

Self-Regulatory Profile Scale: Development and initial psychometric validation using
Exploratory Structural Equation Modeling (ESEM)

by

Summer L. Vail

B.A., The University of Alabama, 2017

M.S., The University of Alabama, 2020

AN ABSTRACT OF A DISSERTATION

submitted in partial fulfillment of the requirements for the degree

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Department of Health and Human Sciences
College of Human Ecology

KANSAS STATE UNIVERSITY
Manhattan, Kansas

2023

Abstract

The ability to regulate oneself, and the consequences of under-regulation, have long been an area of inquiry for many disciplines. Various domains of self-regulation have historically been studied independent of one another, despite the interactive nature and interdependent development of the domains. Currently, no quantitative measure exists that evaluates the whole of the self-regulatory system. This study seeks to confirm a factor structure of six domains of self-regulation, as proposed by the Self-Regulation Model of Attachment Trauma and Addiction (Padykula & Conklin, 2010) using exploratory structural equation modeling (ESEM). A psychometric validation of the measure was completed in two cross-sectional studies. In study 3, the measure was externally validated against a nomological network of related constructs. ESEM confirmed the use of the six pillar, 12 facet model to examine a profile of self-regulation. Clinical and research implications of the findings are discussed.

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Approved by:

Co-Major Professor
Dr. Chelsea M. Spencer

Approved by:

Co-Major Professor
Dr. Jared R. Anderson

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Dedication

I would like to dedicate this project to the two most gentle souls I've had the honor of knowing, Landon and Jerry. Their friendship kept me grounded on the darkest days and taught me innumerable lessons while we grew together.

I hope the work makes you proud, and that your pain is gone. Take care of one another and save me a seat.

Chapter 1 - Introduction

An individual's ability to regulate their experience is the bedrock upon which their life and decisions are built. Regulation is a process of restoring and maintaining equilibrium, often set at a point of homeostasis – a stable internal state – through active and passive mechanisms (Modell et al., 2015). Variations in capacity for self-regulation have been linked with positive and negative outcomes in relationships, work and health, demonstrating that self-regulation is an influential factor in an individual's overall well-being. In this paper, we seek to establish a comprehensive system of self-regulation and validate a measure to evaluate individuals' dynamic profile of that system.

More effective self-regulation is associated with improved outcomes across the lifespan, as documented in the literature of a variety of disciplines. For example, strong self-regulation of thoughts, emotions and reactive behaviors during adolescence predict improved academic outcomes and social adjustment (Checa et al., 2008). For adults, higher self-regulation efficacy is associated with improved employment status across time, due to effects on motivation and commitment (Creed et al., 2009). Similarly, those that are better able to regulate their emotional experience and expression have better outcomes with communication and problem solving (Van Dijk, 2013). It has been established that less effective self-regulation is associated with poor health outcomes, such as weight gain (Graziano et al., 2013), cardiovascular disease, and autoimmune disorders (Clark et al., 2014).

Self-regulation does not only benefit oneself, however, but has been linked to more stable and satisfying social connections as well. For example, the practiced regulation of oneself as a partner in relationship is associated with improved relationship satisfaction, due to the work applied to the self to sustain the relationship (Hardy et al., 2015). This relational self-regulation

is based on the individuals' felt competence and capability, as well as their active work toward making self-changes for the maintained equilibrium of the relationship. The development of the earliest mechanisms of regulation are dyadic, or relationally interactive, in nature. For example, the earliest sense of self, or mental representation of self-identity, is considered to be socially constructed through ostensive, or demonstratively defining, interactions in a social relationship (Gergely, 2007). Later, the quality of the relationship is influenced by the quality of regulatory development that happens in this early social environment (Hardy et al., 2015).

When attempts at self-regulation are not effective, humans continue to adapt toward survival; however, this adaptation may lead to adopting alternative methods that are accompanied by further harm and negative consequences. For example, substance abuse has been highly accepted as a method of relieving pain and distress (Khantzian, 1995). Self-medicating with chemicals is often found to be the most accessible and reliable means of temporarily easing pain, for those that have not found success with internal attempts. The development of a pathologically dependent personality has also been linked with lower levels of self-regulation (Morf, 2006). In such cases, relationships, and others, are viewed as the external source of stability and soothing. Individuals who meet these criteria reported lower levels of perceived self-regulatory efficacy, positioning others in their environment to hold more competency and authority over their regulation than themselves (Morf, 2006). Likewise, failure to regulate one's emotions and behavior have been linked to perpetrating violence (Finkel et al., 2009) and emotion regulation has been successfully targeted as a way of reducing sexual violence perpetration recidivism (Kingston et al., 2014). Although these types of alternative methods of regulation are known to ultimately create new problems and further dysregulation,

the temporary relief they can provide has earned them a secure spot in the existing literature on self-regulatory failure (Kohs & Heatherton, 2000; Heatherton & Tice, 1994)

To maintain a regulated self, several internal systems such as thoughts, feelings and behavior must be subjected to this process of regulation. In truth, much of the present research on self-regulation has established connections between these individual systems, pointing toward an understanding that each of the nodular parts are pieces of a larger system of regulation. For example, Zaki and Williams (2013) demonstrated that people use their interpersonal relationships to regulate their affect and emotions well into adulthood. Affect has also been shown to be a useful tool when trying to self-regulate behavior and goal achievement (Vauras et al., 2008). Utilizing one area of personhood (e.g., emotions) to improve outcomes in another area (e.g., behavior) seems to be inevitable. For example, physiological regulation, such as steadied breathing and muscular relaxation, is associated with improved communication skills (Brandtstädter, 1998; Van Dijk, 2013). More effective self-regulation of emotion is associated with more positive social interactions and, in turn, improved sense of overall well-being (Grewal et al., 2006). There are clear influential ties among the various parts of the regulation of self.

Despite ample evidence of these individual processes being interrelated, little has been done to examine them as related parts of one large system. System's theory suggests that a system is a compilation of hierarchical subsystems that develop functional, interactive relationships with one another, with the purpose to maintain a global equilibrium when responding to environmental stressors (Jackson, 1984). The feedback and calibrated response that occurs between subsystems, or system parts, is referred to as cybernetics (Weiner & Schade, 1965). Cybernetic feedback enables the global system to develop change mechanisms, or adjustments, that increase overall stability. Due to the influence these subsystems have on one

another, the global system is greater than the sum of its parts – meaning to examine each subsystem independently would not give the viewer an accurate understanding. To understand regulation accurately, it is necessary to look beyond each individual subsystem and view them as they are, in relation to one another and in service of a greater, global self-regulation.

This becomes exceptionally important for practitioners working in mental and behavioral health. Much of psychotherapy practice is based on increasing insight of patterns, coping with emotions/increasing distress tolerance, and substituting helpful behaviors in the place of unhelpful ones. Although many theoretical models of therapy aim to accomplish progress through one or two of these change mechanisms, there are generally limitations to such narrow focus. Approaching the regulatory system as a whole provides therapists with more points of entry to overall system improvement, empowering therapists to tailor their approach toward goals to ones that their clients' values better align with. Limiting clinical intervention to parts of a large system may increase the chances that the change achieved is temporary while other system parts have adjusted to compensate. If, instead, a global system of regulation was clinically acknowledged and addressed, the homeostatic set point, or equilibrium, may better be altered to promote more lasting change.

With negative consequences of dysregulation spanning so many areas of human life, the search for prevention, and by association the manner of causation, has been equally spread across a range of professions. Scholars desiring to better understand internet addiction found that the development of substance abuse disorder frequently precedes later internet addictions (Lee et al., 2013). Those wanting to understand substance use disorders found their way into connections with earlier emotions during childhood maltreatment (Goldstein et al., 2013). Looking further back into childhood, early development of the autonomic nervous system pointed researchers in

the direction of neuropsychology (Schoore, 2004). The search for answers regarding the causation and etiology of dysregulation has long led research to connections with other problems, or other parts of a connected system.

Among these disparate disciplines, many have focused on adverse environments during childhood as the key context for the development of self-(dys)regulation (Hanson et al., 2012; Lupien et al., 2009). One popular theory of human development, attachment theory (Bowlby, 1969), addresses early regulation of affect and interpersonal experiences through a behaviorally driven perspective. To view the serious consequences associated with poor development of self-regulation through an attachment lens provides a connecting framework to a previously fragmented system of regulation.

Chapter 2 - Literature Review

Attachment Theory

Attachment theory was initially proposed as a biologically embedded, instinctual system of behavior, with a purpose of increasing probability of survival through proximity to others (Bowlby, 1978). This system of behavior involves infants' affectional bonds with caregivers and subsequent need fulfillment provided by those caregivers, known as attachment interactions. Bowlby believed that the quality of these interactions contributed to the development of internal working models (IWM). IWM are internal representations that inform expectations of self and others in relationships (Rutter, 1995). From this work, a shared understanding that early relationships influence future experiences in relationships developed. Formalizing the extension of Bowlby's work with infants, Hazan and Shaver (1987) applied attachment theory and styles to adult intimate relationships.

From Bowlby's early work, three attachment styles were described: secure, anxious and avoidant (Bowlby, 1978). Attachment security is developed by consistent responsiveness and soothing provided by the caregiver, resulting in confidence in the relationship (Mikulincer, 1998). These interactions provide protection from threat as well as co-regulation, a shared effort toward regulating emotion, sense of self, and relational needs (Sutton, 2019). Those who develop a secure attachment-style are able to recognize when they are emotionally dysregulated, seek out closeness to others to cope with the distress and believe they can rely on others (Mikulincer et al., 2003). Individuals with a secure attachment are better able to tolerate ambiguity and make decisions that promote their continued connection with others.

Attachment insecurity is associated with higher levels of anxiety around losing the relationship or avoiding intimacy. Individuals with an anxious attachment style are easily

dysregulated and struggle to cope with their dysregulation, typically seeking more proximity to others in effort to cope (Johnson & Whiffen, 1999). Although these individuals are open to connecting with others, they experience high levels of fear of rejection or abandonment by others (Spencer et al., 2021). Individuals with avoidant attachment experience high levels of adverse arousal to emotional disclosure and interpersonal closeness, resulting in higher levels of independence or relational avoidance (Mikilincer et al., 2003). As adults, they are typically less attuned to their own emotional state and less demonstrative of emotions (Johnson & Whiffen, 1999). Bartholomew and Horowitz (1991) contributed a final significant evolution to the theory in the addition of a fourth attachment style: disorganized. Disorganized attachment involves a simultaneous fear of close attachment figures and fear of losing the attachment relationship (Rholes et al., 2016). This internal conflict results in intense emotions and trouble understanding the self and others.

Modern Attachment – A Regulation Theory

Bowlby's original use of behaviorism to demonstrate connections between biological and psychological systems tied primary functions together by acknowledging the shared evolutionary purpose of relationships and regulation – the child's survival. In the last 15 years, attachment theory (Bowlby, 1969) has continued to advance into a theory of regulation (Schore & Schore, 2008). Modern attachment theory, also known as regulation theory, continues to acknowledge the impact of interpersonal processes beyond the original sentiments of safety and security (Fonagy & Target, 2005). The authors, Schore and Schore (2008), view the purpose of the entirety of child development to be the improvement of self-regulation. During the first years, regulation is dyadic. This dyadic process scaffolds regulation for the child, resulting in an internalized capacity for self-regulation in adulthood. Breakthroughs in the field of

neuropsychology found changes in brain development that occur as a result of the early attachment interactions (Schore, 1994), supporting Bowlby's early theory and leading to the development of the modern attachment theory.

Building off Bowlby's joining of the mind and body, modern attachment theory emphasizes the "brain-mind-body-environment relational matrix" (Schore & Schore, 2008, p. 10). This refers to the combination of influences on a person's development and state at a given time. From this interactive relational matrix, individual development is shaped and, in result, emerges into adulthood. The neurobiological center of this early development is the right-hemisphere of the brain. Schore (1994) provided a compilation of multidisciplinary research demonstrating that the centers of the brain responsible for emotion and self-regulation as an adult begin their development in this right-hemisphere, as a result of the brain-mind-body-environment relational matrix's first stimulation through attachment interactions. The same neurological systems responsible for reacting to danger and to regulating functions of automatic physiological systems, such as breathing and blood circulation, are shaped by the quality of attachment interactions during early development (Schore, 1994; Schore & Schore, 2008).

Through attunement, co-regulation and need fulfillment, the caregiver moderates the development of affect regulation, sense of self-and-others, and patterns of relating, that go on to shape the behaviors that most attachment measures are designed to evaluate. When needs are inconsistently met or consistently neglected by the caregiver, the impact on the development of self-regulation systems is traumatic. These inconsistencies or neglects are experienced by the subject as rejection and are often referred to as attachment injuries, or attachment traumas, due to the damage they cause to the attachment relationship (Padykula & Conklin, 2010).

The development of mal-adaptive methods of coping, such as aggression, substance use or isolation, are the result of a mind-body-brain-environment matrix that includes more areas of self-regulation than the acknowledged behavioral outcome. By combining attachment theory's organismic (i.e., survival) based understanding of human behavior with modern attachment theory's developmental mind-body-brain-environment matrix, we are better positioned to address all relevant subsystems of regulation with one framework.

The Self-Regulation Model of Attachment Trauma and Addiction

In 2010, two clinical social workers pulled from years of experience and the work of scholars before them—John Bowlby, Edward Khantzian, Edward Tronick and Bessel Van der Kolk—to formulate a theory of self-regulation that addresses the whole human. The self-regulation model of attachment trauma and addiction (SRM) extends Bowlby's explanation of individuals' self-regulatory system by identifying six subsystems that are fundamental to human regulation and adaptation: cognitions, emotions, physiology, behavior, interpersonal relatedness, and sense of self (Padykula & Conklin, 2010). Each of these subsystems are evaluated on a dialectical spectrum, upon which the middle represents a healthy, well-regulated state, while the outer ends typify dysregulation in either the form of over or under restraint. Each of the subsystems are defined from an attachment foundation, integrated with multi-discipline research specific to that regulatory pillar.

The theory postulates that the impact of early attachment communications on development of regulatory capacity across the six pillars sets the individual on a trajectory of regulation that will either be protective or increase their risk for future attachment injuries. Those with attachment traumas that are not given the opportunity to develop a secure attachment style, nor a functional regulatory system, will be vulnerable to seeking external sources of regulation,

increasing their risk of developing a substance use disorder and encountering subsequent traumas due to unpredictable relationships with the environment and others (Flores, 2004; Padykula & Conklin, 2010).

One of the SRM's greatest strengths is conceptualization of regulation through the attachment system, as it acknowledges a system of regulation that is more than the sum of its parts. Maintaining overall equilibrium requires cybernetic feedback to preserve balance of the individual subsystems as parts of the global system balance. Constant recalibrations in response to subsystem feedback and external stimuli occur simultaneously among the six pillars, in aid of the overall system maintenance.

Withdrawing definitive judgement, the SRM acknowledges at times the functional response to stimuli may be an over or under regulation, other times a balanced response best serves regulation (Padykula & Conklin, 2010). Due to prior experiences, subsystems may more quickly default to over or under action, to which the system can swing toward the other extreme in a compensatory attempt to rebalance. Alternatively, while one pillar swings to an extreme, another pillar may compensate by adjusting to a more extreme response to balance the overall system. For example, a person who is prone to physiological hypertension may be pushed beyond their tolerance for physiological arousal when exposed to a startling stimulus. Whereas others may tense at this stimulus, this person may swing into a physiological numbness, or disassociation, in an attempt to cope with the extreme discomfort and dysregulation they are physiologically vulnerable to.

Bowlby (1969) referred to the calibrated adjustments made to promote survival as organizational links in a chain of behaviors that comprise a behavioral system. Attachment theory's reference to hierarchical organization and calibrated adjustments mirror system theory's

explanation of how global systems are maintained by related parts, and both suggest that a weakened “link”, or subsystem, in the global system would have a potentially compromising impact on the overall system’s functioning. In the case of regulation, one weakened subsystem may undermine the functioning of subsequent regulatory subsystems. For example, diminished capacity for physiological regulation may lead to hypertension such as increased heart-rate, chest-tightening and shallow breathing, which in turn makes it more difficult for said person to regulate their cognitions to avoid catastrophizing, which can influence their affective intensity (Padykula & Conklin, 2010).

Pillars of the Self-Regulation Model

Physiological Pillar

The physiological subsystem encompasses the body’s physical regulative response to stimuli and arousal (e.g., fight, flight or freeze response). The continuum is nested between two extremes, with hypertension at one end and disassociation at the other (Padykula & Conklin, 2010). Hypertension is the body’s physiological defense response established to increase the probability of escaping or defeating physical threat, and often includes increased heart rate, rapid breathing or muscular tension. Disassociation, on the other hand, is characterized by an experienced numbness, and lack of physiological sensation. Within the middle, a balanced response is characterized by Schore’s (2003) description of a regulatory system that developed in connection with an attuned caregiver – a regulatory system that has developed to involve coping responses that manage distress and maintain this pillar’s equilibrium. Such coping responses may vary from person to person, and involve maintaining awareness and connection to the moment at hand, while returning physiological markers to their resting state.

For individuals who experience the attachment trauma of a parent who is not emotionally attuned, or whose responses to the developing child are incongruent to the coping needs by imposing very high or very low stimulation, this subsystem is weakly developed (Schoore, 2003). Changes in the brain occur that increase sensitivity to pain and decrease the density of opiate receptors that relieve pain (Flores, 2004). Without the body's natural painkillers, nor a socially learned process of coping, heightened sensitivity increases the individual's vulnerability toward seeking relief via escape. This escape, or disassociation, is one of the nervous system's natural protective mechanisms to reduce painful experience exposure (Van der Kolk, 1996). The splitting of the body and mind that causes a person to not feel present in the moment is an outcome associated with trauma (Gil, 1988). A developed inability to recognize, describe, or feel negative arousal forms as a preferred alternative to constant painful sensation.

Affective Pillar

Affect is arguably the foundation of all regulatory experiences. The self-regulation model (SRM) of attachment trauma and addiction describes the affective subsystem of regulation to be on a continuum stretching from over-emoting on one end, to alexithymia on the other extreme (Padykula & Conklin, 2010). Over-emoting is characterized by intense emotional responses that are incongruent to the circumstance, and an inability to regulate emotional expression.

Alexithymia is an inability to recognize, identify or describe one's affect, that often involves a marked decrease in ability to recognize and appreciate others' emotions as well (Kooiman et al., 2002). Between the two, a healthy regulated response of emotion that includes ability to tolerate, identify and describe, is maintained.

For a regulatory capacity to develop in a way that adults can experience, describe and regulate their emotion, caregiver attunement during early development of the right hemisphere

must be demonstrated by congruent affective mirroring (Linehan, 1993; Schore, 2003). When the external environment does not mirror the internal emotional experience, the interaction is experienced as invalidating (Linehan, 1993), and the child's ability to recognize and trust their own cues for emotional responses is undermined. Invalidation of the internal process may result in the individual's dismissal of their own experience, or a more demonstrative emotion to communicate more clearly what is being felt to the outside world.

Cognitive Pillar

The SRM of attachment trauma and addiction (Padykula & Conklin, 2010) characterizes cognitive regulation through the framework of attachment theory's internal working model of self and others (IWM; Bowlby, 1973, 1988). IWMs are mental templates developed through relational interactions, through which future experiences are viewed and experienced. The dialectical poles of the SRM are defined by positive or negative IWM (Padykula & Conklin, 2010; Bartholomew & Horowitz, 1991). For those with a pathologically positive IWM, such extreme beneficence is applied to expectations of self and others, attributional understanding, and the meaning made of interactions that the individual is unable to accurately evaluate danger in a situation. For example, internal cues warning against another person's malicious intent may be dismissed and instead internalized as deficits of the self, in order to support the belief that others are inherently good and honorable.

However, when an attachment trauma is experienced, it imprints the nature of that experience onto the IWM as a negative filter for future interactions, assigning the same expectations and interpretations as a regulation that protects the ego and understanding of self as it relates to the environment (Padykula & Conklin, 2010). In practice, this may mean that a person maintains a set of negative expectations of others to protect themselves from being

surprised by others' harm toward them, or they may hold negative expectations of themselves, such as not being capable of achieving goals. Within the middle of the poles, a moderated positive IWM functions to allow assessment of all signals, including internal reference cues of both anxiety and hope. A well-regulated IWM allows for a more reliable ability to anticipate harm and process cause-consequence dynamics (Khantzian, 1999), decreasing vulnerability to later traumas (Padykula & Conklin, 2010). Those who develop a generally healthy IWM can evaluate situations and limit their risk of being harmed by others, by trusting their own evaluation of threat and acting on that evaluation.

Sense of Self Pillar

The sense of self pillar is characterized by dialectical poles of pathological grandiosity and self-loathing (Padykula & Conklin, 2010). When this develops in an effective attachment dynamic, the individual holds a realistic self-concept in which they are able to appraise their strengths and weaknesses (Gil, 1988), marking the middle of the sense of self continuum. In traumatizing ineffective attachment dynamics, the caregiver does not effectively attune to the infant's emotional experience and validate it through congruent mirroring (Linehan, 1993). The child cannot find attunement to support the connection of their internal experience with their environment, so they learn to not trust their internal world in aid of maintaining a connection with needed attachment figures. Instead, external object representation develops – a state in which all authority of healing, soothing and meaning making is granted to an external other (Krystal, 1995). Idealization of other occurs, whilst all misalignment and blame are attributed to the self; as the child learns to not trust or value their internal emotional experience, they learn to not value themselves. A homeostasis of self-loathing is set in order to justify the painful incongruity between self and others. The SRM appears to argue that simultaneously,

self-aggrandizing representations are often present that also reflect a disconnection between self and environment. A need for this pendulum swing exists in order to maintain the overall regulation of sense of self, temporarily relieving the intense pain of self-loathing.

