

# Different epistemic stances for different traumatic experiences: implications for mentalization

## LEARNING TO UNDERSTAND: LATEST CONTRIBUTIONS ABOUT EPISTEMIC TRUST AND MENTALIZATION-RELATED CONCEPTS

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## ABSTRACT

Traumatic experiences may impair reflective functioning (RF), making it difficult for individuals to understand their own and others' mental states. Epistemic trust (ET), which enables evaluating social information as reliable and relevant, may vary in association with RF. In this study, we explored the implications of different ET stances (*i.e.*, trust, mistrust, and credulity) in the relation between different childhood traumatic experiences (*i.e.*, emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect) and different types of RF impairments (uncertainty and certainty about mental states). A non-clinical community sample of 496 cisgender emerging adults (age = 24.91, standard deviation = 2.66, 71.85% assigned female at birth, 63.63% heterosexual) reported on their childhood traumatic experiences, ET, and RF. We used structural equation models to examine direct and indirect associations. The results showed significant indirect effects between emotional abuse and uncertainty about mental states through credulity. We also observed significant indirect effects between emotional abuse and certainty about mental states through mistrust and credulity. The findings suggest that a lack of discrimination when evaluating knowledge from others (*i.e.*, credulity) might promote increased uncertainty in RF when emerging adults have experienced emotional abuse in their childhood. Conversely, a tendency to view all information sources as unreliable or ill-intentioned (*i.e.*, mistrust) may foster greater certainty in RF as a protective mechanism against an unreliable and potentially harmful world when combined with childhood emotional abuse. The implications for clinical practice and intervention are discussed.

**Key words:** mentalization, reflective functioning, traumatic experiences, epistemic trust.

## Introduction

Childhood traumatic experiences refer to distressing events or situations marked by an overwhelming sense of fear, terror, and helplessness (Gladish *et al.*, 2022; Perry & Pollard, 1998). These experiences can manifest in various forms, each carrying specific implications for the individual's adjustment (Bernstein *et al.*, 1998). In this vein, childhood trauma can derive from physical abuse, which includes the deliberate infliction of physical harm or injury such as hitting, shaking, or beating (Dubowitz & Ben-

nett, 2007). Alternatively, traumatic experiences can result from sexual abuse, which includes exposing a child to age-inappropriate sexual situations (Simon *et al.*, 2020; Turniansky *et al.*, 2019). Another form of trauma is emotional abuse, which involves verbal assaults on a child's sense of worth or well-being or any humiliating or demeaning behavior directed toward a child by their caregivers that can potentially cause severe behavioral, cognitive, emotional, or mental disturbances in the child. Examples of such actions include incessant criticism, threats, and rejection, as well as deprivation of affection, support, or guidance (Brassard *et al.*, 2000; McGee & Wolfe, 1991; Thompson & Kaplan, 1996). The consequences of emotional abuse can be insidious, often manifesting as internalizing or externalizing disorders later in life (Heleniak *et al.*, 2016). Child neglect is another form of traumatic experience involving the caregiver's failure to meet the child's basic physical, emotional, or educational needs or to protect the child from harm. This form of trauma can lead to problems in various domains of a child's life, including physical health, academic success, and emotional adjustment (Nikulina *et al.*, 2011; Stoltenborgh *et al.*, 2013).

The association between childhood and adolescent traumatic experiences and mental health outcomes has been extensively studied, with trauma being associated with anxiety disorders (Kuo *et al.*, 2011), affective disorders (Xie *et al.*, 2018), substance use (Wu *et al.*, 2010), personality disorders (Lyons-Ruth *et al.*, 2013), and schizophrenia spectrum disorders (Larsson *et al.*, 2013). Similarly, the risk of developing psychopathology in adulthood is at least twice as high in traumatized individuals (Torjesen, 2019). For example, a study found that almost 1 out of 2 patients with severe mental illnesses (47.5%) had suffered childhood abuse (Álvarez *et al.*, 2011).

Moreover, the literature has highlighted that repeated traumatic experiences during childhood contribute to epigenetic changes at the neural level (Nöthling *et al.*, 2020). Early stress and maltreatment can lead to lasting neurobiological changes at structural and functional levels, such as reduced growth of specific brain regions (*i.e.*, hippocampus, amygdala) and altered electrical activity (*i.e.*, increased limbic activity). These changes, which also show differences between females and males, could significantly contribute to developing psychiatric disorders (Teicher *et al.*, 2003).

