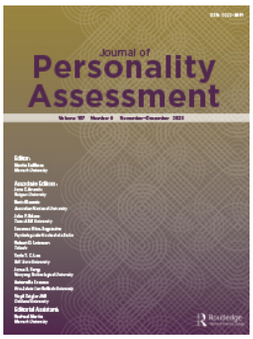

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Assessing Epistemic Trust in Common Mental Health Disorders: The Clinical Validation of ETMCQ, Measurement Invariance and Control Group Comparison

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ABSTRACT

Epistemic trust is the capacity of an individual to assimilate new information and engage with their surroundings. This study focused on the Epistemic Trust, Mistrust, and Credulity Questionnaire (ETMCQ) among individuals seeking treatment for common mental health issues ($N = 378$) compared to a non-clinical group ($N = 357$). The study aimed to validate the ETMCQ clinically, assess its consistency across clinical groups and community controls, and explore the relationship between epistemic attitudes (trust, mistrust, and credulity), mentalizing, and mental health problems by comparing the two groups. The ETMCQ's three-factor structure showed acceptable reliability and validity in the clinical setting. The measurement invariance analyses showed complete metric consistency but only partial scalar and strict consistency, with certain items not aligning across groups (Items 1, 3, 4 for scalar consistency; 2, 12, 14 for strict consistency). The results indicated that difficulties in mentalizing and increased levels of epistemic trust, mistrust, and credulity were linked to a greater likelihood of experiencing clinical distress. These outcomes underline the effectiveness of the ETMCQ in distinguishing between clinical and non-clinical individuals. However, researchers should use caution with the epistemic trust component of the questionnaire which appears to reflect a paradoxical epistemic attitude.

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Mentalizing, the capacity to comprehend our own and others' mental states, is fundamental for interpreting social cues, regulating emotions, and maintaining a coherent self-identity, serving as a scaffold for our social and interpersonal dynamics (Bateman & Fonagy, 2016). This capacity is linked to psychological resilience—the ability to adapt effectively to stress through constructive appraisal of circumstances (Kalisch et al., 2015)—and its impairment has been implicated in various psychological disorders (Ekeblad et al., 2016; Hanegraaf et al., 2021; Plana et al., 2014; Sharp et al., 2011; Sloover et al., 2022). In recent discussions, the relationship between mentalizing and psychopathology has been framed within the context of social learning, drawing attention to the concept of epistemic trust (Orme et al., 2019; Sharp et al., 2020). Epistemic trust reflects an individual's capability to learn from, engage with, and adapt effectively to their social environment, thereby promoting collaborative interactions and community integration (Li et al., 2023).

Mentalizing acts as a channel for conveying cultural knowledge, signaling the intent to share valuable insights, and aiding individuals to adaptively adjust 'epistemic vigilance'—an innate wariness of potentially deceptive or harmful information (Fonagy et al., 2015; Fonagy & Allison, 2014; Sperber et al., 2010). A decline in mentalizing skills can impair social functioning and lead to misunderstandings, making it challenging to recognize such communicative intentions. Consequently, this can erode epistemic trust, hindering the ability to learn from or adapt behavior based on social experiences, and disrupt a natural process of salutogenesis—the ability to derive benefit from social contexts (Nolte et al., 2019). While the theoretical discourse often links epistemic trust closely with mentalizing (Bo et al., 2017; Fonagy & Campbell, 2017), empirical findings on their relationship have been mixed. Some studies have identified a strong correlation between the capacity for epistemic trust, mentalizing, and psychopathology (Campbell et al., 2021; Liotti et al., 2023), whereas others argue that epistemic trust may independently influence psychopathological outcomes (Locati et al., 2023). This divergence in findings highlights the multifaceted nature of these constructs, emphasizing the

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need for more in-depth investigation into their interplay and collective impact on mental health.