Interpersonal Pillar

The SRM describes the subsystem of interpersonal regulation to be on a dialectical continuum that ranges from pathological dependence to counter-dependence on the far extremes (Padykula & Conklin, 2010). Within secure attachment formations, the caregiver is attuned to the infant's cues enough to recognize when an interactive error has occurred due to misalignment or incongruency, and restore the attunement with a repair (Tronick, 1989). Caregivers who are unable to effectively incite repairs leave infants to self-soothe their frustration and attempt to regulate their sense of relatedness (Padykula & Conklin, 2010). Over time, these patterns of relatedness and emotion crystallize into an interactional attachment style – an attachment style that is characterized by one's tolerance for proximity and space when relating to others.

Individuals who develop a counter-dependent regulatory position demonstrate intolerance toward intimacy (Padykula & Conklin, 2010) due to anxiety of risk of harm from another (Ainsworth, 1972). When embodying a counter-dependent coping stance, they are likely to engage in behaviors that deny the value of relationships, the trustworthiness of others, and their own need to depend on others. This form of hyper-independence is the result of repeated injuries in their interpersonal relationships that resulted in withdrawal from further vulnerability (Ainsworth, 1972). Alternatively, the individual may develop a dependent interpersonal regulation style (Padykula & Conklin, 2010). Dependent regulation may calibrate stress by allowing others to have authority over their choices – much as a child might a dominant adult. This method of regulation would relieve pressure by minimizing the stress of responsibility and

promoting a stronger sense of attachment proximity (Ainsworth, 1972). It is possible this would also evoke the experience of being nurtured or rescued, which could reinforce the coping style as a reward. These individuals ultimately do not trust their own competency nor feel a sense of autonomy (Padykula & Conklin, 2010), likely related to a negative sense of self and early attachment traumas that were internalized.

Behavioral Pillar

The SRM describes the behavioral pillar of regulation to be on a dialectical continuum from compulsive caretaking to causing harm to self and others (Padykula & Conklin, 2010). Behavioral attempts at regulation are defined as goal-directed toward calibrating the attachment system to feel less, or different, emotions. This pillar is described primarily from the context of clinical work with a population coping with addiction, focusing on use of substances as the method of causing harm to self or others. Arguably, this concept of harm-causing behavior could be extended to the use of violence toward self or others as a result of systemic dysregulation. Importantly, the use of harmful behaviors to cope is described as one that provides temporary relief, while leading to more chronic systemic dysregulation (Padykula & Conklin, 2010). Although the pain of the immediate sensation is relieved, the coping behaviors undermine other subsystems' fortification and reinforce the consequence of negative interactions with the environment.

Harm-causing is set in contrast to individuals who have experienced being positively cared for by others, and thus know how to navigate conflict without isolation. Through an attachment lens, caretaking serves to reduce painful experiences by increasing proximity to attachment figures (Ainsworth et al., 1982). This proximity may increase felt security and improve the sense of self. Focusing on the perceived needs of others may provide relief by

enabling the individual to avoid their own concerns. At the extreme end, however, pathological caretaking inhibits functional regulation that improves the individual's capacity to reduce stress causing stimuli due to avoidance.

Current Study

The multiple domains of self-regulation have been addressed separately from numerous theoretical perspectives spanning many disciplines. This has resulted in a disjointed literature on self-regulation and a fragmented approach to clinical assessment and intervention. To remedy this fragmentation, Padykula and Conklin (2010) developed the self-regulation model of attachment trauma and addiction (SRM-ATA) as a clinical approach toward addressing the multiple domains in a comprehensive framework. Through clinical interviews and ongoing dialogue, the SRM-ATA provides multiple windows of access and progress tracking for treating disordered regulatory profiles. Although this is an important first step in providing a comprehensive framework for understanding self-regulation, to date there are no existing quantitative measures that encompass all major domains of self-regulation.

The current study aims to create a measure of individuals' regulatory profile across six major domains of self-regulation. The measure is intended for use in clinical settings by clinicians working with populations seeking treatment for behavior patterns that are associated with maladaptive coping. Creating a quantitative measure will preserve resources by limiting the time and finances spent evaluating clients' regulatory systems. It is important for any measure to have been tested in multiple samples to ensure validity before being used in a clinical setting. The following studies aim to validate the usefulness and reliability of the measure. Below, we first describe the initial item development and revisions to the item pool. Following study 1 will

be two additional independent studies designed to further validate the scale by determining factor structure and evaluating discriminant validity within a nomological network.

Chapter 3 - Methods

Responses for the study were collected as part of a larger cross-sectional survey designed to measure individual and interpersonal outcomes, including intimate partner violence, pet abuse, prior trauma, and substance use history. The survey was collected using Prolific, an online survey platform, and participants were paid an average of 12 dollars an hour for their time. Survey respondents are selected by Prolific by previously reported demographic information that allows for collection of a data pool that is nationally representative of gender, age and race/ethnicity. Participants were eligible for the study if they were at least 18, lived in the United States, and were English-speaking. All participants were informed and provided written consent prior to starting the study. The study was approved by Kansas State University's institutional review board and no identifying information was collected, ensuring participant anonymity. Data were collected in two rounds, the first in June 2022, the second in October 2022, resulting in a total sample of 1259 participants. Study 1 was completed using only the first round of data collection.

Exploratory Structural Equation Modeling

Exploratory factor analysis (EFA) is a popular method of determining relationships between constructs while allowing factors to be freely estimated (van Zyl & ten Klooster, 2022). With the Self-Regulation Model of Attachment Trauma and Addiction (SRM-ATA), a pre-existing theoretical model has been suggested, removing the need for exploration of potential factor structure. Due to this limitation, EFA is a poor method of analysis for this study. Historically, Confirmatory Factor Analysis (CFA) has been the popular method for confirming an existing theoretical factor structure, despite known limitations of CFAs being too restrictive toward factor cross-loadings. CFAs require factor cross-loadings to be constrained to zero,

causing CFA to also be a poor choice for examining psychometric multidimensionality and item cross-loadings (Marsh et al., 2014). As with many psychological measures, the multidimensional constructs of this theory (the six pillar domains: cognition, physiology, behavior, affect, sense of self, and interpersonal regulation) are conceptually related and expected to have strong covariance. Previous use of CFAs in such cases led to distorted structural relations, such as inflated factor correlations or misspecified measurement models (Asparouhov & Muthén, 2009; Morin et al., 2020). Additionally, use of CFAs often presents difficulty in achieving acceptable model fit of multidimensional models in empirical data with an appropriate number of indicators for each factor (Marsh et al., 2014). With these limitations in mind, exploratory structural equation modeling (ESEM; Asparouhov & Muthén, 2009) was found to be the superior option and used to evaluate underlying factor structure. ESEM blends the benefits of EFA and CFA methods by allowing cross-loadings but constraining them to be as close to zero as possible – offering more parsimonious models that can account for complex construct interrelationships (van Zyl & ten Klooster, 2022).

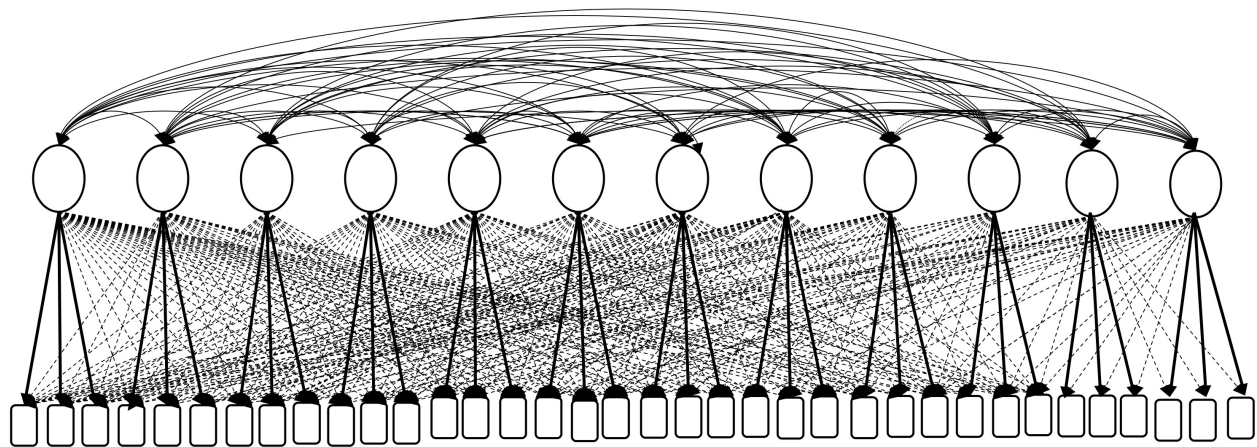
Chapter 4 - Study 1

The purpose of study 1 was to design a quantitative scale that captures the regulatory profile of research participants and clients in a clinical setting. To do this, items were developed and evaluated to be refined before the second data collection. During the first data collection, initial item responses were collected and examined as indicators of the Self-Regulatory Profile Scale (SRPS) model structure. Initial item development (see Appendix A) was completed by the author based on knowledge of attachment theory, existing measures for each regulatory pillar, and a theoretical consultation by one of the SRM-ATA's originating authors, Nora Padykula. 81 items were developed for the initial item pool, representing the over-regulation subtype and (e.g., "I remind myself of how I've been lucky") or under-regulation subtype (e.g., "I have a hard time letting go of things I have done wrong") of each of the six domains (cognitive, physiological, behavioral, affective, interpersonal, and sense of self). Items were then reviewed by content experts in human sciences and psychometric development who were consulting on the project; the inter-rater agreement rate was 100%. Participants were instructed to select the response that best indicates the frequency they experience each of the statements on a 5-point scale that ranged from 1 (never) to 5 (always). The purposes of study 1 were to (a) confirm the underlying factor structure of the SRPS and (b) identify and expand on the items that best measure the SRPS's six pillars.

To examine the *Self-Regulatory Profile Scale* (SRPS) factor validity, ESEM with a target rotation to confirm the intended factor structure of the SRPS was estimated with weighted least squares with mean and variance adjusted (WLSMV) using Mplus7 (Muthen & Muthen, 2012; van Zyl & ten Klooster, 2022). WLSMV was chosen because indicators for this scale are ordinal. Full information maximum likelihood (FIML) was used for handling missing data. Items

designed to measure the over-regulatory facets of each domain were reverse coded. A correlated twelve factor first-order ESEM was used to examine factor structure. This model assumes that the twelve factors are separate but related components of self-regulation (van Zyl & ten Klooster, 2022). The model syntax for the ESEM was generated using an ESEM code generator (de Beer & Van Zyl, 2019). In the twelve factor first-order model, items are targeted to load into their a priori factor, but cross-loadings are permitted for all factors and constrained to be as close to zero as possible (see Figure 1). To be considered without revision for the second phase of scale development, the items must demonstrate a target loading greater than 0.4 on their respective a priori factor, and a cross-loading less than 0.4 on all other factors.

Figure 1. 12 Factor Correlated First Order ESEM



Sample

The total sample for study 1 consisted of 581 participants, once quality control questions were applied. The nationally representative sample ranged in age from 18 to 80 years old ($M = 44.07$, $SD = 15.95$), and a slight majority identified as female (50.3%, $n = 295$); 47.3% of

participants identified as male ($n = 275$), and the remaining 1.8% identified as gender-diverse, including non-binary ($n = 10$) and transgender ($n = 1$). Participants were given the option to choose all that applied for their racial and ethnic identities, allowing for multiple or mixed-race identities. A large majority of participants selected White (73.4%), followed by Black or African American (15.0%), Asian (7.8%), Native American or Alaska Native (1.8%), Hispanic or Latino (8.8%), and Southwest Asian, North African or Middle Eastern (0.5%). For more Study 1 sample demographics, see Table 1.

Table 1*Study 1 Sample Demographic Information (N = 581)*

Sexual Orientation	n	%	Employment Status	n	%
Heterosexual	482	83.0	Employed full time	261	44.9
Bisexual	51	8.8	Employed part time	88	15.1
Lesbian/Gay	23	4.0	Unemployed by choice	43	7.4
Queer	7	1.2	Unemployed not by choice	58	10.0
Pansexual	9	1.5	Retired	82	14.1
Other	8	1.4	Full time student	31	5.3
Asexual	6	1.1	Prefer not to say	18	3.1
Household Income	n	%	Relationship Status	n	%
Less than \$25,000	108	18.6	Single	263	45.3
\$25,000 – 50,000	161	27.7	Committed, monogamous	109	18.8
\$50,000 – 100,000	186	32.0	Committed, open relationship	2	0.3
\$100,000 – 200,000	91	15.7	Committed, polyamorous	1	0.2
More than \$200,000	24	4.1	Married	200	34.4
Prefer not to say	11	1.9	Widowed	6	1.0
Number of Children	n	%	Highest Level of Education	n	%
0	315	54.2	Some High School	7	1.2
1	84	14.5	High School Diploma or GED	205	35.3
2	92	15.8	Bachelors	237	40.8
3	56	9.6	Master's	88	15.1
4	24	4.1	PhD	15	2.6
5	4	0.7	Trade School	28	4.8
6-8	4	0.7			
9-10	1	0.2			

Results and Discussion

Model fit for the correlated twelve factor first-order ESEM was found to be acceptable ($\chi^2 = 3624.216$, CFI = 0.98, TLI = 0.973, RMSEA = 0.03, $p < .00$, CI [0.028, .032]). Scale items were individually evaluated and demonstrated normal levels of skewness and kurtosis (Tables 2 and 3).

Table 2*Study 1 Item Descriptive Statistics*

Name	Item	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
RpPHY1	When I get upset, I find it easy to physically calm down.	3.34	1.062	-.332	-.381
RpPHY2	When I get upset, the tension lingers in my body long after the fact.	3.26	1.079	-.122	-.608
RpPHY3	I remain physically relaxed while experiencing stressful situations.	2.67	1.070	.173	-.623
RpPHY4	I am often emotionally disconnected.	2.34	1.090	.417	-.626
RpPHY5	I often feel emotionally numb.	2.28	1.136	.551	-.545
RpPHY6	I find myself getting so wound up that I become jittery.	3.89	1.076	-.667	-.344
RpPHY7	I feel as though there are gaps in my memory.	2.03	1.193	.915	-.199
RpPHY8	I find myself zoning or spacing out.	2.20	1.175	.648	-.528
RpPHY9	I feel that I am stressed more than most people know.	3.52	1.345	-.370	-1.143
RpPHY10	My heart races a lot, even when I am not doing physical activity.	4.07	1.071	-.949	.030
RpPHY11	When I get stressed, I often feel short of breath.	4.08	1.024	-.879	-.014
RpPHY12	My muscles ache from stress.	4.00	1.132	-.858	-.293
RpPHY13	When things become chaotic, I spend more time daydreaming or fantasizing.	2.20	1.191	.617	-.648
RpPHY14	A lot of times, I feel as though I am just going through the motions.	2.37	1.195	.442	-.804
RpINT1	I need others to help me get by.	2.34	1.061	.470	-.362
RpINT2	I cannot do things on my own.	1.99	.988	.979	.719
RpINT3	I avoid putting myself in situations where I might need help from others.	2.95	1.225	.278	-.924
RpINT4	I feel confident that I can face whatever comes my way by myself.	2.58	1.111	.540	-.390
RpINT5	My fear of losing people takes up a significant amount of my time.	1.88	1.076	1.145	.566
RpINT6	I am constantly worried that people in my life will leave me.	1.89	1.107	1.125	.360
RpINT7	I have a hard time trusting others to be there for me, even if I need them.	3.54	1.278	-.381	-.967
RpINT8	I think most people will be selfish if given the chance.	3.29	1.142	-.064	-.797
RpINT9	I prefer other people's help, even if I could probably do it myself.	1.81	.896	.940	.353
RpINT10	I feel embarrassed if I have to ask someone for help.	3.03	1.288	.096	-1.022
RpINT11	I base my opinions on what others think.	1.91	.917	.865	.405
RpINT12	I need more than what others can give me.	2.03	1.046	.803	.032
RpINT13	I have a hard time making decisions by myself.	1.98	1.046	.895	.109
RpINT14	What others think of me doesn't matter to me.	3.04	1.163	.108	-.848
RpAFF1	I feel out of control of my emotions.	4.16	.921	-.875	.017
RpAFF2	My feelings overwhelm me.	3.90	1.076	-.646	-.437
RpAFF3	Others have had negative reactions to the way I express my emotions.	4.07	.966	-.738	-.215
RpAFF4	I have a tendency to be dramatic in the way I present my emotions.	4.17	.961	-.966	.311

RpAFF5	Because of how I feel, I do things that I regret.	4.12	.876	-.930	.744
RpAFF6	Others often do not understand why I feel as strongly as I do.	3.78	1.100	-.441	-.725
RpAFF7	I have a hard time knowing what emotion I feel when I'm upset.	1.74	.947	1.166	.559
RpAFF8	I don't know my own emotions.	1.68	.937	1.412	1.557
RpAFF9	I indulge my emotions when they come along.	3.55	.974	-.128	-.410
RpAFF10	I have a hard time telling people around me how I feel.	2.44	1.239	.417	-.896
RpAFF11	When I feel sad/mad/stressed, I don't know why.	1.86	.962	.982	.295
RpAFF12	It is hard for me to describe what I feel.	2.12	1.086	.692	-.320
RpCOG1	I can still be liked by others even if I don't succeed.	2.11	.901	1.167	1.627
RpCOG2	It's safest not getting close to other people.	2.65	1.185	.283	-.885
RpCOG3	It isn't safe to show you're angry or frustrated with others if you depend on them.	2.75	1.126	.115	-.850
RpCOG4	I still feel good about myself, even if I fail or make a mistake.	2.64	1.161	.472	-.694
RpCOG5	I have trouble getting over it when I make a mistake.	2.81	1.236	.110	-1.125
RpCOG6	I blame myself for what goes wrong in my life.	3.27	1.131	-.486	-.610
RpCOG7	I find it easy to find the positives in a situation.	2.67	1.105	.398	-.656
RpCOG8	I remind myself of how I've been lucky.	2.38	1.091	.845	.131
RpCOG9	I tend to dwell on the situation when bad things happen.	3.01	1.254	-.111	-1.149
RpCOG10	I have a hard time letting go of things I have done wrong.	3.05	1.304	-.077	-1.198
RpCOG11	I think the hardships I have been through make me a stronger person.	2.30	1.034	.848	.320
RpCOG12	When something goes wrong, it confirms my fears.	2.90	1.168	-.056	-.946
RpCOG13	My thoughts stay stuck on a bad situation long after I wanted to forget it.	2.93	1.278	-.028	-1.169
RpBEH1	When in a stressful situation, I find myself taking care of myself or others.	3.60	.962	-1.008	.819
RpBEH2	When in a stressful situation, I find myself leaning toward forcing the outcome I want.	3.08	1.078	.134	-.822
RpBEH3	When in a stressful situation, I find myself causing harm to myself or others.	4.42	.871	-1.595	2.260
RpBEH4	When times are hard, I will take care of others at my own expense.	3.33	1.051	-.589	-.207
RpBEH5	When times are hard, I will take care of myself no matter the cost to others.	3.72	1.081	-.612	-.255
RpBEH6	When in a stressful situation, I often feel responsible for the emotions/ feelings of those around me.	3.07	1.170	-.312	-.975
RpBEH7	Others describe me as aggressive.	4.29	.963	-1.433	1.563
RpBEH8	I find showing anger helps things go in my favor.	4.38	.831	-1.332	1.442
RpBEH9	When trying to find relief from distress, sometimes I cause harm to myself.	4.35	1.031	-1.497	1.159

RpBEH10	When trying to find relief from distress, sometimes I cause harm to others.	4.57	.799	-2.070	3.974
RpBEH11	I can avoid feeling bad by helping others fix their problems.	3.11	1.080	-.464	-.568
RpBEH12	I repress my feelings to make others' lives easier.	2.97	1.247	-.119	-1.081
RpBEH13	I feel others take advantage of my good intentions.	2.80	1.211	.077	-1.059
RpBEH14	In my relationships, I treat people better than they treat me.	3.10	1.100	-.226	-.527
RpSEL1	I don't deserve when good things happen to me.	1.83	1.044	1.191	.681
RpSEL2	I dislike myself.	2.12	1.202	.814	-.361
RpSEL3	I feel I am unworthy of others' respect.	1.84	1.133	1.239	.546
RpSEL4	I feel like I am unworthy of others' love.	1.93	1.205	1.139	.224
RpSEL5	When I think about myself I feel bad.	2.09	1.192	.871	-.231
RpSEL6	If others knew who I really am inside they wouldn't like me.	1.99	1.188	.963	-.165
RpSEL7	I wish I could be more like other people.	2.31	1.234	.553	-.717
RpSEL8	I deserve authority because I'm a natural leader.	4.18	1.017	-1.214	.852
RpSEL9	I easily get others to do what I want them to do.	3.93	1.019	-.553	-.579
RpSEL10	I'm great at whatever I set my mind to.	3.00	1.084	.178	-.446
RpSEL11	I am better than most people.	4.01	1.014	-.671	-.427
RpSEL12	Being the center of attention feels natural.	4.21	1.022	-1.179	.620
RpSEL13	I show off my abilities when given the chance.	3.70	1.083	-.364	-.743
RpSEL14	I should be treated special, because I am.	4.16	1.017	-1.025	.222

Table 3*Study 1 Model Descriptive Statistics*

Pillar	Factor Subscale	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
Physical		2.920	0.345	.304	.931
	Hypertension	3.604	0.791	-.401	-.501
	Disassociation	2.236	0.920	.495	-.469
Interpersonal		2.537	0.441	-.199	.386
	Hyper-dependence	2.003	0.721	.709	.308
	Counter-dependence	3.071	0.728	.090	.160
Affect		2.965	0.348	-.015	1.016
	Over-Emote	3.965	0.753	.753	-.268
	Alexithymia	1.966	0.871	.871	.211
Cognitive		2.670	0.751	.248	-.158
	Positive IWM	2.421	0.808	.759	.631
	Negative IWM	2.919	0.917	-.114	-.631
Behavior		3.628	0.419	-.008	.208
	Pathological Caretaking	3.139	0.698	-.289	.347
	Harmful	4.117	0.585	-.946	1.010
Sense of self		2.982	0.674	.480	.255
	Grandiose	3.946	0.731	-.789	.458
	Self-Loathing	2.018	1.002	1.005	.236

Target Loadings

The target loadings for the 12 factor ESEM demonstrated the expected pattern (see Table 4). Target loadings for the positive cognitive IWM loaded positive and ranged from .53 to .65 ($M = .58$). The negative cognitive IWM also was loaded positively by target loadings that ranged from 0.32 to 0.75 ($M = .56$). For physiological facets, target items for hypertension loaded negatively (range: -.32 to .67, $M = -.53$) and items for disassociation loaded positively (range: .39 to .81, $M = .57$). Items targeted for hyper-dependence and counter-dependence both loaded positively. Hyper-dependence target loadings ranged from .35 to .66 ($M = .53$), while target loadings for counter-dependence ranged from .23 to .64 ($M = .46$). One item designed to target counter-dependence did not perform as expected (*"I feel confident I can face whatever comes by way by myself"* loading = .23) and may not be a reliable measure of the intended construct. For behavioral facets, all target items loaded positively and within ranges of .49 to .67 (pathological caretaking, $M = .54$) and .16 to .78 (harmful behavior, $M = .53$). One target indicator of harmful behavior loaded lower than expected onto the target factor (*"When times are hard, I'll take care of myself no matter the cost to others,"* loading = .23).