## Traumatic experiences and mentalization

Mentalization, operationalized as reflective functioning (RF), refers to the psychological processes that enable individuals to interpret their own and others' behaviors and actions in terms of mental states (*i.e.*, thoughts, emotions, beliefs, and desires) (Bateman & Fonagy, 2012; Fonagy *et al.*, 2018). Studies have highlighted the crucial role of mentalization during childhood and adolescence in promoting individuals' development (Benzi *et al.*, 2023; Benzi *et al.*, 2023; Locati *et al.*, 2023; Sharp & Venta, 2013). Indeed, mentalization is critical in emotionally charged contexts and in coping with distress, enabling individuals to make sense of their individual and interpersonal experiences (Ensink *et al.*, 2016; Fonagy *et al.*, 1991; Lund *et al.*, 2022). Mentalization can be impaired along a continuum that might include, on the one hand, the development of excessive certainty of mental states (*i.e.*, hypermentalizing) and, on the other hand, difficulty in the attribution of mental states (*i.e.*, hypomentalizing) that results in high levels of uncertainty and doubt for self and others thoughts, motivations, and behaviors (Sharp & Fonagy, 2015; Sharp & Venta, 2013).

Previous research has pointed out that childhood trauma experiences can significantly impact an individual's mentalizing ability (Allen, 2018; Ensink *et al.*, 2017; Fonagy *et al.*, 2018; Huang *et al.*, 2020). Indeed, traumatic experiences can interfere with developing the brain regions involved in understanding and attributing mental states to oneself and others (Fonagy *et al.*, 2023). Moreover, childhood trauma often leads to situations in which the child's emotional state and reality are invalidated or ignored, causing difficulties in understanding and interpreting one's and others' mental states (Allen, 2018; Huang *et al.*, 2020). This can result in mentalization impairments, resulting in maladaptive solutions such as hypermentalization or hypomentalization. In this vein, individuals with borderline personality disorder and traumatic childhood experiences may resort to over-interpretation of social cues, seeing intentions or emotions in others' behaviors that might not be present (*i.e.*, hypermentalization), and resulting in difficulties in interpersonal relationships (Lund *et al.*, 2022; Sharp & Venta, 2013). Alternatively, traumatic experiences may cause the boundary between oneself and others to break down (*i.e.*, hypomentalization), resulting in uncertainty and difficulty understanding/discriminating between one's and others' mental states (Berthelot *et al.*, 2015; Ensink *et al.*, 2015, 2017; Ha *et al.*, 2013).

## Epistemic trust and mentalization

In the last decade, Fonagy and colleagues (Fonagy & Allison, 2014; Fonagy *et al.*, 2017) have systematized the concept of epistemic trust (ET) as an individual's ability to have confidence in the relevance and usefulness of intentional communication. They proposed that psychopathology, insecure attachment, and altered mentalization are closely intertwined with the formation of a robust ET. An optimal level of ET safeguards individuals against deception while preserving confidence in the authenticity of interpersonally communicated information. Conversely, insufficient ET can lead to epistemic hypervigilance and naiveté, resulting in inflexible mental states and behaviors or an increased propensity to be deceived.

In their work, Campbell *et al.* (2021) suggested that individuals may adopt 1 of 3 stances related to socially transmitted knowledge during social communication: trust (ET), mistrust (EM), and credulity (EC). ET is characterized by selective and appropriate receptivity to social learning opportunities within relationships, essentially maintaining confidence in the reliability and value of information from others. In contrast, EM is defined as perceiving any source of information as untrustworthy or malicious, leading to individuals' tendency to withstand the influence of others' communication. On the other hand, EC entails decreased vigilance and discrimination in one's position, making the individual prone to misinformation and exploitation.

The interplay between mentalization and ET has been theoretically explored, especially in the therapeutic relationship (Fonagy & Allison, 2014). Yet, given the novelty of its operationalization, only a few contributions have explored its associations with mentalization and maladaptive outcomes (Locati *et al.*, 2022; Locati *et al.*, 2023; Milesi *et al.*, 2023; Orme *et al.*, 2019; Tanzilli *et al.*, 2022). Moreover, as ET has its roots in early developmental experiences, disruptions in these experiences (*i.e.*, traumatic experiences) might hinder the development of ET (Gergely, 2013; Sperber *et al.*, 2010). Indeed, Luyten *et al.* (2020) suggested that trauma disrupts the evolutionarily ingrained ability for social learning and ET, impairing attachment and mentalization and limiting an individual's receptivity to positive social influences. Interestingly, a recent study found no differences in

epistemic stances between individuals who experienced childhood trauma and those who did not (Driehuis, 2021), suggesting the need for further studies.

