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### PARENT-PROMPTED DYSREGULATION: DO PARENTS SERVE AS CUES FOR DYSREGULATION IN SOME CHILDREN?

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**PARENT-PROMPTED DYSREGULATION: DO PARENTS SERVE AS CUES FOR  
DYSREGULATION IN SOME CHILDREN**

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**SUBMITTED TO PITZER COLLEGE IN PARTIAL FULFILLMENT OF THE DEGREE OF  
BACHELOR OR ARTS**

**Professor Rodriguez  
Professor Schmitz**

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### **Abstract**

Children occasionally encounter dysregulation when interacting with their parents in relatively neutral or positive scenarios. Given that the cause of dysregulation is usually relational, meaning it is often cued by someone who is seen to have power or control over the person, children could be particularly susceptible to dysregulation in the presence of their parents. However, when examining the existing literature, there appeared to be a lack of research and knowledge concerning this topic, with much of the literature focusing on the effect of child stressors on parental dysregulation. As a result, the term parent-prompted dysregulation was developed to refer to a specific state of dysregulation that may occur because of children interacting with their parents or a parent. The purpose of this paper is to introduce a proposed biopsychosocial experimental study to examine the prevalence and potential causes of parent-prompted dysregulation in children. The study will be performed on a sample of children with at least one of their parents. For the study, a parent-child relationship questionnaire will be distributed to each parent and child. Afterwards, an experimental study will be performed where the child will discuss a major life decision with both a confederate and a parent. The cortisol levels of both the parent and the child will also be measured to indicate the presence of parent-prompted dysregulation. This proposed study holds considerable potential in advancing the field of clinical psychology, psychiatry, and public health by introducing and promoting further research on child perspectives on parental stressors and effects and prevention of adverse childhood experiences (ACEs).

## Introduction

It is an established principle in the scientific and psychological community, that parents and other primary caregivers are critical in a child's development. While parent-related experiences can have profound and long-lasting effects on the child, many of which would be considered positive, there is also evidence of its negative effects. Multiple studies have shown that adverse childhood experiences (ACEs) can cause harm or distress and may disrupt the child's psychological development to some extent (Jakovljevic et al. 2016). Furthermore, having multiple ACEs is widely considered a major risk factor for many health conditions alongside lifelong health and wellbeing (Hughes et al., 2017). For example, one of the major ACEs is poverty; children from families living in poverty were found to be three times more likely to suffer from psychiatric conditions, such as ADHD and internalizing disorders such as depression, anxiety, and poor coping skills (Jakovljevic et al., 2016). However, in many cases, these adverse childhood experiences are also a result of parental figures, as children are often the most vulnerable to abuse and trauma from their parents and guardians. According to the Substance Abuse and Mental Health Services Administration, one in seven children experienced child abuse and/or neglect in 2021 and more than two-thirds of children reported at least one traumatic event by age 16. (SAMHSA, 2020). Clearly, the prevalence and relevance of parent-child interactions in ACEs is something to be conscious of. As a result, a focus on prevention of ACEs, resilience-building, and ACE-informed services may be required to make significant improvements to our public and mental health system.

Current research on parent-child interactions primarily focuses on the parents' emotional regulation in response to child-related stressors (Byrd et al., 2021). However, there seems to be a lack of research on the emotional regulation of children in response to parent-related stressors.

This study attempts to address this gap in the literature by focusing on an observable phenomenon, where a child interacting with one or both parents in a neutral or relatively positive setting is often cued by the presence of a parental figure to display atypical emotional and behavior regulation. For example, a child may become visibly upset at a parent offering their advice or perspective on a certain problem while they may respond more calmly when a friend or stranger offers their advice. The existence of such observable situations implicate that the presence of a parent may have a role in some children's ability to regulate their emotions. In the current literature, there exists no direct research on this phenomenon, which has been termed parent-prompted dysregulation for the purposes of the proposed study.

This study attempts to address the gap in the literature pertaining to parent-prompted dysregulation. Considering the effects of adverse childhood experiences on long-term health and wellbeing, it is equally or even arguably more crucial to better understand the emotional regulation of children in response to parent-related stressors to improve general and long-term public and mental health. Furthermore, this study may be able to aid in the development of future research and resources on how children can define this problem and properly address it. As a result, the study addresses the need for further exploration in understanding the topic at hand by taking a biopsychosocial experimental approach to parent-prompted dysregulation.

## **Emotional Regulation**

Multiple studies across many fields have emphasized the important roles emotions play in day-to-day functioning. For instance, emotions underly our behavioral responses, decision making, and interpersonal interactions. Furthermore, the long-held assumption that positive

emotions are beneficial to our health and wellbeing is only becoming stronger with more empirical evidence providing support for the field of positive psychology in recent years (Tugade et al, 2004). However, when studying emotions, it is important to understand that emotions can potentially be just as determinantal as they are beneficial to our health and wellbeing. For instance, an inability to regulate emotions are linked to psychopathology, social difficulties, and physical illness (Campell-Sills & Barlow, 2007 & Sapolsky, 2007).

According to the modal-model of emotion, one of the leading theories of emotion, there are three core features of emotion (Gross, 2013). First, emotions arise when an individual deals with a situation they perceive as relevant to their goals. It is important that goals can have various characteristics. For example, goals may be permanent (keeping oneself alive) or temporary (wanting to win in a basketball game). They may also be widely shared (finding a romantic partner) or very personal (trying to perfect a new basketball move you have been practicing). Regardless, the important thing is that goals are complex and dynamic. The situational meaning of the goal for the individuals is what generates emotion, and as that meaning changes over time (due to changes in the situation itself or changes in the meaning the situation holds), the emotion(s) will also change respectively (Gross, 1998). In terms of parent-prompted dysregulation, parents are often involved in setting goals for their children at a young age. As children grow older and these goals change in context of their newfound autonomy and interests, parents may not be aware of these situational changes or even be willing to accept the child's change in goals. These parental expectations for the child to have certain goals, may still exist, potentially causing the parent to unintentionally invalidate the child by not completely listening or attempting to understand the child's point of view and rationale. As a result, some

children's emotional dysregulation by their parents may be potentially explained by such parental biases and conflicts.

Second, emotions are multidimensional whole-body occurrences that involve changes in the dimensions of subjective experience, behavior, and peripheral physiology (Mauss, Levenson, McCarter, Wilhelm, & Gross, 2005). Therefore, it is reasonable to assume that emotions and dysregulation can be measured through various measures, such as through participants' recollections of their experience and thoughts, their observable behavior, and through biological means. Third and lastly, the changes in these dimensions associated with emotion are often not obligatory. This core feature states that emotions are often voluntary and therefore suggests that there is a window of opportunity where emotions can be consciously regulated by the individual to prevent or reduce the consequences of dysregulation. In short, together, these three core features of emotion theorize that emotions arise because of person-situation transactions that have meaning to an individual which in turn leads to a coordinated yet adjustable multisystem response to the ongoing situation. Aspects of these three core features of emotions were taken into consideration when designing the study to observe and measure if parental presence had a role in the incidence of emotional regulation.