Sense of self target factor loadings were generally strong and positive. Target loadings for grandiosity ranged from .56 to .8 ($M = .73$) and target loadings for self-loathing ranged from .55 to .8 ($M = .7$). Target loadings facets of Affect also loaded positively. For over-emoting, target loadings ranged from .35 to .6 ($M = .53$), while target loadings for alexithymia ranged from .55 to .77 ($M = .68$).

Cross-loadings

Facet cross-loadings were positive, except for hypertension, counter-dependent, pathological caretaking, harmful behavior and over-emoting which cross-loaded negatively to most facets. All facets reversed their default cross-loading direction for the counter-dependent, harmful behavior, and over-emote facets. The only exception to this was the disassociation facet, which did not cross-load negatively with the over-emote facet, but instead reversed to load negatively onto alexithymia along with counter-dependence, and harmful behavior.

Cross-loadings for the positive IWM items ($M = .03$) were all below the significant threshold, except for one (*"I still feel good about myself, even if I make a mistake"*) which loaded onto self-loathing at .46. The range for the positive IWM cross-loadings was -.20 to .46. Cross loadings for the negative IWM facet ranged from -.40 to .38 ($M = 0.04$). A few items for this facet loaded onto hypertension (*"My thoughts stay stuck on a bad situation long after I want to forget it,"* loading = .31) and self-loathing (*"I blame myself for what goes wrong in my life,"* loading = .39). One item designed to target the negative IWM did not perform as expected, and loaded onto counter-dependence negatively at -.40 *"It's safest not getting close to other people"*.

Cross-loadings for the physiological hypertension facet loaded negatively onto most other facets, with exceptions for counter-dependence, harmful behavior and over-emotion. The cross-loadings range from -.35 to .28, with a mean of -.06. For hypertension, the only high cross-loadings were on the cognitive facets (*"When I get upset, I find it easy to physically calm down,"* and *"when I get upset, the tension lingers in my body long after the fact"*). Items targeted physiological disassociation cross-loaded positively, except for cross-loadings onto counter-dependence, self-loathing and alexithymia. The only significant cross-loadings for disassociation were onto hypertension (*"I find myself zoning or spacing out,"* and *"when things become chaotic,*

I spend more time daydreaming or fantasizing”). Cross-loadings for this facet ranged from -.28 to 0.45 ($M = 0.09$).

The interpersonal hyper-dependence model loaded negatively onto over-emote, grandiose sense of self, harmful behavior and counter-dependence facets. Cross-loadings for the hyper-dependent facet ranged from -.37 to 0.39 ($M = .05$). One item (*“I am constantly worried that people will leave me”*) demonstrated poor performance by cross-loading at -.37 on counter-dependent, at .3 on self-loathing, and at .39 on hypertension. Items targeting the counter-dependent facet primarily cross-loaded negatively onto other facets, except for the over-emote facet. Cross-loadings for this facet range from -.29 to .4 ($M = -.03$). One counter-dependent item (*“I feel confident that I can face whatever comes my way by myself”*) cross-loaded onto positive IWM and hyper-dependence above the threshold (.4 and .35, respectively).

Items for the pathological caretaking facet cross-loaded positively on all facets except counter-dependence, harmful behavior, and over-emote. Additionally, although small, about half of the items cross-loaded negatively on positive IWM and self-grandiosity. Cross-loadings for this facet range from -.40 to .30 ($M = .02$). Two items did not meet requirements for this facet, cross-loading at -.40 on positive IWM facet (*“When in a stressful situation, I find myself taking care of myself or others,”*) and .3 on negative IWM (*“I repress my feelings to make others’ lives easier”*). Harmful behavior loaded negatively onto all facets except counter-dependent, self-grandiosity, and over-emote. Cross-loadings for harmful behavior ranged from -.28 to .35 ($M = -.02$). The only harmful behavior item with a significant cross-loading (*“When in a stressful situation, I find myself leaning toward forcing the outcome I want,”*) loaded onto grandiose sense of self at .35.

Items designed to target the sense of self facets (grandiose and loathing) met the expected requirements with one exception each. Grandiosity cross-loadings ranged from $-.30$ to $.24$ ($M = .09$) and self-loathing items cross loaded within the range of $-.28$ to $.37$ ($M = .08$). The grandiosity item “*I expect people to do a lot for me,*” loaded negatively onto hyper-dependence at $-.30$. For self-loathing, the items “*when I think about myself I feel bad,*” and “*I dislike myself*” loaded positively onto the negative IWM at $.37$ and $.35$, respectively.

Over-emote indicators and alexithymia indicators cross-loaded in opposite directions on other facets. Over-emote cross-loadings ranged from $-.39$ to $.24$ ($M = -.09$). Items performed as expected with a few exceptions. The item “*others have negative reactions to the way I express my emotions,*” cross-loaded at $.31$ on harmful behavior facet. Similarly, the items “*I feel out of control of my emotions,*” and “*my feelings overwhelm me,*” both cross-loaded onto the alexithymia facet at $.31$ and $.3$, respectively. The final facet, alexithymia, cross-loaded positively onto all facets except counter-dependent, harmful behavior, and over-emote. Cross-loadings for this facet ranged from $-.34$ to $.35$ ($M = .07$). One item (“*I have a hard time telling people around me how I feel,*”) cross-loaded positively onto both disassociation ($.31$) and negative IWM ($.35$). Another item designed to target alexithymia, “*I have a hard time knowing what emotion I feel when I’m upset,*” also loaded onto over-emote facet at $-.31$.

Item Selection

Factor loadings were reviewed and items with small target factor loadings ($-.30$ to $.40$) or high cross-loadings ($> .40$ or $< -.40$) were removed or altered to better address the defined construct. For survey practicality, four items with the highest target-loading factors and acceptable cross-loadings for each facet were selected to be used in study 2. Of the selected items, target factor loadings ranged from $.45$ to $.8$, and $-.58$ to $-.69$, and cross-loadings ranged

from 0.0 to 0.39. The average target loading of pillars were 0.55 (cognitive), 0.62 (physical), 0.55 (interpersonal), 0.6 (behavioral), 0.73 (self) and 0.61 (affect). In addition to these, two new items were written for each facet to cover any holes in the operational definitions.

Study 1 results demonstrated a strong pattern of target factor loadings that support the SRM-ATA's theory of 12 regulatory facets. The patterns that emerged among cross-loadings are theoretically connected and support the concept of an interconnected system of regulatory responses.

Table 4

Study 1: 12 Factor First Order ESEM

	Subscales											
	Cognitive		Physical		Interpersonal		Behavior		Self		Affect	
Items	Pos. IWM	Neg. IWM	Hyper- tension	Disasso- ciation	Depend	Counter Depend	Care take	Harm ful	Grandi- osity	Loat- h	Over- Emote	Alexi- thymia
I can still be liked by others even if I don't succeed	0.56	0.08	0.06	0.06	0.13	-0.07	-0.01	-0.19	-0.08	0.31	0.08	0.14
I still feel good about myself, even if I fail or make a mistake	0.53	0.31	0.21	0.10	0.14	0.00	-0.08	-0.06	0.11	0.46	-0.07	0.14
I find it easy to find the positives in a situation	0.60	0.27	0.19	0.09	0.08	0.03	-0.08	-0.06	0.15	0.28	-0.20	0.04
I remind myself of how I've been lucky.	0.65	0.15	0.10	0.11	0.01	0.03	-0.03	-0.10	0.12	0.21	-0.08	0.03
I think the hardships I have been through make me a stronger person.	0.59	0.13	0.10	0.07	0.16	0.03	-0.17	-0.13	0.07	0.24	0.04	0.04
It's safest not getting close to other people.	0.25	0.32	-0.03	0.27	0.03	-0.40	0.19	-0.29	-0.02	0.23	-0.13	0.17
It isn't safe to show you're angry or frustrated with others if you depend on them.	0.15	0.38	-0.06	0.15	0.18	-0.27	0.19	-0.27	-0.04	0.20	-0.05	0.20
I have trouble getting over it when I make a mistake	0.18	0.61	0.27	0.12	0.15	-0.05	0.06	-0.09	0.04	0.35	-0.20	0.21
I blame myself for what goes wrong in my life	-0.06	0.45	0.01	0.06	-0.02	-0.11	0.24	-0.01	0.07	0.39	-0.19	0.12
I tend to dwell on the situation when bad things happen.	0.13	0.75	0.24	0.15	0.20	-0.05	0.03	-0.04	0.03	0.28	-0.18	0.06
I have a hard time letting go of things I have done wrong.	0.06	0.70	0.29	0.12	0.16	-0.02	0.11	-0.07	0.05	0.38	-0.18	0.15
When something goes wrong, it confirms my fears.	0.17	0.56	0.21	0.23	0.26	-0.13	0.08	-0.09	0.00	0.26	-0.24	0.02
My thoughts stay stuck on a bad situation long after I wanted to forget it	0.13	0.70	0.31	0.18	0.16	-0.03	0.04	-0.07	0.05	0.26	-0.21	0.13
When I get upset, I find it easy to physically calm down.	-0.35	-0.32	-0.32	0.14	-0.13	0.06	0.10	0.16	-0.10	0.00	0.24	-0.15
When I get upset, the tension lingers in my body long after the fact	-0.09	-0.36	-0.47	-0.19	-0.15	0.06	0.03	-0.02	-0.08	-0.16	0.25	-0.09
I remain physically relaxed while experiencing stressful situations.	-0.25	-0.29	-0.36	0.15	-0.15	-0.03	0.16	0.05	-0.22	-0.02	0.31	-0.11
I find myself getting so wound up that I become jittery.	-0.02	-0.20	-0.56	-0.28	-0.12	-0.04	-0.06	0.18	0.03	-0.22	0.28	-0.13
I feel that I am stressed more than most people know.	-0.14	-0.29	-0.56	-0.34	-0.17	0.09	-0.17	-0.01	0.03	-0.26	0.27	-0.13
My heart races a lot, even when I am not doing physical activity.	-0.05	-0.16	-0.67	-0.33	-0.19	0.02	-0.13	0.13	0.04	-0.22	0.15	-0.17
When I get stressed, I often feel short of breath.	-0.01	-0.09	-0.66	-0.26	-0.17	0.05	-0.12	0.16	0.00	-0.18	0.21	-0.13
My muscles ache from stress.	-0.02	-0.06	-0.66	-0.27	-0.16	0.04	-0.14	0.05	-0.01	-0.14	0.21	-0.16
I am often emotionally disconnected.	0.10	0.22	0.08	0.81	0.08	-0.21	0.06	-0.09	0.03	0.24	-0.02	0.22

I often feel emotionally numb.	0.12	0.21	0.14	0.76	0.13	-0.26	0.07	-0.12	0.05	0.29	-0.02	0.23
I feel as though there are gaps in my memory	0.09	0.16	0.33	0.39	0.14	0.00	0.12	-0.13	0.03	0.14	-0.28	0.25
I find myself zoning or spacing out	0.00	0.16	0.44	0.50	0.20	0.01	0.09	-0.04	0.00	0.23	-0.18	0.26
When things become chaotic, I spend more time daydreaming or fantasizing	-0.02	0.22	0.45	0.45	0.21	-0.04	0.08	-0.05	0.02	0.23	-0.16	0.15
A lot of times, I feel as though I am just going through the motion	0.10	0.23	0.35	0.51	0.22	-0.14	0.10	-0.04	0.03	0.34	-0.22	0.23

Table 4, Continued

Study 1: 12 Factor First Order ESEM

Items	Subscales											
	Cognitive		Physical		Interpersonal		Behavior		Self		Affect	
	Pos. IWM	Neg. IWM	Hyper- tension	Disasso- ciation	Depend	Counter Depend	Careta ke	Harmfu l	Grandi osity	Loathin g	Over- Emote	Alexi- thymia
I need others to help me get by.	-0.07	0.12	0.08	0.17	0.66	0.24	0.04	0.04	-0.01	0.13	-0.35	0.05
I cannot do things on my own.	0.10	0.16	0.00	0.21	0.63	0.17	0.05	-0.06	0.07	0.11	-0.36	0.02
My fear of losing people takes up a significant amount of my time.	0.10	0.19	0.35	-0.03	0.58	-0.30	0.03	-0.21	-0.07	0.23	-0.02	0.19
I am constantly worried that people in my life will leave me.	0.12	0.21	0.39	0.08	0.59	-0.37	0.10	-0.22	-0.03	0.30	-0.02	0.18
I prefer other people's help, even if I could probably do it myself.	-0.06	-0.04	0.07	0.06	0.49	0.16	-0.04	-0.17	-0.18	0.12	-0.13	0.10
I base my opinions on what others think.	0.06	0.23	0.04	0.13	0.45	0.10	0.17	-0.03	-0.14	0.26	-0.13	0.25
I need more than what others can give me.	0.18	0.26	0.13	0.20	0.35	-0.18	0.16	-0.16	-0.15	0.16	-0.31	0.19
I have a hard time making decisions by myself.	0.18	0.21	0.20	0.20	0.47	0.03	0.10	0.03	-0.01	0.27	-0.22	0.27
I avoid putting myself in situations where I might need help from others.	-0.02	-0.30	0.04	-0.14	0.06	0.53	-0.17	-0.01	-0.08	-0.16	0.17	-0.09
I feel confident that I can face whatever comes my way by myself.	0.40	0.12	0.15	0.15	0.35	0.23	-0.11	-0.09	0.14	0.22	-0.05	0.01
I have a hard time trusting others to be there for me, even if I need them.	-0.14	-0.19	-0.17	-0.26	-0.25	0.64	-0.16	0.12	-0.04	-0.24	0.16	-0.18
I think most people will be selfish if given the chance.	-0.13	-0.18	-0.04	-0.25	-0.10	0.56	-0.16	0.04	0.15	-0.20	0.31	-0.02
I feel embarrassed if I have to ask someone for help.	-0.02	-0.29	-0.21	-0.16	-0.09	0.45	-0.17	-0.07	-0.13	-0.31	0.07	-0.16
What others think of me doesn't matter to me.	0.28	0.06	0.10	-0.11	0.27	0.35	-0.02	0.01	0.04	0.15	0.12	0.03
When in a stressful situation, I find myself taking care of myself or others.	-0.40	-0.08	-0.01	0.04	-0.06	-0.07	0.49	0.11	-0.11	-0.11	0.08	-0.13
When times are hard, I will take care of others at my own expense.	-0.20	-0.02	0.07	-0.03	-0.01	-0.02	0.67	0.07	0.06	0.06	0.04	0.03
When in a stressful situation, I often feel responsible for the emotions/ feelings of those around me.	-0.17	0.16	0.22	-0.01	0.13	-0.02	0.54	-0.09	-0.07	0.14	-0.03	0.19
I can avoid feeling bad by helping others fix their problems.	-0.18	0.17	-0.04	0.02	0.14	0.05	0.51	-0.02	-0.07	0.04	0.00	0.01

I repress my feelings to make others' lives easier.	0.16	0.30	0.04	0.17	0.14	-0.13	0.52	-0.11	0.08	0.20	-0.06	0.23
I feel others take advantage of my good intentions	0.24	0.14	0.15	0.21	0.08	-0.28	0.50	-0.03	-0.09	0.11	-0.21	0.06
In my relationships, I treat people better than they treat me.	0.19	0.17	0.07	0.14	0.13	-0.28	0.58	0.01	-0.04	0.05	-0.11	0.04
When in a stressful situation, I find myself leaning toward forcing the outcome I want.	0.16	-0.21	-0.05	-0.18	-0.03	0.03	-0.14	0.16	0.35	0.11	0.12	0.00
When in a stressful situation, I find myself causing harm to myself or others.	-0.20	-0.15	-0.17	-0.13	-0.21	-0.04	0.07	0.62	0.05	-0.14	0.16	-0.20
When times are hard, I will take care of myself no matter the cost to others.	0.03	-0.02	0.06	-0.14	-0.07	0.02	0.22	0.23	0.29	0.13	0.09	-0.01
Others describe me as aggressive.	-0.05	-0.05	-0.09	-0.06	0.15	0.05	-0.05	0.63	0.28	-0.06	0.24	-0.08
I find showing anger helps things go in my favor.	-0.05	-0.08	-0.04	-0.01	0.01	0.07	-0.08	0.65	0.28	-0.05	0.23	-0.04
When trying to find relief from distress, sometimes I cause harm to myself.	-0.09	-0.21	-0.21	-0.11	-0.24	-0.02	-0.05	0.66	0.07	-0.28	0.17	-0.18

Table 4, Continued

Study 1: 12 Factor First Order ESEM

Items	Subscales											
	Cognitive		Physical		Interpersonal		Behavior		Self		Affect	
	Pos. IWM	Neg. IWM	Hyper- tension	Disassoci- ation	Depe- nd	Counter Depend	Care take	Harmf- ul	Grand io- sity	loathing	Over Emote	Alexi- thymia
I deserve authority because I'm a natural leader.	0.06	0.12	0.06	0.03	0.13	-0.01	-0.11	0.20	0.72	-0.05	0.00	0.00
I easily get others to do what I want them to do.	0.05	0.04	-0.09	-0.04	0.09	-0.03	-0.18	0.17	0.71	-0.09	0.06	0.04
I'm great at whatever I set my mind to.	0.25	0.12	0.04	0.10	0.12	0.10	-0.16	-0.04	0.56	0.24	-0.11	0.08
I am better than most people.	-0.03	-0.07	0.14	0.01	0.00	0.10	0.08	0.08	0.77	0.13	-0.01	-0.03
Being the center of attention feels natural.	0.09	0.13	-0.01	0.02	-0.03	-0.07	0.07	0.11	0.79	0.08	-0.03	0.08
I show off my abilities when given the chance.	0.14	0.02	-0.07	0.01	-0.11	-0.04	0.00	0.03	0.73	0.12	0.04	0.05
I should be treated special, because I am.	-0.09	-0.05	0.02	0.01	-0.16	0.04	0.03	0.12	0.80	0.21	0.11	-0.09
I expect people to do a lot for me.	-0.10	-0.11	0.04	0.04	-0.30	-0.07	0.07	0.24	0.74	0.06	0.18	-0.06
I don't deserve when good things happen to me.	0.12	0.17	0.07	0.10	0.11	-0.11	0.10	-0.13	0.14	0.70	-0.14	0.30
I dislike myself	0.23	0.36	0.17	0.17	0.16	-0.06	0.04	-0.02	0.14	0.73	-0.28	0.15
I feel I am unworthy of others' respect.	0.16	0.24	0.11	0.16	0.13	-0.05	0.05	-0.13	0.13	0.80	-0.14	0.21
I feel like I am unworthy of others' love.	0.16	0.23	0.16	0.21	0.16	-0.06	0.04	-0.11	0.11	0.78	-0.17	0.21
When I think about myself I feel bad.	0.17	0.37	0.18	0.23	0.17	-0.06	0.07	-0.03	0.12	0.73	-0.28	0.12
If others knew who I really am inside they wouldn't like me.	0.24	0.26	0.13	0.22	0.18	-0.19	-0.02	-0.16	0.02	0.62	-0.15	0.14
I wish I could be more like other people.	0.16	0.28	0.21	0.16	0.30	-0.03	0.09	0.03	0.01	0.55	-0.13	0.14
I feel out of control of my emotions.	-0.14	-0.20	-0.36	-0.09	-0.17	0.05	-0.13	0.19	0.03	-0.27	0.56	-0.31
My feelings overwhelm me.	-0.15	-0.26	-0.39	-0.14	-0.22	0.09	-0.14	0.12	-0.01	-0.25	0.58	-0.30
Others have had negative reactions to the way I express my emotions.	0.01	-0.15	-0.25	-0.12	-0.21	0.22	-0.03	0.31	0.05	-0.26	0.60	-0.19

