proposal to include emotional education modules in schools becomes relevant (Hoffmann et al., 2020). If people are taught from an early age to identify their emotions and accept them as a process that provides valuable information, it is expected that as adults they will have a better relationship with their emotions, use adaptive strategies and consequently have a lower risk of suffering from emotional disorders (Hoffmann et al., 2020).

Following this line, it was also identified that the models propose context and personality traits as moderators of the efficacy of implementation of various emotional regulation strategies. This is particularly relevant for clinical psychology since it would imply that not all people would benefit from the same treatment. It would be necessary to identify which skills best fit the profile of each patient and to emphasize training in their use. According to this proposal, a section could be added to the standardized treatment manuals suggesting to therapists which modules to emphasize depending on the patients with whom it will be applied. In this way we could try to personalize the interventions in order to maximize the results.

### Limitations

This paper identifies the main factors shared by the theoretical models of emotional regulation currently in use. One limitation is that we have not been able to include databases such as Web of Science or PsycINFO in the review, which are important sources of information in the field, because we do not have access to them. In any case, among the databases included is SCOPUS, which has been identified as the database with the largest number of indexed journals (Hernández-González et al., 2016). On the other hand, it is considered a limitation that the models found propose context and personality traits as factors that moderate the use of emotional regulation strategies but do not detail how they do so. Thus, it is not possible to propose an integrative model or to propose specific hypotheses to be empirically contrasted.

### Conclusions and recommendations

From the review of contemporary theoretical models of emotional regulation, it can be concluded that there are very general models. They propose that the concept is composed of various components and that there are moderators that influence

the form and efficacy of strategy selection. However, there is still a lack of models that propose how treatments can be personalized.

For future research, it would be interesting to review the empirical studies carried out so far in which the moderators proposed in the theoretical models and the efficacy of the strategies when used in different contexts by people with different characteristics have been studied. In turn, it would be necessary to evaluate the predictive capacity of models that take personality traits as determinants of the efficacy of the use of the various emotional regulation strategies proposed. This could open the way towards a comprehensive model in which factors to be considered when choosing which skills to work with in each particular case are proposed.

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### AUTHORS' CONTRIBUTION

Camila Florencia Cremades: Conceptualization, Methodology, Research, Writing - Original Draft.

Cristian Javier Garay: Conceptualization, Resources, Writing - reviewing and editing.

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### CONFLICT OF INTERESTS

The authors declare that there were no conflicts of interest in collecting the data, analyzing the information or writing the manuscript.

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### REVIEW PROCESS

This study has been reviewed by external peers in double-blind mode. The editor in charge was [David Villarreal-Zegarra](#). The review process is included as supplementary material 2.

### DATA AVAILABILITY STATEMENT

Not applicable.

### DISCLAIMER

The authors are responsible for all statements made in this article.

### REFERENCES

Barlow, D. H., Farchione, T. J., Fairholme, C. P., Ellard, K. K., Boisseau, C. L., Allen,

