

The interplay of mentalization and epistemic trust: a protective mechanism against emotional dysregulation in adolescent internalizing symptoms

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

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ABSTRACT

Mentalization is the ability to interpret actions as caused by intentional mental states. Moreover, mentalization facilitates the development of epistemic trust (ET), namely, the ability to evaluate social information as accurate, reliable, and relevant. Recent theoretical literature identifies mentalization as a protective factor, contrasting psychopathology and emotional dysregulation. However, few investigations have explored the concurrent associations between mentalization, ET and emotion dysregulation in the context of internalizing problems in adolescence. In the present study, 482 adolescents from the general population aged between 12 and 19 were assessed with the epistemic trust mistrust credulity questionnaire, the reflective functioning questionnaire-youth, the difficulties in emotion regulation scale, and the youth self-report. We tested the relationship between the variables through serial mediation models. Results showed that mentalization reduces internalizing problems *via* emotional dysregulation; ET is positively associated with mentalization but not symptomatology. Finally, both epistemic mistrust and epistemic credulity are significantly associated with internalizing symptomatology; those effects are mediated differently by difficulties in emotional regulation. In conclusion, the present study confirms mentalization's role as a protective factor in developmental psychopathology. Nevertheless, exploring the role of the different epistemic stances guarantees a better understanding of psychopathological pathways in adolescence.

Key words: epistemic trust, mentalization, emotional dysregulation, internalizing disorders.

Introduction

Internalizing problems refer to a broad range of emotional and psychological difficulties affecting an individual's thoughts, feelings, and behaviors in ways often not readily observable by others. These difficulties are characterized by emotional dysregulation, depressed mood, fear, worry, and an attitude of overcontrol (Di Pietro & Bassi, 2013; Patterson *et al.*, 2018; Wergeland *et al.*, 2021; Zahn-Waxler *et al.*, 2000). This label includes some of the most common mental disorders in adolescents, such as depressive disorders, anxiety disorders, social withdrawal, somatic symptoms, and related disorders (American Psychiatric Association, 2013; Costello *et al.*, 1996). Despite each disorder's specific trend, internalizing problems generally increase during the transition from childhood to adolescence, suggesting a possible role

of puberty in activating unexpressed genetic risk (Merikangas *et al.*, 2010; Patterson *et al.*, 2018). In this direction, typical adolescent stage factors may contribute to its specific vulnerability: new social demands, environmental stressors, increased autonomy, specific cognitive factors, and new emotion regulation strategies (Garnefski *et al.*, 2005; Rief & Joormann, 2019).

As aforementioned, the ability to regulate emotions plays a crucial role in the onset and progression of internalizing manifestations (Navarro *et al.*, 2018). Emotional dysregulation is characterized by problematic patterns of emotionality in terms of intensity, duration, and frequency, negatively affecting subjective experience, behavioral responses, and physiological changes (Barnicot & Crawford, 2019; Shapero *et al.*, 2016). Empirical literature extensively shows the relationship between emotional regulation during adolescence and the higher risk of developing internalizing disorders (Chevalier *et al.*, 2021; Chevalier *et al.*, 2023; Loughheed & Hollenstein, 2012; Weinberg & Klonsky, 2009).

From a psychotherapy research perspective, mentalization has gained substantial recognition for therapeutic change in various psychopathological conditions, including internalizing problems (Fischer-Kern & Tmej, 2019; Riedl *et al.*, 2023). Indeed, mentalization is the ability to understand and interpret inner mental states related to the self and others by considering one's thoughts, needs, emotions, and desires (Allen & Fonagy, 2008; Bateman & Fonagy, 2019). Mentalization develops in infancy through caregivers mirroring and validating a child's emotional experiences. This intersubjective emotional attunement fosters children's emerging ability to understand their and others' mental states (Bateman & Fonagy, 2019; Debbané, 2019; Midgley *et al.*, 2019). Secure attachments promote mentalizing abilities; in contrast, difficulties in attachment experiences may promote deficits in its development, such as a lack of emotional awareness and self-reflection and difficulty distinguishing between inner mental states and external reality (Hayden *et al.*, 2019; Parada-Fernández *et al.*, 2021). In this direction, literature conceived mentalization as a protective function in contrast to psychopathology: it is essential for experiencing oneself as an intentional agent; it promotes the development of a stable and coherent sense of self; it enables empathy and self-awareness; it facilitates social interactions, thereby making the interpersonal relationship more predictable, secure, and meaningful; it is crucial to emotional well-being and in general for psychological health (Bateman & Fonagy, 2019; Debbané, 2019; Fischer-Kern & Tmej, 2019; Liotti *et al.*, 2021; Locati *et al.*, 2022; Midgley *et al.*, 2019; Parada-Fernández *et al.*, 2021; Riedl *et al.*, 2023).

One key concept associated with mentalizing is epistemic trust (ET), which is the ability to assess the trustworthiness, relevance, and general applicability of information coming from external sources (Duschinsky & Foster, 2021). The secure attachment context promotes ET's development, encouraging individuals to be open to social learning (Milesi *et al.*, 2023; Parolin *et al.*, 2023). In contrast, individuals who face childhood adversities may generate higher levels of epistemic disruption, *i.e.*, epistemic mistrust and credulity (Campbell *et al.*, 2021). Epistemic mistrust is the tendency to suspect the reliability of incoming information, leading to resistance to the possibility of learning from others (Li *et al.*, 2022; Rief & Joormann, 2019). Epistemic credulity is the inability to discriminate between trustworthy and untrustworthy information, making individuals more vulnerable to misinformation and exploitation (Midgley *et al.*, 2019). Both epistemic mistrust and credulity are significant predictors of psychopathological symptoms and are associated with lower psycho-

logical well-being (Duschinsky & Foster, 2021). More specifically, epistemic mistrust is associated with general psychological vulnerability, emotional dysregulation, and distress, contributing to psychopathology (Campbell *et al.*, 2021; Li *et al.*, 2022; Liotti *et al.*, 2023).