### **What is parent-prompted dysregulation?**

Dysregulation commonly refers to a poor ability or inability to manage emotional responses or to keep them within an acceptable range of emotional reactions or behaviors (Cole et al., 1994). Commonly thought as a childhood problem that is resolved as children mature and learn proper emotional skills and strategies, dysregulation may continue into adulthood (Garber

& Dodge, 1991). Although chronic dysregulation may not be as common in adults, acute dysregulation may be more common. For example, when interacting with parents, children, even when mature, appear to be occasionally prone to dysregulation. This is not a common everyday occurrence but there are times where one can't seem to control themselves around their parents. To define this phenomenon, the term parent-prompted dysregulation was developed for this study and refers to this specific state of dysregulation that may occur because of children interacting with their parents or a parent. It's important to note that the terms children or child do not refer to a certain age, but rather focus on the parent-child dynamic in which the individual is a child in context of the relationship. From existing literature, early psychological trauma resulting from abuse or neglect by the parent or caregiver has been consistently cited as being associated with emotional dysregulation (Powers et al., 2015). However, children who have never been substantially abused or neglected by their parents can still display parent-prompted dysregulation. For example, an individual may exhibit dysregulation and lash out at his/her parent in anger when the parent asks the child if they had a good day after they have had a rough day. For this individual, although they did not intend to respond in an angry manner towards their parent's harmless question, the consequences of what they said still stands. As a result, if instances like this consistently occur, this could potentially lead to potentially serious problems in the child's mental health and wellbeing.

### **What are the implications of parent-prompted dysregulation for development and mental health wellbeing?**

From a child's perspective, parent-prompted dysregulation can often feel uncontrollable with no clear origin source, which itself is distressing. In neutral and relatively positive settings, a child may not be necessarily feeling annoyed or angry but will still respond in that manner.



This is problematic as it prevents a healthy beneficial dialogue between parent and child and may degrade the relationship between parent and child in the short or long term. Furthermore, as children grow and become more independent it is important to be able to communicate with their parents effectively to balance their parent's advice and worries with their own desires in life. Parental-stress generation may have negative implications on this communication, potentially having significant impacts in terms of decision making during an important time in the child's life. In addition, it may lead to problems in mental health and wellbeing because of issues such as relational problems with the parent, an inability to function properly due to anxiety following the episode, a feeling of helplessness from being unable to control their emotions, and other serious problems. In severe cases, parent-prompted dysregulation could lead to physical encounters between the child and parent, a relatively brief interaction with life-changing consequences.

### **Attachment Styles**

One of the most prominent theories in explaining the effects of parent-child relationships on child development is attachment theory. Developed by psychiatrist John Bowlby in collaboration with psychologist Mary Ainsworth, attachment theory revolves around the main belief that children need to develop a relationship with at least one primary caregiver to attain normal social and emotional development (Goldberg, Muir, & Kerry, 1995). In addition, the nature of the relationship between the parent and child was found to be salient and was extensively studied by Ainsworth through studies using one of the most famous psychological experimental procedures, known as the Strange Situation Procedure (SSP). In SSP, a child was observed playing while parents/caregivers and strangers constantly entered and left the room to

recreate the flow of unfamiliar and familiar presence in children's lives (Van Rosmalen et al., 2015). Ainsworth found that children differed in both behavioral response and stressfulness to the situation, which allowed Ainsworth to identify three main attachment styles: 1. Secure, 2. Insecure-Avoidant, and 3. Insecure ambivalent/resistant. In addition to these attachment styles, a fourth attachment style known as disorganized was later added (Main, & Solomon, 1990).

Currently, there are four major patterns of attachment that are widely accepted under attachment theory. The first, secure attachment was seen when a child explored the room when the parent was present but when the parent left the room, the child showed clear signs of missing the parent during the separation (Benoit, 2004). Furthermore, preference over the stranger was clear, with the child greeting the parent upon the parent's return and resuming play behavior. The second, avoidant attachment was observed when a child did not show signs of missing the parent during separation (ex. no crying and other unemotional responses) and avoided or ignored the parent upon reunion (ex. moving or turning away from parent) (Benoit, 2004). Thirdly, ambivalent/resistant attachment was identified when children did not show interest exploring the environment and were often wary and/or distressed prior to separation. Once separated, these children were concerned with the status of their parent, showing angry or passive behavior, and when reunited did not take comfort in the parent, rather fussing over the parent and failing to explore even after reunion (Benoit, 2004). The last attachment style, disorganized was distinguished by disorganized or disorientated behaviors in the presence of the parent (ex. cling, cry, lean away from parent), and is often associated with abuse or neglect from a parent towards the child. Furthermore, the disorganized attachment style has been linked to significant emotional and behavioral problems and therefore poor emotional outcomes (Benoit, 2004). Given that attachment theory and the four major types of attachment are one of the most

empirically grounded theories related to parent-child relationships and emotional outcomes in the existing literature, it will be important to further investigate if and how certain characteristics of a child's relationship and response to their parent/parents affects the incidence of parent-prompted dysregulation in the child.

### **Invalidation and Validation**

One area of interest in the proposed study is insight into how children feel validated by their parents and how parents think about their own validation of their children. Validation occurs when one acknowledges and accepts someone else's thoughts, emotions, and behaviors as valid and understandable. On the other hand, invalidation occurs when a person's thoughts, emotions, and behaviors are rejected, ignored, or judged by others (Galen, 2016). Studies have shown that childhood emotional invalidation is associated with poor emotional outcomes such as chronic emotional inhibition and therefore psychological distress (Krause, 2003). Invalidation can occur for a variety of reasons and may not even be obvious to the person who is invalidating. Invalidation may occur because the individual is angry or resentful towards a person, but it can also occur due to individual insecurities and problems like being afraid of their emotions, being overwhelmed emotionally, or being fearful for a loved one (Hall, 2011).

As a result, it is important to note that parental invalidation may be a result of a variety of external problems, such as having to work tirelessly as a single mom or caring too much about the success of your children as immigrant parents. In addition, previous studies have shown that validating and invalidating behaviors can be reliably measured in parent-adolescent relationships and were correlated with dimensions such as emotion dysregulation and parent-child relationship satisfaction (Shenk et al., 2014). For instance, invalidation can be observed through facial

expressions, body language, and verbal statements of participants. Given these findings and observations, this study plans to incorporate validation and invalidation measures to further strengthen existing findings in the current literature, while also trying to uncover new insights into the association between parental invalidation and parent-prompted dysregulation.

