

# A Psycholinguistic Study on Reassurance-Seeking Behaviour: The Role of Trauma Beliefs, Brooding Inner Speech, and Perceived Agency

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## Abstract

**Objective:** Although psychological literature consistently links post-traumatic distress to difficulties in interpersonal functioning, the specific cognitive-linguistic mechanisms that translate internal trauma-related schemas into external interpersonal behaviors require further empirical clarification. This study proposed and evaluated an integrated psycholinguistic model to examine the relationship between trauma-related beliefs and reassurance-seeking behavior. Specifically, the study investigated whether brooding inner speech acts as a mediator in this pathway, and whether an individual's perceived sense of agency functions as a critical conditional moderator on the outcome behavior.

**Materials and Methods:** Using a cross-sectional design, data were collected from a sample of 249 young adults ( $N = 249$ ), who completed an anonymous survey taken through google forms, containing validated psychometric measures: the Trauma-Related Cognitions Scale (TRCS), the Evaluative/Critical subscale of the Varieties of Inner Speech Questionnaire–Revised (VISQ-R), the Sense of Agency Scale (SoAS), and the Reassurance Seeking subscale of the Depression-Interpersonal Relationships Inventory (DIRI-RS). A moderated mediation path analysis was conducted using Jamovi, Conditional process path analysis with 5,000 bias-corrected bootstrap resamples was implemented within a structural modeling framework to test the hypothesized mediation and moderation pathways simultaneously.

**Results:** Results revealed that trauma-related beliefs emerged as a highly significant direct positive predictor of reassurance-seeking behavior ( $B = 0.37, \beta = 0.24, p < .001$ ). Conversely, sense of agency operated as a significant independent negative predictor ( $B = -0.23, \beta = -0.14, p = .034$ ), functioning as a personal protective buffer against excessive reassurance seeking. Unexpectedly, trauma-related beliefs showed a significant negative relationship with brooding inner speech ( $B = -0.28, \beta = -0.22, p = .001$ ), pointing to a possible “cognitive shutdown” or verbal numbing defense mechanism in response to trauma.

**Conclusions:** These findings suggest that reassurance-seeking behaviors among trauma-exposed individuals operate as deep-seated schemas, rather than being pulled through active internal verbal rumination or continuous self-critical dialogue. Clinically, the results shift the therapeutic focus away from merely processing past memories or silencing critical internal monologues. Instead, interventions should focus intensely on rebuilding a client's present-moment sense of personal empowerment, self-efficacy, and operational authorship (agency) over their cognitive and interpersonal lives.

**Keywords:** Trauma Beliefs, Brooding Inner Speech, Sense of Agency, Reassurance Seeking, Path Analysis.

## INTRODUCTION

Within the domain of interpersonal psychology, contemporary research has increasingly recognized that observable social behaviors are fundamentally shaped by internal cognitive and linguistic mechanisms that regulate how individuals interpret and respond to relational experiences. Among these behaviors, reassurance seeking (RS) has received significant empirical attention due to its critical role in emotional regulation and relationship dynamics. Reassurance seeking is defined as the repeated tendency of individuals to solicit confirmation from others regarding their personal worth, relational security, or the stability of interpersonal bonds, often manifesting as persistent requests for validation regarding whether they are liked, valued, or accepted by their social network.

Historically, reassurance seeking was conceptualized primarily within descriptive, symptom-based diagnostic frameworks of depressive interpersonal functioning. Early theoretical models proposed that individuals vulnerable to depression frequently engage in excessive reassurance seeking (ERS) to alleviate persistent self-doubt, chronic anxiety, and deep-seated fears of rejection (Coyne, 1976). Although obtaining external validation may temporarily reduce emotional distress, classic cognitive-behavioral and interactional accounts show that repeated, compulsive requests for validation establish a paradoxical, self-perpetuating cycle. The seeker ultimately induces significant interpersonal friction, strain, and objective social rejection or withdrawal in their communication partners ( $r = 0.14$  for objective interpersonal rejection; see Starr & Davila, 2008). This external friction subsequently reinforces negative self-perceptions and emotional vulnerability ( $r = 0.32$  for depression), cementing a destructive interpersonal loop (Halldorsson & Salkovskis, 2023; Joiner et al., 2001).

Recent developments in psychological research have broadened this conceptualization of reassurance seeking beyond depression-specific models, treating reassurance seeking as a transdiagnostic interpersonal behavior driven by an acute intolerance of uncertainty and a severe deficit in internal safety signals. Rather than being restricted to depressive disorders, reassurance seeking is observed across multiple clinical and non-clinical populations experiencing anxiety, obsessive-compulsive features, trauma-related distress, and difficulties in emotional regulation (Halldorsson & Salkovskis, 2023). The findings suggest that reassurance seeking may function as a behavioral strategy designed to manage internal psychological discomfort and resolve structural imbalances within an individual's stream of thought.

Despite the growing body of literature on reassurance seeking, relatively little attention has been devoted to the internal cognitive and psycholinguistic mechanisms that lead individuals to externalize their distress via reassurance seeking. Because individuals typically process emotional experiences internally before expressing them within social networks, it is vital to examine the psychological vehicles that transform cognitive distress into manifest interpersonal behaviors.

To systematically address this maintenance loop, the present study proposes an integrated psycholinguistic model of reassurance seeking in young adults ( $N = 249$ ). Operating within an exploratory framework rather than a strictly causal design, this research evaluates how structural, trauma-impacted schemas contribute to the development of brooding inner speech, and whether an individual's perceived sense of agency serves as a conditional boundary that determines whether these internal linguistic loops manifest as external interpersonal reassurance seeking.

### Historical Foundations of Trauma and Interpersonal Functioning

The understanding of trauma and its interpersonal consequences has developed across several major theoretical periods in psychology, shifting from a focus on structural fragmentation to cognitive,

interactional, and ultimately psycholinguistic frameworks. Early 20th-century pioneers such as Pierre Janet and Sigmund Freud conceptualized trauma as a destabilizing force capable of disrupting the integration of consciousness. Janet (1907) proposed that overwhelming experiences could exceed an individual's psychological capacity for processing emotional information, resulting in dissociated memories and fragmented mental functioning. Similarly, Freud (1920/1955) suggested that traumatic experiences could be repressed into the unconscious, where they continued to distort emotional responses and interpersonal behavior indirectly. These early formulations established the foundational idea that trauma destabilizes psychological architecture and shapes behavioral patterns within social relationships (Van der Kolk, 2014).

The cognitive revolution of the 1960s shifted this focus toward stable mental representations and belief systems. Within this movement, Aaron Beck's (1967) cognitive theory emphasized the role of schemas—organized cognitive structures that guide the appraisal of experiences. According to this framework, adverse or traumatic experiences contribute to the development of maladaptive schemas related to personal worth, trust, and safety, causing systematic cognitive distortions that reinforce negative self-perceptions and hostile interpersonal expectations (Beck, 1976).

The subsequent "interpersonal turn" in cognitive clinical science delineated how these internal dysfunctions actively shape the social environment. James Coyne's (1976) interactional description of depression provided an early basis for understanding how an individual's behavior actively elicits interpersonal friction. This was later expanded by Thomas Joiner's interpersonal theory of depression, which isolated excessive reassurance seeking as a critical behavioral vulnerability (Joiner et al., 2001). While this behavior is explicitly deployed to reduce uncertainty and alleviate immediate emotional distress, it paradoxically strains relationships and degrades the very social support systems the individual relies upon. Recent psycholinguistic integrations have begun bridging these cognitive and interpersonal perspectives through the study of inner speech. Drawing on Lev Vygotsky's (1934/1986) sociocultural theory, language is conceptualized as an internalized form of social dialogue that individuals use to regulate thoughts and emotions. Contemporary psycholinguistic research suggests that the structural properties of this internal dialogue reflect underlying cognitive schemas, providing a vital conceptual bridge between internal trauma-related beliefs and external social behaviors (Alderson-Day & Fernyhough, 2015).

### **Cognitive Processing Theory and Trauma-Impacted Schemas**

Traumatic and adverse experiences—such as interpersonal violence, emotional abuse, neglect, or chronic invalidation—can profoundly alter the core cognitive frameworks through which individuals interpret themselves and the social world. Cognitive Processing Theory (CPT) provides a robust explanation for how traumatic events disrupt an individual's fundamental assumptions regarding safety, trust, power, control, esteem, and intimacy (Valdez et al., 2021). When individuals encounter destabilizing life events, their cognitive system attempts to reconcile the experience with pre-existing belief structures. When this reconciliation fails to occur adaptively, individuals develop distorted post-traumatic appraisals that persist over time and permanently lower the system's threat-detection threshold (Ehlers & Clark, 2000; Fite & Thompson-Hollands, 2025).

Within CPT, these maladaptive appraisals are maintained through two primary forms of cognitive processing: assimilation and overaccommodation (Valdez et al., 2021). Assimilation occurs when individuals interpret subsequent adverse experiences in ways that preserve pre-existing negative assumptions about their own worth, distorting the interpretation of the event to reinforce self-blame, un-

repairability, and negative self-evaluation. Conversely, overaccommodation involves an excessive, global modification of existing belief systems in response to trauma. Rather than isolating the event, individuals generalize its implications to form overly negative assumptions about the broader world, viewing the environment as inherently dangerous, others as completely untrustworthy, and harm as inevitable in relational bonds (Valdez et al., 2021).