In the context of internalizing problems, imbalances in the direction of epistemic mistrust or credulity are sensible to distress and may hinder the development of mentalization and emotional dysregulation (Caspi *et al.*, 2014; Fonagy & Allison, 2014; Midgley *et al.*, 2019). More specifically, low mentalization, high epistemic mistrust, and credulity are associated with depression, anxiety, and somatization problems. Notably, epistemic mistrust was mainly associated with anxiety, whereas credulity was strongly associated with depression. Conversely, higher ET was associated with reduced depression, anxiety, and somatization (Chevalier *et al.*, 2021; Riedl *et al.*, 2023). Nevertheless, improvements in mentalizing are correlated with improvements in emotional regulation, depression, anxiety, somatization, cognition, mobility, self-care, social functioning, household activities, school or work activities, and social participation (Riedl *et al.*, 2023).

Depressive disorders are associated with epistemic uncertainty and vigilance. The failure of ET's stance, a deficit in mentalization, egocentrism, and social isolation inhibit even more mentalization abilities. Mentalization, when active, is often distorted, supporting negative cognitive bias. Difficulties in emotional regulation, limited access to regulation strategies, intolerance for negative emotional responses, and lack of impulse control may further exacerbate the situation (Belvederi Murri *et al.*, 2017; Brumariu & Kerns, 2010; Fischer-Kern & Tmej, 2019; Midgley *et al.*, 2019; Rief & Joormann, 2019). Moreover, anxiety disorders are characterized by epistemic vigilance or epistemic freezing, which promotes mistakes in interpreting and handling complex social situations. Anxious adolescents are more vulnerable to failures in mentalization due to difficulties in their social skills, often emphasized by their specific sensitivity to stressors and high psychological arousal (Banerjee, 2008; Chevalier *et al.*, 2023; Midgley *et al.*, 2019).

In this perspective, internalizing problems can be conceived as temporary or permanent disruptions of ET or the presence of pervasive forms of mistrust and credulity, vulnerabilities in mentalization and emotional regulation (Fonagy *et al.*, 2014; Locati *et al.*, 2023; Talia *et al.*, 2021).

Considering this, the global aim of the present study is to explore how three epistemic stances impact internalizing problems during preadolescence and adolescence, considering the roles of mentalization and emotional dysregulation. In this direction, 4 hypotheses have been formulated: i) all variables in this study are associated (hypotheses 1); ii) ET is expected to reduce the levels of internalizing problems in adolescence and preadolescence, both directly, producing a decrease in the symptomatology, and indirectly, by promoting the development of adequate mentalization abilities and reducing emotional dysregulation (hypotheses 2); iii) epistemic mistrust is expected to lead to higher levels of internalizing problems in adolescence and preadolescence, both directly, producing an increase in symptomatology and indirectly, by reducing mentalization abilities and increasing emotional dysregulation (hypotheses 3); iv) epistemic credulity is expected to lead to higher levels of internalizing problems in adolescence and preadolescence, both directly, producing an increase in symptomatology, and indirectly, by reducing mentalization abilities and increasing emotional dysregulation (hypotheses 4).

Methods

Participants

Participants are 482 non-clinical adolescents (278 females, 58%) aged 12 to 19 years (mean_{age}=15.6, standard deviation=2.050). For this study, participants were recruited from secondary schools (both lower and upper secondary levels) in different regions of Italy and from sports clubs and youth centers.

Procedure

Preliminary authorization was obtained from the school authorities and the parents/legal guardians of the participants. Participation in the research was voluntary, and anonymity was ensured by assigning unique codes to each participant. Due to the ongoing COVID-19 pandemic, the study was conducted entirely online. Participants were contacted through an official email communication, which introduced the logic and objectives of the study and provided a link to access the actual research. Upon opening the hyperlink, participants encountered an initial interface that reiterated the critical aspects of the research. Subsequently, informed consent and consent for data processing were requested from parents and legal guardians in the case of participants who had yet to reach the legal age of consent. Afterward, preadolescents and adolescents began the data collection phase, accessing the various instruments through grouped questionnaire links. Each link required approximately 15-20 minutes to complete, with an estimated completion time of about 1 hour and 30 minutes. Questionnaires belonging to the same link had to be completed consecutively in one session, while those from different links could be completed at different times. An email address was also created and provided, allowing our research team to respond to any further questions and clarifications. This study has been approved by the Ethics Committee of the Department of Psychology at the University of Milano-Bicocca. The patients/participants provided written informed consent to participate in this study.

Measures

The psychological variables in the present study, namely ET, mentalization abilities, emotional dysregulation, and cognitive-emotional-behavioral characteristics of adolescents, were investigated through self-report questionnaires. A detailed description of the instruments used is provided below.

Epistemic trust mistrust credulity questionnaire

The epistemic trust mistrust credulity questionnaire (ETMCQ) (Campbell *et al.*, 2021; Liotti *et al.*, 2023) is a self-report measure of ET composed of 15 items. Each questionnaire item is rated on a 7-point Likert scale, ranging from 1 “strongly disagree” to 7 “strongly agree.” The factor analysis identified 3 distinct factors: trust (epistemic trust), mistrust (epistemic distrust), and credulity (epistemic naivety or gullibility) (Campbell *et al.*, 2021). Although this study is focused on an Italian sample, the original 3-factor English factorial solution proposed by Campbell *et al.* (2021) was used. This decision was made because the ongoing Italian validation of this instrument on an adolescent sample empirically supports the original English factorial structure (Campbell *et al.*, 2021). However, the Italian validation for adults shows different results (Liotti *et al.*, 2023).