## **Trauma and PTSD**

When observing the current literature on emotional dysregulation of children, psychological trauma has been studied as one of its most consistent causes. Psychological trauma is considered a response to an event that an individual finds to be highly stressful (Leonard, 2020). One of the largest driving forces behind the study of psychological trauma is the prevalence of PTSD, amongst adults and children. According to the U.S Department of Veteran Affairs, studies show that 15% to 43% of girls and 14% to 43% of boys go through at least one trauma. Out of these children, around 3% to 15% of girls and 1% to 6% of boys develop PTSD with rates of PTSD being higher for certain types of traumas experienced (Hamblen & Barnett, 2016). Currently in the DSM-5, the principal authority for psychiatric diagnoses in the U.S, the requisites for diagnosis of PTSD in children are the same as the adult criteria and will be attached below for reference (American Psychiatric Association, 2013).

Although parent-prompted dysregulation may not fit the DSM-5's criteria for PTSD perfectly, there are a lot of symptoms and underlying dimensions that do overlap with the DSM-5 and other research on PTSD. However, given the relatively large number of requisites for PTSD diagnosis in the DSM-5, the study decided to focus on four different categories that researchers have suggested that symptoms of PTSD can be categorized into: intrusions,

avoidance, numbing or dysphoria, and hyperarousal (Gootzeit et al., 2015). Under these four categories, parent-prompted dysregulation shared similar observable features, although considered milder in severity.

First, intrusion include symptoms such as unwanted and upsetting memories, flashbacks, emotional distress, and/or physical reactivity in response to reminders. Although, children with parent-prompted dysregulation may not display flashbacks of traumatic events, it is reasonable to say that they may experience symptoms such as emotional distress and/or physical reactivity to reminders of their parents' previous invalidations and perceived wrongdoings to them. Moreover, children with parent-prompted dysregulation may tend to commonly avoid interactions with their parents, like how a PTSD patient may avoid stimuli associated with their trauma. For symptoms of numbing or dysphoria, children affected by parent-prompted dysregulation may often display signs of being uneasy or being dissatisfied with life after being invalidated by their parents, as parents are often expected to be one of people's strongest support systems for the rest of their lives. When this idea is not met, the child may become depressed, unmotivated, and dissatisfied with life. Lastly, some children with parent-prompted dysregulation may display hyperarousal through physiological changes in response to interactions or the presence of their parents.

The field of trauma and PTSD is one of the most extensively studied fields in clinical psychology and has many potential overlaps with the study of parent-prompted dysregulation. As a result, the proposed study plans to implement resources and knowledge from the field of PTSD and trauma, a much larger and more established field to strengthen the study of parent-prompted dysregulation, a relatively novel and understudied topic. Furthermore, given overlap between parent-prompted dysregulation and PTSD, the current study assumes that scales for PTSD

diagnosis can be adapted and modified to provide scales and assessments that can be used to adequately assess individuals for parent-prompted dysregulation. If the present study shows empirical evidence of participants reporting similar symptoms to PTSD, the results could strengthen the case that parent-prompted dysregulation be considered under the same or similar criteria as PTSD, although perhaps as having milder symptoms and other differentiations. Furthermore, such evidence could suggest that some treatments, such as effective therapies for PTSD, may show promise in helping children struggling with parent-prompted dysregulation and prevent even larger issues in the future that could go beyond the parent-child relationship.

### **Biological View of Emotion Regulation and Dysregulation**

The biological view of emotional regulation and dysregulation is still a relatively new and therefore developing field of study. However, there has been studies that have shown that there is an association between biology and emotional regulation. For one, neuroimaging studies have shown that emotion regulation abilities are associated with prefrontal brain regions which mature later in development, that have been found to be involved in cognitive control and executive functioning (Martin & Ochsner, 2016). Such studies suggest that emotion regulation and dysregulation have neurological origins to some extent. Furthermore, a neuroendocrine study investigated neurotransmitter levels in relation to human emotions. The researchers found an association between Hcrt (hypocretin) and MCH (melanin concentrating hormone) levels and emotion and social interaction; including an insight that suggests that the biological components of the Hcrt system promote arousal associated with specific emotions such as positive emotion and anger rather than any general arousal-stimuli (Blouin et al., 2013). This study was significant in that it established the presence of links between the components of our biological systems, like

neurotransmitters and hormones and emotional regulation. In addition, it brought the insight that the systems behind our emotions and emotion regulation are more complex and dynamic than previously thought, with specific components of our biological systems corresponding to specific emotions.

Due to the relatively unknown nature of the biology concerning emotions and emotion regulation, there are only a few scientific measures that have been utilized to measure them in the context of human biology. The previous studies mentioned in the field have implemented relatively expensive and inaccessible techniques such as micro dialysis, fMRI, and electroencephalography (EEG). On the contrary, we believe measuring salivary cortisol, commonly used as biomarker for psychological stress and a relatively inexpensive and accessible methodology will be sufficient for this study (Hellhammer, Wüst, and Kudielka, 2009). Foremost, given that stress has often been studied as a cause of human distress and dysfunction, we believe salivary cortisol will be sufficient to provide an adequate measure of parent-prompted dysregulation (Mackenzie & Kerr, 2013). Furthermore, cortisol has been shown to promote cognitive emotion regulation processes. (Jentsch, Merz, & Wolf, 2019). Such findings suggest that cortisol will be measured in high levels in the presence of emotional dysregulation, or in the case of this study, parent-prompted dysregulation. In short, there is ample evidence that emotions and emotion regulation is rooted in our biology. Therefore, a biological measure of parental-prompted dysregulations may be the most reliable and objective measure in providing empirical evidence on the incidence and prevalence of parent-prompted dysregulation.

**Aims of the Present Study:**

The main objective of this proposed study is to obtain empirical evidence that could be used to 1. Prove and examine the causes of incidence and prevalence of parent prompted dysregulation, 2. Provide new insights into and awareness about the topic of parent prompted dysregulation, and 3. Critique existing literature views on emotions and emotional regulation. To achieve this goal, the study was designed as a biopsychosocial study intended to measure and better understand parent-prompted dysregulation through biological, psychological, and social measures. Given that parent-promoted dysregulation is a relatively novel concept in the literature and therefore no measures were found to be directly related to the study of parent-prompted dysregulation, various measures were identified and adapted to better fit the study. As a result, measures of parent-prompted dysregulation will be operationalized in two different ways: psychosocial and biological. As a result, different methods will be implemented to collect data for each measure.

For psychosocial measures, a self-report questionnaire will be sent to both the participants and their parents. The questionnaire will ask participants on the nature of their relationship with their parents and vice versa for the parents through two modified scales: an invalidation/validation scale and an attachment style questionnaire. Therefore, it was hypothesized that disorganized and ambivalent-avoidant attachment styles will predict greater levels of parent-prompted dysregulation. Also, it was hypothesized that participants who have recently experienced parent-prompted dysregulation will report higher scores on the adapted PTSD and invalidation scale. After filling out a questionnaire, participants will be given some time and will be tasked with brainstorming how to explain an important decision from a list of options provided. For example, important decisions will include choosing your major, choosing to attend a certain college, revealing you are dating a specific person, or deciding to quit an



activity to pursue another one you are more passionate about. After brainstorming, the participants will be asked to talk about their decision or plan and the rationale behind the decision in two conditions: 1. A confederate and 2. A parent. Both the confederate and parent will be asked not to interrupt the child or talk about their own opinions, rather they should just listen to the child and only ask questions to learn more about what the child has to say. At the end of the conversation, the parent and confederate will be asked to summarize the conversation, by explaining the child's decision and/or plan and the rationale behind it. The order of the conditions will be randomly assigned as to control for the effect of potential confounding variables.