Rather than treating assimilation and overaccommodation as isolated subscales, contemporary clinical science views them as an integrated, cumulative trauma-impacted schema system that shapes how an individual filters everyday social interactions. This collective cognitive burden creates a severe intolerance of uncertainty and a chronic deficit in internal safety signals. Recent theoretical integrations demonstrate a substantial structural overlap between these post-traumatic cognitions and the obsessive belief structures operationalized in obsessive-compulsive frameworks, featuring highly elevated levels of inflated personal responsibility, overestimation of objective threat, and perfectionism (Fite & Thompson-Hollands, 2025). Crucially, these trauma-related beliefs persist as a "cognitive residue" within non-clinical adult populations, subtly biasing the processing of ambiguous social cues and driving an unremitting demand for external cognitive validation (Valdez et al., 2021).

### **The Structural and Linguistic Properties of Brooding Inner Speech**

The translation of deep-seated trauma beliefs into active interpersonal reassurance seeking requires a functional cognitive vehicle, which this model identifies as inner speech—the internal use of language to guide thought and behavior (Alderson-Day & Fernyhough, 2015). In healthy cognitive architecture, covert verbal thinking serves essential regulatory, metacognitive, and self-awareness functions, providing a necessary psychological distance that permits the self to observe, label, and structurally organize internal states (Morin, 2005). Under the influence of persistent trauma beliefs, however, this internal dialogue undergoes a qualitative shift, transforming into a repetitive negative thinking (RNT) loop known as brooding rumination (Treyner et al., 2003). While factor analyses isolate reflective pondering as an adaptive, problem-solving orientation, brooding represents a passive, moody, and highly critical internal comparison of one's current state against an unachievable, unblemished standard. Phenomenological frameworks, such as the Varieties of Inner Speech Questionnaire (VISQ), confirm that brooding inner speech is characterized by an increase in evaluative, structural verbal complexity without corresponding motor features, validating it as a highly active, exhausting, and covert cognitive process (Moffatt et al., 2020).

The underlying mechanics of this psycholinguistic process operate through three distinct dynamics:

- **Temporal Rigidity and Conceptual Narrowing:** Laboratory "think-aloud" paradigms demonstrate that trait brooding causes a severe narrowing of conceptual scope, rendering inner speech highly "sticky," negative, rigidly past-oriented, and intensely self-focused (Raffaelli et al., 2021). Once negative content enters the monologue stream, the transition probability to a neutral topic drops precipitously, trapping the individual in an encapsulated verbal vortex.
- **Psycholinguistic Spillover and Syntactic Shifts:** Advanced natural language processing (NLP) and computational text analyses reveal that this internal verbal rigidity spills directly over into external language, characterized by an inflation of first-person singular pronouns ("I," "me," "my") reflecting a self-focused cognitive bottleneck, alongside a marked reduction in first-person plural pronouns ("we") indicating perceived interpersonal detachment (Castiglioni et al., 2023; Quillivic et al., 2024). This perseverative worry correlates with explicit linguistic uncertainty, words signifying cognitive

anxiety, and structural narrative disorganization, establishing a state termed "post-traumatic psycholinguistic syndrome" (Auxéméry, 2021; Stade et al., 2023).

- **Metacognitive Deficits and Externalization:** This internal monologue is further exacerbated by profound metacognitive deficits, including negative metabeliefs regarding the uncontrollability and inherent danger of one's thoughts, coupled with a lack of cognitive confidence (Connor & Birchwood, 2013).

According to the Emotional Cascade Model (ECM), rumination and negative affect reinforce each other through an escalating feedback loop (Jungmann et al., 2016). When an individual views their inner speech as an unmanageable, toxic loop that they lack the capacity to structurally reorganize, the internal cognitive load becomes unsustainable. To resolve the acute uncertainty generated by this failing internal monitoring system, the individual experiences an urgent need to externalize the processing loop, literally projecting it into the interpersonal environment to extract the neutralizing safety statements they can no longer generate internally.

### **Perceived Agency as a Conditional Buffer**

Although trauma-related beliefs and brooding inner speech increase vulnerability to reassurance seeking, individuals vary significantly in how they respond to internal cognitive distress, highlighting the importance of personal psychological resources. One such critical resource is perceived agency—the experiential sense of authorship over one's actions and mental processes. Rather than treating agency as a monolithic feeling of control, cognitive neuroscience and philosophy establish a definitive, two-step architectural model of agency (Synofzik et al., 2008). The first tier is the Feeling of Agency (FoA), a low-level, non-conceptual, pre-reflective registration of action tracking built upon sensorimotor, feed-forward mechanisms that weight immediate sensory feedback to reinforce boundaries between self-generated actions and external inputs (Ohata et al., 2022). The second tier is the Judgment of Agency (JoA), a higher-level, conceptual, and post-hoc attribution of authorship integrating contextual beliefs, retrospective social cues, and situational logic to form an explicit judgment of personal capability.

In affective and trauma disorders, the basic sensorimotor FoA is frequently preserved, but the conceptual JoA experiences severe degradation (Synofzik et al., 2008). This higher-tier JoA closely aligns with the construct of coping self-efficacy (CSE)—an individual's conscious, belief-driven appraisal of their capacity to execute behavioral and cognitive strategies necessary to manage stressful, unpredictable, or post-traumatic environments (Bandura, 2001; Murphy et al., 2025). The stress-buffering model suggests that psychological resources, such as perceived control and self-efficacy, can moderate the relationship between stress and behavioral outcomes, attenuating the impact of internal distress (Jose et al., 2014).

Applying this perspective, perceived agency (specifically at the tier of JoA/CSE) functions as a critical conditional boundary gatekeeper determining whether brooding inner speech escalates into interpersonal compulsions. Under conditions of high perceived agency, individuals maintain the belief that they can intentionally author adaptive solutions and maintain a clear boundary of control over their cognitive self-talk. This agentic, metacognitive awareness enables them to recognize brooding thoughts as temporary internal mental events rather than objective realities, allowing them to tolerate ambiguity, deploy effortful control, and utilize cognitive distancing to resolve distress internally without relying on external validation (Bessette et al., 2020).

Conversely, under conditions of low perceived agency, when trauma or cognitive fragmentation degrades the conceptual attribution system, the individual experiences a total collapse of internal autonomy. The negative, past-oriented brooding inner speech is judged as completely uncontrollable, unbidden, and

highly threatening. Because the individual perceives zero internal capability to structurally reorganize this monologue or achieve cognitive closure, internal self-regulation is deemed impossible. The path of least resistance for a cognitive system devoid of perceived agency is to transfer the entire burden of threat-evaluation to an external source (Halldorsson & Salkovskis, 2023). Thus, a deficit in perceived agency functions as an open permissions gate, severely amplifying the relationship between intense brooding inner speech and the compulsive deployment of reassurance seeking.

### **The Integrated Exploration of Interpersonal Safety-Seeking**

The synthesis of these independent domains culminates in a complete, integrated moderated-mediation psycholinguistic model of interpersonal safety-seeking. Reassurance seeking acts as an interpersonal compulsion mirroring obsessive-compulsive maintainers, seeking an immediate shift from internal ambiguity to absolute external certainty. However, because the underlying trauma-related beliefs and low perceived agency remain unaddressed, external validation acts merely as a temporary, highly transient safety signal. The brief anxiety reduction provided by a partner's validation reinforces the behavioral loop, ensuring long-term dependence. Over time, as the partner's verbal responses shift from genuine, warm reassurance to ambivalent, strained, or explicitly rejecting validation cues due to operational burnout (Coyne, 1976), the seeker's highly sensitized psycholinguistic monitoring system rapidly detects this underlying ambivalence. The seeker judges this ambivalence as explicit confirmation that the world is indeed unsafe and that their network is withdrawing, triggering a severe spike in threat-overestimation, fueling a renewed cycle of brooding inner speech, and driving an even more frantic, escalated delivery of reassurance seeking.

While prior research has independently established correlations between trauma schemas and distress, the linguistic nature of rumination, and the neuroscience of agency, these domains have historically remained siloed. This exploratory study bridges these gaps by evaluating them as a single, structurally dependent cognitive-behavioral chain within a young adult sample (N = 249). Utilizing moderated mediation analyses, this study maps these precise pathways to isolate targeted clinical interventions—such as cognitive bias modification of appraisals (Wouda et al., 2021) and CBT-based plasticity tracking designed to restore coping self-efficacy (Bessette et al., 2020)—to systematically disrupt this self-perpetuating, destructive cognitive-interpersonal loop.

## **METHOD**

### **Research Questions**

1. Are higher levels of trauma-related beliefs and brooding inner speech significantly and positively associated with reassurance-seeking behavior in young adults?
2. Is there a significant positive association between trauma-related beliefs and brooding inner speech, and is brooding inner speech concurrently associated with increased reassurance-seeking behavior?
3. Does brooding inner speech significantly mediate the relationship between trauma-related beliefs and reassurance-seeking behavior within an exploratory framework?
4. Does perceived agency significantly moderate the relationship between brooding inner speech and reassurance-seeking behavior, and does the indirect association between trauma-related beliefs and reassurance-seeking behavior through brooding inner speech vary significantly across different levels of perceived agency?

### **Study Objectives**

1. **Objective 1:** To examine the relationships among trauma-related beliefs, brooding inner speech, perce-

ived agency, and reassurance-seeking behavior.

2. **Objective 2:** To examine the association between trauma-related beliefs, brooding inner speech, and reassurance-seeking behavior.
3. **Objective 3:** To examine the mediating role of brooding inner speech in the relationship between trauma-related beliefs and reassurance-seeking behavior.
4. **Objective 4:** To examine the moderating role of perceived agency in the relationship between brooding inner speech and reassurance-seeking behavior, and to examine whether the indirect association between trauma-related beliefs and reassurance-seeking behavior through brooding inner speech varies significantly across levels of perceived agency.