To the extent that traumatic childhood experiences disrupt ET (Fonagy *et al.*, 2017; Luyten *et al.*, 2020) and impair mentalization, leading to dysfunctional hypermentalization (*i.e.*, over-certainty of mental states) or hypomentalization (*i.e.*, uncertainty about mental states) (Allen, 2018; Fonagy *et al.*, 2018), our study explores the implications of different ET stances in the relation between childhood traumatic experiences and mentalization. More specifically, we aimed to test the mediational effect of epistemic stances in the association between traumatic experiences and (i) uncertainty about mental states and (ii) certainty about mental states.

In line with the evidence mentioned above (Fonagy & Allison, 2014; Fonagy *et al.*, 2017; Orme *et al.*, 2019), we hypothesized that i) traumatic experiences would be associated with uncertainty about mental states through mistrust and credulity; and ii) traumatic experiences would be associated with certainty about mental states through mistrust and credulity.

## Methods

### Participants and procedure

A non-probability community sample of 469 cisgender emerging adults (age = 24.91, standard deviation = 2.66) participated, of whom 337 (71.85%) identified as females. Among participants, 63.63% (n=294) reported a heterosexual orientation, with the remainder identifying as gay/lesbian (n=77, 16.42%), or bisexual (n=61, 13.00%), or not declaring their sexual orientation (n=37, 7.88%). All resided in Italy and spoke Italian fluently; almost all participants (n=394, 84.01%) were Italian citizens. The majority (n=311, 66.31%) were students, with the remaining 106 (22.60%) being employed and 26 (5.51%) being unemployed. More than half of the sample (n=315, 67.16%) lived with their parent(s), 101 (21.53%) lived alone, and 48 (10.23%) lived with friends or relatives.

The study utilized a non-probability sampling method. Participants were recruited by word-of-mouth, and sharing the study details on social media was encouraged to reach a broader audience. The study's only inclusion criteria were being between 18 and 29 years old and fluent in Italian. This open approach ensured a diverse range of participants in terms of demographic characteristics.

We asked the potential participants to enroll in a larger data collection exploring the role of individuals' early experiences in the perception of self and other related characteristics and behavioral problems in emerging adulthood.

Upon expressing interest in the study, participants were directed to the online platform (Qualtrics, Seattle, WA, USA). Before accessing the questionnaires, they were required to read and accept the informed consent and data processing measures. This ensured that participants knew the study's nature, purpose, and data-handling methods.

To ensure data completeness and consistency, our survey was structured to force responses for most items, thus preventing any missing entries. However, considering participant sensitivity and privacy, we allowed voluntary responses for specific items such as sex and gender orientation. We configured the online platform only to collect and record completed questionnaires, further ensuring our dataset's integrity and completeness.

The study was approved by the Ethics Committee of the University of Milano-Bicocca and was conducted in line with the Ethical Code of the American Psychological Association, the Italian Association of Psychology, and the Declaration of Helsinki (7<sup>th</sup> revision, 2013).

## Measures

### Traumatic experiences

Traumatic experiences were measured with the childhood trauma questionnaire-short form (Bernstein *et al.*, 1994; Sacchi *et al.*, 2018), which includes 28 items on trauma experiences when growing up and is scored on a 5-point Likert scale from 1 (never true) to 5 (often true). Twenty-five items yield 5 clinical subscales: emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect, while 3 items assess the tendencies of respondents to minimize or deny negative childhood experiences and constitute the minimization/denial scale. In the present study, latent variables for emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect were included in the models.

### Epistemic trust, mistrust, credulity

The ability to consider information coming from others as significant, relevant to the self, and generalizable to other contexts was measured through the epistemic trust, mistrust, credulity questionnaire (ETMCQ) (Campbell *et al.*, 2021; Liotti *et al.*, 2023). The ETMCQ is a 15-item self-report questionnaire assessing each item on a 7-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree). The ETMCQ showed a 3-factor structure consisting of distinct dimensions: i) trust, referring to an adaptive stance in relatively benign social circumstances, in which the individual is appropriately open to opportunities for social learning (*e.g.*, "I find information easier to trust and absorb when it comes from someone who knows me well"); ii) mistrust, reflecting a tendency to treat any source of information as unreliable or ill-intentioned and reject or avoid any influence of communication from others (*e.g.*, "if you put too much faith in what people tell you, you are likely to get hurt"); and iii) credulity, referring to a pervasive lack of discrimination and clarity about one's position that promotes a vulnerability to misinformation and potential risk of exploitation (*e.g.*, "when I speak to different people, I find myself easily persuaded even if it is not what I believed before"). In the present study, latent variables for trust, mistrust, and credulity were included in the models.