In addition, for a biological measure of dysregulation, saliva samples will be used to measure cortisol levels in both parents and children before and after the conversation. It was hypothesized that individuals after the parent conversation will have higher cortisol levels compared to the confederate condition. Given the multifaceted nature of emotions and emotional regulation, we expect the multidimensional design of our study to potentially provide empirical evidence in support of the significance of studying parent-prompted dysregulation alongside existing claims and theories in the literature. Finally, considering the lack of existing literature specifically on the phenomena of parent-prompted regulation, it was hypothesized that the results of this mixed-design study will provide a comprehensible narrative that will provide original insight on parent-prompted dysregulation. In summary this study tested these hypotheses: 1. Participants in the parent condition will display higher average cortisol than when in the confederate condition, 2. Participants who report disorganized and ambivalent-avoidant attachment styles will display greater levels of cortisol after the parent condition compared to the confederate condition, 3. Participants who report higher scores on invalidation and validation

scales will report greater levels of cortisol after the parent condition compared to the confederate condition, 4. Participants scores on the validation scale will be negatively correlated with the parents scores on the validation scale, 5. Participants who report lower validation scores, disorganized and avoidant-ambivalent attachment, and greater levels of cortisol levels after the parent condition will report higher scores on the PTSD scale, and 6. There will be significant differences between the parents' and confederates' summaries of the participant's explanation behind their decision.

## **Methods**

### **Participants:**

Participants will be invited to participate in this study through emails and flyers that will be sent to students and parents at local high schools and colleges. The minimum age to participate in the study will be 14 years of age and anyone under the age of 18 will require parental/guardian consent and assent for minors to participate in the study, as the study will be conducted in a laboratory setting. A sample size of around 10-15 participants will be intended for the purposes of this study, given the difficulty of needing both participants and parents as part of the experimental study. Although the sample size will be small, it will be sufficient to address the aims of this study. Participants will be compensated \$10 for the study which will take approximately an hour, beginning to end.

### **Measures**

**Demographics:**

In the initial questionnaire before beginning the experiment, participants will be asked to report their age, gender identity, and race/ethnicity. All demographic questions presented will have the option of “prefer not to say” to allow participants to not report certain demographics if they are not comfortable doing so.

**Parent-Child Relationship Questionnaire:**

This questionnaire will be provided to both the participant and the child at the beginning of the study and will include the two measures: the invalidation and validation scale and the relationships questionnaire.

**Validation Scale:**

A validation scale was adapted to further understand the participants’ exposure to invalidation by their parents and the parent’s perspective on if they considered they had invalidated their child and if so to what level. For the child, the measure included 16 different statements about parental responses. For each statement (e.g., They made an active effort to show you that they were interested and cared about what you were saying, feeling, and doing), the participants were asked to indicate to what degree on a 5-point Likert scale (0-4) each statement described their memories when interacting with their parents when disclosing emotions or problems. In calculating the participants, participants who marked either a 2(sometimes), 3 (yes, somewhat), or 4 for a particular statement will be recoded as one point, and survivors who marked either a 0 (not really), or 1 (I don’t remember) will be recoded as zero. Therefore, a participants score on the invalidation and validation measure could range from

0 to 16. Higher scores on this measure indicated more validation from the parent on behalf of the child while lower scores on this measure indicated more invalidation from the parent on behalf of the child.

On the other hand, for the parents, the questions will be adapted to more accurately measure the extent to which the parent thinks they invalidated or validated their child. For each statement (e.g., You made an active effort to show your child that you were interested and cared about what they were saying, feeling, and doing) the parents were also asked to indicate to what degree on a 5-point Likert scale (0-4) each statement described their memories when interacting with their child when the child was disclosing emotions or problems. In calculating the participants, parents who marked either a 2(sometimes), 3 (yes, somewhat), or 4 for a particular statement will be recoded as one point, and survivors who marked either a 0 (not really), or 1 (I don't remember) will be recoded as zero. Therefore, a parent score on the invalidation and validation measure could range from 0 to 16. Higher scores on this measure indicated that the parent thought they were generally more validating towards their child while lower scores on this measure indicated that the parent thought they were generally more invalidating towards their child.

### **Validation Scale for Children**

**Instructions:** Please indicate to what degree these statements describe your memory of your interactions with your parents or caregivers when you disclosed painful emotions or problems.

0 - Not at all; 1 – Very Rarely; 2 – Sometimes; 3 – Often; 4 – Almost Always

0 1 2 3 4      They asked you follow up questions (e.g., “Tell me more,” “What were you thinking at that point?” “What then?” etc.) with the intention of understanding your perspective.

- 0 1 2 3 4 They made an active effort to show you that they were interested and cared about what you were saying, feeling, and doing.
- 0 1 2 3 4 They provided verbal and nonverbal feedback to show that they were interested and cared (e.g., Eye contact, “mhm”, nodding, not multitasking)
- 0 1 2 3 4 When talking to this individual, they occasionally paused to summarize what you had said to make sure their understanding was correct.
- 0 1 2 3 4 They asked you questions like “Am I correct?”, “Is that right?” when reflecting their understanding of what you had said.
- 0 1 2 3 4 They paused to reflect their understanding (e.g., “This is what I am hearing...”, “Let me make sure I am following what you are saying...”)
- 0 1 2 3 4 They guessed what you might have been feeling even if you had not expressed that directly to them (e.g., “I wonder if you are feeling scared, sad, angry, etc.”)
- 0 1 2 3 4 They observed and interpreted your behavior to try and figure out how you might have been feeling and expressed that to you.
- 0 1 2 3 4 They showed you that they understood your reactions, even if they may not have completely agreed with the way you were coping with your pain.
- 0 1 2 3 4 They communicated that they understood what you were thinking, feeling, or why you were acting a certain way (e.g., “It makes sense that you think/feel... because...”).
- 0 1 2 3 4 If and when they believed your reaction was justifiable and reasonable given the circumstances, they assured you that your reaction was normal (e.g., “I think almost everyone would have reacted the same way.”)
- 0 1 2 3 4 If and when they believed the causes justified your reaction, they occasionally said things to you such as “anyone would feel that way in that situation...”.
- 0 1 2 3 4 When you told them what you were thinking and feeling, they were willing to be open and honest about their own thoughts and feelings (e.g., I agree with you, that is a scary situation.)
- 0 1 2 3 4 They were willing to acknowledge their own limitations when speaking with you about your experience (e.g., “I can’t tell you what I would have done because I haven’t experienced anything similar.”)
- 0 1 2 3 4 They were often willing to express their own thoughts and emotions to match your vulnerability (e.g., Crying with you and/or expressing their anger towards your perpetrator.)