I have a tendency to be dramatic in the way I present my emotions.	0.03	-0.22	-0.29	-0.04	-0.24	0.10	0.07	0.24	0.15	-0.22	0.59	-0.10
Because of how I feel, I do things that I regret.	-0.09	-0.29	-0.17	-0.11	-0.25	0.08	-0.01	0.21	0.04	-0.32	0.51	-0.23
Others often do not understand why I feel as strongly as I do.	-0.04	-0.18	-0.19	-0.19	-0.24	0.21	-0.10	0.20	0.01	-0.29	0.54	-0.24
I indulge my emotions when they come along.	0.21	-0.24	-0.17	-0.10	-0.22	0.01	0.11	-0.04	0.15	-0.07	0.35	-0.06
I have a hard time knowing what emotion I feel when I'm upset.	0.04	0.06	0.18	0.18	0.23	-0.04	0.08	-0.23	0.01	0.29	-0.34	0.72
I don't know my own emotions.	0.08	0.07	0.12	0.23	0.23	-0.03	0.06	-0.20	0.00	0.30	-0.28	0.70
I have a hard time telling people around me how I feel.	0.08	0.35	0.10	0.31	0.15	-0.22	0.12	-0.01	0.07	0.21	-0.13	0.55
When I feel sad/mad/stressed, I don't know why.	0.05	0.19	0.30	0.19	0.15	-0.04	0.01	-0.09	-0.04	0.27	-0.24	0.65
It is hard for me to describe what I feel.	0.08	0.21	0.16	0.24	0.15	-0.05	0.07	-0.06	0.03	0.25	-0.15	0.77

Model Fit Indices: $\chi^2 = 3624.216$, CFI = 0.98, TLI = 0.973, RMSEA = 0.03, $p < .00$, CI [0.028, .032]

Chapter 5 - Study 2

The purpose of study 2 is to validate the measure designed and refined during study 1 and establish latent factor scale validity through analysis of participant responses to independent scales included in the larger survey. This study also received approval from the Kansas State University institutional review board and followed the same collection process utilized in study 1 to collect a second sample. Six items for each of the 12 subtypes are included in round two, with the intention of further refining the scale to include the four strongest items for each subtype, resulting in a final 48-item measure. The decision to limit the items to the four strongest indicators was made to improve the practical utility and time demands associated with implementing the scale, while maintaining the constructs' theoretical integrity.

To use independent samples for each step of validation, the second round of data collection ($N = 597$) was divided into two smaller samples. This process was completed using the random sample allocation process in SPSS (Arifin, 2012). Of the two new samples, the larger sample ($n = 400$) was utilized for model structuring in study 2, while the smaller sample ($n = 197$) was reserved for model validation and establishing discriminant validity in study 3.

Sample

The sample for study 2 ($N = 400$) ranged in age from 18 – 80 ($M = 44.49$, $SD = 15.68$) and the majority identified as white (76.5%, $n = 306$). Of the remaining participants, 14.5% selected racial identity as Black ($n = 58$), 6.5% selected Asian ($n = 26$), and 5% selected Hispanic/Latinx ($n = 2$). Another 1.8% reported identifying as Native American or Alaska Native ($n = 7$), and the remaining 0.5% ($n = 2$) selected “other” and in text reported “Hebrew” and “mixed race”. The slight majority of sample two identified as men (49% $n = 196$). The second largest group of participants identified as women (48.85%, $n = 195$), and the remaining 2.1%

reported Non-Binary (1.8%, $n = 7$), and 0.6% Transgender ($n = 2$) identities. See Table 5 for more sample demographic information.

Table 5

Study 2 Sample Demographic Information (N = 400)

Sexual Orientation	n	%	Employment Status	n	%
Heterosexual	319	79.8%	Employed full time	203	50.8
Bisexual	49	12.3%	Employed part time	54	13.5
Lesbian/Gay	16	4.0%	Unemployed by choice	28	7.0
Queer	4	1.0%	Unemployed not by choice	42	10.5
Pansexual	7	1.8%	Retired	50	12.5
Other	3	0.8%	Full time student	16	4.0
Asexual	2	0.5%	Prefer not to say	6	1.5
Household Income	n	%	Relationship Status	n	%
Less than \$25,000	74	18.5	Single	133	33.3
\$25,000 – 50,000	109	27.3	Committed, monogamous	113	28.3
\$50,000 – 100,000	141	35.3	Committed, open relationship	6	1.5
\$100,000 – 200,000	60	15.0	Committed, polyamorous	4	1.0
More than \$200,000	15	3.8	Married	136	34.0
Prefer not to say	1	0.3	Widowed	7	1.8
Number of Children	n	%	Highest Level of Education	n	%
0	201	50.2	Some High School	4	1.0
1	57	14.2	High School Diploma or GED	159	39.8
2	76	19.0	Bachelors	156	39.0
3	40	10.0	Master's	44	11.0
4	20	5.0	PhD	12	3.0
5	3	0.8	Trade School	25	6.3
6-8	3	0.8			
9-10	-	-			

Model Analysis

Based on possible permutations of the SRPS's factor structure, three ESEM models could possibly reflect the SRPS factor structures. The first model is the twelve factor first-order ESEM used in study 1 (Figure 1). This model places all twelve factors on the same level as separate but related components of one global factor, self-regulation. The second model, a hierarchical ESEM, is used to extract a set of second-order group factors that represent the six pillars, or domains, of self-regulation. These six regulatory domains are each composed of two of the twelve first-order factors (see Figure 2). Specifically, each pillar domain is composed of the two factors of dysregulation, in the form of over and under-regulation (e.g., the affect regulatory domain is composed of over-emoting and alexithymia, the sense-of-self domain is composed of self-loathing and self-grandiosity). In this hierarchical ESEM, items are again specified to load onto their a priori target first order factors, and cross loadings are permitted but constrained to be as close to zero as possible (van Zyl & ten Klooster, 2022). For example, the items designed to target alexithymia will load directly onto alexithymia and cross-load onto all other regulatory subtypes, such as over-emoting, pathological grandiosity, self-loathing, etc. Alexithymia and over-emoting will load directly onto affect.

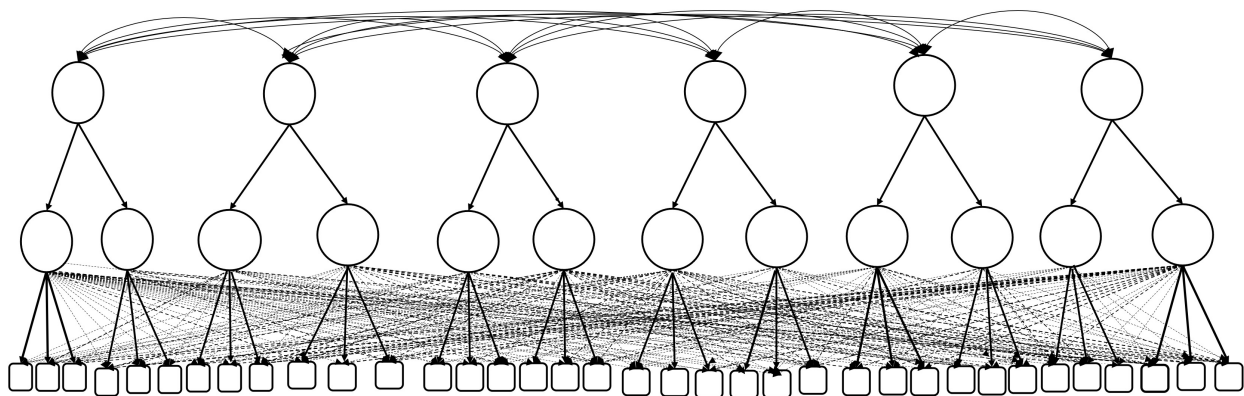
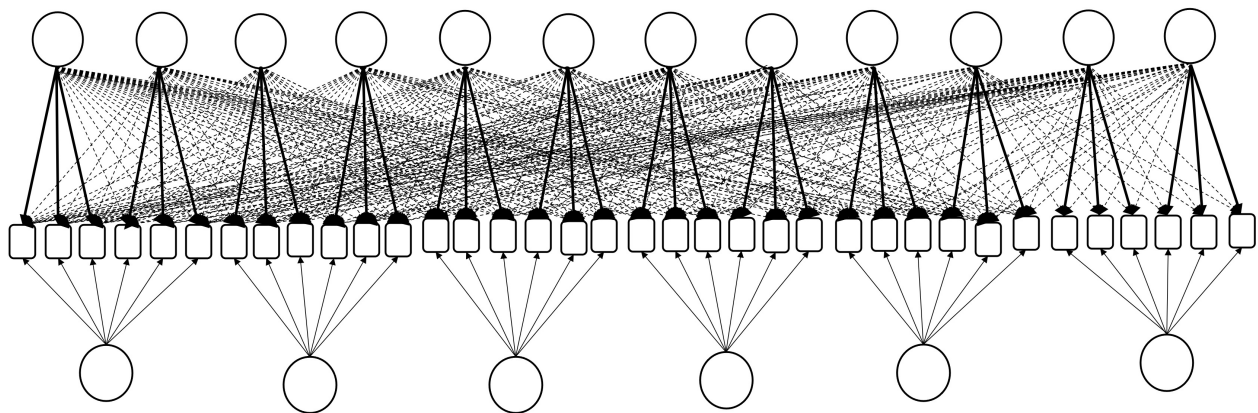


Figure 2. Hierarchical ESEM

The final model, a bifactor ESEM, is also specified to be composed of six group factors, and 12 specific factors (see Figure 3). Both the six group factors and 12 specific factors are extracted directly from the items. Cross loadings are permitted on the 12 specific factors. The group factors are the six regulatory domains (e.g., affect, sense-of-self, interpersonal), and specific factors are the 12 regulatory types, (e.g., over-emoting, alexithymia, pathological grandiosity, self-loathing, dependence). Each of the 12 regulatory subtypes independently also have direct relationships with their target indicators and cross-loaded relationships with all other indicators. For example, while questions designed to target self-grandiosity (e.g., “*I am better than most people*”) have a direct loading onto self-grandiosity and a direct loading onto sense-of-self, they also are cross-loaded into all 11 subtypes.

Figure 3. Bi-Factor ESEM



The bifactor model and hierarchical model proposed above are mathematically equivalent, yet bifactor models can be superior in ways that they facilitate variance decomposition to account for the variance separately contributed by group factors and specific factors. However, bifactor models often run into convergence issues due to the model complexity and difficulty in empirical model specifications, so both hierarchical and bifactor ESEM models are included in this study to make sure the structural model that can be identified from the data will be interpreted. In study 2, each model was run based on the four selected items from study 1 and the two newly developed items (see Appendix B), and the fit indices compared for all models that converge to determine the best model. One facet from each pillar (positive IWM, hypertension, counter-dependence, harmful behavior, over-emote) were reverse coded to make continuous variables of the six pillars.

Results

12 Factor First-Order ESEM

Scale items were individually evaluated and demonstrated normal levels of skewness and kurtosis (Table 6). Model fit for the correlated twelve factor first-order ESEM was again found to be acceptable and goodness of fit indices improved from study 1 ($\chi^2 = 2157.872$., CFI = 0.990, TLI = 0.986, RMSEA = 0.02, $p < .00$, CI [0.018, .025] see Table 7 for full model results).

Table 6*Study 2 Descriptive Statistics (N = 400)*

	M	SD	Skewness	Kurtosis
Positive IWM	3.26	0.78	-0.03	-0.30
Negative IWM	2.36	0.98	0.60	-0.41
Hypertension	4.17	0.79	-1.13	0.80
Disassociation	1.69	0.75	1.39	1.76
Hyper Dependent	1.81	0.75	1.20	1.28
Counter Dependent	3.41	0.85	-0.31	-0.42
Over-Emote	4.09	0.78	-1.07	0.66
Alexithymia	1.76	0.76	1.26	1.48
Caretaking	2.43	0.82	0.58	-0.06
Harmful	4.49	0.59	-1.57	2.25
Self Grandiose	4.30	0.63	-1.08	0.78
Self Loathing	1.82	0.84	1.14	0.65
Cognitive	2.81	0.68	0.18	-0.07
Physical	2.93	0.25	-0.04	2.98
Interpersonal	2.61	0.47	-0.39	0.24
Behave	3.46	0.39	0.76	0.44
Self	3.06	0.48	0.47	1.51
Affect	2.93	0.33	-0.27	2.27

Target Loadings

All facet target loadings for study 2's 12-Factor ESEM were positive, except for physical hypertension and over-emote facets. The target loadings performed as expected, with a few exceptions. Items targeted to load onto the pathologically positive IWM model loaded positively and ranged from .47 to .55 ($M = .52$). Items designed to target the pathologically negative IWM

model also loaded positive and ranged from .39 to 0.62 ($M = .56$). Although the factor structure was overall acceptable, some of the items for physical hypertension did not perform as expected, ranging from -.11 to -.59 ($M = -.4$) with two items (“*my muscles ache from stress*” and “*I need something to help me relax before I can unwind*”) loading higher on disassociation than hypertension. Aside from one item, the physical disassociation factor loaded positively and performed as expected, ranging from .29 to .61 ($M = 0.53$). Items that did not perform as expected may not measure the construct as intended.

Items designed to target the interpersonal hyper-dependence factor ranged from 0.17 to .56 ($M = .42$) and counter-dependence factor items ranged from .51 to .63 ($M = .56$). Hyper-dependence item “*I worry about driving others away,*” did not perform as expected, loading on its target facet at 0.17, which indicated it may not be a reliable measure of this construct. Target loadings for the two behavioral factors, pathological caretaking (range = .4 to .65, $M = .53$), and harmful behavior (range = .15 to .63, $M = .46$) both loaded onto their target items positively and performed as expected. One exception to the expected harmful behavior target loadings was the item “*the things that make me feel better are also not good for me.*” This item was intended to measure self-destructive coping strategies. Although this item did not perform as expected, the other items intended to measure self-destructive coping did perform well (.49).

The grandiose sense-of-self target loadings also loaded positively and ranged from .46 to .73 ($M = .59$) and self-loathing target loadings range from .45 to .61 ($M = .56$). Items designed to target the over-emote end of affect loaded negatively and ranged from –.38 to –.47 ($M = -.41$) while the alexithymia end of affect target loadings were positive and ranged from .48 to .73 ($M = .63$). All target loadings for sense of self and affect facets performed well on target loadings, indicating they measure the constructs as expected.

Cross-loadings

As with the 12 factor ESEM in study 1, cross-loadings associated with counter-dependence, harmful behavior and over-emote load in a negative direction to all other facets. Cross-loadings for items designed to indicate the positive cognitive model range from -.20 to .31 ($M = .04$). For the negative cognitive model factor, cross-loadings range from -.25 to .33 ($M = 0.11$). These cross-loadings all fell within an acceptable range.

Physical hypertension cross-loadings loaded negatively on all factors except counter-dependence, harmful behavior and self-grandiosity, and fell within the range of -.43 to .24 ($M = -.11$), while physical disassociation item cross-loadings were positive aside from those same facets and fell between -.27 to .4 ($M = .1$). A notable pattern in cross-loadings emerged for physiological facets. Three physiological hypertension indicators demonstrated low target-loadings in the 12 factor ESEM, and high cross-loaded onto other factors. Two of the items loaded above a 0.4 for the counter factor, physiological disassociation (“*my muscles ache from stress,*” and “*I need something to help me relax before I can unwind*”). Two items (“*I often feel short of breath,*” and “*I need something to help me relax before I can unwind*”) cross-loaded onto affect factors at $-.32$ and $-.47$, respectively, despite the former loading onto its target factor at $-.59$. Lastly, two physiological hypertension items loaded onto the negative cognitive factor at $-.32$ (“*my muscles ache from stress*”) and $-.35$ (“*I find myself getting so wound up that I become jittery*”). These items did not perform as expected and may improperly measure this construct, leaving only three items from the hypertension factor that were reliable in this model.

For the interpersonal domain, items on the first order ESEM positively cross-loaded between $-.21$ to $.38$ for hyper-dependence on others ($M = .12$), and negatively cross-loaded between $-.4$ to $.29$ ($M = -.06$) for counter-dependence items. One item intended to target hyper-

dependence, (*"I cannot do things on my own"*) cross-loaded onto the self-loathing facet at .36, bringing into question the reliability of this construct indicator. Another item, (*"my fear of losing people takes up a significant amount of my time,"*) cross-loaded onto negative IWM facet at .38, also raising question to the validity of the indicator. Two items designed to target the counter-dependent facet demonstrated high negative cross-loadings onto the negative IWM (*"I have a hard time trusting others to be there for me, even if I need them,"* and *"I think most people will be selfish if given the chance,"*) at -.40 and -.33, respectively.

Cross-loadings for pathological caretaking cross-loaded positively onto all facets except counter-dependence, harmful behavior and self-grandiosity. These cross-loadings fell between the range of -.37 to .35 ($M = .06$), while indicators of harm-causing behavior cross-loaded between -.35 and .46 ($M = -.09$) on model factors. These loading directions were as expected due to reverse coding of facet items. One harmful behavior indicator cross-loaded with a magnitude of 0.4 (*"I find showing anger helps things go in my favor,"*) onto the grandiose sense-of-self factor (loading = .46), indicating unacceptable performance in this model.

Items targeting the grandiose sense of self factor cross-loaded positively on all factors other than hyper-dependence, with loadings ranging from -.23 to .38 ($M = .00$), whereas items designed to target the self-loathing facet cross-loaded to other factors at powers ranging from -.35 to .46 ($M = .12$). One grandiosity indicator cross-loaded onto the harmful behavior facet at 0.38 (*"I think I should be treated special, because I am"*). For the self-loathing facet, all items performed as expected with one exception (*"I wish I could be more like other people,"*) which negatively cross-loaded onto negative IWM at -.46. It is possible this negative relationship can be attributed to the negative view of others that those with a negative IWM hold.

The over-emote facet was reverse coded and loaded negatively onto all other facets except for counter-dependence and harmful behavior. Cross-loadings for this facet ranged from -.46 to 0.33 ($M = -.10$). In the ESEM, over-emote items had high cross-loadings onto negative IWM, which was an unexpected association. Additionally, two items (“*my feelings overwhelm me*,” and “*I feel out of control of my emotions*,”) cross-loaded beyond the threshold onto disassociation and harmful behavior in this model. Alexithymia indicators cross-loaded positively to other facets with the exception of three reverse coded facets: counter-dependence, harmful behavior and self-grandiosity. Cross-loadings for alexithymia ranged from -.36 to .35 ($M = .08$). Two indicators of alexithymia cross-loaded onto disassociation (“*I don’t know why I feel upset*,” and “*it is hard for me to describe what I feel*,”) at .34 and .35, respectively. One item, (“*I have a hard time telling people how I feel*,”) also negatively cross-loaded at -.36 onto counter-dependence.

In this model, the pattern of loadings supported the use of this 12-factor structure of self-regulation. All target loadings performed as expected, except physiological hypertension, which had several items that loaded strongly onto disassociation. This suggests these items may not be reliable measures of hypertension. In this model, over-emote items performed more poorly than in study 1, with some high cross-loadings onto negative IWM, disassociation and harmful behavior. It is not understood at this time why these items loaded so strongly onto these facets, though previous research has examined and found a relationship between emotional expression and behavior problems as well as affect and cognitive anticipation (Cole et al., 1996, Richard et al., 1996).