Reflective functioning questionnaire-youth

The reflective functioning questionnaire-youth (RFQ-Y) (Duval *et al.*, 2018; Sharp *et al.*, 2009) is a self-report questionnaire designed for preadolescents, adolescents, and young adults aged 12 to 21. This instrument aims at the assessment of the reflective function of individuals, which is the operationalization of their mentalization abilities. The questionnaire consists of 46 items, each evaluated on a 6-point Likert scale ranging from “strongly disagree” to “strongly agree”. In the literature, it is recommended and supported to calculate an overall score by summing the scores from two subscales, providing a comprehensive indication of the individual’s reflective function. Higher scores in the total subscale indicate enhanced mentalization abilities. (Duval *et al.*, 2018).

Difficulties in emotion regulation scale

The difficulties in emotion regulation scale (DERS) (Gratz & Roemer, 2004) is one of the primary self-report tests used to assess difficulties in emotion regulation. The questionnaire consists of 36 items, each rated on a 5-point scale from 1 to 5, where 1 corresponds to “almost never” and 5 to “almost always.” In addition to an overall scale for evaluation, the items can be subdivided into 6 subscales: i) non-acceptance, difficulty in accepting emotional responses; ii) goals, experiencing difficulties in adopting goal-directed behaviors; iii) impulse, difficulties in impulse control; iv) awareness, lack of emotional awareness; v) strategies, limited access to emotion regulation strategies; vi) clarity, lack of emotional clarity. Higher scores on this instrument indicate more significant difficulties in affective regulation (Sighinolfi *et al.*, 2010).

Youth self-report

Youth self-report (YSR/11-18) (Achenbach & Rescorla, 2001) is a self-report instrument for adolescents aged 11-18. It aims to assess emotional competencies and behavioral aspects across various domains to comprehensively account for adolescents’ self-perception, adaptive functioning, and emotional-behavioral characteristics. The questionnaire consists of 113 items presented as statements, and respondents rate each item on a 3-point scale from 0 to 2, where 0 corresponds to “not true” and 2 corresponds to “very true or often true.” Eight subscales indicate different difficulties or problematic aspects: anxiety/depression, withdrawal/depression, somatic complaints, social problems, thought problems, attention problems, aggressive behavior, and rule-breaking behavior. At a higher level of analysis, some of the previously mentioned subscales can be considered together, forming 2 additional clusters: internalizing manifestations (anxiety/depression, withdrawal/depression, and somatic complaints) and externalizing difficulties (aggressive and rule-breaking behaviors). The overall scale is the sum of the values obtained from the 8 subscales. In this instrument, higher scores indicate more significant difficulties reported (Achenbach & Edelbrock, 1978).

Data analysis

To test the first hypotheses, data analyses were tested with the Statistical Manual for the Social Sciences (SPSS, version 28.0; IBM Corp., Armonk, NY, USA) with the assistance of the PROCESS v4.1 extension for SPSS (Hayes, 2022). In hypothesis 1, Pearson correlation was employed to investigate the relationships among all variables of interest.

Subsequently, 3 serial mediation models, corresponding to the

PROCESS model template number 6, were conducted to investigate hypotheses 2, 3, and 4.

To test the second hypothesis (first serial mediation model) (Figure 1) the variables being studied are:

- Independent variable: epistemic trust (ETMCQ_Trust)
- Dependent variable: internalizing problems in adolescence (YSR_Internalizzanti)
- Mediator 1: reflective function (RFQ-Y_Tot)
- Mediator 2: Emotion dysregulation (DERS_Tot)
- To test the third hypothesis (second serial mediation model) (Figure 2) the variables being studied are:
- Independent variable: epistemic mistrust (ETMCQ_Mistrust)
- Dependent variable: internalizing problems in adolescence (YSR_Internalizzanti)
- Mediator 1: reflective function (RFQ-Y_Tot)
- Mediator 2: emotion dysregulation (DERS_Tot)

To test the fourth hypothesis (third serial mediation model) (Figure 3) the variables being studied are:

- Independent variable: epistemic credulity (ETMCQ_Credulity)
- Dependent variable: internalizing problems in adolescence (YSR_Internalizzanti)
- Mediator 1: reflective function (RFQ-Y_Tot)
- Mediator 2: emotion dysregulation (DERS_Tot)

Unlike PROCESS, the advantage of R is that it provides secondary indirect effects. To test the secondary indirect effects in the serial mediation models investigated in hypotheses 2, 3, and 4, analyses were conducted using the 'lavaan' package (Rosseel, 2012) on the RStudio software (version 4.1.2) (R Core Team, 2021).

All variables investigated in this study were standardized into z-scores before conducting the analyses. Therefore, the coefficients reported for direct, indirect, and total effects are standardized.

In both R and SPSS, 95% confidence intervals were created using 1000 bootstrap samples to test the significance of direct and indirect effects. The significance level is established at the 95% confidence interval. If the confidence intervals did not include zero, it would imply a significant result.