### Mentalization

The RF questionnaire for youth (RFQY-13) (Lund *et al.*, 2022; Martin-Gagnon *et al.*, 2023; Sharp *et al.*, 2009) was administered to assess mentalization, along with 13 items, each rated on a 6-point Likert scale, ranging from 1 (strongly disagree) to 6 (strongly agree). The RFQY-13 yields 2 scales on certainty about mental states (*e.g.*, "I usually know exactly what other people are thinking", "I can tell how someone is feeling by looking at their eyes") and uncertainty about mental states (*e.g.*, "I don't always know why I do what I do", "when I get angry I say things that I later regret"). A mean score is calculated for each scale. This questionnaire has been validated with clinical and community samples (Duval *et al.*, 2018; Ha *et al.*, 2013; Lund *et al.*, 2022; Martin-Gagnon *et al.*, 2023). In the present study, latent variables for un-



certainty about mental states and certainty about mental states were included in the models.

## Data analyses

Statistical analyses were conducted using *R* (ver. 2022.07.2) (R Core Team, 2013). Descriptive statistics were used to explore the participants' general characteristics with the psych package (Revelle & Revelle, 2015). To test the main hypotheses, structural equation modeling (SEM) was performed using the lavaan package (Rosseel *et al.*, 2017).

We computed 2 models. Model 1 assessed the role of latent variables of epistemic stances (*i.e.*, trust, mistrust, and credulity) in the association with latent variables of traumatic experiences (*i.e.*, emotional abuse, physical abuse, sexual abuse, emotional neglect, physical neglect) and a latent variable for uncertainty about mental states. Model 2 assessed the role of latent variables of epistemic stances (*i.e.*, trust, mistrust, and credulity) in the association with latent variables of traumatic experiences (*i.e.*, emotional abuse, physical abuse, sexual abuse, emotional neglect, physical neglect) and a latent variable for certainty about mental states.

All models were calculated using a weighted least squares-mean and variance-adjusted estimator to account for Likert-based ordinal measurements (Li, 2016). The fit of the model was evaluated by accounting for complementary goodness of fit indexes (Ullman & Bentler, 2012): chi-square ( $\chi^2$ ) statistic (if  $\chi^2$  is not significant, it means that the model fit with the observed data; however, this statistic is sensitive to sample size and needs to be interpreted adopting a multifaceted approach) (Bollen, 1989); Comparative fit index (CFI) and Tucker-Lewis index (TLI) (values  $\geq .95$  indicate a good fit, values  $\geq .90$  indicate an adequate fit); root mean square error of approximation (RMSEA) [values  $< .05$  indicate an excellent model fit, values between  $.05$ -. $.08$  moderate fit, and values between  $.08$ -. $.10$  acceptable fit, such as the non-statistical significance of its associated 90% confidence interval (CI)].

For every model, we computed direct associations (paths' coefficients from traumatic experiences to RF), indirect associations (paths' coefficients from traumatic experiences to epistemic stances X paths' coefficients from epistemic stances to RF), and total associations (direct associations + indirect associations). Following MacKinnon & Fairchild's (2009) approach, we examined the significance of the indirect associations using 95% bootstrap confidence intervals (CIs) and tested all possible indirect associations.

## Results

Table 1 shows the means and standard deviations for all variables. Participants reported 3 times higher scores of emotional neglects than physical and emotional abuse.

Table 2 shows the complete Pearson's correlations between the variables included in the study. Significant direct associations emerged between traumatic experiences and epistemic stances. Specifically, emotional abuse and neglect were associated with higher levels of mistrust and credulity. Physical abuse showed associations with specific epistemic stances, particularly credulity. Sexual abuse was notably linked with emotional and physical neglect but showed weaker associations with epistemic stances.

In terms of mentalization, uncertainty about mental states was correlated with most traumatic experiences and with both mistrust and credulity. Certainty about mental states showed a direct, albeit weak, association with mistrust.

Model 1 included traumatic experiences' direct and indirect associations with uncertainty about mental states through epistemic stances (Figure 1).

After exploring modification indices, we allowed residual variances to correlate (trust and credulity; trust and mistrust; mistrust and credulity). The fit indices of the model were satisfactory ( $\chi^2(df)=1263.385(998)$ ,  $p<.001$ ;  $\chi^2/df=1.265$ ; CFI=.981; TLI=.972; RMSEA=.025 [90% CI (.021, .030)],  $p=.998$ ).

Table 3 shows all the direct associations between variables. Significant positive associations were found between mistrust, credulity, and uncertainty about mental states. Indeed, higher levels of mistrust and credulity were associated with higher levels of uncertainty about mental states. Significant positive associations were also found between emotional abuse, trust, mistrust, and credulity. Also, a significant positive association was found between emotional neglect, trust, and credulity. Thus, the higher the frequency of the traumatic experience, the higher the epistemic stance.

Moreover, indirect associations were observed in the model. Indeed, the indirect effect of emotional abuse through credulity to uncertainty about mental states ( $\beta=.136$ , 95% bootstrap CI [.025, .347]) was significant ( $p<.05$ ). All indirect and total effects tested are shown in *Supplementary Table 1*.