Table 7

Study 2A - 12 Factor First Order ESEM ($N = 400$)

Items	Subscales											
	Cognitive		Physical		Interpersonal		Behavior		Self		Affect	
	Pos. IWM	Neg. IWM	Hyper- tension	Disasso- ciation	Depend	Counter Depend	Careta ke	Harmfu l	Grandi osity	Loathin g	Over- Emote	Alexi- thymia
I remind myself of how I've been lucky.	0.50	-0.20	-0.02	0.07	0.08	-0.15	-0.17	0.00	0.09	0.20	0.25	-0.06
I find it easy to find the positives in a situation	0.54	0.13	0.05	0.10	0.02	-0.10	-0.16	-0.14	0.31	0.19	0.17	0.09
I think the hardships I have been through make me a stronger person.	0.53	-0.20	0.12	0.04	0.15	0.20	-0.24	-0.06	0.14	0.19	0.05	0.03
I can still be liked by others even if I don't succeed	0.55	0.08	-0.07	0.16	0.01	0.16	-0.17	-0.15	0.01	0.22	-0.16	0.16
Mistakes and failures never impact how I view myself	0.53	0.30	0.05	-0.06	-0.06	0.11	0.09	0.17	0.17	0.16	0.03	-0.09
I never have to worry about what others think of me	0.47	0.28	0.07	-0.03	0.02	0.16	-0.13	0.11	0.03	-0.11	-0.09	0.10
I tend to dwell on the situation when bad things happen.	0.17	0.58	0.14	0.16	0.23	-0.24	0.15	-0.10	-0.03	0.25	0.28	0.14
I have a hard time letting go of things I have done wrong.	-0.02	0.61	0.19	0.14	0.21	-0.25	0.17	-0.06	0.12	0.28	0.22	0.21
When something goes wrong, it confirms my fears.	0.14	0.58	0.12	0.23	0.23	-0.22	0.24	-0.18	-0.09	0.30	0.21	0.20
I blame myself for what goes wrong in my life	-0.15	0.39	0.14	0.17	0.06	-0.23	0.28	-0.10	0.10	0.33	0.26	0.13
I worry that a small mistake will ruin everything	0.12	0.57	0.12	0.26	0.19	-0.17	0.20	-0.08	-0.06	0.29	0.21	0.22
I find my thoughts circling back to the same worries	0.03	0.62	0.23	0.20	0.15	-0.18	0.23	-0.10	-0.01	0.28	0.29	0.16
My heart races a lot, even when I am not doing physical activity.	-0.02	-0.24	-0.59	-0.28	-0.25	0.13	-0.12	0.16	0.13	-0.27	-0.13	-0.29
I often feel short of breath.	-0.05	-0.07	-0.59	-0.26	-0.18	0.08	-0.19	0.07	0.08	-0.25	-0.12	-0.32
My muscles ache from stress.	-0.01	-0.32	-0.29	-0.40	-0.05	0.11	-0.21	0.22	0.05	-0.17	-0.16	-0.15
I find myself getting so wound up that I become jittery.	-0.07	-0.35	-0.37	-0.35	-0.10	0.04	-0.13	0.21	0.14	-0.27	-0.33	-0.27
I need something to help me relax before I can unwind	0.02	-0.27	-0.11	-0.43	-0.12	0.00	-0.08	0.11	0.17	-0.24	-0.35	-0.23
I startle easily	-0.12	-0.23	-0.43	-0.27	-0.23	0.04	-0.09	0.24	0.06	-0.17	-0.17	-0.15
I feel numb	0.10	0.26	0.25	0.57	0.08	-0.08	0.18	-0.24	0.05	0.23	0.20	0.29
I do not experience adrenaline when I thought I would	-0.11	0.12	0.22	0.29	0.19	-0.19	0.08	-0.27	-0.18	0.06	0.05	0.40
I find myself zoning or spacing out	-0.02	0.18	0.29	0.55	0.13	-0.09	0.02	-0.12	-0.08	0.21	0.26	0.35
I feel disconnected from my body	0.06	0.16	0.22	0.62	0.17	-0.07	0.18	-0.23	-0.10	0.24	0.16	0.33
I feel as though I am just going through the motions in a dream-like or foggy state	0.08	0.21	0.19	0.56	0.21	-0.16	0.17	-0.09	-0.08	0.32	0.25	0.33
I feel like an outside observer to my own life	0.08*	0.24	0.19	0.61	0.21	-0.16	0.15	-0.08	-0.22	0.28	0.18	0.26

Table 7, continued
Study 2A - 12 Factor First Order ESEM

Items	Subscales											
	Cognitive		Physical		Interpersonal		Behavior		Self		Affect	
	Pos. IWM	Neg. IWM	Hyper- tension	Disasso- ciation	Depend	Counter Depend	Careta ke	Harmfu l	Grandi osity	Loathin g	Over- Emote	Alexi- thymia
I need others to help me get by	-0.05	0.25	0.04	0.15	0.50	0.09	0.02	-0.12	-0.14	0.28	0.26	0.17
I cannot do things on my own	0.04	0.19	0.10	0.20	0.56	0.01	0.13	-0.21	-0.12	0.36	0.15	0.24
My fear of losing people takes up a significant amount of my time	0.22	0.38	0.27	0.33	0.27	-0.02	0.22	-0.21	-0.10	0.20	0.16	0.33
I have a hard time making decisions by myself	-0.02	0.26	0.19	0.24	0.50	-0.01	0.06	-0.08	-0.03	0.28	0.24	0.38
I base my opinions on what others think	0.06	0.18	0.26	0.15	0.50	0.07	0.23	-0.13	-0.19	0.12	0.23	0.18
I worry about driving others away	0.21	0.35	0.27	0.29	0.17	-0.18	0.29	-0.17	-0.14	0.37	0.12	0.30
I have a hard time trusting others to be there for me, even if I need them	-0.09	-0.40	-0.14	-0.19	-0.16	0.56	-0.32	0.14	0.07	-0.11	0.02	-0.21
I think most people will be selfish if given the chance	0.01	-0.33	0.05	-0.19	-0.06	0.54	-0.05	0.14	0.24	-0.04	-0.12	-0.06
I avoid putting myself in situations where I might need help from others	0.06	-0.17	-0.09	-0.01	0.05	0.63	-0.15	0.01	0.02	-0.12	-0.09	-0.25
I find a way to do things without needing help from others	0.29	-0.05	-0.03	0.07	0.25	0.52	-0.25	-0.24	0.05	-0.10	-0.16	0.01
I learned not to expect much from other people	0.04	-0.25	0.07	-0.25	-0.04	0.63	-0.24	0.05	-0.01	-0.16	-0.03	-0.07
I am better off on my own	0.05	-0.05	-0.20	-0.06	0.05	0.51	-0.17	0.16	0.14	-0.15	0.00	-0.13
I feel responsible for the emotions/ feelings of those around me	-0.08	0.34	0.14	0.35	0.15	-0.08	0.42	-0.13	-0.02	0.22	0.20	0.13
I repress my feelings to make others' lives easier	-0.03	0.20	0.15	0.29	0.24	-0.25	0.40	-0.19	0.10	0.25	0.04	0.33
I give more than I take in relationships	-0.04	0.06	0.09	-0.04	0.03	-0.30	0.65	-0.11	-0.04	0.13	0.14	0.05
In my relationships, I treat people better than they treat me	0.05	0.04	0.11	0.12	0.12	-0.37	0.59	0.03	-0.03	0.05	0.19	0.15
I can avoid feeling bad by helping others fix their problems	-0.24	0.27	0.09	0.07	-0.06	0.02	0.49	0.06	-0.23	0.21	0.07	0.14
I fix other peoples problems instead of my own	-0.17	0.24	0.08	0.12	0.13	-0.14	0.57	-0.05	-0.13	0.26	0.17	0.17
I will take care of others at my own expense	-0.24	0.24	0.02	0.03	0.06	-0.08	0.63	0.05	-0.04	0.21	0.11	0.14
Sometimes I cause harm to others	-0.01	-0.12	-0.15	-0.20	-0.18	-0.03	-0.08	0.63	0.26	-0.22	-0.24	-0.17
I hurt others when I am hurting	-0.04	-0.23	-0.11	-0.22	-0.16	0.03	-0.11	0.52	0.28	-0.26	-0.28	-0.14
I find showing anger helps things go in my favor	0.08	0.02	-0.17	0.00	-0.34	0.06	0.04	0.42	0.46	-0.13	-0.14	-0.28
Others describe me as aggressive	0.09	-0.09	-0.18	-0.15	0.07	0.17	0.00	0.52	0.32	-0.12	-0.24	-0.24
The things that make me feel better are also not good for me	0.02	-0.24	-0.13	-0.27	-0.03	0.15	-0.06	0.15	0.30	-0.29	-0.35	-0.24
When trying to find relief from distress, sometimes I harm myself	-0.19	-0.17	-0.12	-0.35	-0.13	0.03	-0.09	0.49	0.28	-0.35	-0.20	-0.22

Table 7 Study 2A , Continued
12 Factor First Order ESEM

Items	Subscales											
	Cognitive		Physical		Interpersonal		Behavior		Self		Affect	
	Pos. IWM	Neg. IWM	Hyper- tension	Disasso- ciation	Depend	Counter Depend	Careta ke	Harmfu l	Grandi osity	Loathin g	Over- Emote	Alexi- thymia
I think I should be treated special, because I am	0.01	-0.02	-0.06	-0.18	-0.05	0.11	-0.13	0.38	0.61	0.06	0.01	-0.08
I think I am better than most people	-0.01	0.05	-0.01	-0.10	-0.16	0.22	0.02	0.21	0.74	-0.05	-0.07	-0.10
Being the center of attention feels natural	0.23	0.16	-0.09	0.06	0.00	-0.17	-0.05	0.29	0.57	-0.03	-0.04	0.02
I show off my abilities when given the chance	0.19	-0.20	0.02	-0.14	0.02	0.09	-0.10	0.14	0.51	0.07	-0.17	-0.10
I deserve authority because I'm a natural leader	0.18	0.06	-0.08	-0.10	-0.02	0.11	-0.09	0.14	0.66	0.06	-0.09	-0.07
I expect people to do a lot for me	0.13	-0.11	-0.19	-0.05	-0.32	0.04	-0.04	0.31	0.46	-0.23	-0.07	-0.13
I feel I am undeserving of others' respect	0.10	0.21	0.14	0.20	0.23	-0.01	0.22	-0.25	-0.05	0.61	0.04	0.23
I feel like I am unworthy of others' love	0.19	0.30	0.18	0.28	0.22	-0.18	0.32	-0.21	0.02	0.51	0.08	0.21
If others knew who I really am inside they wouldn't like me	0.21	0.23	0.19	0.13	0.06	-0.20	0.09	-0.20	-0.20	0.57	0.14	0.32
I don't deserve when good things happen to me	0.02	0.17	0.13	0.29	0.15	-0.02	0.24	-0.35	0.09	0.61	0.02	0.23
When I think about myself I feel bad	0.20	0.39	0.20	0.28	0.22	-0.18	0.15	-0.08	0.04	0.61	0.29	0.17
I wish I could be more like other people	0.09	0.46	0.16	0.18	0.31	-0.12	0.23	0.07	0.02	0.45	0.17	0.20
Others react negatively to the way I express my emotions	-0.11	-0.12	-0.12	-0.22	-0.21	0.33	-0.09	0.35	0.15	-0.17	-0.41	-0.27
I have a tendency to be dramatic when presenting my emotion	-0.06	-0.40	-0.10	-0.14	-0.21	0.00	-0.17	0.26	0.15	-0.17	-0.39	-0.19
My feelings overwhelm me	-0.14	-0.46	-0.23	-0.37	-0.21	-0.03	-0.22	0.30	0.06	-0.09	-0.40	-0.20
I feel out of control of my emotions	-0.10	-0.36	-0.28	-0.34	-0.25	0.03	-0.19	0.33	0.08	-0.16	-0.47	-0.28
I sometimes do things that I regret because of how I feel	0.05	-0.33	-0.21	-0.21	-0.12	0.14	-0.22	0.18	0.11	-0.34	-0.40	-0.23
My feelings determine a lot in my life	0.06	-0.36	-0.10	-0.21	-0.25	0.04	-0.35	0.10	0.08	-0.08	-0.38	0.02
It is hard for me to describe what I feel	0.05	0.15	0.05	0.34	0.20	-0.15	0.13	-0.10	-0.01	0.16	0.08	0.70
I have a hard time knowing what emotion I feel when I'm upset	0.10	0.17	0.16	0.26	0.18	-0.02	0.15	-0.14	-0.16	0.22	0.10	0.73
I don't know my own emotions	0.05	0.14	0.22	0.27	0.13	-0.07	0.18	-0.15	-0.10	0.17	0.20	0.69
I don't know why I feel upset	0.00	0.23	0.20	0.35	0.15	-0.01	0.12	-0.28	-0.01	0.27	0.19	0.61
I have a hard time telling people around me how I feel	0.08	0.12	0.13	0.10	0.12	-0.36	0.23	0.04	-0.02	0.18	0.14	0.58
My emotions don't seem to be related to any particular events	-0.14	0.14	0.19	0.28	0.23	-0.05	0.03	-0.29	-0.12	0.22	0.02	0.48

Hierarchical ESEM within CFA

To improve model convergence, the Hierarchical ESEM (H-ESEM) loadings were constrained to facet loadings provided in study 2's ESEM, converting the model to a H-ESEM within CFA. Due to the constraints to the model, there was not enough information to provide standard errors or model fit information. However, the factor target loadings did support the hierarchical nature and provides useful information for the structure of the model and correlations between factors. See Table 8 for full reporting of target and cross-loadings. All inter-factor correlations were well below the threshold for convergence (see Table 9). The H-ESEM results supported the use of a six-pillar evaluation of the constructs and scale structure.

Table 8*Study 2: Hierarchical ESEM within CFA*

Items	Subscales											
	Cognitive		Physical		Interpersonal		Behavior		Self		Affect	
	Pos. IWM	Neg. IWM	Hyper- tension	Disasso- ciation	Depen- d	Counter Depend	Care take	Harmful	Grandio- sity	Loath	Over- Emote	Alexi- thymia
Domain BY Pillar	0.694	0.723	0.765	0.761	0.721	0.757	0.733	0.681	0.437	0.549	0.73	0.709
I remind myself of how I've been lucky.	0.53	-0.20	0.03	0.04	0.09	-0.13	-0.19	-0.01	0.05	0.09	0.20	-0.12
I find it easy to find the positives in a situation	0.51	0.10	0.07	0.06	0.00	-0.05	-0.17	-0.05	0.27	0.12	0.13	0.03
I think the hardships I have been through make me a stronger person.	0.61	-0.21	0.16	-0.02	0.08	0.20	-0.27	-0.04	0.11	0.17	0.03	0.04
I can still be liked by others even if I don't succeed	0.54	-0.05	-0.08	0.19	0.06	0.12	-0.17	-0.10	0.03	0.17	-0.16	0.17
Mistakes and failures never impact how I view myself	0.45	0.13	0.05	-0.08	-0.07	0.11	0.04	0.10	0.21	0.03	-0.05	-0.05
I never have to worry about what others think of me	0.41	0.09	0.02	-0.01	0.05	0.10	-0.15	0.08	0.09	-0.14	-0.10	0.07
I tend to dwell on the situation when bad things happen.	0.09	0.64	0.17	0.12	0.17	-0.20	0.16	-0.05	-0.02	0.21	0.26	0.14
I have a hard time letting go of things I have done wrong.	-0.12	0.73	0.24	0.05	0.10	-0.18	0.15	0.03	0.08	0.25	0.19	0.18
When something goes wrong, it confirms my fears.	0.08	0.62	0.09	0.29	0.25	-0.24	0.29	-0.15	-0.08	0.26	0.20	0.21
I blame myself for what goes wrong in my life	-0.16	0.45	0.13	0.17	0.11	-0.22	0.32	-0.04	0.08	0.28	0.27	0.04
I worry that a small mistake will ruin everything	0.03	0.65	0.12	0.26	0.13	-0.12	0.20	-0.02	-0.05	0.24	0.18	0.24
I find my thoughts circling back to the same worries	-0.06	0.70	0.28	0.11	0.05	-0.10	0.23	-0.04	-0.01	0.25	0.32	0.13
My heart races a lot, even when I am not doing physical activity	-0.08	-0.23	-0.68	-0.07	-0.26	0.14	-0.11	0.15	0.08	-0.23	-0.15	-0.30
I often feel short of breath.	-0.13	-0.04	-0.58	-0.06	-0.17	0.07	-0.10	0.04	0.05	-0.25	-0.17	-0.31
My muscles ache from stress.	0.00	-0.34	-0.24	-0.33	-0.07	0.08	-0.24	0.21	0.03	-0.11	-0.21	-0.14
I find myself getting so wound up that I become jittery.	-0.04	-0.37	-0.44	-0.24	-0.09	0.00	-0.12	0.19	0.11	-0.26	-0.36	-0.20
I need something to help me relax before I can unwind	-0.01	-0.31	-0.07	-0.43	-0.17	0.02	-0.11	0.12	0.08	-0.15	-0.35	-0.16
I startle easily	-0.13	-0.26	-0.41	-0.18	-0.20	0.03	-0.13	0.24	0.00	-0.16	-0.16	-0.18
I feel numb	0.12	0.28	0.16	0.56	0.05	-0.03	0.15	-0.19	0.08	0.20	0.24	0.25
I do not experience adrenaline when I thought I would	-0.10	0.15	0.19	0.26	0.24	-0.25	0.11	-0.26	-0.13	0.08	0.03	0.40
I find myself zoning or spacing out	-0.01	0.27	0.20	0.54	0.12	-0.08	-0.02	-0.09	-0.05	0.19	0.23	0.30
I feel disconnected from my body	0.06	0.22	0.18	0.62	0.09	0.01	0.16	-0.26	-0.02	0.18	0.12	0.34
A lot of times, I feel as though I am just going through the motions in a dream-like or foggy state	0.15	0.25	0.10	0.59	0.18	-0.11	0.07	-0.01	-0.09	0.27	0.25	0.33
There are times when I feel like an outside observer to my own life	0.13	0.24	0.11	0.66	0.19	-0.14	0.09	-0.05	-0.16	0.19	0.18	0.28

Table 8, Continued. Hierarchical ESEM within CFA

Items	Subscales											
	Cognitive		Physical		Interpersonal		Behavior		Self		Affect	
	Pos. IWM	Neg. IWM	Hyper-tension	Disassociation	Depend	Counter Depend	Care take	Harmful	Grandiosity	Loath	Over-Emote	Alexithymia
Domain BY Pillar	0.694	0.723	0.765	0.761	0.721	0.757	0.733	0.681	0.437	0.549	0.73	0.709
I need others to help me get by	-0.02	0.35	0.04	0.19	0.45	-0.04	0.01	-0.03	-0.16	0.30	0.31	0.16
I cannot do things on my own	0.10	0.24	0.06	0.24	0.58	-0.15	0.16	-0.15	-0.07	0.34	0.19	0.23
My fear of losing people takes up a significant amount of my time	0.22	0.32	0.21	0.36	0.25	-0.04	0.24	-0.22	-0.01	0.16	0.19	0.31
I have a hard time making decisions by myself	0.05	0.32	0.24	0.22	0.52	-0.16	0.05	-0.01	0.02	0.21	0.23	0.35
I base my opinions on what others think	0.11	0.19	0.26	0.14	0.51	-0.09	0.23	-0.16	-0.12	0.08	0.24	0.17
I worry about driving others away	0.25	0.30	0.25	0.28	0.15	-0.14	0.29	-0.15	-0.11	0.32	0.13	0.32
I have a hard time trusting others to be there for me, even if I need them	-0.06	-0.36	-0.16	-0.11	-0.18	0.56	-0.37	0.16	0.03	-0.09	0.00	-0.28
I think most people will be selfish if given the chance	0.03	-0.30	0.08	-0.18	-0.12	0.54	-0.14	0.14	0.26	-0.02	-0.17	-0.05
I avoid putting myself in situations where I might need help from other	0.03	-0.15	-0.09	0.02	-0.02	0.55	-0.19	0.05	0.05	-0.10	-0.07	-0.24
I find a way to do things without needing help from others	0.28	-0.05	0.01	0.04	0.17	0.38	-0.20	-0.17	0.08	-0.06	-0.13	0.04
I learned not to expect much from other people	0.01	-0.23	0.05	-0.17	-0.03	0.56	-0.29	0.05	0.04	-0.14	-0.07	-0.13
I am better off on my own	0.05	-0.10	-0.21	-0.02	-0.02	0.48	-0.23	0.20	0.09	-0.12	0.07	-0.19
I often feel responsible for the emotions/ feelings of those around me	-0.03	0.38	0.08	0.33	0.09	-0.04	0.44	-0.11	-0.02	0.22	0.19	0.15
I repress my feelings to make others' lives easier	0.04	0.25	0.08	0.36	0.29	-0.33	0.42	-0.16	0.12	0.24	-0.01	0.34
I give more than I take in relationships	0.01	0.04	0.15	-0.03	0.02	-0.27	0.61	-0.11	-0.08	0.16	0.15	0.01
In my relationships, I treat people better than they treat me	0.17	-0.04	0.12	0.08	0.07	-0.32	0.54	-0.02	-0.02	0.02	0.22	0.12
I can avoid feeling bad by helping others fix their problems	-0.20	0.25	0.10	0.09	-0.11	0.09	0.48	0.03	-0.20	0.21	0.07	0.13
I fix other peoples problems instead of my own	-0.09	0.23	0.10	0.18	0.18	-0.18	0.59	-0.09	-0.08	0.20	0.17	0.14
I will take care of others at my own expense	-0.17	0.24	0.06	0.10	0.02	-0.05	0.58	0.06	-0.07	0.21	0.10	0.13
Sometimes I cause harm to others	0.04	-0.19	-0.18	-0.22	-0.21	0.03	-0.24	0.60	0.24	-0.27	-0.21	-0.13
I hurt others when I am hurting	-0.04	-0.24	-0.09	-0.28	-0.23	0.08	-0.31	0.57	0.21	-0.20	-0.21	-0.13
I find showing anger helps things go in my favor	0.06	-0.07	-0.25	-0.01	-0.40	0.17	-0.11	0.40	0.40	-0.11	-0.05	-0.28
Others describe me as aggressive	0.12	-0.12	-0.16	-0.17	-0.03	0.12	-0.12	0.47	0.26	-0.17	-0.25	-0.15
The things that make me feel better are also not good for me	-0.02	-0.24	-0.12	-0.29	-0.12	0.15	-0.09	0.14	0.24	-0.23	-0.36	-0.13
When trying to find relief from distress, sometimes I cause harm to myself	-0.17	-0.16	-0.05	-0.44	-0.11	0.01	-0.18	0.44	0.24	-0.36	-0.22	-0.14