- L. B., & Ehrenreich-May, J. (2011). *Treatments that work. Unified protocol for transdiagnostic treatment of emotional disorders: Therapist guide*. Oxford University Press
- Barthel, A. L., Hay, A., Doan, S. N., & Hofmann, S. G. (2018). Interpersonal emotion regulation: A review of social and developmental components. *Behaviour Change, 35*(4), 203-216. <http://doi.org/10.1017/bec.2018.19>
- Barrett, L. F. (2006a). Solving the emotion paradox: Categorization and the experience of emotion. *Personality and social psychology review, 10*(1), 20-46. [http://doi.org/10.1207/s15327957pspr1001\\_2](http://doi.org/10.1207/s15327957pspr1001_2)
- Barrett, L. F. (2006b). Are emotions natural kinds?. *Perspectives on psychological science, 1*(1), 28-58. <http://doi.org/10.1111/j.1745-6916.2006.00003.x>
- Braver, T. S. (2012). The variable nature of cognitive control: A dual mechanisms framework. *Trends in Cognitive Sciences, 16*, 106-113. <http://doi.org/10.1016/j.tics.2011.12.010>
- Burkitt, I. (2018). Decentering emotion regulation: from emotion regulation to relational emotion. *Emotion Review, 10*(2), 167-173. <http://doi.org/10.1177/1754073917712441>
- Campbell-Sills, L., & Barlow, D. H. (2007). Incorporating Emotion Regulation into Conceptualizations and Treatments of Anxiety and Mood Disorders. En J. J. Gross, (Ed.), *Handbook of emotion regulation* (pp. 542-559). The Guilford Press.
- Campos, J. J., Frankel, C. B., & Camras, L. (2004). On the Nature of Emotion Regulation. *Child Development, 75*(2), 377-394. <http://doi.org/10.1111/j.1467-8624.2004.00681.x>
- Campos, J. J., Walle, E. A., Dahl, A., & Main, A. (2011). Reconceptualizing Emotion Regulation. *Emotion Review, 3*(1), 26-35. <http://doi.org/10.1177/1754073910380975>
- Catanzaro, S. J., & Mearns, J. (1990). Measuring generalized expectancies for negative mood regulation: Initial scale development and implications. *Journal of personality assessment, 54*(3-4), 546-563. <http://doi.org/10.1080/00223891.1990.9674019>
- Cervone, D. (2004). The architecture of personality. *Psychol. Rev., 111*, 183-204. <http://doi.org/10.1037/0033-295X.111.1.183>
- Cía, A. H., Stagnaro, J. C., Gaxiola, S. A., Vommaro, H., Loera, G., Medina-Mora, M. E., & Kessler, R. C. (2018). Lifetime prevalence and age-of-onset of mental disorders in adults from the Argentinean Study of Mental Health Epidemiology. *Social Psychiatry and Psychiatric Epidemiology, 53*(4), 341-350. <http://doi.org/10.1007/s00127-018-1492-3>
- Coan, J.A., & Maresh, E.L. (2013). Social baseline theory and the social regulation of emotion. In J. J. Gross, (Ed.), *The science of the couple* (pp. 231-236). Psychology Press.
- Colombetti, G. (2009). From affect programs to dynamical discrete emotions. *Philosophical Psychology, 22*(4), 407-425. <http://doi.org/10.1080/09515080903153600>
- DeYoung, C. G. (2015). Cybernetic Big Five Theory. *Journal of Research in Personality, 56*, 33-58. <http://doi.org/10.1016/j.jrp.2014.07.004>
- Ekman, P. (1984). Expression and the nature of emotion. In K. Scherer, & P. Ekman, (Eds.), *Approaches to emotion* (pp. 319-343). Erlbaum.
- Fehr, B., & Russell, J. A. (1984). Concept of emotion viewed from a prototype perspective. *Journal of experimental psychology: General, 113*(3), 464. <http://doi.org/10.1037/0096-3445.113.3.464>
- Garnefski, N., Kraaij, V., & Spinhoven, P. (2001). Negative life events, cognitive emotion regulation and emotional problems. *Personality and Individual Differences, 30*(8), 1311-1327. [http://doi.org/10.1016/S0191-8869\(00\)00113-6](http://doi.org/10.1016/S0191-8869(00)00113-6)
- Garofalo, C., Neumann, C. S., Kosson, D. S., & Velotti, P. (2020). Psychopathy and emotion dysregulation: More than meets the eye. *Psychiatry Research, 290*, 113-160. <http://doi.org/10.1016/j.psychres.2020.113160>
- Gratz, K. L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in emotion regulation scale. *Journal of psychopathology and behavioral assessment, 26*(1), 41-54. <http://doi.org/10.1023/B:JOBA.0000007455.08539.94>
- Gross, J. J. (1998). The emerging field of emotion regulation: An integrative review. *Review of general psychology, 2*(3), 271-299. <http://doi.org/10.1037/1089-2680.2.3.271>
- Gross, J. J. (2015). The extended process model of emotion regulation: Elaborations, applications, and future directions. *Psychological Inquiry, 26*, 130-137. <http://doi.org/10.1080/1047840x.2015.989751>
- Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: implications for affect, relationships, and well-being. *Journal of personality and social psychology, 85*(2), 348. <http://doi.org/10.1037/0022-3514.85.2.348>
- Harley, J. M., Pekrun, R., Taxer, J. L., & Gross, J. J. (2019). Emotion regulation in achievement situations: An integrated model. *Educational Psychologist, 54*(2), 106-126. <http://doi.org/10.1080/00461520.2019.1587297>
- Hernández-González, V., Sans-Rosell, N., Jové-Deltell, M. C., & Reverter-Masia, J. (2016). Comparación entre Web of Science y Scopus, estudio bibliométrico de las revistas de anatomía y morfología. *International Journal of Morphology, 34*(4), 1369-1377. <http://dx.doi.org/10.4067/S0717-95022016000400032>
- Hoffmann, J. D., Brackett, M. A., Bailey, C. S., & Willner, C. J. (2020). Teaching Emotion Regulation in Schools: Translating Research Into Practice With the RULER Approach to Social and Emotional Learning. *Emotion, 20*(1), 105-109. <http://doi.org/10.1037/emo0000649>
- Hofmann, S. G., Carpenter, J. K., & Curtiss, J. (2016). Interpersonal Emotion Regulation Questionnaire (IERQ): Scale Development and Psychometric Characteristics. *Cognitive therapy and research, 40*(3), 341-356. <http://doi.org/10.1007/s10608-016-9756-2>
- Hofmann, S.G., & Doan, S.N. (2018). *The social foundations of emotion: Developmental, cultural, and clinical dimensions*. American Psychological Association.
- Hughes, D. J., Kratsiotis, I. K., Niven, K., & Holman, D. (2020). Personality traits and emotion regulation: A targeted review and recommendations. *Emotion, 20*(1), 63. <http://doi.org/10.1037/emo0000644>
- Izard, C. (1977). *Human emotions*. Plenum Press.
- James, W. (1884). What is an emotion? *Mind, 9*, 188-205. <https://doi.org/10.1037/11304-033>
- Kappas, A. (2011). Emotion and Regulation are One! *Emotion Review, 3*(1), 17-25. <http://doi.org/10.1177/1754073910380971>
- Kobylińska, D., & Kusev, P. (2019). Flexible emotion regulation: How situational demands and individual differences influence the effectiveness of regulatory strategies. *Frontiers in psychology, 10*, 72. <http://doi.org/10.3389/fpsyg.2019.00072>
- Kristjánssdóttir, H., Sigurðsson, B. H., Salkovskis, P., Ólason, D., Sigurdsson, E., Evans, C., Gylfadóttir, E. D., & Sigurðsson, J. F. (2015). Evaluation of the psychometric properties of the Icelandic version of the Clinical Outcomes in Routine Evaluation-Outcome Measure, its transdiagnostic utility and cross-cultural validation. *Clinical psychology & psychotherapy, 22*(1), 64-74. <http://doi.org/10.1002/cpp.1874>
- Kessler, R. C., Berglund, P., Demler, O., Jin, R., Koretz, D., Merikangas, K. R., Rush, A. J., Walters, E. E., & Wang, P. S. (2003). The epidemiology of major depressive disorder: results from the National Comorbidity Survey Replication (NCS-R). *Jama, 289*(23), 3095-3105. <http://doi.org/10.1001/jama.289.23.3095>
- Kring, A. M., & Werner, K. H. (2004). Emotion regulation and psychopathology. En P. Philippot, & R. S. Feldman, (Eds.), *The Regulation of Emotion* (pp.359-385). Erlbaum.
- Lamers, F., van Oppen, P., Comijs, H. C., Smit, J. H., Spinhoven, P., van Balkom, A. J., Nolen, W. A., Zitman, F. G., Beekman, A. T. F., & Penninx, B. W. (2011). Comorbidity patterns of anxiety and depressive disorders in a large cohort study: the Netherlands Study of Depression and Anxiety (NESDA). *Journal of clinical psychiatry, 72*(3), 341-348. <http://doi.org/10.4088/JCP.10m06176blu>
- Lazarus, R. S. (1974). Psychological stress and coping in adaptation and illness. *International Journal of Psychiatry in Medicine, 5*(4), 321-333. <http://doi.org/10.2190/T43T-84P3-QDUR-7rtp>
- Ledoux, J. (2012). Rethinking the Emotional Brain. *Neuron, 73*(5), 653-676. <http://doi.org/10.1016/j.neuron.2012.02.018>
- Linehan, M. M. (1993). *Cognitive-behavioral treatment of borderline personality disorder*. Guilford Press.
- Lukas, C. A., Ebert, D. D., Fuentes, H. T., Caspar, F., & Berking, M. (2018). Deficits in general emotion regulation skills—Evidence of a transdiagnostic factor. *Journal of clinical psychology, 74*(6), 1017-1033. <http://doi.org/10.1002/jclp.22565>
- Martins-Klein, B., Alves, L. A., & Chiew, K. S. (2020). Proactive versus reactive emotion regulation: A dual-mechanisms perspective. *Emotion, 20*(1), 87. <http://doi.org/10.1037/emo0000664>
- McRae, K., & Gross, J. J. (2020). Emotion regulation. *Emotion, 20*(1), 1. <http://doi.org/10.1037/emo0000703>
- Mischel, W., and Shoda, Y. (1995). A cognitive-affective system theory of personality: reconceptualizing situations, dispositions, dynamics, and invari-