It is important to recognize that epistemic trust is advantageous in generally supportive social environments, fostering a selective openness to learning opportunities (Fonagy et al., 2017). Yet, in less benign settings, where information may be distorted or deceptive, reliance on socially transmitted information can be counterproductive (Orme et al., 2019). Particularly for those with a background of early childhood adversity, which may erode trust, there may be a tendency toward a prolonged state of epistemic freezing or increased vigilance (Fonagy et al., 2015; Luyten et al., 2020). Initially serving as a protective measure in hostile environments, this cautious stance—referred to as "epistemic mistrust"—can become maladaptive over time. Epistemic mistrust signifies a reluctance to be influenced by external information, often dismissing other sources as irrelevant, unreliable, or malevolent in intent (Fonagy et al., 2017). Furthermore, disruptions in epistemic trust can lead to epistemic credulity, characterized by a pervasive uncertainty and a weakened critical perspective toward the information provided by others, heightening the risk of deception and exploitation (Fonagy et al., 2019). Additionally, some individuals may experience both profound mistrust and credulity, a situation known as an "epistemic dysfunction", which is notably linked to personality disorders (Campbell & Fonagy, 2022; Nolte et al., 2023; Smits et al., 2024). Perhaps, stemming from initial insecure/disorganized attachment experiences, these maladaptive epistemic stances can solidify into enduring trait-like characteristics (Knapen et al., 2020), hindering the assimilation and application of valuable information even in benign settings (Bo et al., 2017). Consequently, such disruptions in epistemic trust impair social communicative flexibility and openness, limiting opportunities for meaningful social learning. This can lead to isolation and further compound social and interpersonal challenges (Fonagy et al., 2017; Kumpasoğlu et al., 2025).

While the theoretical significance of epistemic trust in the context of psychopathology has been well-articulated, empirical investigations into this relationship are relatively nascent. This is largely due to the challenges associated with measuring epistemic trust and the absence of validated, reliable tools (Schroder-Pfeifer et al., 2018). The introduction of the Epistemic Trust, Mistrust, and Credulity Questionnaire (ETMCQ) by Campbell et al. (2021) marked the development of the first self-report measure for assessing epistemic trust. Reflecting the epistemic stances discussed earlier, the questionnaire comprises three distinct subscales: epistemic trust (ET), epistemic mistrust (EM), and epistemic credulity (EC). Following the introduction of the ETMCQ, subsequent research has largely concentrated on community populations, examining the links between EM and EC and various psychopathological dimensions, such as symptom severity (Campbell et al., 2021; Liotti et al., 2023), personality functioning (Tanzilli et al., 2022), and PTSD symptoms (Kampling et al., 2022). Notably, higher levels of EM and EC, but not lower levels of ET, have been associated with transdiagnostic factors, including diminished mentalizing abilities and difficulties in emotion regulation (Benzi et al., 2023; Liotti et al., 2023). As the first application of the ETMCQ within a clinical framework, Riedl et al. (2023) examined its utility among patients with psychosomatic conditions, revealing significant correlations between epistemic stances, and initial presentations of anxiety, depression, and somatization. Contrary to prediction, the study found no significant connections between epistemic stances and self-report mentalizing capacities. This unexpected finding has raised concerns about the ETMCQ's sensitivity in clinical settings, suggesting that the tool, initially designed and validated for use in general populations, may not be as effective in detecting nuances in epistemic stances among clinical cohorts (Li et al., 2023). Accordingly, the pressing need for validating the ETMCQ in clinical populations represents a critical gap in the literature.

To the authors' knowledge, there is no study investigating the phenomenon of epistemic trust in a clinical sample with common mental health problems, or comparing the differences across clinical and control groups. This gap underscores the need for more empirical research to elucidate the role of epistemic trust as a potential resilience factor against psychopathology or, conversely, as a risk factor when disrupted. Furthermore, the integration of mentalizing within this framework needs further investigation. In response, this study concentrated on adults seeking treatment for common mental health disorders in a primary care setting, alongside a community control group. Accordingly, this study aimed to: 1) validate the psychometric properties of the ETMCQ in a clinical context, 2) assess the measurement invariance of the scale across clinical and community control groups, 3) investigate mean differences in epistemic stance between clinical and community control samples, and 4) evaluate the ability of epistemic stance and mentalizing to differentiate between clinical and community control groups.

This research was preregistered within the framework of open science as part of a larger project, including an update regarding the inclusion of the hypothesis concerning the scale's validity (osf.io/m3u9k). We hypothesize that 1) the ETMCQ would maintain a factor structure consistent with its original validation within a clinical setting and exhibit similar psychometric properties, 2) the ETMCQ to demonstrate measurement equivalence across clinical and non-clinical groups, supporting its applicability to diverse populations, 3) the clinical sample would show higher levels of epistemic mistrust and credulity and lower levels of epistemic trust compared to the community control group, 4) disturbances in epistemic trust and ineffective mentalizing would be linked to a higher likelihood of belonging to the clinical group, whereas higher epistemic trust would be associated with a greater likelihood of being in the control group.