- 0 1 2 3 4 If and when it was appropriate/effective, they were direct and shared their real opinions in a way that was not patronizing (e.g., “I don’t think that’s a good idea”, “I believe you are capable of...”).

### Validation Scale for Parents

**Instructions:** Please indicate to what degree these statements describe your memory of your interactions with your children when they disclosed painful emotions or problems to you.

0 - Not at all; 1 – Very Rarely; 2 – Sometimes; 3 – Often; 4 – Almost Always

- 0 1 2 3 4 You asked follow up questions (e.g., “Tell me more,” “What were you thinking at that point?” “What then?” etc.) with the intention of understanding your child’s perspective.
- 0 1 2 3 4 You made an active effort to show your child that you interested and cared about what they were saying, feeling, and doing.
- 0 1 2 3 4 You provided verbal and nonverbal feedback to show that you were interested and cared (e.g., Eye contact, “mhm”, nodding, not multitasking)
- 0 1 2 3 4 When talking to your child, you occasionally paused to summarize what you had said to make sure their understanding was correct.
- 0 1 2 3 4 You asked questions like “Am I correct?”, “Is that right?” when reflecting on your understanding of what you had said.
- 0 1 2 3 4 You paused to reflect on your understanding (e.g., “This is what I am hearing...”, “Let me make sure I am following what you are saying...”)
- 0 1 2 3 4 You guessed what your child might have been feeling even if they had not expressed that directly to you (e.g., “I wonder if you are feeling scared, sad, angry, etc.”)
- 0 1 2 3 4 You observed and interpreted your child’s behavior to try and figure out how they might have been feeling, and you expressed your observations and interpretations to your child.
- 0 1 2 3 4 You showed that you understand your child’s reactions, even if you may not completely agree with the way they are coping with their pain.
- 0 1 2 3 4 You communicated with your child that you understand what they are thinking, feeling, or why they were acting a certain way (e.g., “It makes sense that you think/feel... because...”).

- 0 1 2 3 4 If and when you believed your child's reaction was justifiable and reasonable given the circumstances, you assured your child that their reaction was normal (e.g., "I think almost everyone would have reacted the same way.")
- 0 1 2 3 4 If and when you believed the causes justified your child's reaction, you occasionally said things to your child such as "anyone would feel that way in that situation...".
- 0 1 2 3 4 When your child told you what they were thinking and feeling, you were willing to be open and honest about your own thoughts and feelings (e.g., I agree with you, that is a scary situation.)
- 0 1 2 3 4 You were willing to acknowledge your own limitations when speaking with your child about their experience (e.g., "I can't tell you what I would have done because I haven't experienced anything similar.")
- 0 1 2 3 4 You were often willing to express their own thoughts and emotions to match your kid's vulnerability (e.g., Crying with you and/or expressing their anger towards your perpetrator.)
- 0 1 2 3 4 If and when it was appropriate/effective, you were direct and shared your real opinions in a way that was not patronizing (e.g., "I don't think that's a good idea", "I believe you are capable of...").

### **The Relationships Questionnaire:**

To measure attachment styles, a relationship questionnaire (RQ) was used to better understand the child and parent's understanding and perception on the nature of their relationship. The RQ was developed as a 4-item questionnaire designed to measure adult attachment styles and were based on a 4-category model of attachment styles proposed by Bartholomew & Horowitz (1991) (fetzer.org). The RQ was split into two parts with the first part asking participants to place a checkmark next to the letter corresponding to one of four general relationship styles that best describes them or was closest to the way they are in relation to their parents (for child) their child (for parents). The second part then asked participants to then rate each of the relationship styles above to indicate how well or poorly each description corresponds

to your general relationship style. This additional step was added under the assumption that a measure involving more than one attachment style would more accurately describe the nature of a parent and child's relationship.

For this measure, the first part of the RQ was modified to say place a checkmark next to the letter corresponding to the style that best describes you or is closest to the way you are in relation to your parents for the child and vice versa for the parents. In interpreting the results of the first part of the measure, marking A would indicate the participant has a secure attachment style with their parent or child, marking B would indicate an ambivalent insecure attachment style, marking C would indicate an ambivalent avoidant attachment style, and marking D would indicate a disorganized attachment style. In interpreting the second part of the measure, participants rated each of the relationship styles above on a 7-point Likert scale with 1 indicating strong disagreement, 4 indicating neutral/mixed, and 7 indicating strong agreement. The values on the Likert scale were then coded to see how well or poorly each participant thought that the description corresponded to the person's general relationship style.

**Part 1: Following are four general relationship styles that people often report. Place a checkmark next to the letter corresponding to the style that best describes you or is closest to the way you are in relation to your parents (for child) or child (for parents)**

\_\_\_\_ A. It is easy for me to become emotionally close to others. I am comfortable depending on them and having them depend on me. I don't worry about being alone or having others not accept me.

\_\_\_\_ B. I am uncomfortable getting close to others. I want emotionally close relationships, but I find it difficult to trust others completely, or to depend on them. I worry that I will be hurt if I allow myself to become too close to others.

\_\_\_\_ C. I want to be completely emotionally intimate with others, but I often find that others are reluctant to get as close as I would like. I am uncomfortable being without



close relationships, but I sometimes worry that others don't value me as much as I value them.

\_\_\_\_\_ D. I am comfortable without close emotional relationships. It is very important to me to feel independent and self-sufficient, and I prefer not to depend on others or have others depend on me.

*Part 2: Now please rate each of the relationship styles above to indicate how well or poorly each description corresponds to your general relationship style. (1 - Disagree/Strongly; 4 – Neutral/Mixed; 7 – Agree Strongly)*

**Style A**

1 2 3 4 5 6 7

**Style B**

1 2 3 4 5 6 7

**Style C**

1 2 3 4 5 6 7

**Style D**

1 2 3 4 5 6 7

**Screening measure for PTSD:**

To measure PTSD, a short screening scale developed by Breslau et al. (1999) was used. The scale was only given to child participants after interacting with the confederate and parent conditions. Breslau's scale is a seven-symptom screening scale for PTSD and is relatively brief and accessible, which will be of benefit for this study. Breslau's scale also incorporates aspects from the four categories of PTSD symptoms: intrusions, avoidance, numbing or dysphoria, and hyperarousal. Moreover, existing empirical evidence supports the scale's reliability in predicting a PTSD diagnosis. For instance, a score of 4 or greater on this scale defined positive cases of

PTSD with a sensitivity of 80%, specificity of 97%, positive predictive value of 71%, and negative predictive value of 98% (Breslau et al. 1999). For this study, a yes to each statement will be coded as 1 and a no to each statement will be coded as 0, with the scores for this measure ranging from 0-7. Therefore, in interpreting the results of this scale, it can be said that if a participant has a score of 4 or higher, a PTSD diagnosis is likely. Furthermore, if there are symptoms that participants are more likely to say Yes to, it could potentially provide more insight into potential symptoms of parent-prompted dysregulation and inform further research on PTSD and parent-prompted dysregulation.