- ance in personality structure. *Psychol. Rev.*, 102, 246–268. <http://doi.org/10.1037/0033-295X.102.2.246>
- Moher, D., Liberati, A., Tetzlaff, J., Altman, D.G., & The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. *PLoS Med* 6(7): e1000097. <http://doi.org/10.1371/journal.pmed.1000097>
- Newhill, C. E., Mulvey, E. P., & Pilkonis, P. A. (2004). Initial development of a measure of emotional dysregulation for individuals with cluster B personality disorders. *Research on Social Work Practice*, 14(6), 443-449. <http://doi.org/10.1177/1049731504267332>
- Niven, K., Totterdell, P. A., Stride, C., & Holman, D. (2011). Emotion Regulation of Others and Self (EROS): The development and validation of a new individual difference measure. *Current Psychology*, 30, 53-73. <http://doi.org/10.1007/s12144-011-9099-9>
- Nozaki, Y., & Mikolajczak, M. (2020). Extrinsic emotion regulation. *Emotion*, 20(1), 10. <http://doi.org/10.1037/emo0000636>
- Papa, A. & Epstein, E. M. (2018). Emotions and Emotion Regulation. En S. C. Hayes & S. G. Hofmann, (Eds.), *Process-Based CBT* (pp. 137 - 151). Context Press
- Pekrun, R. (2006). The control-value theory of achievement emotions: Assumptions, corollaries, and implications for educational research and practice. *Educational Psychology Review*, 18(4), 315-341. <http://doi.org/10.1007/s10648-006-9029-9>
- Popay, J., Roberts, H. M., Sowden, A., Petticrew, M., Arai, L., Rodgers, M., & Britten, N. (2006). *Guidance on the conduct of narrative synthesis in systematic reviews*. Institute for Health Research. <https://www.lancaster.ac.uk/media/lancaster-university/content-assets/documents/fhm/dhr/chir/NS-synthesisguidanceVersion1-April2006.pdf>
- Preece, D. A., Becerra, R., Robinson, K., Dandy, J., & Allan, A. (2018). Measuring emotion regulation ability across negative and positive emotions: The Perth Emotion Regulation Competency Inventory (PERCI). *Personality and Individual Differences*, 135, 229-241. <http://doi.org/10.1016/j.paid.2018.07.025>
- Russell, J. A. (2009). Emotion, core affect, and psychological construction. *Cognition and emotion*, 23(7), 1259-1283. <http://doi.org/10.1080/02699930902809375>
- Sauer-Zavala, S., Gutner, C. A., Farchione, T. J., Boettcher, H. T., Bullis, J. R., & Barlow, D. H. (2017). Current definitions of “transdiagnostic” in treatment development: A search for consensus. *Behavior therapy*, 48(1), 128-138. <http://doi.org/10.1016/j.beth.2016.09.004>
- Thompson, R. A. (2019). Emotion dysregulation: A theme in search of definition. *Development and psychopathology*, 31(3), 805-815. <http://doi.org/10.1017/S0954579419000282>
- Tracy, J. L., & Randles, D. (2011). Four models of basic emotions: a review of Ekman and Cordaro, Izard, Levenson, and Panksepp and Watt. *Emotion Review*, 3(4), 397-405. <http://doi.org/10.1177/1754073911410747>
- Yih, J., Uusberg, A., Taxer, J. L., & Gross, J. J. (2019). Better together: a unified perspective on appraisal and emotion regulation. *Cognition and Emotion*, 33(1), 41-47. <http://doi.org/10.1080/02699931.2018.1504749>
- Zaki, J., & Williams W.C. (2013). Interpersonal emotion regulation. *Emotion*, 13, 803–810. <http://doi.org/10.1037/a0033839>