Results

Descriptive statistics and Pearson correlations are presented in Table 1. The ET had a moderate, positive, and statistically significant correlation with the reflective function ($r=.34$, $p<.001$). Epistemic mistrust had a moderate, positive, and significant correlation with difficulties in emotion regulation ($r=.47$, $p<.001$) and internalizing problems ($r=.49$, $p<.001$). Epistemic credulity had a moderate, positive, and significant correlation with difficulties in emotion regulation ($r=.45$, $p<.001$) and internalizing problems ($r=.34$, $p<.001$). Both credulity and mistrust did not relate significantly to the reflective function. The reflective function had a weak, negative, and significant correlation with difficulties in emotion regulation ($r=-.12$, $p<.005$). While reflective functioning's relationship with internalizing problems was statistically non-significant, difficulties in emotion regulation had a strong, positive, and significant correlation with internalizing problems ($r=.76$, $p<.001$).

Three serial mediation models were tested to assess the impact of ET on internalizing problems in adolescence through reflective functioning and emotion dysregulation.

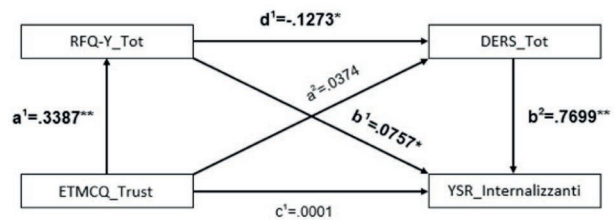


Figure 1. The first serial mediation model. The serial mediation analysis for the relationship between epistemic trust and internalizing problems in adolescence through reflective function and emotion dysregulation. * $p<.05$; ** $p<.001$; ETMCQ_Trust, epistemic trust mistrust credulity questionnaire, trust score; RFQ-Y_Tot, reflective functioning questionnaire-youth, overall score; DERS_Tot, difficulties in emotion regulation scale, overall scale; YSR_Internalizzanti, youth self-report, internalizing manifestations scale.

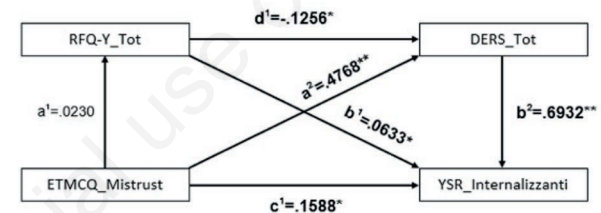


Figure 2. The second serial mediation model. The serial mediation analysis for the relationship between epistemic mistrust and internalizing problems in adolescence through reflective function and emotion dysregulation. * $p<.05$; ** $p<.001$; ETMCQ_Mistrust, epistemic trust mistrust credulity questionnaire, mistrust score; RFQ-Y_Tot, reflective functioning questionnaire-youth, overall score; DERS_Tot, difficulties in emotion regulation scale, overall scale; YSR_Internalizzanti, youth self-report, internalizing manifestations scale.

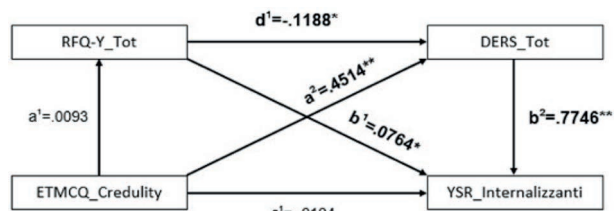


Figure 3. The third serial mediation model. The serial mediation analysis for the relationship between epistemic credulity and internalizing problems in adolescence through reflective function and emotion dysregulation. * $p<.05$; ** $p<.001$; ETMCQ_Credulity, epistemic trust mistrust credulity questionnaire, credulity score; RFQ-Y_Tot, reflective functioning questionnaire-youth, overall score; DERS_Tot, difficulties in emotion regulation scale, overall scale; YSR_Internalizzanti, youth self-report, internalizing manifestations scale.

Epistemic trust and internalizing problems: a serial mediation model

The model accounts for 58.5% of the variance in internalizing problems [$R^2=.5851$, $F(3,478)=224.71$, $p<.001$]. The results showed that trust positively and significantly predicted reflective functioning [path a¹; $\beta=.3387$, $t(480)=7.8874$, $p<.001$]. The effect of trust on emotional dysregulation controlling for the reflective function is not statistically significant [path a²; $\beta=.0374$, $t(479)=-.7764$, $p=.4379$]. Reflective functioning had a significant negative impact on emotion dysregulation controlling for trust [path d¹; $\beta=-.1273$, $t(479)=-2.6401$, $p=.0086$]. Reflective functioning was found to positively and significantly influence internalizing problems controlling for trust and emotion dysregulation [path b¹; $\beta=.0757$, $t(478)=2.4018$, $p=.0167$]. Emotion dysregulation positively and significantly predicted internalizing problems controlling for reflective functioning and trust [path b²; $\beta=.7699$, $t(478)=25.9439$, $p<.001$]. The direct effect, the effect of trust on internalizing problems controlling for reflective functioning and emotion dysregulation, is not statistically significant [path c¹; $\beta=.0001$, $t(478)=.0018$, $p=.9986$]. The total effect, the effect of ET on internalizing problems, is non-significant [path c; $\beta=.0213$, $t(480)=.4677$, $p=.6402$]. The outcomes of this serial mediation analysis are provided in Figure 1.