#### **Short screening measure for PTSD (YES/NO)**

1. Do you avoid being reminded of the experience by staying away from certain places, people, or activities?
2. Have you lost interest in activities that were once important or enjoyable?
3. Have you begun to feel more distant or isolated from other people?
4. Do you find it hard to feel love or affection for other people?
5. Have you begun to feel that there is no point in planning for the future?
6. Have you had more trouble than usual falling or staying asleep?
7. Do you become jumpy or easily startled by ordinary noise or movements?

#### **Cortisol Level measurement:**

The parent's cortisol levels will be measured before interacting with their child and after interacting with their child. Likewise, the child's cortisol levels will be measured before interacting with and after interacting with the confederate and parent. The saliva will then be

measured for cortisol in real-time by using a simple smartphone-based measurement system that will consist of a smartphone, a holder, and a lateral flow immune strip (Fig 1) First, the saliva for cortisol testing will be collected by inserting a swab into the mouth and waiting a few minutes until the swab becomes saturated with saliva. The saliva will then be mixed with a buffer solution in a bottle and two or three drops of the buffer solution will be loaded into a cortisol strip. Lastly the strip will be placed onto a holder and attached to a smartphone where an application downloaded on the phone would analyze the cortisol level and provide a real time measurement of cortisol levels in around 10 minutes. The application will provide several graphs and information. As a result, the information that will be taken into consideration for this study will include when the cortisol sample was taken, as cortisol concentration in humans can vary across the day, and the report of cortisol concentration (Fig. 2D.). Given that the application was developed using Android software, we anticipate that 3-5 Android smartphones will be needed for this experiment.

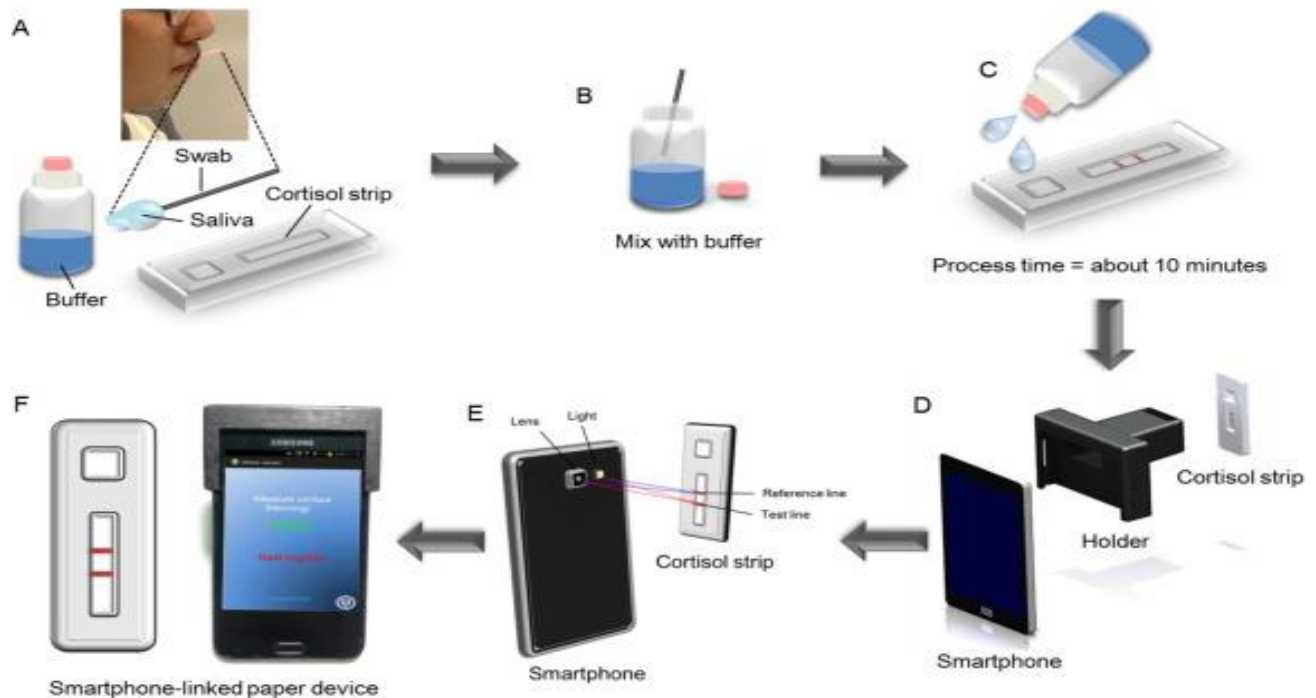


Figure 1. A photograph and schematic diagram of the smartphone-based cortisol measurement system. (A and B) Saliva was collected using the swab and mixed with the buffer solution in a bottle. (C) Two or three drops of the buffer solution were loaded into the cortisol strip. (D) Exploded view of the complete system showing placement of holder and strip. (E and F) Smartphone-based reading system.