### Hypothesis

- **Hypothesis 1 (H1):** Trauma-related beliefs and brooding inner speech will be significantly and positively associated with reassurance-seeking behavior.
- **Hypothesis 2 (H2):** Trauma-related beliefs will be significantly and positively associated with brooding inner speech, and brooding inner speech will be significantly and positively associated with reassurance-seeking behavior.
- **Hypothesis 3 (H3):** Brooding inner speech will significantly mediate the relationship between trauma-related beliefs and reassurance-seeking behavior.
- **Hypothesis 4 (H4):** Perceived agency will significantly moderate the relationship between brooding inner speech and reassurance-seeking behavior, such that the indirect association between trauma-related beliefs and reassurance-seeking behavior through brooding inner speech will vary significantly across levels of perceived agency.

### Research Design

An exploratory, cross-sectional correlational design was deployed in this study to investigate the complex relationships among trauma-related beliefs, brooding inner speech, perceived agency, and reassurance-seeking behavior in young adults. This design was selected because it permits naturally occurring associations among psychological and psycholinguistic constructs to be captured in their real-world state without artificial experimental manipulation (Creswell & Creswell, 2018). Furthermore, because evaluating the cognitive residue of adverse life experiences and compulsive safety-seeking patterns involves sensitive, personal, and potentially stigmatized psychological histories, a non-experimental approach was methodologically and ethically appropriate (Creswell & Creswell, 2018). Data collection was executed at a single point in time using an anonymous survey protocol. Participant confidentiality was structurally built into the design to minimize social desirability bias and encourage maximum honesty when responding to items regarding internal distress and interpersonal friction.

The statistical framework for this study was executed in three distinct, sequential phases of analysis. First, descriptive statistics were calculated to establish the baseline characteristics of the sample, including means, standard deviations, and internal consistency reliabilities for each scale. Second, bivariate correlation analyses using Pearson's coefficient ( $r$ ) were utilized to determine the linear extent, strength, and direction of the relationships among the continuous variables. This method is widely recommended as the foundation for exploring foundational interrelationships in behavioral research (Field, 2018). Third, path analysis was performed to test the integrated moderated-mediation framework, evaluating the indirect effect of trauma beliefs through brooding inner speech alongside the conditional gatekeeping effects of perceived agency.

Although this cross-sectional architecture is inherently incapable of drawing explicit causal inferences or establishing temporal precedence, it was judged as methodologically robust and appropriate for fulfilling the exploratory aims of the present research, creating a clear empirical foundation for future prospective designs.

### **Participants**

A sample of 249 young adults ( $N = 249$ ) was recruited for this study. Participants were selected via non-probability convenience and snowball sampling methodologies. Digital recruitment was conducted by disseminating promotional links across various social media platforms (e.g., Instagram, WhatsApp, LinkedIn) and institutional university message boards, targeting an accessible population of young adult peers (Creswell & Creswell, 2018).

The chronological age of the sample ranged from 18 to 35 years, with a mean age of 23.90 years ( $SD = 3.49$ , Median = 23.00). Screening protocols indicated that no missing data were present across the primary demographic parameters ( $N = 0$ ). In terms of gender distribution, the majority of the sample identified as female ( $n = 161$ , 64.7%), followed by male ( $n = 79$ , 31.7%). The remaining segment of the sample identified as non-binary ( $n = 5$ , 2.0%), agender ( $n = 2$ , 0.8%), and queer ( $n = 2$ , 0.8%). All participants completed the self-administered digital survey anonymously and voluntarily. No physical or material compensation was provided for participation, and structural confidentiality was prioritized to foster uninhibited and honest reporting on sensitive constructs (Creswell & Creswell, 2018).

### **Psychological Measures**

#### **Trauma-Related Cognitions Scale (TRCS)**

To quantify maladaptive cognitive appraisals formed in the aftermath of distressing life events, this study utilized the Trauma-Related Cognitions Scale (TRCS; Valdez et al., 2021). While the full instrument evaluates four distinct factors, the present study focused on specific cognitive "stuck points" that exacerbate psychological distress by utilizing a composite measure consisting of the Overaccommodation (25 items; e.g., "I have no future") and Assimilation (13 items; e.g., "I knew better than to do what I did") subscales. This combined 38-item framework aligns with the tenets of Cognitive Processing Theory (Resick et al., 2014), which posits that recovery is frequently hindered when individuals rigidly force traumatic information into pre-existing schemas or execute catastrophic, global shifts in their core belief systems. Participants responded to items using a 6-point Likert-type scale ranging from 1 (Strongly Disagree) to 6 (Strongly Agree). Scores were aggregated as a composite mean, where higher scores indicate a greater intensity of maladaptive post-trauma cognitions. Valdez et al. (2021) reported excellent internal consistencies across diverse samples ( $\alpha = 0.93$  to  $0.97$ ). Within the current sample, an exploratory factor analysis (EFA) utilizing principal axis factoring and oblimin rotation confirmed a stable two-factor structure (Kaiser-Meyer-Olkin [KMO] = 0.939; Bartlett's test of sphericity:  $\chi^2 [703] = 6705$ ,  $p < .001$ ) explaining 49.4% of the total variance, with the combined scale demonstrating exceptional internal consistency ( $\alpha = .96$ ).

#### **Varieties of Inner Speech Questionnaire–Revised (VISQ-R)**

The phenomenological properties and frequency of judgmental internal monologues were operationalized using the Evaluative/Critical subscale of the Varieties of Inner Speech Questionnaire–Revised (VISQ-R; Alderson-Day et al., 2018). Grounded in Vygotskian psycholinguistic theory, this subscale captures the extent to which self-directed speech shifts from adaptive cognitive regulation into maladaptive internal verbal criticism. Although a text-to-table discrepancy exists in the original validation study regarding the

inclusion of six or seven items for this factor, subsequent empirical literature has consistently applied a 6-item configuration to preserve the 26-item architecture of the overall instrument (Moffatt et al., 2020; Sabag et al., 2023). Following this precedent, a 6-item variant was administered in this study, substituting Item 18 for Item 11 ("I talk silently in my head telling myself to do things"). Items were scored on a 7-point frequency scale ranging from 1 (Never) to 7 (All the time), with higher mean scores reflecting a greater frequency of evaluative inner speech. To verify this specific configuration, an independent EFA was executed on the collected data, confirming a clean, unidimensional solution (KMO = 0.722; Bartlett's test of sphericity:  $\chi^2 [15] = 266, p < .001$ ) where all items loaded significantly onto a single primary factor (0.368 to 0.735). The subscale displayed acceptable internal consistency in the present sample ( $\alpha = 0.71$ ).

### **Sense of Agency Scale (SoAS)**

The subjective experience of being the author of one's actions and their environmental consequences was assessed using the 13-item Sense of Agency Scale (SoAS; Tapal et al., 2017). Although the scale fundamentally captures two dimensions—Sense of Positive Agency (SoPA) and Sense of Negative Agency (SoNA)—the current study aggregated the items into a single, unidimensional global score to index broad conscious agency beliefs, a practice validated by recent clinical and sub-clinical symptom modeling (e.g., Hurault et al., 2020). Responses were recorded on a 7-point Likert-type scale from 1 (Strongly Disagree) to 7 (Strongly Agree). After reverse-scoring the seven negative agency items, a composite mean score was computed, with higher scores representing a more robust global sense of agency. An EFA replicated the expected dual-factor structure (KMO = 0.846; Bartlett's test of sphericity:  $\chi^2 [78] = 1277, p < .001$ ), explaining 48.3% of the total variance, and providing the empirical foundation required for composite aggregation. The full 13-item scale demonstrated good internal reliability within the current sample ( $\alpha = 0.78$ ).

### **Depression-Interpersonal Relationships Inventory–Reassurance Seeking (DIRI-RS)**

The behavioral tendency to persistently solicit feedback from close others regarding one's relational security and self-worth was quantified using the Reassurance Seeking subscale of the Depression-Interpersonal Relationships Inventory (DIRI-RS; Joiner et al., 1992). Derived from the interpersonal theory of depression, this 4-item instrument measures excessive reassurance-seeking as a stable, trait-like vulnerability factor that strains social support networks (Joiner & Metalsky, 2001). Participants responded to items (e.g., "Do you find yourself often asking people you are close to if they truly care about you?") using a 7-point Likert-type format ranging from 1 (Not at all) to 7 (Very much). No items required reverse-scoring, and a composite mean score was calculated such that higher values indicated a higher frequency of compulsive safety-seeking behaviors. An EFA verified the strict unidimensionality of the brief scale, yielding a definitive one-factor solution (KMO = 0.683; Bartlett's test of sphericity:  $\chi^2 [6] = 572, p < .001$ ) with exceptionally strong factor loadings (0.830 to 0.927) explaining 40.4% of the total variance. In the current sample, the subscale exhibited high internal consistency ( $\alpha = .85$ ).

### **Statistical Analysis**

Descriptive statistics for the demographic and psychological characteristics of the participants were performed using jamovi (Version 2.7.18). The significance level for all inferential tests was set a priori at  $p < .05$  (two-tailed).

Normality was tested for each variable before further analysis. Following the thresholds established by Curran et al. (1996), a skewness value over 2.0 and a kurtosis value over 7.0 are considered to be a moderately non-normal distribution. Pearson's correlation analysis was performed with the psychological

measures—Trauma-Related Cognitions (TRCS), Brooding Inner Speech (VISQ-R), Sense of Agency (SoAS), and Reassurance Seeking (DIRI-RS)—that showed a normal distribution.