Then, we focused on the primary indirect effects. The results further showed that ET positively predicted internalizing problems via reflective functioning [path ind¹:ETMCQ_Trust→RFQ-Y_Tot→YSR_Internalizzanti; $\beta=.0257$, 95% confidence interval (CI)=(.0037; .0490)]. The effect of trust on internalizing problems via emotion dysregulation was non-significant [path ind²:

ETMCQ_Trust→DERS_Tot→YSR_Internalizzanti; $\beta=.0288$, 95% CI=(-.0485; .1043)]. Reflective functioning and emotion dysregulation serially mediated the effect of trust on internalizing problems [path ind³:ETMCQ_Trust→RFQ-Y_Tot→DERS_Tot→YSR_Internalizzanti; $\beta=-.0332$; 95% CI=(-.0646; -.0048)]. The total indirect effect was statistically non-significant [$\beta=.0213$, 95% CI=(-.0564; .0950)]. The secondary indirect effects are as follows. Reflective functioning was statistically inversely related to internalizing problems via emotion dysregulation [path ind⁴:RFQ-Y_Tot→DERS_Tot→YSR_Internalizzanti; $\beta=-.098$; 95% CI=(-.171; -.025)]. ET negatively predicts emotion dysregulation via reflective functioning [path ind⁵:ETMCQ_Trust→RFQ-Y_Tot→DERS_Tot; $\beta=-.043$; 95% CI=(-.077; -.009)]. Considering these results, hypothesis 2 can be rejected.

The direct and indirect effects of ET on internalizing problems in adolescence have been shown in Table 2.

Epistemic mistrust and internalizing problems: a serial mediation model

The model explains 60.4% of the variance in internalizing problems [$R^2=.6045$, $F(3,478)=243.55$, $p<.001$]. The results showed that the effect of mistrust on reflective functioning is not statistically significant [path a¹; $\beta=.0230$, $t(480)=.5035$, $p=.6148$]. Mistrust positively and significantly predicted emotional dysregulation, controlling for reflective function [path a²; $\beta=.4768$, $t(479)=11.9704$, $p<.001$]. Reflective functioning had a significant negative impact on emotion dysregulation controlling for mistrust [path d¹; $\beta=-.1256$, $t(479)=-3.1521$, $p=.0017$]. Reflective functioning was found to positively and significantly influence

Table 1. Mean, standard deviation, and correlations among study variables (n=482).

Variable	M	SD	1	2	3	4	5	6
1. ETMCQ_Trust	4.78	1.03	1					
2. ETMCQ_Mistrust	4.59	1.04	/	1				
3. ETMCQ_Credulity	3.50	1.31	/	/	1			
4. RFQ-Y_Tot	6.28	.63	.34**	.02	.01	1		
5. DERS_Tot	83.30	24.74	-.01	.47**	.45**	-.12*	1	
6. YSR_Internalizzanti	17.97	10.66	.02	.49**	.34**	-.01	.76**	1

M, mean; SD, standard deviation; ETMCQ, epistemic trust mistrust credulity questionnaire; RFQ-Y_Tot, reflective functioning questionnaire-youth, overall score; DERS_Tot, difficulties in emotion regulation scale, overall scale; YSR_Internalizzanti, youth self-report, internalizing manifestations scale. ** $p<.001$; * $p<.05$.

Table 2. Direct and indirect effects and 95% confidence intervals for the first serial mediation model.

Pathway	Effect	Boot SE	Boot LLCI	Boot ULCI
Total effect	.0213	.0456	-.0683	.1110
Direct effect	.0001	.0313	-.0615	.0616
Total indirect effect	.0213	.0388	-.0564	.0950
Primary indirect effect of M1: Ind ¹	.0257	.0116	.0037	.0490
Primary indirect effect of M2: Ind ²	.0288	.0390	-.0485	.1043
Primary indirect effect of M1 and M2: Ind ³	-.0332	.0153	-.0646	-.0048
Secondary indirect effect of M2: Ind ⁴	-.098	.037	-.171	-.025
Secondary indirect effect of M1: Ind ⁵	-.043	.017	-.077	-.009

Boot, bootstrap; SE, standard error; LLCI, lower limit of the confidence interval; ULCI, upper limit of the confidence interval; ETMCQ_Trust, epistemic trust mistrust credulity questionnaire, trust score; RFQ-Y_Tot, reflective functioning questionnaire-youth, overall score; DERS_Tot, difficulties in emotion regulation scale, overall scale; YSR_Internalizzanti, youth self-report, internalizing manifestations scale. 1000 bootstrap samples with 95% confidence interval.

Pathways are as follows: total effect of trust on internalizing problems; direct effect of trust on internalizing problems; total indirect effect of trust on internalizing problems; path ind¹: ETMCQ_Trust→RFQ-Y_Tot→YSR_Internalizzanti; path ind²: ETMCQ_Trust→DERS_Tot→YSR_Internalizzanti; path ind³: ETMCQ_Trust→RFQ-Y_Tot→DERS_Tot→YSR_Internalizzanti; path ind⁴: RFQ-Y_Tot→DERS_Tot→YSR_Internalizzanti; path ind⁵: ETMCQ_Trust→RFQ-Y_Tot→DERS_Tot.

internalizing problems, controlling for mistrust and emotion dysregulation [path b¹; $\beta=.0633$, $t(478)=2.1787$, $p=.0298$]. Emotion dysregulation positively and significantly predicted internalizing problems controlling for reflective functioning and mistrust [path b²; $\beta=.6932$, $t(478)=21.0044$, $p<.001$]. The direct effect, the effect of mistrust on internalizing problems controlling for reflective functioning and emotion dysregulation, is positive and statistically significant [path c¹; $\beta=.1588$, $t(478)=4.8426$, $p<.001$]. The total effect is positive and significant; mistrust positively predicted internalizing problems in adolescence and preadolescence [path c; $\beta=.4888$, $t(480)=12.2754$, $p<.001$]. The outcomes of this serial mediation analysis are provided in Figure 2.