The model explained a total variance of 47% of uncertainty about mental states. Model 2 included traumatic experiences' direct and indirect associations with certainty about mental states through epistemic stances (Figure 2).

**Table 1.** Means and standard deviations for traumatic experiences, epistemic stances, and reflective functioning.

	Valid	M	SD
Emotional abuse	469	5.02	4.58
Physical abuse	469	1.35	2.79
Sexual abuse	469	.74	2.53
Emotional neglect	418	15.39	3.67
Physical neglect	452	5.44	2.10
Trust	469	4.86	1.05
Mistrust	469	3.92	1.16
Credulity	469	3.02	1.26
Uncertainty about mental states	469	3.47	1.29
Certainty about mental states	469	4.01	1.30

M, mean; SD, standard deviation. Emotional abuse, physical abuse, sexual abuse, emotional neglect, physical neglect = childhood trauma questionnaire-short form (Bernstein -, 1994; Sacchi -, 2018); trust, mistrust, credulity = epistemic trust, mistrust, credulity questionnaire (Campbell -, 2021; Liotti -, 2023); uncertainty about mental states, certainty about mental states > reflective functioning questionnaire-13 (Martin-Gagnon -, 2023).

After exploring modification indices, we allowed residual variances to correlate (trust and credulity; trusty and mistrust; mistrust and credulity). The fit indices of the model were satisfactory ( $\chi^2(df)=1167.411(953)$ ,  $p<.001$ ;  $\chi^2/df=1.224$ ; CFI=.981; TLI=.971; RMSEA=.023 [90% CI (.018, .028)],  $p=.997$ ).

Table 4 shows all the direct associations between variables. A significant positive association was found between mistrust and certainty of mental states. The higher the mistrust, the higher the certainty of mental states. A significant negative association was found between credulity and certainty of mental

**Table 2.** Pearson’s correlations between traumatic experiences, epistemic stances, and reflective functioning.

	Emotional abuse	Physical abuse	Sexual abuse	Emotional neglect	Physical neglect	Trust	Mistrust	Credulity	Uncertainty about mental states	Certainty about mental states
Emotional abuse	-									
Physical abuse	.558***	-								
Sexual abuse	.179***	.214***	-							
Emotional neglect	.633***	.338***	.077	-						
Physical neglect	.529***	.395***	.193***	.547***	-					
Trust	.012	-.008	.032	-.181***	-.102*	-				
Mistrust	.222***	.060	.060	.141**	.127**	-.094*	-			
Credulity	.229***	.143**	.115*	.109*	.138**	.143**	.470***	-		
Uncertainty about mental states	.281***	.123**	.067	.183***	.110**	.109*	.456***	.472***	-	
Certainty about mental states	.063	-.052	-.053	-.020	.001	.077	.195***	.011	.110*	-

Emotional abuse, physical abuse, sexual abuse, emotional neglect, physical neglect = childhood trauma questionnaire-short form (Bernstein -, 1994; Sacchi -, 2018); trust, mistrust, credulity = epistemic trust, mistrust, credulity questionnaire (Campbell -, 2021; Liotti -, 2023); uncertainty about mental states, certainty about mental states = reflective functioning questionnaire-13 (Martin-Gagnon -, 2023). \*\*\*  $p\leq.001$ ; \*\* $p\leq.01$ ; \* $p\leq.05$ .

**Table 3.** Regression models for direct associations between traumatic experiences, epistemic stances, and uncertainty about mental states for model 1.

Predictor	Outcome	Estimate	SE	95% confidence interval		$\beta$
				Lower	Upper	
Trust	Uncertainty about mental states	.119	.086	-.050	.288	.468
Mistrust	Uncertainty about mental states	.498	.127	.250	.747	.065***
Credulity	Uncertainty about mental states	.367	.122	.128	.606	.053**
Emotional abuse	Uncertainty about mental states	.246	.161	-.070	.561	-.265
Physical abuse	Uncertainty about mental states	.023	.093	-.159	.206	.027
Sexual abuse	Uncertainty about mental states	-.036	.059	-.152	.080	.269
Emotional neglect	Uncertainty about mental states	.060	.155	-.244	.363	-.078
Physical neglect	Uncertainty about mental states	-.093	.168	-.423	.236	.033
Emotional abuse	Trust	.481	.161	.166	.796	.012**
Physical abuse	Trust	-.050	.096	-.237	.138	.021
Sexual abuse	Trust	.067	.067	-.065	.199	.093
Emotional neglect	Trust	-.472	.162	-.789	-.155	.377**
Physical neglect	Trust	-.114	.142	-.392	.165	.290
Emotional abuse	Credulity	.507	.156	.201	.814	.179***
Physical abuse	Credulity	.071	.090	-.107	.248	.017
Sexual abuse	Credulity	.057	.068	-.075	.190	-.026
Emotional neglect	Credulity	-.287	.146	-.573	-.002	.043*
Physical neglect	Credulity	.030	.128	-.222	.281	-.068
Emotional abuse	Mistrust	.279	.138	.008	.549	.451*
Physical abuse	Mistrust	-.081	.088	-.255	.092	-.047
Sexual abuse	Mistrust	.035	.044	-.052	.121	.063
Emotional neglect	Mistrust	.012	.143	-.268	.293	-.443
Physical neglect	Mistrust	.022	.141	-.255	.299	-.107