Table 8, Continued

Hierarchical ESEM within CFA

Items	Subscales											
	Cognitive		Physical		Interpersonal		Behavior		Self		Affect	
	Pos. IWM	Neg. IWM	Hyper-tension	Disassociation	Depend	Counter Depend	Caretake	Harmful	Grandiosity	Loath	Over-Emote	Alexithymia
I think I should be treated special, because I am	0.02	-0.02	-0.02	-0.14	-0.03	0.08	-0.28	0.42	0.51	-0.05	0.03	-0.11
I think I am better than most people	-0.04	0.03	-0.02	-0.10	-0.14	0.21	-0.08	0.23	0.69	-0.06	-0.01	0.18
Being the center of attention feels natural	0.23	0.03	-0.13	0.08	-0.01	-0.14	-0.17	0.29	0.49	-0.17	0.00	-0.02
I show off my abilities when given the chance	0.26	-0.21	0.01	-0.14	0.04	0.06	-0.17	0.19	0.41	0.02	-0.16	-0.09
I deserve authority because I'm a natural leader	0.15	0.02	-0.14	0.00	-0.05	0.08	-0.18	0.20	0.54	0.02	-0.03	-0.12
I expect people to do a lot for me	0.12	-0.15	-0.21	-0.06	-0.46	0.21	-0.18	0.33	0.35	-0.22	-0.05	-0.15
I feel I am undeserving of others' respect	0.12	0.25	0.15	0.21	0.25	-0.01	0.27	-0.27	-0.05	0.56	0.04	0.25
I feel like I am unworthy of others' love	0.23	0.29	0.14	0.29	0.26	-0.20	0.36	-0.22	0.04	0.45	0.15	0.20
If others knew who I really am inside they wouldn't like me	0.25	0.19	0.11	0.24	0.10	-0.16	0.08	-0.13	-0.22	0.55	0.14	0.24
I don't deserve when good things happen to me	0.09	0.22	0.05	0.38	0.21	-0.04	0.33	-0.29	0.05	0.58	0.05	0.22
When I think about myself I feel bad	0.25	0.39	0.14	0.33	0.17	-0.12	0.09	0.04	-0.02	0.60	0.40	0.07
I wish I could be more like other people	0.12	0.47	0.16	0.18	0.33	-0.19	0.18	0.13	0.03	0.39	0.17	0.19
Others react negatively to the way I express my emotions	-0.17	-0.09	-0.03	-0.30	-0.24	0.33	-0.16	0.36	0.11	-0.16	-0.50	-0.13
I have a tendency to be dramatic when presenting my emotion	-0.01	-0.44	-0.13	-0.10	-0.13	-0.04	-0.26	0.30	0.09	-0.13	-0.38	-0.17
My feelings overwhelm me	-0.10	-0.46	-0.20	-0.34	-0.14	-0.06	-0.29	0.35	-0.05	-0.05	-0.49	-0.13
I feel out of control of my emotions	-0.06	-0.39	-0.30	-0.30	-0.21	0.02	-0.25	0.38	0.00	-0.11	-0.53	-0.20
I sometimes do things that I regret because of how I feel	0.01	-0.37	-0.22	-0.23	-0.15	0.12	-0.23	0.13	0.10	-0.29	-0.43	-0.12
My feelings determine a lot in my life	0.07	-0.42	-0.05	-0.20	-0.23	0.10	-0.38	0.12	0.03	-0.03	-0.43	0.08
It is hard for me to describe what I feel	0.08	0.17	0.02	0.37	0.18	-0.14	0.12	-0.12	0.09	0.13	-0.09	0.77
I have a hard time knowing what emotion I feel when I'm upset	0.12	0.13	0.16	0.24	0.11	0.04	0.09	-0.11	-0.07	0.24	-0.03	0.82
I don't know my own emotions	0.09	0.08	0.23	0.24	0.09	-0.01	0.16	-0.20	-0.01	0.18	0.07	0.71
I don't know why I feel upset	-0.01	0.29	0.23	0.34	0.07	0.07	0.15	-0.28	0.00	0.28	0.13	0.61
I have a hard time telling people around me how I feel	0.15	0.08	0.16	0.09	0.16	-0.38	0.16	0.03	0.03	0.13	0.02	0.54
My emotions don't seem to be related to any particular events	-0.13	0.20	0.17	0.31	0.33	-0.17	0.06	-0.24	-0.07	0.19	0.03	0.45

Table 9

Study 2: Hierarchical ESEM within CFA

Pillar Correlations

Pillars	Cognitive	Physical	Interpersonal	Behavioral	Sense of Self	Affect
Cognitive	-					
Physical	-0.13	-				
Interpersonal	-0.12	-0.09	-			
Behavioral	0.01	0.09	0.06	-		
Sense of Self	-0.25	-0.08	-0.15	-0.13	-	
Affect	-0.09	-0.29	-0.08	0.06	0.03	-

Bi-Factor ESEM

As anticipated, the bi-factor ESEM was unable to converge and no results were provided. Lack of convergence was anticipated due to sample size. A bi-factor ESEM draws variance from the items and, without a larger sample size, was unable to estimate standard errors in this study.

Discussion

Because the H-ESEM within CFA model was saturated and no model fit indices produced, more confidence should be placed on ESEM results for evaluating item performance. However, the H-ESEM within CFA does support the use of a six pillar, 12 facet model of the constructs as demonstrated by item loading patterns. While both models from study 2 support the proposed factor structure and produced the expected broad loading patterns, some items did not perform as successfully as items from study 1. Items revised to more acutely address physiological aspects of disassociation loaded more strongly onto alexithymia than study 1 disassociation items did that involved more emotion-based elements. It is not understood at this time why those changes created such an effect. Likewise, in study 2 some hypertension items performed poorly on target loadings and had high cross loadings onto disassociation. Further refinement and validation of these items may be needed to isolate the cause of this factorial invariance.

Chapter 6 - Study 3

Study 3 was used to extend validity for the SRPS by validating the discriminant validity of latent variables by comparing participants' scores on independent measures of regulation factors. To do this, six existing measures, that are empirically supported and frequently utilized, were used to determine discriminant validity of the alternative regulatory subtype for each domain. Discriminant validity was examined through the multitrait-multimethod analytical framework (MTMM; Campbell & Fiske, 1959) using scale score correlations.

Sample

The sample for study 3 ($N = 197$) ranged in age from 19 to 80 ($M = 46.92$, $SD = 14.96$). Half of the sample reported their gender identity as women (50.3%, $n = 99$), 47.7% as men ($n = 94$), 1% identified as non-binary ($n = 2$), while the final 1% identified as transgender ($n = 2$). The large majority reported identifying as white (82.2%, $n = 162$), followed by 11.2% who identified as Black ($n = 22$), 5.1% who identified as Hispanic/Latinx ($n = 10$), 4.1% identified as Asian ($n = 8$), 2.5% who identified as Native American or Alaskan Native ($n = 5$) and the remaining 0.5% ($n = 1$) who identified as Southwest Asian, North African or Middle Eastern. See Table 10 for more information on study 3 sample demographics.

Table 10*Study 3 Sample Demographic Information (N = 197)*

Sexual Orientation	n	%	Employment Status	n	%
Heterosexual	174	88.3	Employed full time	83	42.1
Bisexual	12	6.1	Employed part time	44	22.3
Lesbian/Gay	7	3.6	Unemployed by choice	20	10.2
Queer	-	-	Unemployed not by choice	14	7.1
Pansexual	3	1.5	Retired	24	12.2
Other	-	-	Full time student	5	2.5
Asexual	1	0.5	Prefer not to say	7	3.6
Household Income	n	%	Relationship Status	n	%
Less than \$25,000	37	18.8	Single	77	39.1
\$25,000 – 50,000	53	26.9	Committed, monogamous	47	23.9
\$50,000 – 100,000	62	31.5	Committed, open relationship	5	2.5
\$100,000 – 200,000	35	17.8	Committed, polyamorous	1	0.5
More than \$200,000	6	3.0	Married	66	33.5
Prefer not to say	4	2.0	Widowed	1	0.5
Number of Children	n	%	Highest Level of Education	n	%
0	98	49.7	Some High School	5	2.5
1	31	15.7	High School Diploma or GED	77	39.1
2	39	19.8	Bachelor's Degree	73	37.1
3	21	10.7	Master's Degree	26	13.2
4	4	2.0	PhD or higher	5	2.5
5	2	1.0	Trade School	11	5.6
6-8	1	0.5			
9-10	1	0.5			

Discriminant Construct Validity Analysis

Descriptive statistics were evaluated for each pillar, facet and external variable (see Table

11). All variables met the standards of normality for skewness and kurtosis.

Table 11

Study 3 Descriptive Statistics (N=197)

Variables	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
Cognitive	2.78	0.65	0.39	-0.13
Positive IWM	3.21	0.77	-0.07	-0.31
Negative IWM	2.34	0.89	0.62	-0.41
CERQ Positive Refocus	4.59	1.37	-0.43	-0.23
CERQ Rumination	4.12	1.34	-0.29	-0.24
CERQ Self Blame	3.76	1.57	-0.01	-0.96
CERQ Catastrophize	3.00	1.41	0.37	-0.72
Physical	2.92	0.25	-0.43	2.30
Hypertension	4.24	0.70	-1.33	1.82
Disassociation	1.59	0.66	1.56	2.40
DES-O	1.62	0.66	1.82	4.06
Interpersonal Pillar	2.59	0.42	-0.19	0.42
Hyper Dependence	1.76	0.64	1.01	0.81
Counter Dependence	3.41	0.75	-0.24	-0.03
IDI-6	2.71	0.80	0.02	-0.32
Behave	3.44	0.40	0.42	0.33
Caretaking	2.37	0.77	0.40	-0.11
Harmful	4.51	0.53	-1.64	3.26
STAB	41.76	6.68	0.44	-0.30
Sense of Self	3.07	0.49	0.74	1.28
Self Grandiosity	4.34	0.65	-1.24	0.96
Self Loathing	1.79	0.84	1.35	1.27
NPI - 16	3.87	2.63	1.09	0.60
Affect	2.91	0.31	-0.63	4.97
Over-Emote	4.11	0.70	-1.00	1.13
Alexithymia	1.70	0.69	1.22	1.51
TAS-20	69.04	15.39	0.23	0.34

CERQ = Cognitive Emotion Regulation Questionnaire, DEM-O = Dissociative Experience Measure – Oxford, IDI-6 = Interpersonal Dependency Inventory – 6, STAB = Subtypes of Antisocial Behavior Questionnaire, NPI-16 = Narcissistic Personality Inventory – 16, TAS-20 = Toronto Alexithymia Scale-20

Cognitive Emotion Regulation Questionnaire (CERQ)

The CERQ (Garnefski & Kraaij, 2001) is a 32-item scale designed to measure cognitive methods of handling emotionally arousing information, such as threatening or stressful life events. The nine subscales each reflect a cognitive coping method: Self-blame (e.g., *“I think that basically the cause must lie within myself,”*) Other-blame (e.g., *“I feel that others are responsible for what has happened,”*) rumination of the event (e.g., *“I am preoccupied with what I think and feel about what I have experienced,”*) and catastrophizing (e.g., *“I keep thinking about how terrible it is what I have experienced”*). The fifth, sixth and seventh subscales consist of positive refocusing (e.g., *“I think of something nice instead of what has happened,”*) refocus on planning (e.g., *“I think about how to change the situation,”*) and positive reappraisal (e.g., *“I think that I can become a stronger person as a result of what has happened”*). The final two subscales of the CERQ are putting into perspective (e.g., *“I tell myself that there are worse things in life”*) and acceptance (e.g., *“I think that I have to accept the situation”*). The CERQ provides participants with a separate score for each subscale.

The CERQ was chosen for this study because it is the only instrument that measures cognitive coping strategies without including behavioral strategies (Garnefski et al., 2002). For this study, we utilized the subscales examining positive refocusing ($\alpha = .947$), rumination ($\alpha = .899$), self-blame ($\alpha = .950$), and catastrophize ($\alpha = .917$). These subscales were isolated and chosen because they encompass the strategies targeted by the cognitive pillar of the proposed scale, and because of their individual associations with the internal working models described in attachment theory (Bowlby, 1973).

Catastrophizing cognitive tendencies have been associated with poor psychological outcomes and negative IWM of both self and others (McWilliams & Asmundson, 2006).

Catastrophizing is believed to be a cognitive strategy that is founded in fear-avoidance models of coping (Fasakhoudi et al., 2022). This subscale ($\alpha = .917$, $M = 3.0$, $SD = 1.41$) is expected to be positively correlated with the negative IWM facet. The rumination subscale ($\alpha = .899$, $M = 4.12$, $SD = 1.34$) was chosen for this validation because the coping strategy has been shown to be a mediating mechanism between the negative IWM associated with insecure attachment styles and psychological distress following a negative life event (Mohammadkhani et al., 2017; Saffrey & Ehrenberg, 2007; Turan & Erdue-Baker, 2010). This means that evaluating rumination is a key factor in understanding how one's view of the world and themselves can moderate pain through cognitive processes. We hypothesized that rumination would have a moderate positive correlation with the negative IWM facet.

The self-blame subscale ($\alpha = .950$, $M = 3.76$, $SD = 1.57$) was included in the study because self-blame has also been established as a moderating mechanism between negative IWM, perceived stress and psychological symptoms after a negative event (Kraaij et al., 2003; Moreira & Maia, 2021). Additionally, individuals who report high levels of self-blame are significantly more likely to report poor social bonds in their interpersonal world (Kraaij et al., 2003) further connecting this construct to attachment's IWM and the SRM-ATA's conceptualization of the cognitive pillar of self-regulation. We again expected this variable to be more strongly correlated with the negative IWM facet, the cognitive pillar, followed by the positive IWM, in that order.

The final CERQ subscale included in this study was positive refocusing ($\alpha = .947$, $M = 3.21$, $SD = 1.37$). This subscale was included because of findings that support the relationship of this variable with a positive IWM and secure attachment styles (Kraaij et al., 2003; Worsley et al., 2019). Other studies of the positive refocusing construct have found it to be significantly

associated with decreased levels of depression and distress after a negative life event (Worsley et al., 2019). This subscale was expected to correlate more strongly with the positive IWM facet. The positive IWM facet was reverse coded to integrate it to the cognitive pillar continuously, so the correlation between the positive refocusing subscale and the positive IWM facet was expected to be negative.

Toronto Alexithymia Scale (TAS-20)

The TAS-20 was designed to measure a general dimension of alexithymia in nonclinical samples (Parker et al., 1993). Alexithymia is a psychiatric condition and trait with psychosomatic symptoms characterized by externally oriented cognitive style and an inability to identify and describe emotions or create fantasies (Nemiah et al., 1976). The TAS-20 is comprised of 20 self-report items, measured on a 5-point Likert scale, that examine three dimensions of alexithymia: difficulty identifying emotions and distinguishing them from somatic symptoms (e.g., *“When I am upset, I do not know if I am sad, frightened, or angry”*), difficulty describing emotion to others (e.g., *“It is difficult for me to find the right words for my feelings”*), and a style of thinking that is externally oriented (e.g., *“I prefer talking to people about their daily activities rather than their feelings”*; Parker et al., 1993). These three dimensions were found by the original validation analysis to be three highly correlated but separate factors – a factorial structure that has been replicated in a number of nonclinical samples worldwide (Bagby et al., 2000; Pandey et al., 1996; Taylor et al., 2003). However, a series of studies with clinical samples found the factor structure to be best represented by only two factors, combining difficulty identifying feelings and difficulty describing feelings into a shared construct (Kooiman et al., 2002).

The TAS-20 ($\alpha = .726$, $M = 69.04$, $SD = 15.39$) was chosen as a measure of external validity for the proposed SRPS because it measures the same aspects of alexithymia that are included in the measure: difficulty identifying and describing emotions, distinguishing between physical and emotional sensations, and lack of introspection/externally oriented thinking (Bagby et al., 1994). The measure is expected to relate to the affect pillar and have a stronger relationship with the alexithymia facet than the over-emote facet.

Interpersonal Dependency Inventory, Short form (IDI-6)

The interpersonal dependency inventory brief version (IDI-6) is a frequently used 6 item measure of maladaptive dependency (McClintock et al., 2015). Two subscales each include three items that are rated using a 4-point Likert scale, ranging from 1 (*not characteristic of me*) to 4 (*very characteristic of me*). Items on the emotional reliance subscale measure attachment and emotional dependency (e.g., “*I need to have one person who puts me above all others*”) and those on the functional dependency scale measure a perceived inability to be in charge and a preference to follow others (e.g., “*I feel better when I know someone else is in command*”). Because the IDI-6 is a brief measure designed to evaluate maladaptive interpersonal dependency, this measure was selected as a measure of external validity. The IDI-6 ($\alpha = .839$, $M = 2.71$, $SD = .8$) is expected to have a strong positive correlational relationship with the hyper-dependency facet, and a less strong but positive relationship with the interpersonal pillar. Likewise, the IDI-6 was anticipated to have a negative correlational relationship with the counter-dependence facet.

Dissociative Experiences Scale, Oxford (DES-O)

The DES-O is a 30-item scale designed to measure the broad range of dissociative experiences (Černis et al., 2018) that has demonstrated excellent internal consistency ($\alpha = 0.95$, n

= 686). Scale psychometrics established by Černis et al., determined five underlying factors comprising disassociation, measured on a 5-point Likert scale of frequency, ranging from 1 (*Not at All*) to 5 (*Most of the Time*). The first subscale, subjective experiences of unreality, examines experiences of feeling that oneself or reality is ‘not real’ (e.g., “*I feel as if I don't exist, am not real*”; Černis et al., 2018). The second subscale, emotional numb or disconnectedness, references feeling disconnected from or unable to emotionally access the rest of the world (e.g., “*I do not seem to feel anything at all*”). DES-O’s third subscale, memory blanks, is characterized by inability to remember something that has “evidently taken place” (Černis et al., 2018, p. 233; e.g., “*I have big gaps in my memory for recent things in my life*”). The final two subscales, zoning out and experiencing a vivid internal world, are designed to measure an absence of mental activity or the loss of time (former, e.g., “*My mind just goes empty*”) or internal experiences that attract mental attention, or in more severe cases may include intrusions or flashbacks (e.g., “*I experience past memories as if they are happening here and now*”).

The DES-O ($\alpha = .961$, $M = 1.62$, $SD = .66$) was selected as a measure of external validity of the SRPS due to the target construct of disassociation. A meta-analysis review of DES-O properties reports the scale conceptualizes disassociation as a learned automatic response used to regulate or avoid adverse arousal states (Lyssenko et al., 2018); a description that was informative to the development of the disassociation facet of the physiological pillar. Therefore, we anticipated the DES-O to have a positive correlation that is most strongly associated with the disassociation facet. Disassociation involves a disruption of the normal integration of consciousness, emotion and body representation (Lyssenko et al., 2018), but momentary somatic numbness does not entail an ability to avoid hypertension (Di Trani et al., 2018; Jula et al., 1999).

Therefore, we anticipate there will also be a positive correlational relationship between the DES-O and hypertension items.

Subtypes of Antisocial Behavior (STAB) Questionnaire

The STAB ($\alpha = .743$) is a 32-item measure designed to assess individuals' proclivity toward antisocial, or harm-causing behaviors (Burt & Donnellan, 2009). Scale psychometrics established a three-factor structure, comprised of Physical aggression ($\alpha = 5.84$), Social aggression ($\alpha = 5.85$), and Rule-breaking ($\alpha = 5.78$). The 32 items are measured on a 5-point Likert scale, ranging from 1 (*Never*) to 5 (*Nearly All the Time*) that specifically measures behaviors during the past year (Burt & Donnellan, 2009). The items in the physical aggression subscale reference attitudes toward and physical displays of violence or domineering (e.g., "*felt better after hitting*"). The social aggression subscale is made up of items intended to measure behaviors that use social relationships as a means of hurting others (e.g., "*was rude towards others*"). Finally, the rule breaking subscale includes items intended to measure a non-confrontational means of causing harm, such as vandalism or lying (e.g., "*broke into a store, mall or warehouse*").

The STAB questionnaire ($\alpha = .743$, $M = 41.76$, $SD = 6.68$) was selected as a measure of external validity for facets of the behavior pillar. Antisocial behavior is the opposite of helping others, and is considered harmful to individuals, institutions or society (Frick & Viding, 2009). Proclivities toward antisocial behavior is significantly inversely associated with rates of harm-avoidance, or inhibited avoidance of experiencing and causing harm (Lahey et al., 1999). Due to these relationships, we anticipated that the STAB would be positively correlated with the harmful behavior facet. Specifically, we expected the physical aggression and social aggression subscales to be the most strongly correlated with the harmful behavior facet.

Narcissistic Personality Inventory, Brief Version (NPI-16)

The NPI-16 is a brief measure of Narcissistic Personality Disorder (NPD) that has been shown to be significantly correlated with other measures of NPD and evenly addresses components of NPD (Ames et al., 2006). The 16 pairs of items are presented in a forced-choice format, designed to capture major components of NPD such as superiority (e.g., “*I am an extraordinary person*”), self-absorption (e.g., “*Everybody likes to hear my stories*”), entitlement (e.g., “*I expect a great deal from other people*”) and self-ascribed authority (e.g., “*I insist upon getting the respect that is due me*”).