Path analysis within a structural modeling framework was used to assess the hypothesized relationships between trauma-related cognitions, brooding inner speech, sense of agency, and reassurance-seeking behavior in a non-clinical population. This approach is defined as the combination of regression equations to determine relationships between multiple observed variables simultaneously (Sergi et al., 2007). The relations between the observed variables were analyzed by path regression analysis (Kline, 2011). Additionally, the study conducted a bootstrap procedure to estimate the size of the indirect effects (n = 5,000 resamples) (Preacher & Hayes, 2004). The study also used bias-corrected bootstrap sampling for the maximum likelihood estimation to minimize potential bias to model fits (Preacher & Hayes, 2004). The confidence interval (CI) for the indirect effect was a bias-corrected bootstrapped CI, and the significance of the point estimate ( $p < .05$ ) was determined by the absence of zero within the CI (Hopfinger et al., 2016; Preacher & Hayes, 2004).

The present path model evaluated both direct and indirect relationships. The model verified the direct relationship between trauma-related cognitions (X) and reassurance seeking (Y). The mediation pathway evaluated the indirect relationships between trauma-related cognitions and reassurance seeking through the mediation of brooding inner speech (M). Furthermore, the conditional process framework evaluated whether the path from brooding inner speech to reassurance seeking was moderated by the sense of agency (W). Continuous variables utilized in the interaction term were mean-centered prior to analysis to eliminate multi-collinearity.

Overall model fit was evaluated using the following criteria. First, the present study calculated the ratio of  $\chi^2$  to degrees of freedom ( $\chi^2/df$ ) which should be less than three as an acceptable data model fit (Fino et al., 2014). In addition, the study also used the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), and the Root Mean Square Error of Approximation (RMSEA). Indicators of an adequate-fitting model are evidenced by a CFI and TLI greater than 0.95 and an RMSEA less than 0.06 (Hu & Bentler, 1999; MacCallum et al., 1996). All statistical analyses and path modeling were performed using the jmv and pathj modules within jamovi (Version 2.7.18).

## Result

The means, standard deviations (SD), and psychological characteristics of study variables are presented in **Table 1**. Pearson product-moment correlation coefficients were calculated to establish the baseline linear relationships among the continuous psycholinguistic variables. The correlation matrix is presented in **Table 2**. To test the complex interplay of these variables, a moderated mediation path analysis was performed. This method is superior to standard regression as it allows for the simultaneous estimation of all pathways while controlling for the moderator's influence on the indirect effect presented in **Table 3**

**Table 1.1 – Descriptive analysis**  
Descriptives

	GENDER	AGE
N	249	249
Missing	0	0

**Table 1.1 – Descriptive analysis**  
Descriptives

	<b>GENDER</b>	<b>AGE</b>
<b>Mean</b>	1.41	23.9
<b>Median</b>	1	23
<b>Standard deviation</b>	0.655	3.49
<b>Minimum</b>	1	18
<b>Maximum</b>	5	35

**Table 1.2 – Frequencies**  
Frequencies of GENDER

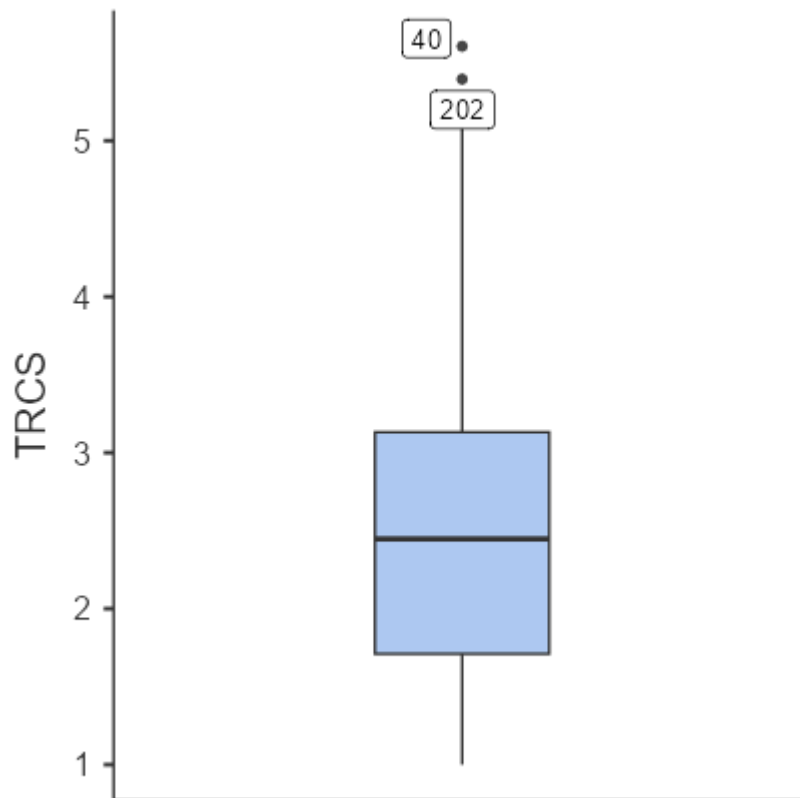
<b>GENDER</b>	<b>Counts</b>	<b>% of Total</b>	<b>Cumulative %</b>
<b>Female</b>	161	64.7%	64.7%
<b>Male</b>	79	31.7%	96.4%
<b>Non-binary</b>	5	2.0%	98.4%
<b>Agender</b>	2	0.8%	99.2%
<b>Queer</b>	2	0.8%	100.0%

**Table 1.3 – Descriptives for study variables**

	<b>TRCS</b>	<b>VISQ-R</b>	<b>SoAS</b>	<b>DIRI-RS</b>
<b>N</b>	249	249	249	249
<b>Missing</b>	0	0	0	0
<b>Mean</b>	2.50	3.67	5.03	2.92
<b>Median</b>	2.45	3.83	5.00	2.75
<b>Standard deviation</b>	1.00	1.26	0.924	1.52
<b>Minimum</b>	1.00	1.00	2.31	1.00
<b>Maximum</b>	5.61	6.33	7.00	7.00
<b>Skewness</b>	0.527	-0.299	-0.0687	0.569
<b>Std. error skewness</b>	0.154	0.154	0.154	0.154

	TRCS	VISQ-R	SoAS	DIRI-RS
<b>Kurtosis</b>	0.00786	-0.483	-0.425	-0.516
<b>Std. error kurtosis</b>	0.307	0.307	0.307	0.307
<b>Shapiro-Wilk W</b>	0.965	0.976	0.987	0.938
<b>Shapiro-Wilk p</b>	<.001	<.001	.024	<.001

Figure 1.1 – TRCS



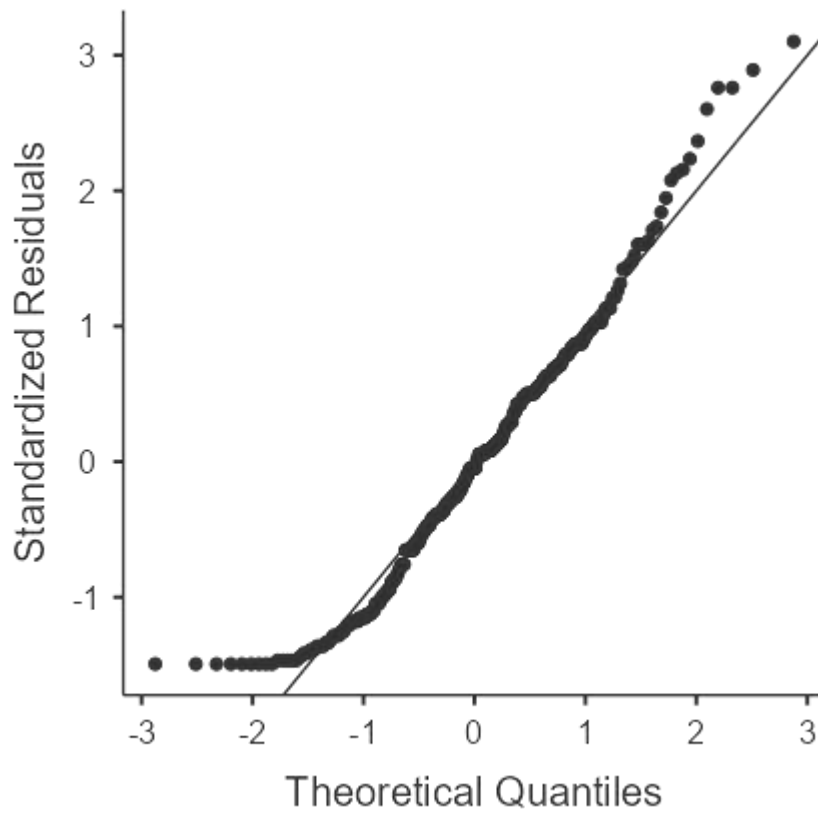
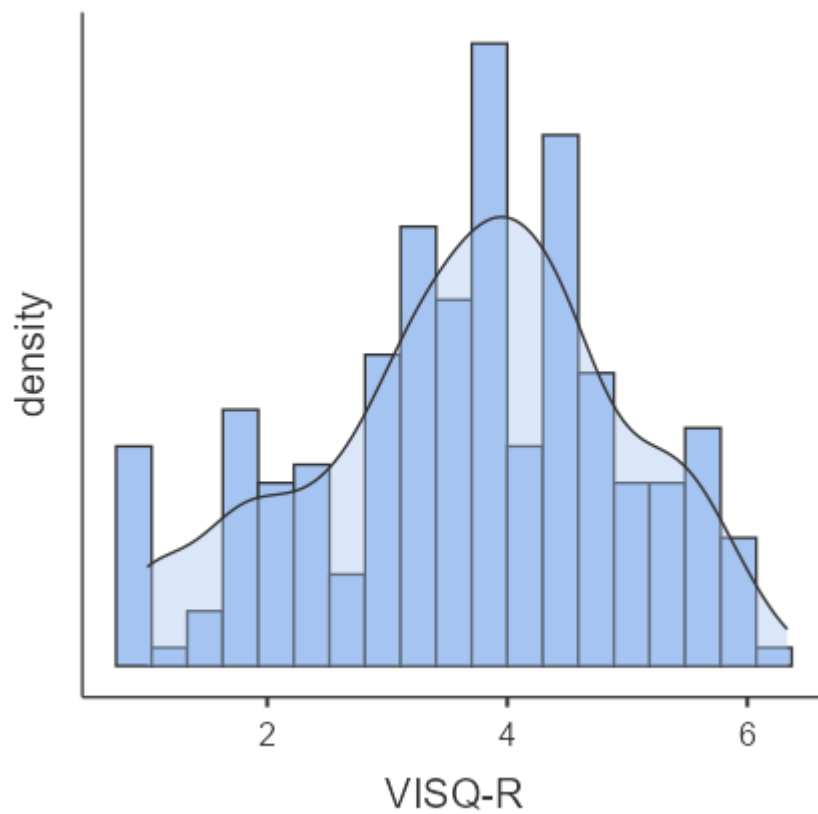