Emotional abuse, physical abuse, sexual abuse, emotional neglect, physical neglect = childhood trauma questionnaire-short form (Bernstein -, 1994; Sacchi -, 2018); trust, mistrust, credulity = epistemic trust, mistrust, credulity questionnaire (Campbell -, 2021; Liotti -, 2023); uncertainty about mental states = reflective functioning questionnaire-13 (Martin-Gagnon -, 2023). \*\*\* $p\leq.001$ ; \*\* $p\leq.01$ ; \* $p\leq.05$ .

states. The higher credulity, the lower the certainty of mental states.

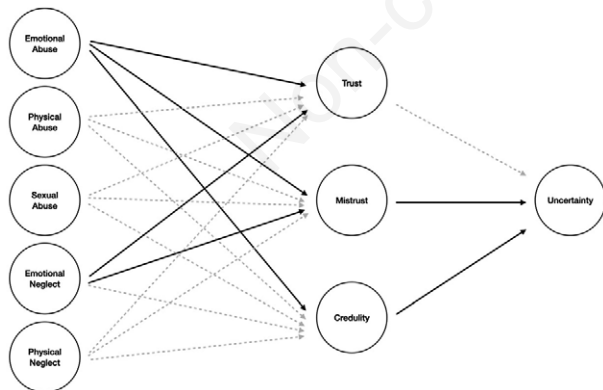
Significant positive associations were found between emo-

tional abuse and trust, mistrust, and credulity. Thus, the higher the frequency of emotional abuse, the higher the epistemic stance considered. Also, a significant negative association was found be-

**Table 4.** Regression models for direct associations between traumatic experiences, epistemic stances, and certainty about mental states for model 2.

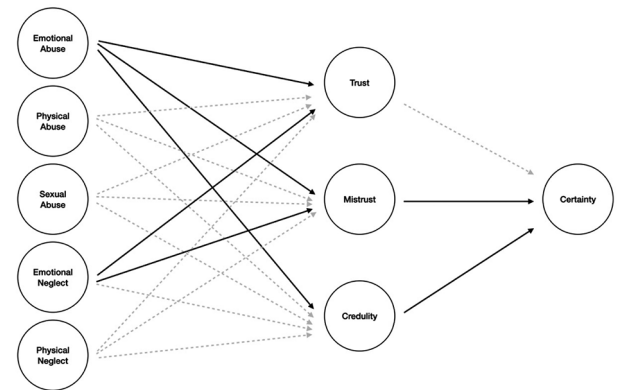
Predictor	Outcome	Estimate	SE	95% confidence interval		$\beta$
				Lower	Upper	
Trust	Certainty in RF	.162	.092	-.019	.343	.159
Mistrust	Certainty in RF	.498	.131	.241	.755	.474***
Credulity	Certainty in RF	-.408	.127	-.657	-.159	-.407**
Emotional abuse	Certainty in RF	.258	.147	-.032	.547	.237
Physical abuse	Certainty in RF	-.022	.085	-.188	.144	-.020
Sexual abuse	Certainty in RF	-.081	.050	-.180	.017	-.075
Emotional neglect	Certainty in RF	-.260	.154	-.562	.041	-.239
Physical neglect	Certainty in RF	.087	.140	-.188	.362	.080
Emotional abuse	Trust	.488	.160	.173	.802	.457**
Physical abuse	Trust	-.054	.096	-.242	.135	-.050
Sexual abuse	Trust	.061	.067	-.072	.193	.057
Emotional neglect	Trust	-.474	.162	-.791	-.156	-.444**
Physical neglect	Trust	-.119	.143	-.399	.160	-.112
Emotional abuse	Credulity	.513	.156	.207	.818	.473***
Physical abuse	Credulity	.071	.090	-.105	.248	.066
Sexual abuse	Credulity	.057	.068	-.077	.191	.053
Emotional neglect	Credulity	-.288	.145	-.572	-.004	-.266*
Physical neglect	Credulity	.027	.127	-.222	.276	.025
Emotional abuse	Mistrust	.289	.137	.020	.558	.279*
Physical abuse	Mistrust	-.083	.087	-.254	.089	-.080
Sexual abuse	Mistrust	.036	.045	-.051	.123	.035
Emotional neglect	Mistrust	.004	.142	-.274	.281	.003
Physical neglect	Mistrust	.015	.140	-.259	.289	.014