Subsequently, we shifted our focus to the primary indirect effects. The results further showed that the effect of epistemic mistrust on internalizing problems *via* reflective functioning was non-significant [path ind¹:ETMCQ_Mistrust→RFQ-Y_Tot→YSR_Internalizzanti; $\beta=.0015$, 95% CI=(-.0063; .0110)]. The effect of mistrust on internalizing problems *via* emotion dysregulation was positive and significant [path ind²: ETMCQ_Mistrust→DERS_Tot→YSR_Internalizzanti; $\beta=.3305$, 95% CI=(.2733; .3903)]. The effect of mistrust on internalizing problems *via* reflective functioning and emotion dysregulation was non-significant [path ind³:ETMCQ_Mistrust→RFQ-Y_Tot→DERS_Tot→YSR_Internalizzanti; $\beta=-.0020$; 95% CI=(-.0141; .0090)]. The total indirect effect was statistically significant [$\beta=.3300$, 95% CI=(.2730; .3898)]. Secondary indirect effects emerged as follows. Reflective functioning was statistically inversely related to internalizing problems *via* emotion dysregulation [path ind⁴:RFQ-Y_Tot→DERS_Tot→YSR_Internalizzanti; $\beta=-.087$; 95% CI=(-.142; -.032)]. The effect of epistemic mistrust on emotion dysregulation *via* reflective functioning was statistically non-significant [path ind⁵:ETMCQ_Mistrust→RFQ-Y_Tot→DERS_Tot; $\beta=-.003$; 95% CI=(-.014; .008)]. These findings provide evidence in support of hypothesis 3.

The direct and indirect effects of epistemic mistrust on internalizing problems in adolescence have been shown in Table 3.

Epistemic credulity and internalizing problems: a serial mediation model

The model captures 58.5% of the variability in internalizing problems [$R^2=.5852$, $F(3,478)=224.7840$, $p<.001$]. The results showed that the effect of credulity on reflective functioning is not

statistically significant [path a¹; $\beta=.0093$, $t(480)=.2047$, $p=.8379$]. Credulity positively and significantly predicted emotional dysregulation controlling for reflective function [path a²; $\beta=.4514$, $t(479)=11.1633$, $p<.001$]. Reflective functioning had a significant negative impact on emotion dysregulation, controlling for credulity [path d¹; $\beta=-.1188$, $t(479)=-2.9385$, $p=.0035$]. Reflective functioning was found to positively and significantly influence internalizing problems, controlling for credulity and emotion dysregulation [path b¹; $\beta=.0764$, $t(478)=2.5706$, $p=.0105$]. Emotion dysregulation positively and significantly predicted internalizing problems controlling for reflective functioning and credulity [path b²; $\beta=.7746$, $t(478)=23.2705$, $p<.001$]. The direct effect, the effect of credulity on internalizing problems controlling for reflective functioning and emotion dysregulation, is non-significant [path c¹; $\beta=-.0104$, $t(478)=-.3133$, $p=.7542$]. The total effect is positive and significant; credulity positively predicted internalizing problems in adolescence and preadolescence [path c; $\beta=.3392$, $t(480)=7.8988$, $p<.001$]. The outcomes of this serial mediation analysis are provided in Figure 3.

Afterward, our attention turned to the primary indirect effects. The results further showed that the effect of epistemic credulity on internalizing problems *via* reflective functioning was non-significant [path ind¹:ETMCQ_Credulity→RFQ-Y_Tot→YSR_Internalizzanti; $\beta=.0007$, 95% CI=(-.0074; .0088)]. The effect of credulity on internalizing problems *via* emotion dysregulation was positive and significant [path ind²:ETMCQ_Credulity→DERS_Tot→YSR_Internalizzanti; $\beta=.3497$, 95% CI=(.2813; .4213)]. The effect of credulity on internalizing problems *via* reflective functioning and emotion dysregulation was non-significant [path ind³:ETMCQ_Credulity→RFQ-Y_Tot→DERS_Tot→YSR_Internalizzanti; $\beta=-.0009$; 95% CI=(-.0120; .0079)]. The total indirect effect was statistically significant [$\beta=.3495$, 95% CI=(.2807; .4212)]. The following secondary indirect effects have been observed. Reflective functioning negatively predicted internalizing problems *via* emotion dysregulation [path ind⁴:RFQ-Y_Tot→DERS_Tot→YSR_Internalizzanti; $\beta=-.092$; 95% CI=(-.154; -.030)]. The effect of epistemic credulity on emotion dysregulation *via* reflective functioning was statistically non-significant [path ind⁵:ETMCQ_Credulity→RFQ-Y_Tot→DERS_Tot; $\beta=-.001$; 95% CI=(-.012; .010)]. The results of this study confirm the validity of hypothesis 4.

The direct and indirect effects of epistemic credulity on internalizing problems in adolescence have been shown in Table 4.

Table 3. Direct and indirect effects and 95% confidence intervals for the second serial mediation model.