Figure 1.2 – VISQ-R



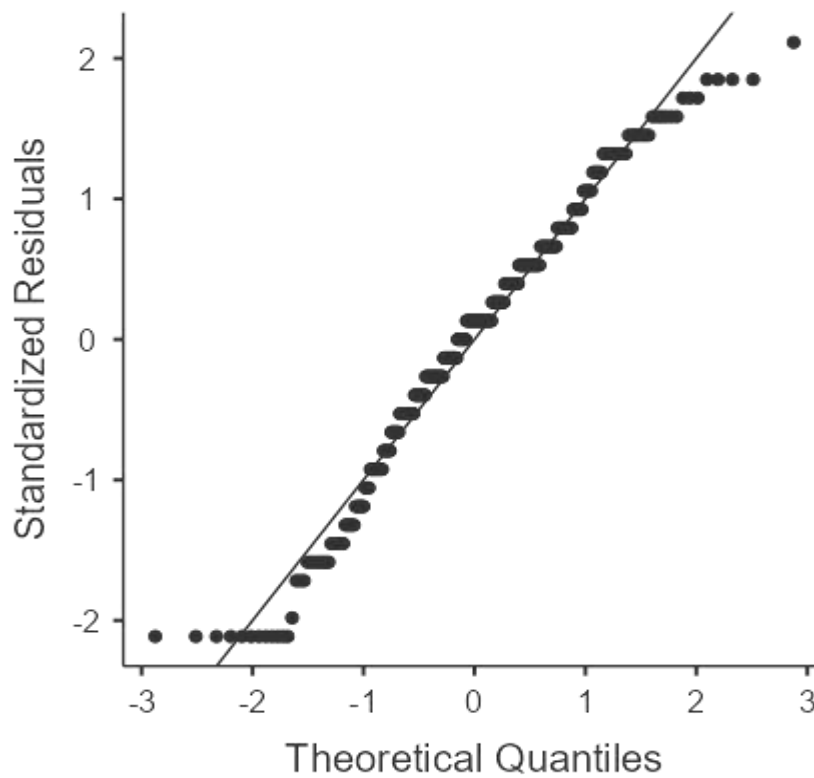
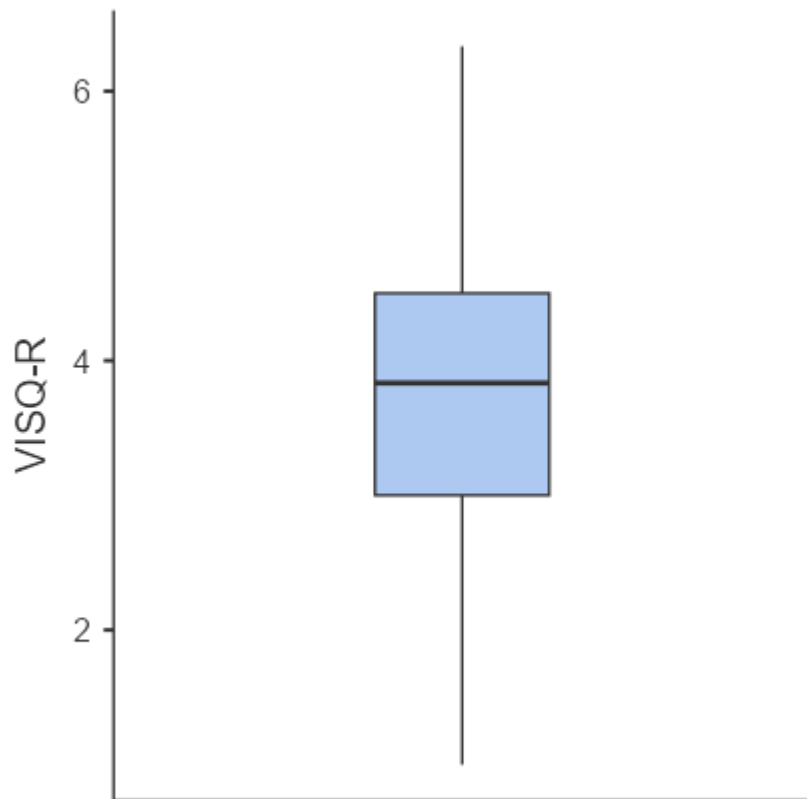
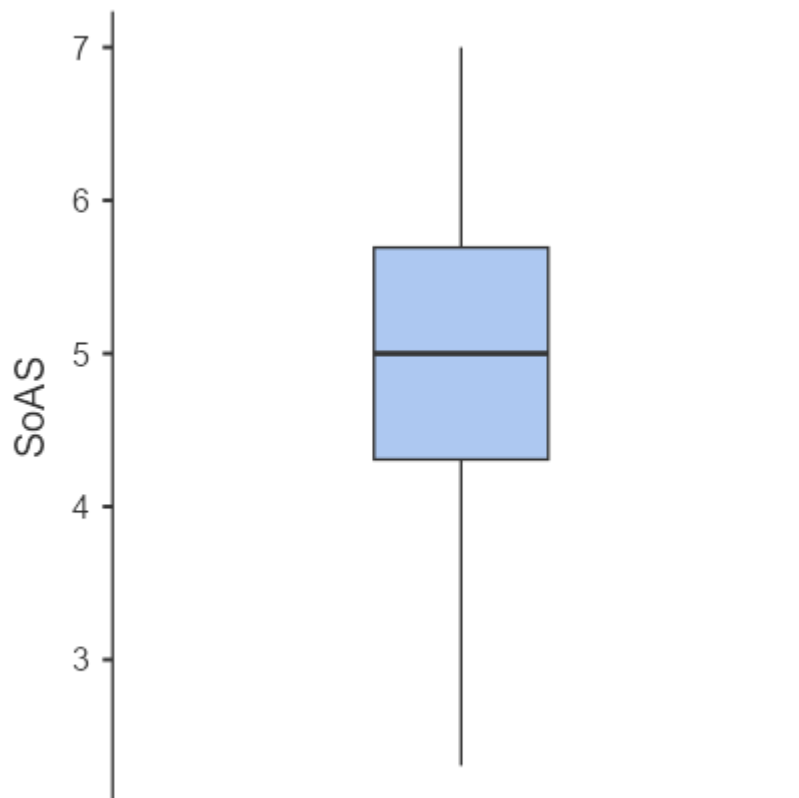
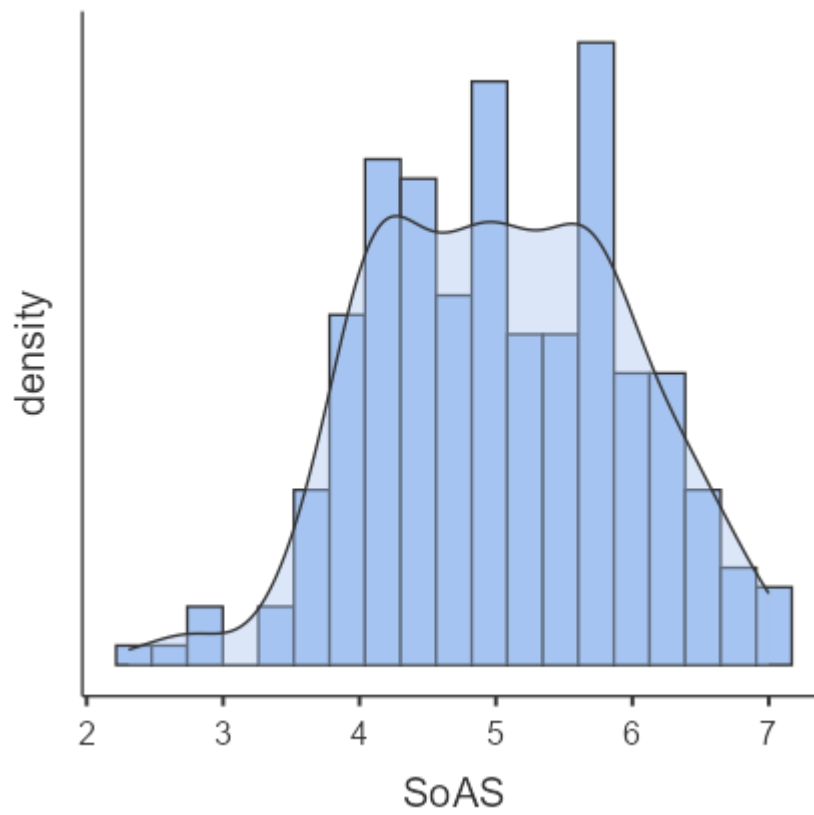