The NPI-16 was selected to examine ($\alpha = .704$, $M = 3.87$, $SD = 2.63$) the grandiose sense-of-self facet because it is considered a brief measure of grandiose narcissism (Gentile et al., 2013). Grandiose narcissism is marked by a grandiose sense of self, feelings of entitlement, grandiose self-esteem, and a dominant and antagonistic interpersonal style (Ackerman et al., 2011; Gentile et al., 2013). As the grandiose facet of the sense-of-self pillar was constructed to measure individuals’ view of themselves, the expectations and sense of entitlement that they hold in relationships and assessing how much they identify with statements deriving from a grandiose self-esteem. Because of these overlapping descriptions, we anticipated that the NPI-16 would correlate strongly with the grandiosity facet of sense of self. Because the NPI-16 is intended to measure grandiose narcissism and not vulnerable narcissism, we believed that it would not correlate strongly with the self-loathing facet.

Results

All pillars, facets, and external variables were analyzed in a multitrait-multimethod analysis using a simple scale-score correlation (See Table 12). Correlations with a magnitude greater than .7 are evidence of convergence, implying the two variables are evaluating the same

construct. Correlations ranging from .4 to .5 are indicative of closely related but separate variables, and correlations less than .4 are indicative of discriminant validity.

The cognitive pillar was evaluated with subscales from the CERQ (Garnesfski et al., 2002). At the pillar level, the SRPS cognitive domain correlated most strongly with the rumination subscale ($r = .37, p < .001$), then the self-blame subscale ($r = .27, p < .001$), followed closely by the catastrophize subscale ($r = .26, p < .001$), and finally the positive refocus subscale ($r = -.14, p < .05$). The negative IWM facet correlated the most with rumination ($r = .46, p < .001$), followed by the self-blame subscale ($r = .31, p < .001$), the catastrophize subscale ($r = .26, p < .001$), and had a very small correlation with the CERQ's positive refocusing variable ($r = .09, p > .05$). The positive IWM most strongly correlated with the positive refocusing ($r = -.34, p < .001$) and had insignificant correlations with catastrophizing ($r = 0.14, p > .05$), rumination ($r = .09, p > .05$), and self-blame ($r = .09, p > .05$).

The SRPS's interpersonal pillar was most strongly correlated with the IDI-6 scale score ($r = .33, p < .001$), followed closely by the IDI-6's functional dependence subscale ($r = .31, p < .001$), and finally the emotional dependence subscale ($r = .22, p < .001$). The two facets of the interpersonal pillar, hyper-dependence and counter-dependence, were also examined through correlational analysis with the IDI-6 and both subscales. The hyper-dependence facet, which was hypothesized to be the most closely related to the IDI-6 measures, correlated most strongly with the total IDI-6 scale score ($r = .37, p < .001$), followed by the functional dependence sub-score ($r = .32, p < .001$), and finally the emotional dependence sub-score ($r = .27, p < .001$). The counter-dependence facet had small correlational relationships with the functional dependence subscale ($r = .08, p > .05$), the IDI-6 total scale score ($r = .05, p > .05$), and finally the emotional dependence subscale ($r = .01, p > .05$).

The behavior pillar and facets were examined against the STAB questionnaire of antisocial behavior, as well as the STAB's subscales. The behavior pillar had very small correlations with the rule breaking subscale ($r = -.05, p > .05$), the physical aggression subscale ($r = -.05, p > .05$), the social aggression subscale ($r = .04, p > .05$), and finally the STAB total score ($r = -.02, p > .05$). The harmful behavior facet had the largest correlation with the social aggression subscale ($r = -.31, p < .001$), followed by the STAB total scale score ($r = -.27, p < .001$), the physical aggression subscale ($r = -.25, p < .001$), and finally the rule breaking subscale ($r = -.17, p < .05$). The final facet of the behavior pillar, pathological caretaking, was most strongly correlated with the social aggression subscale ($r = .26, p < .001$), followed by STAB total scale scores ($r = .18, p < .05$), and demonstrated weak correlations with physical aggression ($r = .12, p > .05$) and rule breaking ($r = .07, p > .05$).

For the affect pillar, the TAS-20 reflected a small correlation ($r = .26, p < .001$). The TAS-20 measure of alexithymia correlated strongly with our alexithymia facet ($r = .69, p < .001$), and had a negative correlation of moderate strength with the over-emote facet ($r = -.45, p < .001$). The sense-of-self pillar was compared to the NPI-16, a brief measure of grandiose narcissism (Ames et al., 2006). As expected, the NPI-16 correlated most strongly with the grandiosity facet ($r = -.62, p < .001$). The second strongest correlational relationship for the NPI-16 was the sense-of-self pillar ($r = -.45, p < .001$), and finally the self-loathing facet ($r = -.04, p > .05$). Finally, the physiological pillar and facets were correlated to the DES-O scale score. The DES-O was most strongly correlated with the disassociation facet ($r = .86, p < .001$), followed by the hypertension facet ($r = -.68, p < .001$). The DES-O weakly correlated with the physiological pillar at $r = .17 (p < .05)$.

Table 12*Nomological Network Variable Correlations*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 Cognitive Pillar	--													
2 Positive IWM	.74**	--												
3 Negative IWM	.82**	.22**	--											
4 (CERQ) Positive Refocus	-.14*	-.34*	.09	--										
5 (CERQ) Rumination	.37**	.09	.46**	.15*	--									
6 (CERQ) Self-Blame	.27**	.09	.31**	.13	.31**	--								
7 (CERQ) Catastrophize	.26**	.14	.26**	-.00	.48**	.14*	--							
8 Physiological Pillar	-.10	.04	-.18*	-.14*	-.27*	.02	-.16*	--						
9 Hypertension	-.49**	-.14*	-.59*	-.06	-.42*	-.17*	-.36**	.44**	--					
10 Disassociation	.45**	.18**	.49**	-.04	.24**	.20**	.27**	.29**	-.74*	--				
11 DES-O	.45**	.15*	.53**	-.04	.27**	.18*	.31**	.17*	-.68*	.86**	--			
12 Interpersonal Pillar	.20**	.32**	.01	-.17*	.07	.05	.22**	-.12	-.24*	.17*	.11	--		
13 Hyper-Dependence	.59**	.25**	.64**	-.03	.40**	.16*	.41**	-.20*	-.71*	.60**	.60**	.51**	--	
14 Counter-Dependence	-.28**	.15*	-.54*	-.16*	-.26*	-.08	-.11	.04	.34**	-.33*	-.39**	.68**	-.28*	--
15 IDI-6 Total	.34**	.29**	.24**	.12	.16*	.16*	.25**	-.05	-.18*	.15*	.11	.33**	.37**	.05
16 IDI-6 Emotional	.22**	.17*	.17*	.09	.15*	.09	.27**	-.05	-.16*	.13	.09	.22**	.27**	.01
17 IDI-6 Functional	.34**	.32**	.21**	.10	.09	.18*	.12	-.02	-.12	.11	.09	.31**	.32**	.08
18 Behavioral Pillar	.07	-.11	.19**	.22**	.16*	.03	.06	-.14*	-.03	-.08	.01	-.24*	.08	-.34**
19 Pathological Caretaking	.29**	-.09	.49**	.19**	.30**	.13	.23**	-.11	-.39*	.33**	.36**	-.18*	.44**	-.57**
20 Harmful Behavior	-.32**	-.04	-.43*	.06	-.18*	-.14	-.23**	-.06	.53**	-.61*	-.51**	-.12	-.52*	.31**
21 STAB Physical Aggression	.21**	.01	.30**	.06	.23**	.12	.05	.01	-.22*	.24**	.29**	-.13	.14*	-.27**
22 STAB Rule Breaking	.13	-.03	.22**	.16*	.21**	.08	-.02	.02	-.03	.05	.09	-.21*	-.02	-.22**
23 STAB Social Aggression	.29**	.01	.36**	.17*	.14*	.21**	.09	.10	-.288*	.38**	.45**	-.08	.27**	-.32**
24 STAB Total	.22**	-.02	.33**	.16*	.25**	.14	.05	.07	-.18*	.24**	.31**	-.20*	.13	-.33**
25 Sense of Self Pillar	.61**	.49**	.48**	-.07	.22**	.26**	.16*	-.01	-.25**	.26**	.31**	.19**	.38**	-0.11
26 Self-Loathing	.71**	.39**	.69**	-.07	.30**	.29**	.31**	.03	-.51*	.57**	.56**	.22**	.69**	-.34**
27 Grandiosity	.01	.23**	-.18*	-.01	-.06	.03	-.15*	-.06	.27**	-.34*	-.26**	-.00	-.31*	.26**
28 NPI-16	-.12	-.20**	.00	-.08	-.01	-.17*	.01	.06	-.01	.05	.12	-.09	.03	-.12
29 Affect Pillar	-.18*	-.02	-.24*	-.08	-.18*	-.06	-.16*	.33**	.06	.18*	.16*	.00	-.16*	.14
30 Over-Emote	-.58**	-.16*	-.70*	-.02	-.39**	-.23**	-.39**	.16*	.67**	-.58*	-.56**	-.14*	-.68*	.42**
31 Alexithymia	.43**	.15*	.50**	-.04	.23**	.19**	.26**	.13	-.63*	.77**	.72**	.15*	.55**	-.31**
32 TAS-20	.3**	.04	.39**	.14	.34**	.25**	.28**	.06	-.50*	.58**	.59**	.01	.36**	-.29**

*= $p < .05$, **= $p < .001$, CERQ = Cognitive Emotion Regulation Questionnaire, DEM-O = Dissociative Experience Measure – Oxford, IDI-6 = Interpersonal Dependency

Inventory – 6, STAB = Subtypes of Antisocial Behavior Questionnaire, NPI-16 = Narcissistic Personality Inventory – 16, TAS-20 = Toronto Alexithymia Scale-20

Table 12, continued*Nomological Network Variable Correlations*

		15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
15	IDI-6 Total	--																
16	IDI-6 Emotional	.84**	--															
17	IDI-6 Functional	.75**	.27**	--														
18	Behavioral Pillar	.00	.00	.00	--													
19	Pathological Caretaking	.08	.12	-.002	.78**	--												
20	Harmful Behavior	-.12	-.18*	.02	.40**	-.26**	--											
21	STAB Physical Aggression	.02	.08	-.06	-.05	.12	-.25**	--										
22	STAB Rule Breaking	-.01	-.02	-.01	-.05	.07	-.17*	.58**	--									
23	STAB Social Aggression	.15*	.08	.16*	.04	.26**	-.31**	.56**	.42**	--								
24	STAB Total	.04	.04	.01	-.02	.18*	-.27**	.86**	.87**	.73**	--							
25	Sense of Self Pillar	.23**	.06	.34**	.03	.11	-.12	.09	.00	.19**	.08	--						
26	Self-Loathing	.28**	.2**	.27**	-.03	.36**	-.56**	.21**	.07	.32**	.21**	.76**	--					
27	Grandiosity	-.02	-.16*	.17*	.08	-.29**	.55**	-.14	-.08	-.13	-.16*	.54**	-.15*	--				
28	NPI-16	-.16*	.05	-.34**	-.05	.12	-.25**	.22**	.14	.14	.21**	-.45**	-.04	-.62**	--			
29	Affect Pillar	-.09	-.14	.01	.04	-.06	.14*	-.11	-.12	.00	-.09	-.02	-.13	.15*	-.09	--		
30	Over-Emote	-.21**	-.22**	-.11	.07	-.38**	.66**	-.28**	-.12	-.3**	-.27**	-.25**	-.60**	.4**	-.10	.46**	--	
31	Alexithymia	.14	.10	.12	-.04	.34**	-.55**	.19**	.02	.29**	.19*	.24**	.49**	-.28**	.02	.42**	-.61**	--
32	TAS-20	.17*	.13	.14	.02	.25**	-.34**	.25**	.14	.35**	.28**	.18*	.31**	-.13	.04	.26**	-.45**	.69**

*= $p < .05$, **= $p < .001$, CERQ = Cognitive Emotion Regulation Questionnaire, DEM-O = Dissociative Experience Measure – Oxford, IDI-6 = Interpersonal Dependency

Inventory – 6, STAB = Subtypes of Antisocial Behavior Questionnaire, NPI-16 = Narcissistic Personality Inventory – 16, TAS-20 = Toronto Alexithymia Scale-2

Discussion

Because the H-ESEM was saturated and the Bifactor model did not converge, there was no need to validate the ESEM a third time in study 3. The purpose of study 3 became solely to establish the SRPS variables in a nomological network through external validation. For each pillar, external scale was selected with the expectation of a strong positive correlation with one facet, and discriminant validity with the other, opposing facet. Because there are not existing quantitative measures for several of the SRPS's subscales, we did not expect direct convergence with all positive facet correlations.

The process of external validation broadly supported the hypothesized nomological network of variables. The cognitive pillar was found to have small but significant correlations with the selected CERQ subscales and reflected the same sequential progression of power with these scales with both the pillar and negative IWM, a sequence that was inverted when compared to the positive IWM facet. The only correlation in the cognitive domain that reached a level of moderate strength was the relationship between rumination and the negative IWM, suggesting that more indicators of the negative IWM facet were evaluating patterns of rumination among the cognitive strategies included. The positive IWM produced a significant but weak correlation with positive refocusing. Like the negative IWM facet, it is possible there are multiple strategies of positive cognitive regulation that are encompassed in the positive IWM facet.

Likewise, the interpersonal pillar was evaluated against a total scale score and multiple subscale scores. Although we did not hypothesize about the relationship of the subscales to the facets, we did anticipate that the IDI-6 would demonstrate positive correlations to the hyper-dependence facet and discriminant validity of the counter-dependence facet. Both the interpersonal pillar and the hyper-dependence facet were more strongly associated with the IDI-6

total scale score, though no correlations reached a degree of convergence. The functional dependence subscale showed higher correlation with all three measures of dependence in our scale, suggesting the developed scale may evaluate for more functional than emotional dependence, though the differences were marginal.

Behavioral variables were correlated with the STAB questionnaire. The measure of antisocial behavior was hypothesized to be more strongly related to the harmful facet than pathological caretaking. This hypothesis was upheld, although the caretaking facet showed an interesting, albeit weak, relationship to the social aggression subscale. As indicated by other results from model factor loadings in study 2, it is possible that those who scored highly in the pathological caretaking facet may be vulnerable to feeling angry or resentful of others they are in relationship with.

Sense-of-self measures correlated with the NPI-16 as hypothesized. Grandiosity demonstrated a strong relationship to the NPI-16 supporting the nomological network of our facet measures with existing measures of a pathologically grandiose personality. Likewise, self-loathing had a negative and very weak correlation to the NPI-16, supporting that the two constructs are very different. The physiological pillar itself demonstrated a significant, but weak correlation with the DES-O, but both facets were strongly related to the external variable. The DES-O reached a degree of convergence with the disassociation facet, confirming our hypothesis. We also anticipated the scale to correlate more strongly with the hypertension facet than is typical for secondary facets. This hypothesis was supported with a correlation of $-.68$, nearing convergence. Although this challenges the SRM-ATA's proposition that disassociation and hypertension are opposite extremes, the finding supports De Trani et al's finding (2018) that poor somatic sense is associated with hypertension.

The final pillar, affect, was validated against the TAS-20 measure of alexithymia. The hypothesis that the TAS-20 scores would correlate strongly with the alexithymia facet was supported and neared convergence ($r = .69, p < .001$). However, the strength of the correlation between the TAS-20 and the over-emote facet was surprising, as it suggests that the two constructs are closely related ($r = -.45, p < .001$).

Overall, the six pillars had weak correlations with external variables except for sense of self, which correlated with the NPI at a moderate strength. This was expected because the pillars measure the spectrum of regulation, not one specific category. The expected pattern of correlational magnitude between the external variables and each facet was demonstrated, except for the physiological facets and the affect facets. For all pillars, the expectation was for one facet to correlate strongly while the other correlated weakly. Instead, both physiological facets (hypertension and disassociation) had strong correlational relationships with the external variable, and over emote demonstrated a moderate correlation while alexithymia correlated at a strong magnitude with the external variable. This may suggest that the physiological and affect facets are more closely related than those of other pillars. Likewise, unexpected relationships, such as the behavioral pathological caretaking facet having a positive significant association to the social aggression subscale, suggest that facets to some pillars are bimodal, not unimodal. This indicates some factors may not be on one continuum, challenging the dialectical nature proposed by the SRM-ATA.

Chapter 7 - General Discussion

Using Exploratory Structural Equation Modeling (ESEM), these studies supported the factor structure of self-regulation proposed by the Self-Regulation Model of Attachment Trauma and Addiction (Padykula & Conklin, 2010). This finding promotes the conceptualization of self-regulation as a systemic process with interconnected subsystems, that provide feedback to one another, and adjust accordingly, to promote the shared goal of a global balance of regulation. This finding also establishes a need for a quantitative measure of the global system of self-regulation. External validation of the variables in a 12-facet model demonstrated independent but related associations for the intended facet and very low correlational relationships with external variables for most discriminant facets, except in the case of affect and physiology. A final measure was curated from study items that met loading thresholds (Sass & Schmitt, 2010; See Appendix C).

The results from study 1 demonstrated a strong pattern of factor loadings that support the SRM-ATA's theory of 12 regulatory facets. With revised items and a new sample in study 2, ESEM again supported the factor structure. The hierarchical ESEM within CFA was saturated due to constraints, so it produced factor loadings but no model fit indices. Study 2's bi-factor model was unable to converge due to sample size limitations; because of this, more confidence should be placed on factor loadings provided in study 2's ESEM. However, the H-ESEM provides useful information, in the form of loading patterns, that supports the use of a six pillar, 12 factor model of self-regulation.

Because the H-ESEM was saturated and the Bifactor model did not converge, there was no need to validate the ESEM a third time in study 3. The purpose of study 3 was limited to establishing the SRPS variables in a nomological network of related constructs through external

validation. This process supported each facets' relationship to established external variables but demonstrated that not all pillar facets related to one another in a unimodal structure to support a dialectical relationship.

In addition to these study results, a few themes emerged worth noting. First is the emergence of two loose clusters of facets that appear to demonstrate high interconnection in cross-loadings and correlations. The first cluster is predominantly comprised of interpersonal counter-dependence, harmful behavior and, intermittently, grandiosity, negative IWM or over-emote; cluster two is comprised of remaining facets. Items for these pillars performed similarly to each other in cross-loadings on other facets and inversely to the other cluster across all models. Although this pattern was not anticipated, it could be viewed as a category of under-regulation, leading to coping strategies that are associated with isolation or antisocial behaviors. These facets may share a linking mechanism such as world view or higher associations with certain psychopathologies. Future research may use structural equation modeling to examine latent profiles among the facets to further understand the linking mechanisms among these groups.

Another unexpected pattern to emerge from the study 2 models was strong connections the disassociation facet had with hypertension, both affect facets (over-emote and alexithymia), and harmful behavior. Although the high cross loadings only say for certain that those items were highly associated with what was being measured by the other facets, a theoretical link between disassociation and hypertension, over-emotion expression, and alexithymia is feasible and worth reflecting on for clinical implications. A study published by Julia et al., (1999) found that alexithymia is "highly significantly" ($p < .0001$) associated with high blood pressure, concluding that trouble with emotion expression is an essential facet of hypertension

“independent of sodium and alcohol intake, body mass index, and physical fitness.” This finding, as well as Di Trani and colleagues’ (2018) finding linking somatic sense negatively to alexithymia, demonstrate the connection between mind and body, emotional expression and somatic sense.

Though this was a challenge to separate quantitatively in the development of this scale, the high degree of over-lap supports the SRM-ATA’s proposition that these systems are highly interconnected. In the development of this scale, items from these two pillars (physiological and affect) performed better in study 1, than the revised items in study 2 performed. Though these items from study 1 performed well, the revisions were made to remove the affect component of disassociation and ensure theoretical discrimination between constructs. The effort seems to have backfired however, and instead created more unintended cross-loadings within the two physiological facets (hypertension and disassociation), and between the physiological facets and affect facets (over-emote and alexithymia). This indicates that defining disassociation independently of emotion decreases the construct validity and more poorly measures the variable. Though the initial results support the SRM-ATA’s conceptualization of interconnected systems, the data were constrained to the limits of quantitative analysis.

Another pattern I noted, though less prominent, was the interplay between interpersonal and intrapersonal indicators. As this is a core tenant of attachment theory, it is not a shocking relationship; however, looking closely at the specific items that demonstrated this connection, and the direction of that relationship, provided interesting insight. Several items designed to measure high degree of dependence on others demonstrated a high, positive association with self-loathing, supporting that view of oneself shapes their relationship with others. Those who have a negative self-image may be more inclined to emphasize the value in others, increasing

their need for association with, and support from, others. This could be viewed through an attachment lens as a more anxious attachment, wherein the infant is still preoccupied with earning the security provided by others and internalizing blame for misalignments and rejection (Ainsworth & Stevenson-Hinde, 1982). As an adult, this person may feel chronic anxiety about their worthiness of their partner's devotion or the security of the relationship.