Methods

Procedure

In this study, a clinical group of participants seeking treatment *via* the Improving Access to Psychological Therapies (IAPT) programme (recently redesignated as NHS Talking Therapies for Anxiety and Depression—TTad) and a community sample recruited through purposive sampling *via*

posters, other advertising materials and an online survey platform (Prolific.co) were used. The TTad programme is offered within the mental health provision of the UK National Health Service (NHS) and provides evidence-based psychological treatments for depression and anxiety disorders including but not limited to general anxiety disorder, body dysmorphic disorder, obsessive-compulsive disorder, and post-traumatic stress disorder (The National Collaborating Centre for Mental Health, 2021). The assessment of an individual's eligibility and need for TTad services is carried out by trained clinicians who identify a structured problem descriptor based on the International Statistical Classification of Diseases and Related Health Problems (ICD-10) codes to match individuals to specific treatment protocols (Clark, 2018). The assessment also includes self-report symptom severity measures, sociodemographic variables and measures of impact on social and occupational functioning (The National Collaborating Centre for Mental Health, 2021).

For the current study, the inclusion criteria for all participants were: being fluent in writing and understanding English, aged between 18 and 60 years with no current or past diagnosis of neurological disorders or trauma (e.g., head injury), and not currently presenting with psychotic or bipolar disorder symptoms or substance misuse. An additional inclusion criterion for the clinical sample was being considered suitable for TTad-delivered treatment by the services. For the community sample, additional eligibility criteria were having no current or prior diagnosis of mental disorder/s and not using any psychological services at the time of the assessment. Further, community participants meeting the recommended cutoff criteria for high levels of distress on the Global Severity Index (GSI) or at least two dimensions of the Brief Symptom Inventory ($T \geq 63$) (Derogatis & Melisaratos, 1983; Franke et al., 2021) were treated as clinical sample participants in our analyses (with sensitivity analysis exploring the impact of this decision, as described below), with remaining participants who did not meet cutoff criteria included within the community control sample which will be referred as control group in the text below.

Participants completed a battery of questionnaires on secure online data-collecting tools either POD (https://pod-database.org) or Prolific (https://www.prolific.com). For the community sample, completion of the questionnaires took about two hours, on average. However, clinical participants completed additional questionnaires related to psychopathology severity as part of the wider study, which in total took approximately 4 h to complete across a number of assessment appointments. After completing the questionnaires, all participants were reimbursed £7.50/hour to compensate for their time and effort. Ethical approval was acquired from the London Queen Square Research Ethics Committee (REC number 16/LO/077). Prior written informed consent was obtained from all participants.

Participants

The study included a total of 735 participants, with 357 individuals in the control group and 378 individuals in the clinical group. The sample was predominantly female with 253 (70.9%) females in the control group and 267 (70.6%) females in the clinical group. The mean age in the control group was 33.95 ($SD = 11.23$), while in the clinical group, it was 31.94 years ($SD = 10.24$). The most common level of educational attainment was higher education, reported by 38.1% of the control group ($n = 136$) and 36.8% of the clinical group ($n = 139$). The majority of participants in both groups reported an annual household income of less than £10,000 (control group: $n = 103$, 28.9%; clinical group: $n = 96$, 25.4%).

The clinical sample was characterized based on problem descriptors provided by NHS TTad services, with the most common conditions being depression ($N = 99$), generalized anxiety disorder ($N = 58$), social phobia ($N = 24$), post-traumatic stress disorder ($N = 27$), obsessive-compulsive disorder ($N = 17$), hypochondriasis ($N = 12$), mixed anxiety-depressive disorder ($N = 10$), panic disorder ($N = 3$), and other conditions such as body dysmorphic disorder ($N = 2$), eating disorders ($N = 3$), and specific phobia ($N = 3$). There were 27 participants whose problem descriptor was missing, and for 23 participants, it was recorded as none-given. Detailed demographic information for each group were given in the Supplementary Materials.