Pathway	Effect	Boot SE	Boot LLCI	Boot ULCI
Total effect	.4888	.0398	.4106	.5770
Direct effect	.1588	.0328	.0944	.2232
Total indirect effect	.3300	.0298	.2730	.3898
Primary indirect effect of M1: Ind ¹	.0015	.0042	-.0063	.0110
Primary indirect effect of M2: Ind ²	.3305	.0299	.2733	.3903
Primary indirect effect of M1 and M2: Ind ³	-.0020	.0056	-.0141	.0090
Secondary indirect effect of M2: Ind ⁴	-.087	.028	-.142	-.032
Secondary indirect effect of M1: Ind ⁵	-.003	.006	-.014	.008

Boot, bootstrap; SE, standard error; LLCI, lower limit of the confidence interval; ULCI, upper limit of the confidence interval; ETMCQ_Mistrust, epistemic trust mistrust credulity questionnaire, mistrust score; RFQ-Y_Tot, reflective functioning questionnaire-youth, overall score; DERS_Tot, difficulties in emotion regulation scale, overall scale; YSR_Internalizzanti, youth self-report, internalizing manifestations scale.1000 bootstrap samples with 95% confidence interval.

Pathways are as follows: total effect of mistrust on internalizing problems; direct effect of mistrust on internalizing problems; total indirect effect of mistrust on internalizing problems; path ind¹: ETMCQ_Mistrust→RFQ-Y_Tot→YSR_Internalizzanti; path ind²: ETMCQ_Mistrust→DERS_Tot→YSR_Internalizzanti; path ind³: ETMCQ_Mistrust→RFQ-Y_Tot→DERS_Tot→YSR_Internalizzanti; path ind⁴: RFQ-Y_Tot→DERS_Tot→YSR_Internalizzanti; path ind⁵: ETMCQ_Mistrust→RFQ-Y_Tot→DERS_Tot.

Discussion

The present study explores the relationship between epistemic stances (trust, mistrust, and credulity), mentalization, dysregulation, and internalizing problems in adolescence.

First, the relationship between ET and internalizing problems (Figure 1) showed a significant effect of trust in reducing emotional regulation difficulties through mentalizing abilities. Mentalization reduces internalizing symptoms by acting through emotional dysregulation. Trust has a negative serial indirect effect on internalizing problems through mentalization and emotional dysregulation. However, no direct or indirect effects of trust on internalizing problems in adolescence were shown.

Although ET plays an essential role in adolescents' psychological well-being by promoting the development of mentalization abilities, it is not the only determinant. Emotional dysregulation and mentalization significantly influence the manifestation of internalizing symptoms. In line with the literature, these findings suggest that ET may work as a baseline, not constituting a direct protective factor for internalizing problems in adolescence (Campbell *et al.*, 2021; Fonagy *et al.*, 2017; Locati *et al.*, 2022). However, results have highlighted the meaningful role of ET in fostering mentalization: ET lays the foundation for open-mindedness towards others (Locati *et al.*, 2023; Riedl *et al.*, 2023).

Regarding the role of mistrust in internalizing problems in adolescence (Figure 2), mistrust increases internalizing symptoms both directly and indirectly, being mediated by emotional dysregulation. Moreover, mentalization indirectly alleviates internalizing symptomatology through its influence on emotional dysregulation. An epistemic stance characterized by hypervigilance, hyperactivation, and persecution may partially generate inadequacy of interactions, anxiety states, and depressive experiences. Furthermore, the attentional diversion towards the external dimension to prevent potential environmental threats may neglect some central aspects of the intrapsychic world. This neglect may be responsible for deficits in emotional regulation skills, a diminished sense of agency, implementation of avoidance or inadequate strategies. Mistrust supports a sense of inadequacy and negative cognitive biases and promotes maladaptive emotion regulation strategies (Banerjee, 2008; Brumariu & Kerns, 2010; Chevalier *et al.*, 2023; Locati *et al.*, 2023; Midgley *et al.*, 2019; Rief & Joormann, 2019).

Finally, concerning the relationship between credulity and internalizing problems (Figure 3), credulity indirectly affects inter-

nalizing problems mediated by emotional dysregulation. Moreover, mentalization indirectly mitigates internalizing symptomatology by impacting emotional dysregulation. These findings suggest that individuals with higher levels of credulity may be more prone to experiencing difficulties regulating their emotions, increasing the risk of internalizing manifestations. A possible interpretation, consistent with existing literature (Campbell *et al.*, 2021), outlines how an incongruous and excessive level of trust in others promotes vulnerability to misinformation and dysfunctional interactions. In this direction, interpersonal interactions are characterized by a sense of betrayal and ambivalence towards an interlocutor who is considered reliable but is, in fact, inadequate and untrustworthy. The associated emotional confusion experienced and the difficulty in explaining the incongruities of relational representations may reduce the sense of self-efficacy and agency and increase difficulties in emotion regulation (Locati *et al.*, 2023).

Globally, mentalization has played a crucial protective role in all 3 models by significantly reducing emotional regulation difficulties and indirectly decreasing internalizing symptomatology (Locati *et al.*, 2023). The interest in one's and others' mental states and the awareness of their impact on behavior facilitate a better understanding of social contexts and greater clarity regarding one's emotions. Individuals developing mentalizing abilities become more competent in interpersonal relationships (Bateman & Fonagy, 2019; Locati *et al.*, 2022; Locati *et al.*, 2023). Similarly, their capacity to regulate emotions is strengthened through explicit and controlled mentalization. These abilities reduce emotional regulation difficulties and the adverse effects of stressors, increase tolerance for negative emotions, promote effective social interactions, and foster a sense of personal self-efficacy (Bradley, 2000; Lengua, 2002; Neumann *et al.*, 2010; Parada-Fernández *et al.*, 2021). A decrease in emotional regulation difficulties may reduce the vulnerability to internalizing problems in adolescence (Fonagy, 2015; Fonagy & Allison, 2014).