SE, standard error; RF, reflective functioning. Emotional abuse, physical abuse, sexual abuse, emotional neglect, physical neglect = childhood trauma questionnaire-short form (Bernstein -, 1994; Sacchi -, 2018); trust, mistrust, credulity = epistemic trust, mistrust, credulity questionnaire (Campbell -, 2021; Liotti -, 2023); certainty about mental states = reflective functioning questionnaire-13 (Martin-Gagnon -, 2023). \*\*\*p<.001; \*\*p<.01; \*p<.05.



Emotional abuse, physical abuse, sexual abuse, emotional neglect, physical neglect = childhood trauma questionnaire-short form (Bernstein -, 1994; Sacchi -, 2018); trust, mistrust, credulity = epistemic trust, mistrust, credulity questionnaire (Campbell -, 2021; Liotti -, 2023); uncertainty about mental states, certainty about mental states = reflective functioning questionnaire-13 (Martin-Gagnon -, 2023).

**Figure 1.** Model for the associations of latent variables of traumatic experiences, epistemic stances, and reflective functioning (uncertainty about mental states), using structural equation modeling. Dotted lines are non-significant paths, continuous lines are significant associations.



Emotional abuse, physical abuse, sexual abuse, emotional neglect, physical neglect = childhood trauma questionnaire-short form (Bernstein -, 1994; Sacchi -, 2018); trust, mistrust, credulity = epistemic trust, mistrust, credulity questionnaire (Campbell -, 2021; Liotti -, 2023); uncertainty about mental states, certainty about mental states = reflective functioning questionnaire-13 (Martin-Gagnon -, 2023).

**Figure 2.** Model for the associations of latent variables of traumatic experiences, epistemic stances, and reflective functioning (Certainty of mental states), using structural equation modeling. Dotted lines are non-significant paths, continuous lines are significant associations.

tween emotional neglect, trust, and credulity. Thus, the higher the frequency of emotional neglect, the lower the epistemic stance considered.

Moreover, indirect associations were observed in the model. Indeed, the indirect effect of emotional abuse through mistrust to certainty of mental states ( $\beta=.132$ , 95% bootstrap CI [.001, .287]) was significant ( $p<.05$ ). Moreover, the indirect effect of emotional abuse through credulity to certainty of mental states ( $\beta=-.192$ , 95% bootstrap CI [-.390, -.028]) was significant ( $p<.05$ ). All indirect and total effects tested are in *Supplementary Table 2*. The model explained a total variance of 16% in certainty of mental states.

## Discussion

Our study aimed to explore the implications of different epistemic stances in the relationship between childhood traumatic experiences and mentalization. Overall, in line with the literature, the results suggested the need to consider traumatic experiences and epistemic stances to understand impairments in mentalization (Fonagy *et al.*, 2017, 2023; Luyten *et al.*, 2020). Notably, the results outline that the first model accounted for almost half of the variance of the difficulties in understanding/discriminating between one's and others' mental states (*i.e.*, uncertainty).

First, we tested the role of latent variables of epistemic stances (*i.e.*, trust, mistrust, and credulity) in the association with latent variables of traumatic experiences (*i.e.*, emotional abuse, physical abuse, sexual abuse, emotional neglect, physical neglect) and a latent variable for uncertainty about mental states. In line with previous research (Ensink *et al.*, 2017; Luyten *et al.*, 2020; Thompson & Kaplan, 1996), the results showed significant positive associations between emotional abuse and all epistemic stances (trust, mistrust, and credulity), as well as between emotional neglect and both trust and credulity. These results suggest that childhood traumatic experiences in the form of emotional abuse and neglect may impact how individuals relate to social information, potentially leading to increased doubt (mistrust) or uncritical acceptance (credulity).

However, for a complete interpretation of the findings, the role of indirect effects in dealing with uncertainty about mental states should also be considered. Indeed, data showed that emotional abuse has a significant indirect effect on uncertainty about mental states through credulity. Said differently, in individuals who have experienced more frequent emotional abuse, the indiscriminate reliance on information coming from others instead of considering one's own position may be a maladaptive solution, which, in turn, might contribute to increased uncertainty about mental states. This pattern may derive from the defensive development of an "alien-self" following trauma, in which self-representations that cannot be integrated into the self (*i.e.*, the self-experiencing emotional trauma) promote adhering uncritically to information coming from others' and foster even more difficulties in discriminating mental states (Duschinsky & Foster, 2021; Fonagy *et al.*, 2003).