Instruments

The Epistemic Trust, Mistrust and Credulity Questionnaire (ETMCQ)

Developed by Campbell et al. (2021), the ETMCQ is designed to measure an individual's epistemic stance through three distinct subscales: epistemic trust, epistemic mistrust, and epistemic credulity. Originally comprising 18 items rated on a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree), the scale was refined by removing the three lowest-loading items from each subscale, resulting in a more robust 15-item version (see Supplementary Materials for the scale). Each of the three revised subscales contains five items, with scoring based on the average raw scores for each subscale. For this study, data collection utilized the original 18-item questionnaire, although analyses excluded the three items subsequently removed in newer versions of the scale. Previous research has shown the ETMCQ's internal consistency, with Cronbach's alpha scores ranging from .69 to .81 for epistemic trust (ET), .65 to .72 for epistemic mistrust (EM), and .73 to .81 for epistemic credulity (EC) (Campbell et al., 2021; Liotti et al., 2023).

Reliability assessments for the current total sample yielded Cronbach's alpha and McDonald's omega values were .73 and .74 for ET, .72 for EM, and .78 and .77 for EC, respectively. The control sample displayed similar reliability metrics, with alpha and omega values of .72 and .73 for ET, .70 for EM, and .75 and .74 for EC.

Additional instruments

Mentalizing Questionnaire (MZQ). The MZQ is a 15-item self-report questionnaire in which respondents rate on a 5-point Likert scale and higher scores indicate poor mentalizing (Hausberg et al., 2012). According to initial

studies, MZQ-15 has a four-factor structure, encompassing *refusing self-reflection*, *emotional awareness*, *psychic equivalence mode*, and *reflection of affect* dimensions (Hausberg et al., 2012). However, due to overlapping items, the developers of the scale suggested using the total score instead of subscales. Within the current study, the MZQ demonstrated good internal consistency, with both Cronbach's alpha and McDonald's omega values for the total sample were .85, and .80 and .83 for the clinical and control samples respectively.

The Childhood Trauma Questionnaire (CTQ). CTQ is a 25-item self-report tool, that has been proven applicable for both clinical and non-clinical groups (Bernstein et al., 2003). It uses a 5-point Likert scale to assess the frequency of emotional, physical, or sexual abuse, as well as emotional or physical neglect experienced during childhood. In the current clinical sample, CTQ showed high internal consistency (α = .94, ω = .94).

The Brief Symptom Inventory (BSI). BSI is a 53-item questionnaire designed to assess psychological distress and psychiatric disorder symptoms (Derogatis & Melisaratos, 1983). Participants rate their distress level from various symptoms over the past week on a 5-point Likert scale. This study concentrated on the Global Severity Index (GSI), which showed an excellent reliability score (α = .96, ω = .96) in our clinical sample.

The Experiences in Close Relationships Scale-Revised (ECR-R). ECR-R is a 36-item tool designed to assess adult attachment styles through two main constructs: attachment anxiety and attachment avoidance, each represented by 18 items with responses given on a 7-point Likert scale (Fraley et al., 2000). In this clinical sample, the anxiety ($\alpha_{anxiety}$ = .93, $\omega_{anxiety}$ = .93) and avoidance ($\alpha_{avoidant}$ = .94, $\omega_{avoidant}$ = .93) subscales both demonstrated robust internal consistency.

Statistical analyses

IBM SPSS and AMOS (version 29) were employed for the analyses. The dataset under study exhibited no missing values. Prior to performing the statistical analyses, the dataset was scrutinized for normality and adherence to other assumptions necessary for parametric statistical evaluations. This examination led to the identification and subsequent exclusion of one multivariate outlier within the clinical group based on Mahalanobis distance. The assessments conducted confirmed the suitability of the data for parametric statistical analyses.