Figure 1.3 – SoAS



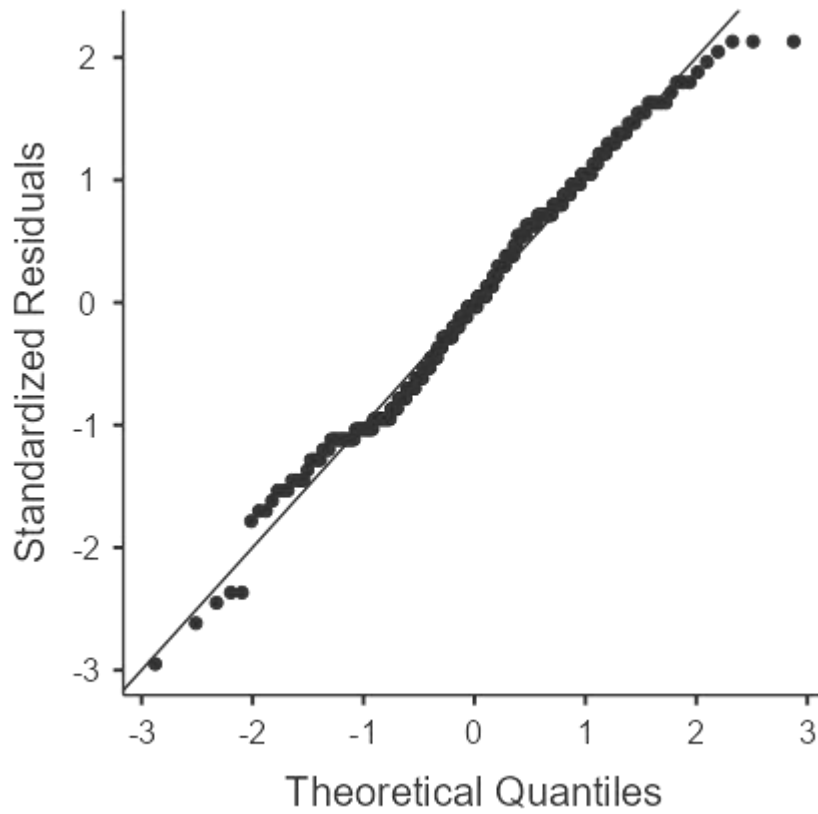
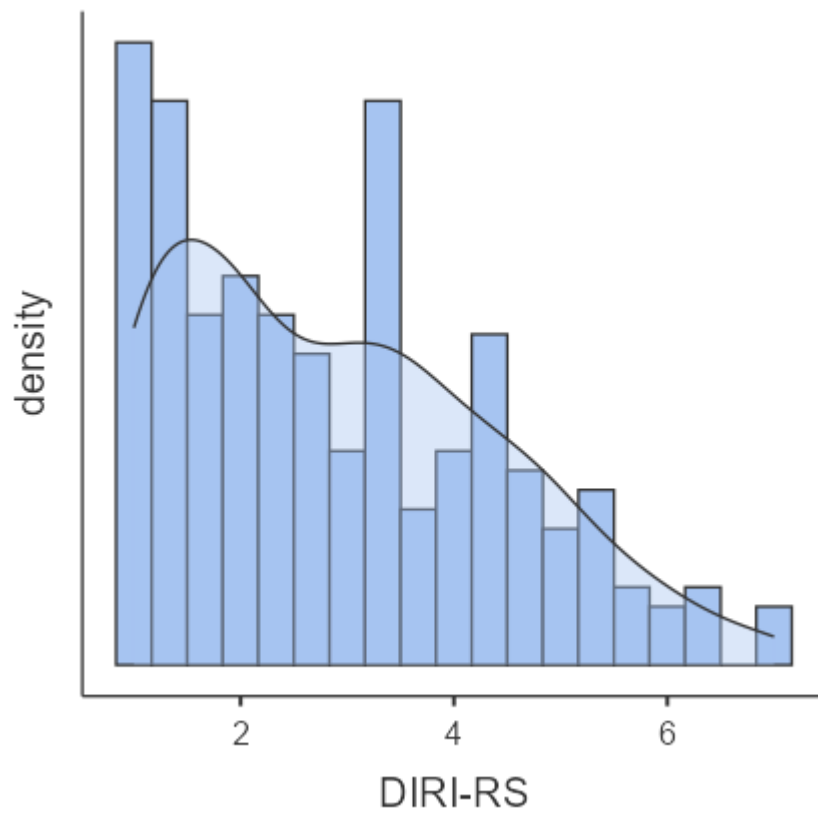
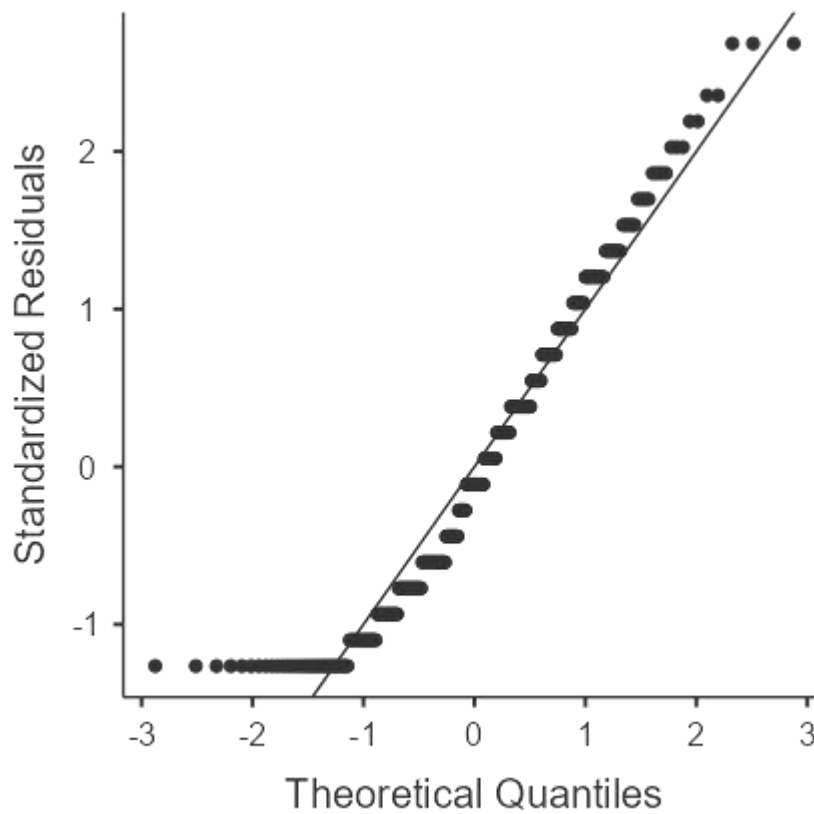
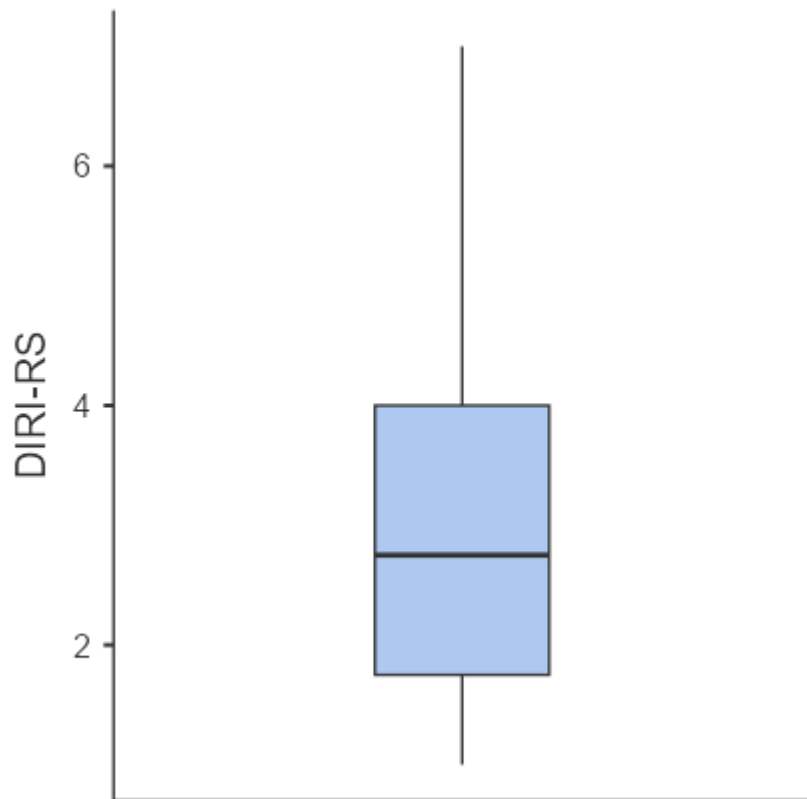


Figure 1.4 – DIRI-RS





The descriptive profile of the sample indicates that participants reported a relatively high sense of agency ( $M = 5.03$ ,  $SD = 0.92$ ) alongside moderate levels of brooding inner speech ( $M = 3.67$ ,  $SD = 1.26$ ). Trauma-related beliefs and reassurance-seeking behaviours were observed at moderate-to-low levels, providing a balanced variance for subsequent predictive modeling.