Nonetheless, in the 3 models, mentalization has a positive direct effect on symptomatology. These results, which might sound contradictory, align with literature that points out that adolescents who are good at mentalizing may be paradoxically more vulnerable to overthinking. In the case of internalizing manifestations, the ability to mentalize in some situations might enhance shame, cause problems in integrating the experience of the physical changes, and facilitate internalizing dysfunctional mechanisms (Benzi & Cipresso, 2020; Benzi *et al.*, 2023; Chevalier *et al.*, 2021; Locati *et al.*, 2023).

Table 4. Direct and indirect effects and 95% confidence intervals for the third serial mediation model.

Pathway	Effect	Boot SE	Boot LLCI	Boot ULCI
Total effect	.3392	.0429	.2548	.4235
Direct effect	-.0104	.0331	-.0753	.0546
Total indirect effect	.3495	.0357	.2807	.4212
Primary indirect effect of M1: Ind ¹	.0007	.0039	-.0074	.0088
Primary indirect effect of M2: Ind ²	.3497	.0356	.2813	.4213
Primary indirect effect of M1 and M2: Ind ³	-.0009	.0049	-.0120	.0079
Secondary indirect effect of M2: Ind ⁴	-.092	.031	-.154	-.030
Secondary indirect effect of M1: Ind ⁵	-.001	.005	-.012	.010

Boot, bootstrap; SE, standard error; LLCI, lower limit of the confidence interval; ULCI, upper limit of the confidence interval; ETMCQ_Credulity, epistemic trust mistrust credulity questionnaire, credulity score; RFQ-Y_Tot, reflective functioning questionnaire-youth, overall score; DERS_Tot, difficulties in emotion regulation scale, overall score; YSR_Internalizzanti, youth self-report, internalizing manifestations scale. 1000 bootstrap samples with 95% confidence interval. Pathways are as follows: total effect of credulity on internalizing problems; direct effect of credulity on internalizing problems; total indirect effect of credulity on internalizing problems; path ind¹: ETMCQ_Credulity→RFQ-Y_Tot→YSR_Internalizzanti; path ind²: ETMCQ_Credulity→DERS_Tot→YSR_Internalizzanti; path ind³: ETMCQ_Credulity→RFQ-Y_Tot→DERS_Tot→YSR_Internalizzanti; path ind⁴: RFQ-Y_Tot→DERS_Tot→YSR_Internalizzanti; path ind⁵: ETMCQ_Credulity→RFQ-Y_Tot→DERS_Tot.

Finally, difficulties in emotional regulation have proven in all models to have unquestionable relevance concerning internalizing manifestation in adolescence. Restricted access to emotional regulation strategies, intolerance for negative affectivity, ineffectiveness in organizing goal-directed behaviors, low perception of self-efficacy, and difficulties in restoring emotional homeostasis are central and distinctive elements responsible for the origin and maintenance of internalizing problems (Barnicot & Crawford, 2019; Navarro *et al.*, 2018; Weinberg & Klonsky, 2009).

In conclusion, this research has contributed to a deeper comprehension of the relationship between the 3 epistemic stances, mentalization, emotional regulation processes, and mental health outcomes. These findings confirm the validity of the tripartite model of ET and provide evidence that the constructs of trust, mistrust, and epistemic credulity are a theoretical framework able to explain and predict various trajectories of ontogenetic development. From a diagnostic and therapeutic standpoint, they suggest that some treatment approaches, such as therapeutic assessment and mentalization-based treatment, may be relevant in reactivating ET, mentalization, and the underlying mechanisms of social learning. These approaches have demonstrated effectiveness in treating a wide range of psychopathologies, including the internalizing manifestations (Bateman & Fonagy, 2019; Kamphuis & Finn, 2019; Li *et al.*, 2022; Locati *et al.*, 2023).

Further research is needed to delve deeper into the complex interplay between these variables and better understand the underlying mechanisms involved.

The present study has some limitations. Although the sample size for analysis was adequate, expanding the numerosity of the sample is needed. Moreover, the exclusive use of technological means for data collection, mainly determined by the need to overcome the difficulties and limitations imposed by the COVID-19 pandemic, brought both negative and positive aspects. On the one hand, the research may have been disadvantaged as the online mode automatically precluded the use of certain types of tools and interviewer-participant direct interaction. On the other hand, it allowed our research team to reach many adolescents from different regions of Italy, enabling us to analyze a large and representative sample while optimizing administration. Another limitation, as mentioned earlier, can be identified in the sole use of self-report measures for data collection. These questionnaires are particularly susceptible to biases such as social desirability bias. In the end, though an Italian validation of the ETCMQ for adults (Liotti *et al.*, 2023) has been recently published, in this study we used the English factorial solution for the abovementioned reasons; this could represent a further limitation.

Conclusions

In conclusion, the present study explores the complex relationship between epistemic stances, mentalization, emotional dysregulation, and internalizing problems in adolescence.

This study highlights the distinct impacts of mistrust and credulity in fostering internalizing problems. Mistrust exacerbates the symptomatology through both direct and indirect pathways. On the contrary, credulity primarily operates through mediating mechanisms, mainly *via* emotional dysregulation, which has been proven to be one of the main factors responsible for the onset and maintenance of internalizing manifestations.

Furthermore, the findings underline ET's importance in promoting adequate mentalization skills. Nevertheless, it is essential

to acknowledge that ET cannot guarantee adolescents' psychological well-being and prevent the onset of emotional and psychological difficulties. Mentalization confirmed its protective role, decreasing vulnerability to internalizing issues by significantly reducing emotion dysregulation. These findings underscore the importance of understanding the interactive pathways through which different epistemic stances influence adolescent mental health outcomes. Further research is warranted to deepen our understanding of these complex dynamics and inform more effective prevention and treatment strategies.

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