Similarly, grandiosity and harmful behavior items reciprocated cross-loadings that indicate a relationship among these interpersonal and intrapersonal constructs. In this instance, those who have a more inflated sense of self are more highly associated with behaviors that cause harm to others. This may be explained by a devaluation of others compared to self that decreases empathy or awareness of harm. Imbalance in one subsystem is associated with imbalance in another subsystem to offset the instability. The relationship suggested between these variables further supports the proposition of subsystems of regulation that inform one another and adjust accordingly, to promote a global balance.

In addition to attachment theory, this aligns with a theoretical framework of personality that builds off the construct validation of narcissistic personality disorder, rejection sensitivity and interpersonal dependency, to conceptualize perceived personality traits as mechanisms of regulation for interacting intra- and interpersonal experiences (Morf, 2006). This theory and the SRM-ATA argue that the static "traits" we attribute to personality – thereby classifying behaviors and perspectives as predetermined – are actually external demonstrations of the connected subsystems working to maintain the global equilibrium of regulation. Though this may be influenced by disposition and the imprint of previous experiences, creating a substantial shift in one domain could lead to a systemic calibration that alters the homeostasis of every other part of the system of self-regulation. Acknowledging the impermanence of regulatory strategies

empowers individuals to reassess what they perceived to be “trait-like” and instead approach it as a strategy of habit. In populations working with disorders of regulation, this could be the difference between life and death.

Theoretical Implications

The analysis supported SRM-ATA’s proposition of a six pillar, 12-dimension model of self-regulation. Based on item performance and content analysis, an attachment-based approach to regulation was also supported. Though not explicit as far as we can tell, attachment theory and modern attachment theory both appear to support the concept of systemic regulation through their propositions of how interpersonal experiences shape the intrapersonal world, and vice versa. The SRM-ATA was developed from these theories to propose systemic regulation but does not explicitly acknowledge the link of interpersonal and intrapersonal experiences as formative of the self-regulation system. Nonetheless, we do not think we are adding new tenants to the SRM-ATA theory, but instead making the implicit explicit through these results, and confirming the attachment-oriented conceptualization of the self-regulatory system.

A dialectical relationship, or synthesis of two seemingly opposing constructs, among regulatory subsystems was only partially supported by the degree of difference-but-relatedness found between variables in the facet correlations and item loadings. The SRM-ATA proposes that the two facets (over- and under-regulation extremes) for each regulatory domain exist on a dialectical continuum, implying that though they are opposing responses, they exist on a unimodal continuum. In that structure, people with extreme regulatory styles are more likely to exhibit symptoms from both extremes than individuals who maintain a healthy balanced regulatory style. The statistical relationship (factor loadings and facet correlations) between pillar facets supported this proposition for some pillars but not others. The dimensions of some pillars,

such as interpersonal, physiological and behavioral, were suggested by the data to be two variables on different continuums, or having a bimodal relationship. Although viewing these response states as dialectical in clinical settings may be functional, this element of the theory was not fully supported with the proposed dimensions.

Some uncertainty remains regarding the specific proposed facets, as dialectical relationships among hypertension and disassociation were challenging to quantitatively capture in separate constructs. Although study 1 indicated the regulatory extremes suggested by the theory were a good fit, we had trouble replicating that for the alexithymia and disassociation facets in study 2. This could be due to item development error during the revision process, or because alexithymia involves a lack of somatic sense, and disassociation involves emotional numbness. It may be that these constructs involve more theoretical overlap than we are able to justify in quantitative analysis but are clinically appropriate. Our attempt to isolate the constructs by removing theoretical overlap between disassociation and alexithymia during item revision improved construct definitions but diminished the construct validity. Future research could improve on this issue by adjusting the operational definitions of either the alexithymia or disassociation constructs, or by removing the expectation of dialectical relationships.

Research Implications

Future research should aim to address the issues with the physiological pillar. This may be done by improving item development or adjusting facet constructs. We feel the most appropriate next step would be to replicate scale validation with study 1 disassociation indicators that performed well but were revised replacing study 2 indicators that did not perform well (Thurstone, 1947). Though we did not get a chance to replicate it, we feel study 1's results indicate that the SRM-ATA's constructs are acceptable if adhered to and not limited to a

dialectical structure. If facet constructs were changed, we suggest replacing disassociation with another physiological state that represents physical over-regulation and a dialectical opposite to hypertension, such as rest or relaxation. Additionally, further scrutiny toward a dialectical assumption of facets is needed to determine reliability of this proposition.

The validation of this scale can also be supported by further linking scale scores to a broader nomological network of related existing constructs. Replicating the scale score correlations described in study 3 with attachment-based measures, like the Experiences in Close Relationships Scale (ECR; Fraley et al., 2011), would demonstrate how the subsystems of regulation in the SRPS relate to established variables like attachment style. For example, over-regulatory states could be associated with avoidant attachment styles (Schmidt et al., 2002). Since there were some surprising relationships between the physiological and affect domain subsystems, correlating these subscale scores with other measures that have been validated to measure alexithymia, hypertension or disassociation could provide clarity on the SRPS's constructs.

Finally, a latent profile analysis (LPA) of item indicators may shed light on the emerging clusters of theoretical facets observed in the models. An LPA would provide information if there are profiles of regulatory types that people most frequently fall into, such as high activation that is associated with hypertension, hyper interpersonal dependence, over-emoting and harmful behavior, or hypoactivation that includes more disassociation, counter-dependence, alexithymia and low behavior scores. Creating variables for the profiles in an LPA and correlating those scale scores with a measure designed to identify attachment styles (e.g., Experiences in Close Relationships; Fraley et al., 2011) would provide insight into how the clusters of regulatory profiles are associated with attachment experiences. This would not only further validate the

scale, but also provide important clinical information for how lifetime experiences impact the capacity one has to regulate themselves and their behavior.

Scale validation should be evaluated in various populations before generalizability can be determined. We suggest replicating validation in urban, rural and international populations, and with specific ethnicities and gender identity communities. Cultural considerations should be applied and assessed, as this may greatly impact regulation standards. Finally, it would also be important to validate the scale with clinical populations, such as those receiving treatment for substance abuse, gambling and sexual addictions, violence perpetration and victimization, disordered eating, anxiety, depression and autism spectrum disorder.

Clinical Implications

Support of a six-pillar system of self-regulation provides clinicians with insight and treatment direction for clients suffering from a variety of presenting problems. Use of this scale at the start of treatment can provide clinicians with a baseline understanding of the client's regulatory capacity and provides the opportunity for dialogue about clients' experiences with the different areas of self-regulation. This dialogue is an intervention with the goal of providing psychoeducation and insight and increasing clients' awareness and motivation for change. Subscale scores for each client provide clinicians with areas of focus that should be prioritized, informing treatment plans and goals. By tailoring the approach to the client's areas of greatest dysregulation, resources of time and money are saved.

Ongoing use of the scale provides documentation of progress made in each area and fosters ongoing dialogue about how the dominating strategies function to protect the client. Clinicians should maintain an empathetic regard, centering the protective function of each behavior and validating the attachment need that serves to motivate the regulatory urge. With

compassion, clinicians can then guide their client to process how the extreme strategy is also causing damage to themselves and others and encourage self-compassion during the grieving process of acknowledging that harm. Clients who are high in one or more areas may experience shame when confronting the impact of the strategies they've used to regulate and should be therapeutically supported through this process to understand the core injuries and needs that led to the use. Clinicians working with these presenting issues should be qualified to work with issues of grief, shame and anger while maintaining positive regard.

Once clients have processed to a point of self-compassion, motivational interviewing or other strategies can be utilized to encourage accountability for change. At this point, clinicians should support clients in identifying alternative coping strategies and tracking opportunities for implementing new strategies. We recommend the ABC's of regulation (antecedent, behavior, consequence) described in dialectical behavioral therapy (Van Dijk, 2013) to aid in this process. Due to the dialectical nature of some regulatory domains, we suggest working with clients to prevent both regulatory extremes, as one extreme may be substituted for the other when working toward reducing specific responses.

Though this scale can be used at treatment start, we feel clients should receive an initial level of stabilization treatment prior to moving into processing deep wounds and needs (Kertesz et al., 2003). Clients who are actively abusing a substance or regulation strategy of choice may experience severe emotional intensity that could precipitate further abuse or relapse if not provided appropriate treatment first. Detoxification and preliminary stabilization will likely improve client outcomes.

Limitations

It is important to note that this study was constrained by a few limitations. Although this was a nationally representative sample, we found that our demographics were dominated by white, cis-gendered, heterosexual individuals, and the sample seemed to skew more toward married relationship status and a higher average age than we anticipated. These demographics may limit the generalizability of the results in some populations. Additionally, item development was limited due to our effort toward fidelity of the attachment-based constructs proposed by the SRM-ATA. Small issues that arose between IWMs and interpersonal facets may be improved by expanding beyond the original theory to include more cognitive strategy-based indicators than working model-based belief indicators.

Finally, the study was limited by sample size and resources due to the purpose it held in the pursuit of an academic degree. In study 2, items from the physiological pillar and over-emote facet did not perform as well as the items used in study 1. Future research may benefit by combining well performing items from both studies and analyzing them as one scale, in a larger sample that permits all three models to converge.

Chapter 8 - Conclusion

Through our analysis, we found evidence to support the self-regulation model of attachment trauma and addiction. This finding indicates that self-regulation is comprised of six areas (physiological, cognitive, interpersonal, behavioral, sense of self and affect) that each influence on another and consist of a spectrum of regulatory responses ranging from extreme under-regulation to extreme over-regulation. A practical measure of regulatory capacity across the six domains was developed for use in clinical settings with populations coping with over and under-regulation disorders. The scale related as expected to previously established measures, solidifying the SRPS's place among related constructs of the six domains.-Though further validation is recommended, we feel this theory and scale serve valuable purposes in the clinical treatment of individuals struggling with regulation.

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Appendix A - Study 1 Indicators

Pillar	Dimension	Item Name	Item Content
Cognitive	Positive Model	RpCOG1	I can still be liked by others even if I don't succeed
		RpCOG4	I still feel good about myself, even if I fail or make a mistake
		RpCOG7	I find it easy to find the positives in a situation
		RpCOG8	I remind myself of how I've been lucky.
		RpCOG11	I think the hardships I have been through make me a stronger person.
	Negative Model	RpCOG2	It's safest not getting close to other people.
		RpCOG3	It isn't safe to show you're angry or frustrated with others if you depend on them.
		RpCOG5	I have trouble getting over it when I make a mistake
		RpCOG6	I blame myself for what goes wrong in my life
		RpCOG9	I tend to dwell on the situation when bad things happen.
		RpCOG10	I have a hard time letting go of things I have done wrong.
		RpCOG12	When something goes wrong, it confirms my fears.
		RpCOG13	My thoughts stay stuck on a bad situation long after I wanted to forget it
		Physical	Hypertension
RpPHY2	When I get upset, the tension lingers in my body long after the fact		
RpPHY3	I remain physically relaxed while experiencing stressful situations.		
RpPHY6	I find myself getting so wound up that I become jittery.		
RpPHY9	I feel that I am stressed more than most people know.		
RpPHY10	My heart races a lot, even when I am not doing physical activity.		
RpPHY11	When I get stressed, I often feel short of breath.		
Disassociation	RpPHY12		My muscles ache from stress.
	RpPHY4		I am often emotionally disconnected.
	RpPHY5		I often feel emotionally numb.
	RpPHY7		I feel as though there are gaps in my memory
	RpPHY8		I find myself zoning or spacing out
	RpPHY13		When things become chaotic, I spend more time daydreaming or fantasizing.
	RpPHY14		A lot of times, I feel as though I am just going through the motions.
Interpersonal	Hyper Dependence	RpINT1	I need others to help me get by.
		RpINT2	I cannot do things on my own.
		RpINT5	My fear of losing people takes up a significant amount of my time.
		RpINT6	I am constantly worried that people in my life will leave me.
		RpINT9	I prefer other people's help, even if I could probably do it myself.

		RpINT11	I base my opinions on what others think.
		RpINT12	I need more than what others can give me.
		RpINT13	I have a hard time making decisions by myself.
	Counter Dependence	RpINT3	I avoid putting myself in situations where I might need help from others.
		RpINT4	I feel confident that I can face whatever comes my way by myself.
		RpINT7	I have a hard time trusting others to be there for me, even if I need them.
		RpINT8	I think most people will be selfish if given the chance.
		RpINT10	I feel embarrassed if I have to ask someone for help.
		RpINT14	What others think of me doesn't matter to me.
Behavior	Pathological Caretaking	RpBEH1	When in a stressful situation, I find myself taking care of myself or others.
		RpBEH4	When times are hard, I will take care of others at my own expense.
		RpBEH6	When in a stressful situation, I often feel responsible for the emotions/ feelings of those around me.
		RpBEH11	I can avoid feeling bad by helping others fix their problems.
		RpBEH12	I repress my feelings to make others' lives easier.
		RpBEH13	I feel others take advantage of my good intentions
	Harmful	RpBEH14	In my relationships, I treat people better than they treat me.
		RpBEH2	When in a stressful situation, I find myself leaning toward forcing the outcome I want.
		RpBEH3	When in a stressful situation, I find myself causing harm to myself or others.
		RpBEH5	When times are hard, I will take care of myself no matter the cost to others.
		RpBEH7	Others describe me as aggressive.
		RpBEH8	I find showing anger helps things go in my favor.
		RpBEH9	When trying to find relief from distress, sometimes I cause harm to myself.
		RpBEH10	When trying to find relief from distress, sometimes I cause harm to others.
Self	Self-Grandiosity	RpSEL8	I deserve authority because I'm a natural leader.
		RpSEL9	I easily get others to do what I want them to do.
		RpSEL10	I'm great at whatever I set my mind to.
		RpSEL11	I am better than most people.
		RpSEL12	Being the center of attention feels natural.
		RpSEL13	I show off my abilities when given the chance.
		RpSEL14	I should be treated special, because I am.
		RpSEL15	I expect people to do a lot for me.
	Self-Loathing	RpSEL1	I don't deserve when good things happen to me.
		RpSEL2	I dislike myself
		RpSEL3	I feel I am unworthy of others' respect.
		RpSEL4	I feel like I am unworthy of others' love.
		RpSEL5	When I think about myself I feel bad.

		RpSEL6	If others knew who I really am inside they wouldn't like me.
		RpSEL7	I wish I could be more like other people.
Affect	Over-Emoting	RpAFF1	I feel out of control of my emotions.
		RpAFF2	My feelings overwhelm me.
		RpAFF3	Others have had negative reactions to the way I express my emotions.
		RpAFF4	I have a tendency to be dramatic in the way I present my emotions.
		RpAFF5	Because of how I feel, I do things that I regret.
		RpAFF6	Others often do not understand why I feel as strongly as I do.
	Alexithymia	RpAFF9	I indulge my emotions when they come along.
		RpAFF7	I have a hard time knowing what emotion I feel when I'm upset.
		RpAFF8	I don't know my own emotions.
		RpAFF10	I have a hard time telling people around me how I feel.
		RpAFF11	When I feel sad/mad/stressed, I don't know why.
		RpAFF12	It is hard for me to describe what I feel.

Appendix B - Study 2 Indicators

Domain	Item Name	Item Content
Positive Model		
	RpCOG8	I remind myself of how I've been lucky.
	RpCOG7	I find it easy to find the positives in a situation
	RpCOG11	I think the hardships I have been through make me a stronger person.
	RpCOG1	I can still be liked by others even if I don't succeed
	RpCOG14	Mistakes and failures never impact how I view myself
	RpCOG15	I never have to worry about what others think of me
Negative Model		
	RpCOG9	I tend to dwell on the situation when bad things happen.
	RpCOG10	I have a hard time letting go of things I have done wrong.
	RpCOG12	When something goes wrong, it confirms my fears.
	RpCOG6	I blame myself for what goes wrong in my life
	RpCOG16	I worry that a small mistake will ruin everything
	RpCOG17	I find my thoughts circling back to the same worries
Physical		
Hypertension		
	RpPHY10	My heart races a lot, even when I am not doing physical activity.
	RpPHY22	I often feel short of breath.
	RpPHY12	My muscles ache from stress.
	RpPHY6	I find myself getting so wound up that I become jittery.
	RpPHY15	I need something to help me relax before I can unwind
	RpPHY16	I startle easily
Disassociation		
	RpPHY17	I feel numb

RpPHY18	I do not experience adrenaline when I thought I would
RpPHY8	I find myself zoning or spacing out
RpPHY19	I feel disconnected from my body
RpPHY20	A lot of times, I feel as though I am just going through the motions in a dream-like or foggy state
RpPHY21	There are times when I feel like an outside observer to my own life

Interpersonal

Hyper-Dependent

RpINT1	I need others to help me get by
RpINT2	I cannot do things on my own
RpINT5	My fear of losing people takes up a significant amount of my time
RpINT13	I have a hard time making decisions by myself
RpINT11	I base my opinions on what others think
RpINT15	I worry about driving others away

Counter-Dependent

RpINT7	I have a hard time trusting others to be there for me, even if I need them
RpINT8	I think most people will be selfish if given the chance
RpINT3	I avoid putting myself in situations where I might need help from others
RpINT16	I find a way to do things without needing help from others
RpINT17	I learned not to expect much from other people
RpINT18	I am better off on my own

Behavior

Pathological Caretaking

RpBEH6	I often feel responsible for the emotions/ feelings of those around me
RpBEH12	I repress my feelings to make others' lives easier
RpBEH15	I give more than I take in relationships
RpBEH14	In my relationships, I treat people better than they treat me

RpBEH11	I can avoid feeling bad by helping others fix their problems
RpBEH16	I fix other peoples problems instead of my own
RpBEH4	I will take care of others at my own expense

Harmful

RpBEH10	Sometimes I cause harm to others
RpBEH17	I hurt others when I am hurting
RpBEH8	I find showing anger helps things go in my favor
RpBEH7	Others describe me as aggressive
RpBEH18	The things that make me feel better are also not good for me When trying to find relief from distress, sometimes I cause harm
RpBEH9	to myself

Sense of Self

Grandiosity

RpSEL14	I think I should be treated special, because I am
RpSEL11	I think I am better than most people
RpSEL12	Being the center of attention feels natural
RpSEL13	I show off my abilities when given the chance
RpSEL8	I deserve authority because I'm a natural leader
RpSEL15	I expect people to do a lot for me

Loathing

RpSEL18	I feel I am undeserving of others' respect
RpSEL4	I feel like I am unworthy of others' love
RpSEL6	If others knew who I really am inside they wouldn't like me
RpSEL1	I don't deserve when good things happen to me
RpSEL5	When I think about myself I feel bad
RpSEL7	I wish I could be more like other people

Affect

Over-Emote

RpAFF3	Others react negatively to the way I express my emotions
RpAFF4	I have a tendency to be dramatic when presenting my emotion
RpAFF2	My feelings overwhelm me

Alexithymia

RpAFF1	I feel out of control of my emotions
RpAFF5	I sometimes do things that I regret because of how I feel
RpAFF16	My feelings determine a lot in my life
RpAFF12	It is hard for me to describe what I feel
RpAFF7	I have a hard time knowing what emotion I feel when I'm upset
RpAFF8	I don't know my own emotions
RpAFF11	I don't know why I feel upset
RpAFF10	I have a hard time telling people around me how I feel
RpAFF18	My emotions don't seem to be related to any particular events

Appendix C - Suggested Final Scale

Self-Regulatory Profile Scale

(1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = always)

1. I can still be liked by others even if I don't succeed
2. Mistakes and failures never impact how I view myself
3. I think the hardships I have been through make me a stronger person.
4. I remind myself of how I've been lucky.
5. I tend to dwell on the situation when bad things happen.
6. I have a hard time letting go of things I have done wrong.
7. When something goes wrong, it confirms my fears.
8. I find my thoughts circling back to the same worries
9. My heart races a lot, even when I am not doing physical activity.
10. I often feel short of breath.
11. I startle easily
12. I find myself getting so wound up that I become jittery
13. I feel numb
14. I feel disconnected from my body
15. There are times when I feel like an outside observer to my own life
16. A lot of times, I feel as though I am just going through the motions in a dream-like or foggy state
17. I need others to help me get by
18. I base my opinions on what others think
19. I cannot do things on my own
20. I have a hard time making decisions by myself
21. I avoid putting myself in situations where I might need help from others
22. I think most people will be selfish if given the chance
23. I learned not to expect much from other people
24. I find a way to do things without needing help from others
25. I repress my feelings to make others' lives easier
26. In my relationships, I treat people better than they treat me
27. I can avoid feeling bad by helping others fix their problems
28. I fix other people's problems instead of my own
29. Sometimes I cause harm to others
30. I find showing anger helps things go in my favor
31. The things that make me feel better are also not good for me
32. When trying to find relief from distress, sometimes I cause harm to myself
33. I think I am better than most people

34. Being the center of attention feels natural
35. I show off my abilities when given the chance
36. I deserve authority because I'm a natural leader
37. I feel I am undeserving of others' respect
38. If others knew who I really am inside they wouldn't like me
39. I don't deserve when good things happen to me
40. I feel like I am unworthy of others' love
41. Others react negatively to the way I express my emotions
42. I feel out of control of my emotions
43. I sometimes do things that I regret because of how I feel
44. My feelings determine a lot in my life
45. I have a hard time knowing what emotion I feel when I'm upset
46. I don't know my own emotions
47. My emotions don't seem to be related to any particular events
48. It is hard for me to describe what I feel