The initial goal was to evaluate the psychometric qualities of the Epistemic Trust, Mistrust, and Credulity Questionnaire (ETMCQ) within a clinical setting by examining its internal coherence, relationships between items, structural composition, and convergent accuracy. The internal consistency of the ETMCQ subscales was measured using both Cronbach's alpha (α) and McDonald's omega (ω), with 0.70 being considered an acceptable threshold (McNeish, 2018; Taber, 2018). Confirmatory factor analysis (CFA) was conducted to assess the ETMCQ's structure within the clinical sample, using maximum likelihood estimation[1]. In line with the methodology of the original investigation by Campbell et al. (2021), three CFA models were evaluated: an entirely free model (Model 1), a tri-factor model (Model 2), and a tri-factor model that accounted for the correlation between residuals of items sharing thematic content, as recommended by the instrument's authors (Model 3). The adequacy of model fit was appraised through several indices, including the normed chi-square (χ^2/df), comparative fit index (CFI), root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR). Benchmarks for satisfactory and excellent model fit were defined by CFI scores over .90 (satisfactory) and .95 (excellent), RMSEA and SRMR below 0.08 (satisfactory) and .05 (excellent), and normed chi-square below 5 and 2, correspondingly (Schumacker & Lomax, 2015; Wang & Wang, 2019). The distribution normality of item skewness and kurtosis was also examined, considering absolute skewness less than 3 and kurtosis less than 10 as indicative of normal distribution (Kline, 2011). Furthermore, the associations between the ETMCQ subscales and various developmental, psychological, and psychopathological measures were explored to evaluate the scale's convergent validity. The effect sizes below 0.20 were considered small, effect sizes equal to or greater than 0.20 were categorized as medium, and effect sizes equal to or greater than .30 were classified as large (Hemphill, 2003).

Following this, the second objective involved examining the consistency of measurements provided by the Epistemic Trust, Mistrust, and Credulity Questionnaire (ETMCQ) across clinical and control populations, employing multiple-group confirmatory factor analysis (MGCFA). To this end, the appropriateness of the factor structure was first evaluated separately for each group. Measurement invariance was then tested sequentially through four increasingly restrictive models, following established guidelines (Putnick & Bornstein, 2016). Configural invariance (configural consistency) was assessed by estimating a nonrestrictive baseline model (M0) to determine whether the same pattern of factor structure was present in both groups. Metric invariance (metric or weak consistency) was then evaluated by constraining factor loadings to be equal across groups (M1), thereby examining whether the strength of the association between each item and its underlying factor were comparable between the clinical and control samples. Scalar invariance (scalar or strong consistency) was tested by further constraining

[1]In this study, ML estimation was employed due to its robustness in handling data that approximately meets the criteria of continuity, particularly when scale categories are numerous (five or more) and sample sizes are moderate. However, recognizing the ordered categorical nature of Likert-type scales, we also applied the diagonally weighted least squares (DWLS) estimator as a supplementary analysis. Both methods yielded comparable results, affirming the robustness and reliability of our findings despite the underlying assumptions of each estimator (see Supplementary Material).

both factor loadings and item intercepts to equality across groups (M2), enabling valid comparisons of mean scores. Finally, strict invariance (strict or residual consistency) was assessed by additionally constraining item residual variances across groups (M3), permitting the most stringent comparison of measurement properties. At each step, measurement invariance was evaluated by comparing changes in model fit indices, with a decline in fit—indicated by ΔCFI ≥ 0.010, ΔRMSEA ≥ 0.015, or ΔSRMR ≥ 0.030—considered evidence of non-invariance (Chen, 2007; Cheung & Rensvold, 2002). If a model failed to be specified with all intercepts constrained, the approach involved individually estimating each intercept while maintaining the rest as fixed. The intercepts contributing the most to the chi-square difference were gradually adjusted. This procedure was repeated until further adjustments to intercepts ceased to significantly enhance the model fit, thus achieving partial scalar consistency.

To explore the third objective, the study employed a series of one-way ANCOVAs to adjust for potential confounding variables including age, gender, household income, and educational attainment. The effect sizes for these tests were interpreted using established benchmarks (Cohen, 1988) and for eta squared (η^2)—small (0.01), medium (0.06), and large (0.14).

Pursuing the fourth objective involved conducting a sequence of binary logistic regressions to assess the independent contributions of mentalizing ability and epistemic attitudes toward the probability of manifesting clinical distress, thereby determining membership in either the clinical or control group. The initial regression model (Model I) examined the relationship between mentalizing ability and group classification. Following this, Model II evaluated the influence of epistemic attitudes, considered as distinct factors within a single model. Finally, Model III assessed the collective influence of mentalizing ability and epistemic attitudes on group classification.

In all analyses, a clinical group which comprising individuals referred by Talking Therapies (TTad) Trusts and community participants identified with elevated Global Severity Index (GSI) scores ($T \geq 63$) was employed. To ensure the robustness of our findings, sensitivity analyses were conducted. These analyses refined the clinical group to include only those participants who were verified as requiring psychological intervention by TTad services, explicitly excluding community members who, despite elevated GSI scores, were not officially designated for clinical intervention.