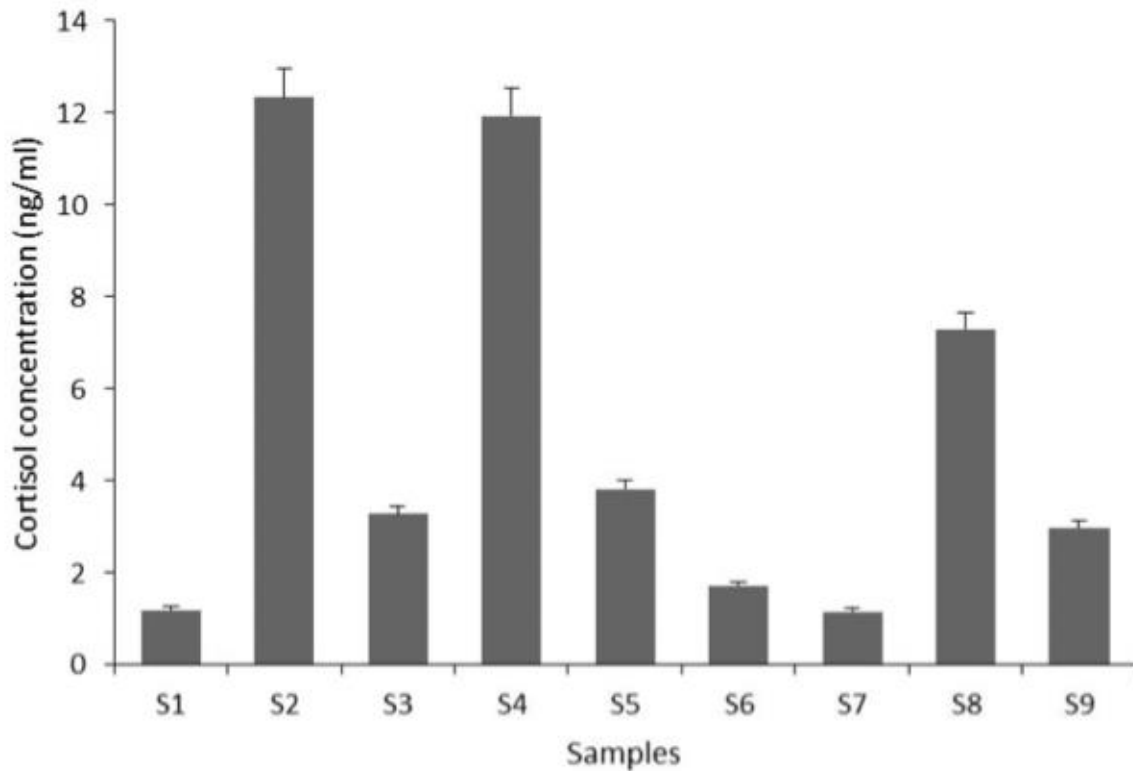


Fig 2D. Results of cortisol concentration from human saliva samples measured with the smartphone-based measurement system.

### Procedure:

Both child and parent participants will be asked to fill out a questionnaire verifying demographic and personal information and providing informed and parental consent (for those under 18) and assent for minors for under 18. Children will then be asked to brainstorm an important life decision, such as choosing a major, quitting a sport, or deciding on summer plans. Participants will be given a list of options and will be asked to choose an option that they can

personally relate to the most. The children will be prompted to write and think about the rationale behind the decision and the goals (short and long term) that the child expects to achieve because of this decision. After brainstorming, which will take around 10-15 minutes depending on how much time the child needs, the child will then enter a room to either discuss their decision with a parent or a confederate for around 15 minutes. Before interacting the confederate or parent, the child's cortisol levels will be measured. The order in which the child will interact with a parent or confederate will be based on random assignment as to control for potential confounding variables. The parents and confederates will be prompted to listen to the child and only ask questions that aim to learn more about or provide clarity on the child's decision and plan. After the child finishes explaining their decision, the confederate and parent will be asked to provide a summary on what the child said during their interaction. Afterwards, the parent and child's cortisol levels will be tested in the parent-child condition of the experiment.

**Ethical Concerns:**

The proposed study does not exceed minimal risk as the experiment describes situations that could be encountered in everyday life and are not specific to an individual. Additionally, the demographic information collected was the gender of the participant, age of the parent, age of the child, and education level, which are not identifying variables. All data collected from the Parent-Child relationship questionnaire will be anonymous and stored in a password protected Qualtrics account. In addition, all information and data will only be accessible to the researchers. Furthermore, the proposed study does not involve or intend to involve a protected or vulnerable population, disclose sensitive information, and involve deception. However, if a participant does

disclose information concerning abuse and/or suicidality, by law, it will have to be disclosed to the parent or reported to the authorities if the parent is involved. Additionally, participation was completely voluntary. Participants can stop at any point during the study and can choose to complete the online survey on their own accord. Regarding the benefits of this study, there are no direct benefits to participants besides monetary compensation that was thought to be an appropriate amount.

**Discussion:**

The present study investigates the issue of parent-prompted dysregulation, a relatively understudied issue with no empirical evidence. In particular, the study attempts to observe the role, if any exists, of invalidation/validation and attachment styles on the incidence of parent-prompted dysregulation, which will be measured by taking levels of cortisol. The study also utilizes a PTSD scale to detect any similarities and overlaps between the symptoms of PTSD and parent-prompted dysregulation. Regardless of how the results of this proposed study match the hypotheses, there are other areas of study and perspectives that could provide further insight on parent-prompted dysregulation.

**Parental Sensitivity:**

Every parent knows that parenting can be quite different depending on the child's personality and behavior. As a result, it takes time for parents to be able to correctly interpret children's cues for assistance, attention, etc.... and respond in a prompt and appropriate manner. However, once parents get more familiar with their child, this gradually learned ability, termed

“parental sensitivity”, has been linked to several positive outcomes. Parental sensitivity is most critical during the first three years of the child’s life has been considered one of the most important mechanisms in establishing biological, emotional, and social functioning later in the child’s life (DePasquale, 2020). However, as the child matures and becomes more distinctive in their personality and behavior, their cues change, and parents often must adapt to this change. After all, a child’s cry at dinner time is often easier to interpret, given its universality, than a child’s sudden refusal to eat their dinner. Oftentimes, some children struggle to manage their emotions and as a result may tend to frustrate their parents, causing parents to lash out. However, at such a critical period in the child’s life, it’s especially important to recognize the underlying biological responses behind the child’s overt behavior and react in an appropriate manner.

Perry et al. (2014) conducted an experimental study observing children and their mothers at 2, 3, and 5 years of age in a laboratory setting. Children’s biological regulation was measured during frustrating situations while the mother’s sensitivity was measured through situations, like pretend play and clean up, where the mother’s prompt and appropriate responding to the child’s bids were coded. Afterwards, the researchers looked at the data for associations between children’s biological regulation and maternal sensitivity across early childhood from ages 2-5. Results showed that greater maternal sensitivity when children were toddlers (ages 1-3) predicted children’s increased ability to biologically regulate during preschool (ages 3-5). On the other hand, greater maternal sensitivity when children were preschoolers was found to not be associated with children’s ability to biologically regulate at age 5 (Perry et al, 2014).

Moreover, Mesmen et al. (2012) reported on observational studies of parental sensitivity in ethnic minority families with young children found that parental sensitivity is generally lower in ethnic minority families compared to ethnic majority families. Evidence suggested that the

reduction in parental sensitivity was related to social and economic stress differences between majority and minority groups. For example, ethnic minority families may have to deal with stress because of immigration, acculturation, discrimination, etc....Most importantly however, that despite low socioeconomic status and high family and social stress common to ethnic minority families, the review showed that parental sensitivity was still related to positive child development in these families (Mesmen et al., 2012).

Such findings suggest that parental sensitivity may be a significant factor related to the development of biological regulation. Furthermore, it supports the idea of a critical period, where parental sensitivity is especially important when children's internal regulatory abilities are maturing in the first three years of their life, rather than past around 3 years of age, when these biological mechanisms are more developed. In addition, the finding that parental sensitivity still relates to positive child development regardless of disadvantageous external circumstances and situations shows just how influential this critical period might be in the prevalence and incidence of parent-prompted dysregulation. Therefore, these findings draw further awareness in bringing up and tackling novel questions about how parents can be aware and manage a child's biological functioning especially during the critical period.