**Table 2.1 – Correlation Matrix**  
Correlation Matrix

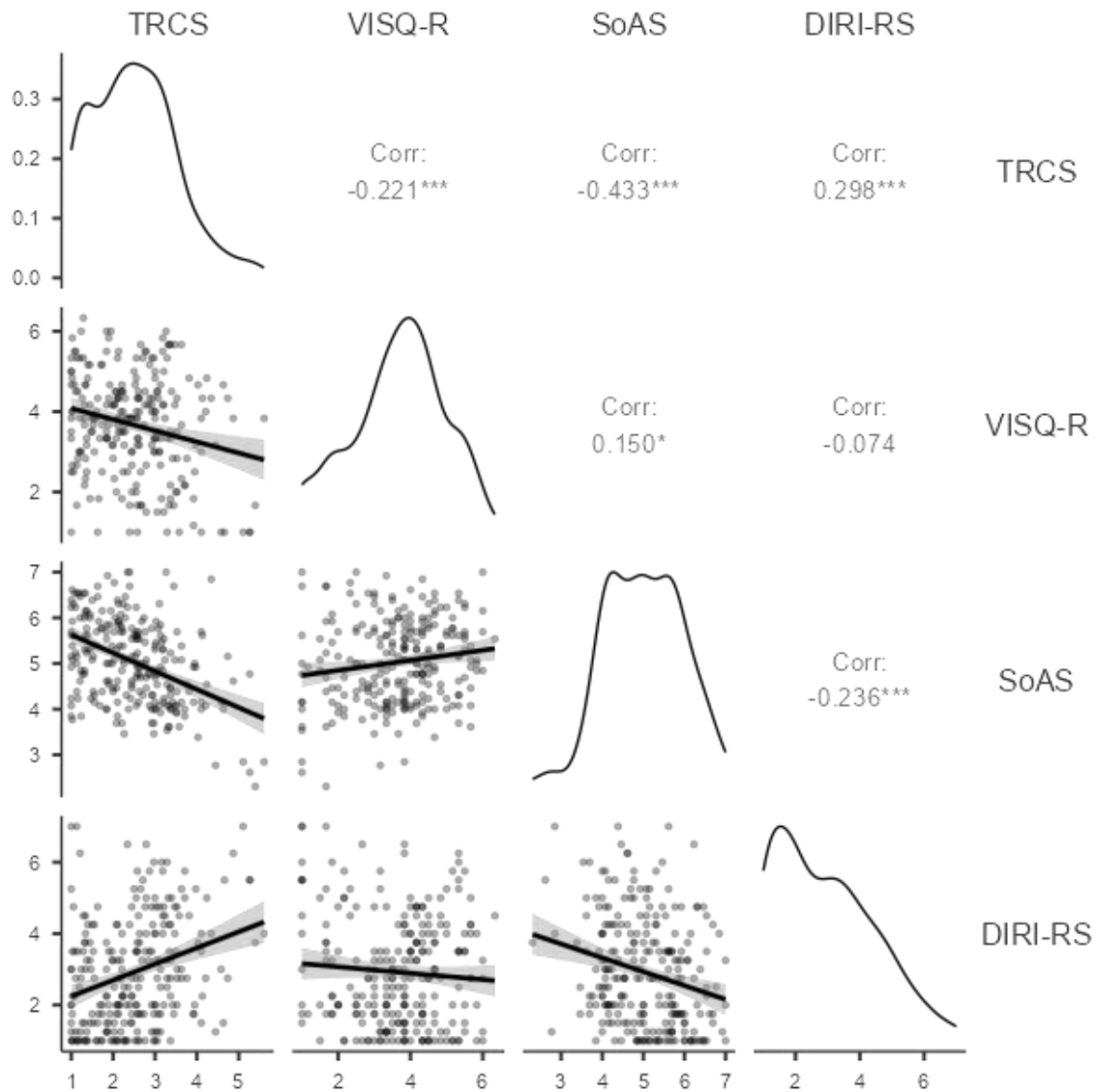
Correlation Matrix

		TRCS	VISQ-R	SoAS	DIRI-RS
<b>TRCS</b>	Pearson's r	—			
	df	—			
	p-value	—			
<b>VISQ-R</b>	Pearson's r	-0.221	—		
	df	247	—		
	p-value	1.000	—		
<b>SoAS</b>	Pearson's r	-0.433	0.150**	—	
	df	247	247	—	
	p-value	1.000	.009	—	
<b>DIRI-RS</b>	Pearson's r	0.298***	-0.074	-0.236	—
	df	247	247	247	—
	p-value	<.001	.879	1.000	—

Note.  $H_a$  is positive correlation

Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ , one-tailed

Figure 2



Note. TRCS = Trauma-Related Cognitions Scale; VISQ-R = Varieties of Inner Speech Questionnaire-Revised (Evaluative/Critical subscale); SOAS = Sense of Agency Scale; DIRI-RS = Depressive Interpersonal Relationships Inventory-Reassurance Seeking subscale.

Pearson product–moment correlation analyses were conducted to establish the fundamental associations between the psycholinguistic constructs. The correlation results provided significant preliminary insights. As hypothesized, a significant positive correlation was observed between trauma-related beliefs and reassurance seeking ( $r = .298, p < .001$ ), indicating that as individuals' endorsement of trauma-related cognitions increases, so does their tendency to seek interpersonal reassurance. Conversely, brooding inner speech did not show a significant association with reassurance seeking ( $r = -.074, p = .879$ ), suggesting that the two may operate through distinct psychological mechanisms.

**Table 3.1.1 – Path analysis**

Models Info

<b>Estimation Method</b>	ML
<b>Number of observations</b>	249
<b>Free parameters</b>	14
<b>Converged</b>	TRUE
<b>Loglikelihood user model</b>	-1508.5
<b>Loglikelihood unrestricted model</b>	-1500.334
<b>Model</b>	<pre> `DIRI-RS` ~ TRCS + `VISQ-R` + SoAS + SoAS:`VISQ-R` `VISQ-R` ~ TRCS TRCS~~SoAS </pre>

Note. lavaan->lav\_partable\_vnames(): model syntax contains variance/covariance/intercept formulas involving (an) exogenous variable(s):

**Table 3.1.2 – Overall Tests**

Model Tests

Label	X <sup>2</sup>	df	p
User Model	16.3	4	.003
Baseline Model	107.6	10	<.001

Fit Indices

AIC	BIC	adj. BIC	SRMR	RMSEA	RMSEA 95% CI		
					Lower	Upper	RMSEA p
3045	3094	3050	0.068	0.111	0.059	0.170	.030

**Fit Indices**

CFI	TLI	RNI	GFI	adj. GFI	pars. GFI
0.874	0.684	0.874	0.969	0.845	0.194

**Table 3.1.3 – Estimates**

**R-squared**

Variable	R <sup>2</sup>	95% Confidence Intervals	
		Lower	Upper
DIRI-RS	0.1063	0.044	0.187
VISQ-R	0.0490	0.010	0.113

**Table 3.1.4 – Parameter Estimates**

Dep	Pred	Estimate	SE	95% Confidence Intervals		$\beta$	z	p
				Lower	Upper			
DIRI-RS	TRCS	0.3671	0.110	0.14	0.580	0.2418	3.331	<.00
		8	2	6	6	0	2	1
DIRI-RS	VISQ-R	-	0.087	-	0.169	-	-	.986
		0.0015	2	0.16	3	0.0012	0.017	
DIRI-RS	SoAS	-	0.105	-	-	-	-	.034
		0.2247	8	0.43	0.013	0.1364	2.123	
DIRI-RS	SoAS:VISQ-R	-	0.077	-	0.120	-	-	.725
		0.0272	5	0.19	0	0.0234	0.351	
VISQ-R	TRCS	-	0.086	-	-	-	-	.001
		0.2786	7	0.44	0.101	0.2213	3.213	
		0		4	6	2	0	

**Table 3.1.5 – Variances and Covariances**

Variable 1	Variable 2	Estimate	SE	95% Confidence Intervals		$\beta$	z	p	Method	Type
				Lower	Upper					
TRCS	SoAS	-0.399	0.0737	-0.550	-0.248	-0.433	-5.41	<.001	Estimation	Variables
DIRI-RS	DIRI-RS	2.062	0.1737	1.681	2.381	0.894	11.87	<.001	Estimation	Residuals
VISQ-R	VISQ-R	1.508	0.1149	1.272	1.746	0.951	13.13	<.001	Estimation	Residuals
TRCS	TRCS	1.001	0.0892	0.833	1.169	1.000	11.22	<.001	Estimation	Variables
SoAS	SoAS	0.850	0.0683	0.719	0.981	1.000	12.44	<.001	Estimation	Variables
SoAS:V ISQ-R	SoAS:V ISQ-R	1.706	0.0000	1.706	1.706	1.000			Sample	Variables