Results

Factor structure of ETMCQ in the clinical sample

Table 1 presents the CFA results for all three models tested within the clinical sample. Both the unconstrained model and the initial three-factor model demonstrated a poor fit to the data. However, Model 3, the three-factor model that accounted for correlated error terms among five pairs of items with similar content, as suggested by the scale's developers (items 1 and 3; 5 and 6; 5 and12; 6 and 12; 7 and 8), provided a statistically significant model ($\chi^2 = 184.80$, $p < .001$) with acceptable model fit indices. All factor loadings for each item were statistically significant and exhibited overall acceptable values, with all items loading positively on their respective factors (see Figure 1). Further, sensitivity analyses involving only participants from the TTad services ($N = 308$) affirmed the robustness of these findings, with additional analyses on the total sample corroborating the results (detailed in Supplementary Materials).

Table 1. Goodness-of-fit indexes for all three CFA models on ETMCQ ($N = 378$).

Model	χ^2/ *df*	CFI	SRMR	RMSEA
1. Unidimensional	9.762	0.435	0.149	0.152
2. 3-factor	3.925	0.818	0.084	0.088
3. 3-factor with CRs	2.254	0.926	0.065	0.058

Internal consistency and inter-item correlations of ETMCQ in the clinical sample

Descriptive characteristics and zero-order correlation coefficients for each item are presented in Supplementary Materials. Among the 25 comparisons between the five ET items and five EM items, eight correlations were not statistically significant. Similarly, 18 out of 25 correlations between ET and EC, and 10 out of 25 correlations between EM and EC did not reach statistical significance.

Although the internal consistency was lower compared to the original community-based study, the current investigation demonstrated adequate internal consistency for the ET (α = .70, ω = .74), EM (α = .71, ω = .68), and EC subscales (α = .78, ω = .78) within the clinical sample.

Additionally, ET was moderately and negatively correlated with the EM subscale ($r = -0.29$, $p < .001$), while no significant correlation was observed with EC ($r = .08$, $p = .14$). EM was positively and strongly associated with EC ($r = .32$, $p < .001$).

Validity of ETMCQ in the clinical sample

The zero-order Pearson's correlation coefficients linking the ETMCQ subscales with related constructs were examined. Notably, lower ET was significantly associated with mentalizing difficulties, attachment avoidance, experiences of childhood trauma, and the overall severity of psychological symptoms (GSI). Conversely, both EM and EC were positively correlated with difficulties in mentalizing, patterns of anxious and avoidant attachment, childhood adversity, and the global severity of psychological symptomatology (see Table 2).

Group differences and associations with demographic variables

Group differences in demographic variables (i.e., age, gender, household income, and education level) that have been previously associated with epistemic stance (Campbell et al., 2021) were evaluated. There was no gender difference (X^2 (1, $N = 726$) = .11, $p = .74$) or education level difference (t (713) = 1.28, $p = .20$) among groups. In relation to gender,