Second, we tested the role of latent variables of epistemic stances (*i.e.*, trust, mistrust, and credulity) in the association with latent variables of traumatic experiences (*i.e.*, emotional abuse, physical abuse, sexual abuse, emotional neglect, physical neglect) and a latent variable for certainty about mental states. The significant contribution of emotional trauma emerged again. Indeed, results showed significant positive associations between emotional abuse and all epistemic stances. Indirect effects highlighted the

specific role of mistrust and credulity in the association between emotional trauma and certainty of mental states, suggesting that those who experienced emotional abuse might perceive information coming from others as untrustworthy, which, in turn, likely contributes to lower flexibility of mental states (*i.e.*, certainty). This is in line with research suggesting that mistrust is incorporated into internal working models, anticipating that all close relationships will send back to early life experiences characterized by viewing oneself as undeserving, unlovable, and helpless in relation to a distant or intimidating and dominating other (Knox, 2016). Under these circumstances, it is reasonable to speculate that rigidity in RF and over-certainty of mental states emerge as a defensive solution fostered by a representation of the other as unreliable or ill-intentioned.

On the other hand, the results also highlighted that the path to excessive certainty of mental states might also go through a lower level of credulity. Again, this underlines that a lack of discrimination when evaluating information from others is inversely associated with any level of certainty of mental states, fostering confusion in interpreting one's own and others' behaviors, feelings, and motivations. Hence, our analysis unveils 2 discernible patterns of indirect effects arising from the impact of emotional abuse. The initial pattern delineates an overreliance on external influences, where emotional abuse consistently exerts its influence on mental states through an enduring, unwavering trust in others, often portrayed as infallible, coupled with a prevailing sense of self-uncertainty and confusion. The second pattern indicates a propensity to rely excessively on oneself, with emotional abuse impacting certainty about mental states through an enduring sense of mistrust. These findings carry notable clinical implications, illuminating 2 potential trajectories for emerging adults who have encountered emotional abuse. One trajectory is featured by an unswerving and unconditional trust in influential and seemingly infallible external figures, accompanied by a confused self. The alternative trajectory embodies a role reversal, where the individual perceives themselves as a potent and unwavering figure while viewing others as untrustworthy, useless, and unreliable. These findings have noteworthy implications for clinicians, as they underscore the importance of addressing excessive and unquestioning trust or excessive self-reliance and mistrust when working with emotionally abused emerging adults (Ensink *et al.*, 2015; Fonagy *et al.*, 2019). Furthermore, future research in psychotherapeutic processes should consider the potential occurrence of such role reversals within the same individual during therapy in different therapeutic settings (Parolin *et al.*, 2021; Tmej *et al.*, 2018).

The study results should be interpreted in the context of their limitations. First, data collection relied on self-reported measures, which could be influenced by recall or social desirability biases. Future research should incorporate multiple assessment methods, such as interviews or observations, to supplement self-reported measures. Second, this study employed a cross-sectional design, which does not allow conclusions about the directionality or causality of relations between variables. Longitudinal studies would help determine the temporal order of the observed effects. Third, our models explained a moderate amount of variance in the uncertainty and certainty about mental states, suggesting that other unmeasured factors may also play significant roles. Future studies should consider the inclusion of other potential mediators and moderators, such as attachment and personality functioning. Fourth, given the snowballing technique used for the data collection, our sample has a significantly larger proportion of females, thus limiting the generalizability



of our results. Finally, the study did not collect data regarding participants' past or current therapeutic experiences. Given that such experiences can significantly influence mentalization and epistemic stances, future research should acknowledge them as confounding variables to provide a more comprehensive understanding of the relationships explored.

## Conclusions

In conclusion, our results provide evidence of the complex interplay between childhood trauma, different epistemic stances, and mentalization. Consequently, they underscore the significance of these factors in influencing an individual's capacity to understand their own and others' mental states, with potential implications for therapeutic interventions targeting mentalization in individuals with a history of traumatic experiences. Additionally, the results underscore the importance of considering how credulity and mistrust, as defensive responses to trauma, may contribute to uncertainty or certainty about mental states and shut down mentalization. Future research should explore these relations and their implications for clinical practice, especially when working with patients with experiences of emotional trauma.

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Online supplementary material:

Supplementary Table 1. Indirect and total effects for traumatic experiences, epistemic trust, and uncertainty about mental states for model 1.

Supplementary Table 2. Indirect and total effects for traumatic experiences, epistemic trust, and certainty about mental states for model 2.