**Table 3.1.6 – Intercepts**

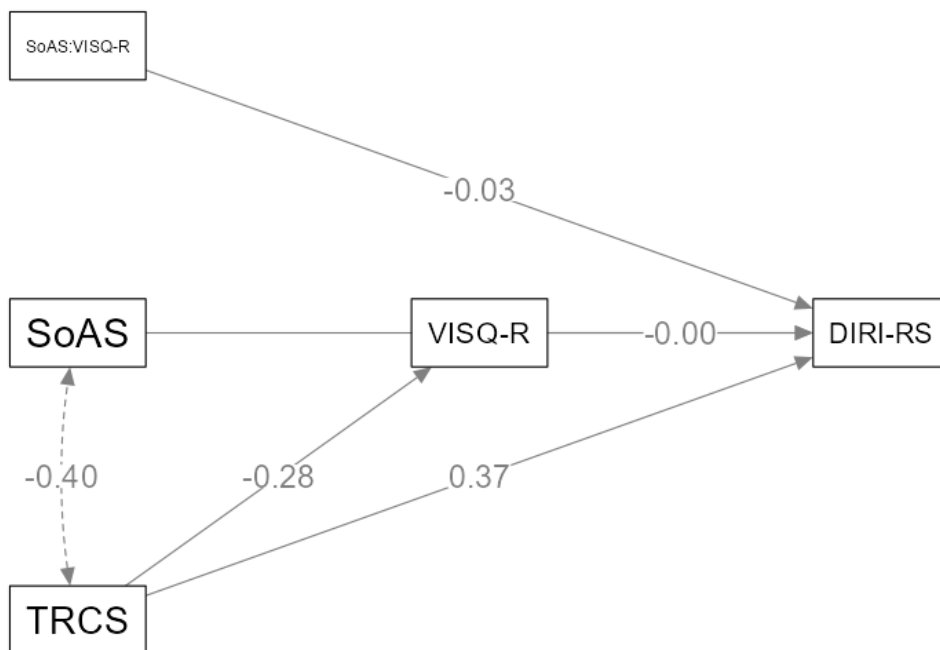
Variable	Intercept	SE	95% Confidence Intervals		z	p
			Lower	Upper		
DIRI-RS	0.005	0.093	-0.176	0.186	0.051	0.959
VISQ-R	0.000	0.078	-0.153	0.153	0.000	1.000
TRCS	0.000	0.063	-0.119	0.128	0.000	1.000
SoAS	0.000	0.058	-0.116	0.112	0.000	1.000
SoAS:VISQ-R	0.174	0.000	0.174	0.174		

**Table 3.1.7 – Defined Parameters**

Label	Description	Parameter	Estimate	SE	95% Confidence Intervals		$\beta$	z	p
					Lower	Upper			
IE1	TRCS $\Rightarrow$ VISQ-R $\Rightarrow$ DIRI-RS	p5*p2	0.000	0.025	-0.051	0.051	0.00	0.017	.987

The path model for reassurance seeking was statistically significant, ( $R^2 = .106$ ,  $F(4, 244) = 7.21$ ,  $p < .001$ ), explaining 10.6% of the variance in the outcome variable.

**Figure 3. Path Diagrams**



Note.  $R^2 = .106$  for Reassurance Seeking;  $R^2 = .049$  for Brooding. The predictive analysis yielded several critical findings. Trauma-related beliefs emerged as a robust, significant positive predictor of reassurance seeking ( $B = 0.367$ ,  $p < .001$ ), confirming that these cognitions directly drive the behaviour. Furthermore, perceived agency was a significant negative predictor ( $B = -0.225$ ,  $p = .034$ ), establishing it as a protective factor that reduces the need for reassurance. However, the model revealed a significant inverse (negative) relationship between trauma-related beliefs and brooding inner speech ( $B = -0.279$ ,  $p = .001$ ). This suggests that in this population, higher trauma cognitions may lead to a suppression or reduction of brooding rather than an increase. Finally, neither the direct effect of brooding on reassurance seeking ( $p = .986$ ) nor the interaction between agency and brooding ( $p = .725$ ) reached significance.

## DISCUSSION

The present study proposed and evaluated an integrated cognitive-linguistic model of interpersonal safety behaviors to investigate how post-traumatic cognitive remnants manifest as contemporary interpersonal actions in a non-clinical sample of Indian young adults (N = 249). Drawing from Cognitive Processing Theory (CPT; Resick et al., 2014) and the Emotional Cascade Model (ECM; Selby et al., 2008), this investigation systematically examined the relationships among trauma-related beliefs, brooding inner speech, perceived agency, and reassurance-seeking behavior. Specifically, the study evaluated the direct associations between these cognitive-linguistic variables, the mediating mechanism of internal verbal brooding, and the conditional boundaries imposed by perceived personal agency.

### **Cognitive Trauma Appraisals as Direct Drivers of Interpersonal Safety Behaviors**

The statistical analysis revealed that trauma-related beliefs emerged as a robust, highly significant positive predictor of reassurance-seeking behavior, providing strong support for the study's primary predictions. Conversely, the direct path from brooding inner speech to reassurance-seeking approached but did not achieve traditional statistical significance.

The prominent link between trauma-related beliefs and reassurance-seeking behavior strongly aligns with the cognitive model of post-traumatic distress developed by Ehlers and Clark (2000). According to this framework, unresolved trauma appraisals maintain a chronic sense of perceived current threat. When an individual's core assumptions regarding safety, trust, and self-worth are shattered (Janoff-Bulman, 1989), they experience severe cognitive overaccommodation—concluding that the world is inherently dangerous and the self is fundamentally unlovable (Valdez et al., 2021).

To rectify this agonizing internal state of uncertainty and mitigate perceived relational threats, individuals turn to their social environment as a primary mechanism of interpersonal regulation (Coyne, 1976). Within this context, reassurance-seeking functions as an active safety behavior. It operates as a repetitive checking mechanism designed to secure brief windows of relational security and neutralize underlying fears of imminent abandonment or rejection. The strong direct path identified in this sample underscores that cognitive remnants of trauma exert a compelling, unmediated pull on external interpersonal dynamics.

### **The Cognitive-Linguistic Pathway and the Phenomenon of Verbal Numbing**

A critical, unexpected finding of this investigation was the significant negative relationship discovered between trauma-related beliefs and brooding inner speech. Because the subsequent path from brooding inner speech to reassurance-seeking also failed to meet the standard significance threshold, the hypothesized sequential pathway was not supported by the data. Consequently, the proposed mediating role of brooding inner speech was rejected.

While traditional Western literature and the Emotional Cascade Model typically suggest that maladaptive schemas naturally fuel an active, critical internal monologue (Alderson-Day & Fernyhough, 2015), the current findings point to a distinct "cognitive shutdown" or verbal numbing effect within this sample. When trauma-related beliefs reach a critical threshold of severity, the individual may experience what Dunmore et al. (2001) describe as "mental defeat." Rather than actively processing distress through repetitive verbal inner speech, the cognitive architecture may downregulate internal linguistic activity as a defense mechanism to avoid the catastrophic emotional intensity of an internal overload.

This lack of a significant mediation effect by brooding inner speech challenges the strict, cross-cultural application of the Emotional Cascade Model (Selby et al., 2008) to trauma-induced interpersonal behaviors in non-clinical Indian young adults. The data reveals that reassurance-seeking behavior is driven directly by underlying, deeply embedded cognitive schemas rather than being pulled through an

intermediary verbal, brooding psycholinguistic process. The interpersonal behavioral output effectively bypasses the internal linguistic processor. This implies that interpersonal dependency behaviors in trauma-exposed individuals are deep-seated structural adaptations to shattered assumptions rather than merely a behavioral coping response to active, ongoing internal verbal rumination.

### **Perceived Agency as an Independent Protective Buffer**

In evaluating the interactive dynamics of the model, the data did not support a moderated mediation framework; the indirect path from trauma to reassurance-seeking via brooding did not vary significantly across levels of perceived agency. However, a vital finding emerged: perceived agency demonstrated a highly significant, independent negative main effect on reassurance-seeking behavior.

According to Bandura's (2001) Social Cognitive Theory, agency provides individuals with a subjective sense of authorship over their mental and behavioral outputs. Even though it did not function as a conditional moderator of the non-significant indirect path, high agency creates a critical metacognitive "buffer zone" (Moore, 2020). When young adults possess a robust sense of agency, they interpret internal distress or occasional critical thoughts as transient, manageable mental events rather than objective realities that mandate external action. High agency empowers individuals to self-soothe internally, drastically reducing their reliance on maladaptive interpersonal safety behaviors like excessive reassurance-seeking.

### **Limitations and Future Methodological Directions**

Despite its rigorous statistical approach, several limitations must be acknowledged. First, because data were captured within a cross-sectional framework at a single point in time, absolute causal directions cannot be definitively established. While path analysis models predictive relationships, longitudinal designs are required to map the temporal unfolding of these variables.

Second, assessing trauma-related beliefs through retrospective self-report measures can introduce recall bias or social desirability constraints. This is particularly relevant within an Indian cultural context, where admission of trauma or relational vulnerability can carry social stigma. Finally, the use of non-probability sampling via digital platforms limits generalizability to rural or digitally disconnected segments of the Indian youth population, skewing the sample toward urbanized, tech-literate young adults.

To address these limitations, future investigations should implement multi-wave longitudinal or Ecological Momentary Assessment (EMA), (connolly, 2017) designs to observe how daily fluctuations in inner speech directly impact immediate, real-time reassurance-seeking behavior. Furthermore, given that brooding inner speech did not act as a traditional mediator, future models should examine alternative, non-verbal variables—such as emotional numbing, structural dissociation, or attachment insecurity—to map the exact path between trauma beliefs and interpersonal dependency.

## **CONCLUSION**

This study advances a novel psycholinguistic framework to map the interpersonal repercussions of trauma within an Indian young adult demographic. By demonstrating that reassurance-seeking behavior is driven directly by underlying trauma-focused schemas rather than active verbal rumination, the findings highlight the profound, silent impact of post-trauma "stuck points."

Crucially, the study identifies perceived agency as a powerful independent catalyst for interpersonal resilience. From a clinical perspective, this shifts the therapeutic target: interventions must look beyond merely processing past trauma or silencing critical thoughts, focusing intensely on building a client's present-moment sense of personal empowerment and authorship over their lives. Fostering this internal

sense of agency is vital to helping trauma survivors transition from external interpersonal dependency to autonomous, self-sustaining psychological well-being.

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