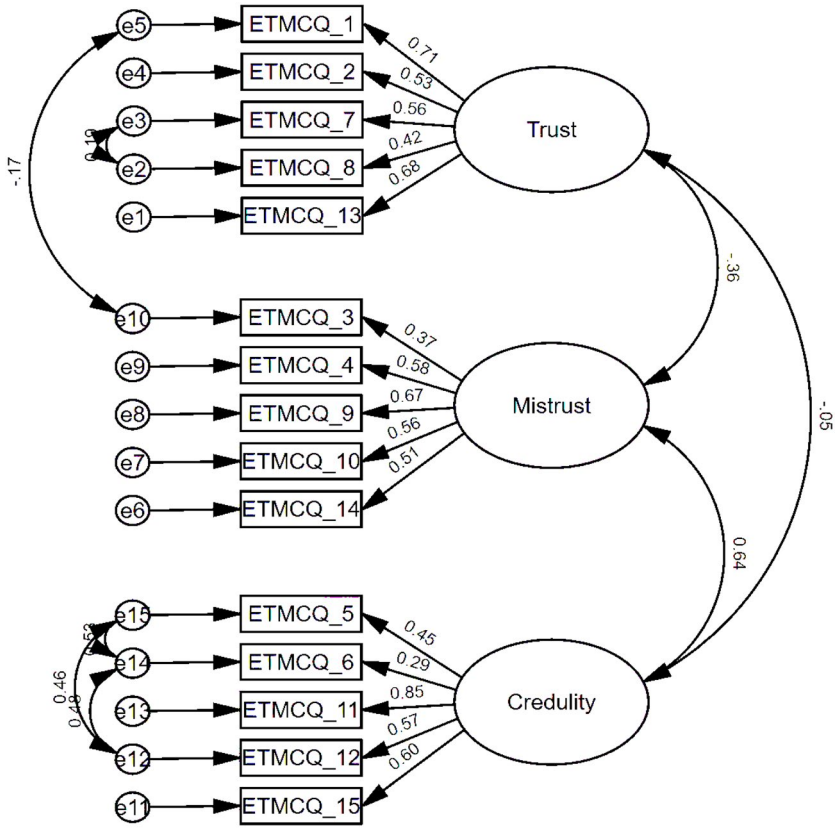

Figure 1. CFA results of the Model 3 with factor loadings in the clinical sample ($N = 378$). *Note.* Standardized loadings were shown. Rectangles represented measured variables while circles indicated latent constructs.

Table 2. Zero-order Pearson correlation coefficients between variables (N = 378).

ETMCQ subscales	Trust	Mistrust	MZQ	CTQ	Att-Anx	Att-Avoid	GSI
Trust		−0.29***	−0.27***	−0.13*	−0.07	−0.27***	−0.20***
Mistrust			0.54***	0.23***	0.24***	0.25***	0.45***
Credulity	0.08	0.32***	0.37***	0.15**	0.28***	0.13*	0.31***

Note. MZQ: Mentalizing Questionnaire; CTQ: the Childhood Trauma Questionnaire; Att-Anx: Attachment Anxiety; Att-Avoid: Attachment Avoidance; GSI: Global Severity Index.
***$p < .001$.
**$p < .01$.
*$p < .05$.

Table 3. Zero-order Spearman correlation coefficients between variables ($N = 735$).

	Trust	Mistrust	Credulity	MZQ
Mistrust	−0.16*			
Credulity	0.14*	0.37*		
MZQ	−0.02	0.55*	0.45*	
Age	−0.16*	−0.06	−0.05	−0.17*
Household Income	0.01	−0.01	0.00	0.02
Education Level	0.12*	−0.13*	−0.18*	−0.18*

Note. MZQ: Mentalizing Questionnaire.
*$p < .01$.

due to the small number of participants who identified as transgender and the lack of detail in this category, this analysis was performed without these individuals. However, the clinical group included younger individuals compared to controls (t (733) = 2.54, $p < .05$), and the household income was significantly lower in the control group (t (675) = −5.69, $p < .001$). Additionally, group differences in symptom severity were evaluated by utilizing GSI scores. Results revealed that the control group ($M = 0.38$, $SD = 0.30$) exhibited lower levels of clinical distress compared to the clinical group ($M = 1.51$, $SD = 0.70$), and this difference was significant (t (727) = −28.05, $p < .001$)

The t-test for two independent groups showed that women have higher scores on ET (t (724) = −4.81, $p < .001$), but there was no significant gender difference in the other variables. Zero-order correlations between epistemic stance and education level, age and mentalizing revealed that higher levels of education were significantly associated with higher ET ($r = 0.12$, $p < .01$) and lower EM ($r = -0.13$, $p < .01$), EC ($r = -0.18$, $p < .01$) and better mentalizing capacity ($r = -0.18$, $p < .01$). Older age was associated with lower levels of ET ($r = -0.16$, $p < .01$) and better mentalizing ($r = -0.17$, $p < .01$). No statistically significant association between household income and epistemic stance or mentalizing was found (see Table 3). Considering these results and group differences in demographic variables, age, gender, household income, and education level were considered as demographic covariates.

The measurement invariance across clinical and control groups

The adjusted tri-factor model (Model 3) showed a satisfactory alignment in both the clinical and non-clinical groups as well as the total sample (see Table 4). The foundational

Table 4. ETMCQ 3-factor with CRs model measurement invariance between clinical and control samples ($N = 735$).