In addition, the study also found that children's biological regulation, when toddlers, did not predict maternal sensitivity in preschool, but children's biological regulation during preschool did predict maternal sensitivity when the children were 5. This may be explained as parent's expectations of a child's behavior increases with their age. After all, it's logical that a toddler is expected to be less able to control themselves than a preschooler. Furthermore, the importance of parental sensitivity and its lower prevalence in ethnic minority families suggests more of an emphasis on social determinants of health to better prevent the prevalence or severity



of parent-prompted dysregulation in the general population. As a result, understanding the role of parental sensitivity during this critical period may be critical in understanding the occurrence of parent-prompted dysregulation.

### **Potential Limitations:**

Given the novelty of the field of study, the aims of the study, and perceived difficulty of obtaining both the participant and their parent to participate in the study, the sample size for this study will be relatively low. Furthermore, many of the study's measures, especially the measure of parent-prompted dysregulation through cortisol levels have never been measured before and therefore most of the limitations for this study will become apparent once the study is conducted.

### **Research Implications and Future Directions:**

There are plenty of research implications and potential benefits depending on the results of this study. If the proposed study does find empirical evidence for the incidence of parent-prompted dysregulation, then children and their parents across the world can significantly benefit from such a finding. Being able to spread awareness about the existence of such a problem with potentially hefty consequences would allow for more research into the field and eventually allow for the creation of new parenting advice and therapies that emphasizes the child's perspective and emotion regulation considering new findings about parent-prompted dysregulation. For instance, Gross (1998b) proposes five types of emotion regulation strategies: situation selection, situation modification, attentional deployment, cognitive change, and response modulation (Gross, 1998b) (Fig 3). Future studies could potentially develop, and test treatments for parent-

prompted dysregulation based on Gross's emotion regulation strategies and other proposed theories. Furthermore, children who are already suffering from mental health issues and have difficulties with emotion regulation could greatly benefit from this research as their experiences will be more accurately understood and therefore can be treated with better outcomes.

Moreover, given the lack of research on parent-prompted dysregulation, future research should continue to investigate parent-prompted dysregulation by incorporating different perspectives and disciplines. First off, future research can be focused on 1. Investigating other causes of parent-prompted dysregulation and 2. Implementing other measures to measure the incidence of parent-prompted dysregulation. As the field is still relatively new, strengthening the foundations of the discipline should be a priority for ensuring further research involving parent-prompted dysregulation and similar topics. Furthermore, further research into parent-prompted dysregulation may advance the field of clinical psychology and psychiatry, while also promoting further research on the 1. Child-perspectives on parental stressors and 2. effects and prevention of adverse child experience (ACEs), a rapidly growing field in the current field of public and mental health.

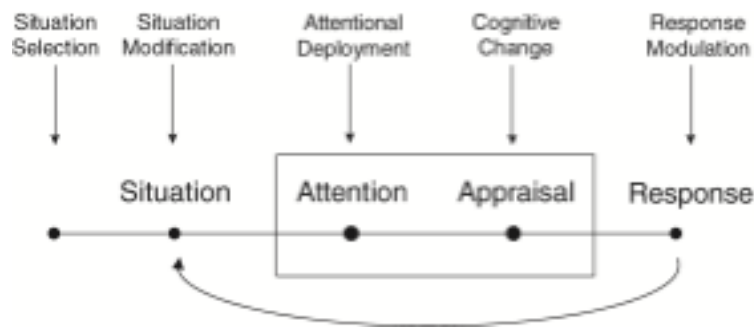


Figure 3. Gross's five types of emotional regulation and how they can be implemented using the process model of emotion regulation.

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## Appendix

### DSM-5 Diagnostic Criteria for PTSD

- A. Exposure to actual or threatened death, serious injury, or sexual violence in one (or more) of the following ways:
1. Directly experiencing the traumatic event(s).
  2. Witnessing, in person, the event(s) as it occurred to others.
  3. Learning that the traumatic event(s) occurred to a close family member or close friend. In cases of actual or threatened death of a family member or friend, the event(s) must have been violent or accidental.
  4. Experiencing repeated or extreme exposure to aversive details of the traumatic event(s) (e.g., first responders collecting human remains; police officers repeatedly exposed to details of child abuse). **Note:** Criterion A4 does not apply to exposure through electronic media, television, movies, or pictures, unless this exposure is work related.
- B. Presence of one (or more) of the following intrusion symptoms associated with the traumatic event(s), beginning after the traumatic event(s) occurred:
1. Recurrent, involuntary, and intrusive distressing memories of the traumatic event(s). **Note:** In children older than 6 years, repetitive play may occur in which themes or aspects of the traumatic event(s) are expressed.
  2. Recurrent distressing dreams in which the content and/or affect of the dream are related to the traumatic event(s). **Note:** In children, there may be frightening dreams without recognizable content.
  3. Dissociative reactions (e.g., flashbacks) in which the individual feels or acts as if the traumatic event(s) were recurring. (Such reactions may occur on a continuum, with the most extreme expression being a complete loss of awareness of present surroundings.) **Note:** In children, trauma-specific reenactment may occur in play.
  4. Intense or prolonged psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).
  5. Marked physiological reactions to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).
- C. Persistent avoidance of stimuli associated with the traumatic event(s), beginning after the traumatic event(s) occurred, as evidenced by one or both of the following:

1. Avoidance of or efforts to avoid distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).
  2. Avoidance of or efforts to avoid external reminders (people, places, conversations, activities, objects, situations) that arouse distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).
- D. Negative alterations in cognitions and mood associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:
1. Inability to remember an important aspect of the traumatic event(s) (typically due to dissociative amnesia, and not to other factors such as head injury, alcohol, or drugs).
  2. Persistent and exaggerated negative beliefs or expectations about oneself, others, or the world (e.g., “I am bad,” “No one can be trusted,” “The world is completely dangerous,” “My whole nervous system is permanently ruined”).
  3. Persistent, distorted cognitions about the cause or consequences of the traumatic event(s) that lead the individual to blame himself/herself or others.
  4. Persistent negative emotional state (e.g., fear, horror, anger, guilt, or shame).
  5. Markedly diminished interest or participation in significant activities.
  6. Feelings of detachment or estrangement from others.
  7. Persistent inability to experience positive emotions (e.g., inability to experience happiness, satisfaction, or loving feelings).
- E. Marked alterations in arousal and reactivity associated with the traumatic event(s), beginning, or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:
1. Irritable behavior and angry outbursts (with little or no provocation), typically expressed as verbal or physical aggression toward people or objects.
  2. Reckless or self-destructive behavior.
  3. Hypervigilance.
  4. Exaggerated startle response.
  5. Problems with concentration.
  6. Sleep disturbance (e.g., difficulty falling or staying asleep or restless sleep).
- F. Duration of the disturbance (Criteria B, C, D and E) is more than 1 month.
- G. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

H. The disturbance is not attributable to the physiological effects of a substance (e.g., medication, alcohol) or another medical condition.