	X^2	*df*	CFI	SRMR	RMSEA	Model comparison	ΔCFI	ΔSRMR	ΔRMSEA
Total sample	290.886	*82*	0.928	0.060	0.059				
Control sample	177.964	82	0.922	0.063	0.057				
Clinical sample	184.80	82	0.926	0.065	0.058				
M0	362.759	164	0.924	0.063	0.041				
M1	376.750	176	0.924	0.065	0.039	M0–M1	0.000	−0.002	0.002
M2	451.279	188	0.900	0.065	0.044	M1–M2	0.024	0.000	−0.005
M2a	406.461	185	0.916	0.065	0.040	M1–M2a	0.008	0.000	−0.001
M3	490.272	200	0.889	0.069	0.045	M2a–M3	0.027	−0.004	−0.005
M3a	433.448	197	0.910	0.066	0.041	M2a–M3a	0.006	−0.001	−0.001

Note. M0 configural invariance, M1 metric invariance, M2 scalar invariance, M2a partial scalar invariance, M3 strict invariance, M3a partial strict invariance.
***$p < .001$.

model (M0) presented suitable fit indices, suggesting that the basic structure remained consistent across both groups. The M1 model, examining metric invariance, displayed changes in fit indices that stayed within the acceptable limits compared to the M0 model. This finding suggests negligible differences in factor loadings between groups, thereby confirming metric invariance across the populations. However, the M2 model, aimed at assessing scalar invariance by equalizing all intercepts across groups, experienced a drop in CFI values. Despite this, the difference in fit indices between M1 and the adjusted M2a model, which did not enforce equality for items 1, 3, and 4, did not exceed the set benchmarks. This supports partial scalar invariance between the samples. The evaluation of M3 against M2a demonstrated a notable decline in the comparative fit index (CFI) that exceeded the defined threshold of ≥ .010, signifying significant differences in residual variances between groups. To address this, the model was adapted by removing the equality constraint on the residual variances for Items 2, 12, and 14. The comparison of this revised model (M3a) with the M2a model showed no significant deviation in fit indices, indicating partial consistency in residual variances. In conclusion, these findings suggest complete metric, partial scalar, and partial strict consistency across the clinical and non-clinical groups. Sensitivity analyses conducted solely with participants referred by TTad services confirmed these results (see Supplementary Materials for details).

Mean differences in epistemic stance and mentalizing between clinical and control groups

The results indicated that the control group exhibited significantly lower levels of EM (*Mean Difference [MD]* = −0.72, $p < .001$, *partial* $n^2 = .12$) and EC ($MD = -0.71$, $p < .001$, *partial* $n^2 = .08$), both of which have a medium effect size (see Table 5). Contrary to expectations, the control group also reported significantly lower scores on ET ($MD = -0.27$, $p = .001$, *partial* $n^2 = .01$), although the effect size is small.

Sensitivity analyses focusing solely on participants recruited through TTad services in the clinical group paralleled these findings but indicated a slightly larger effect size in group differences concerning each epistemic attitude. The detailed results of these analyses were provided in Supplementary Material.

Table 5. Univariate effects of sample groups ($N = 735$).

Variables	*df*	*F*	*p*	partial η^2	Group	M (*SD*)	EMM	95% CI
Trust	1	10.71	.001	0.01	Control	4.75 (0.92)	4.76	4.66–4.86
					Clinical	5.01 (1.04)	5.00	4.90–5.10
Mistrust	1	101.65	<.001	0.12	Control	3.87 (0.94)	3.86	3.76–3.96
					Clinical	4.59 (0.99)	4.60	4.50–4.69
Credulity	1	65.64	<.001	0.08	Control	2.91 (1.05)	2.91	2.79–3.03
					Clinical	3.61 (1.25)	3.61	3.50–3.73

Notes: EMM: Estimated Marginal Means; CI: Confidence Interval. Gender, age, household income, and level of education were included as covariates.

The ability of epistemic stance and mentalizing in distinguishing clinical and control groups

To further investigate the predictive accuracy of epistemic stances for group classification, and to investigate potential impact on mentalizing on this association, a series of logistic regression analyses were conducted while socio-demographic variables were controlled for (see Table 6). ET was excluded from the primary models to preserve parsimony and to minimize potential measurement bias given its unexpected direction and consistently small effect sizes; alternative models including ET are reported in the Supplementary Materials.

The initial model, which scrutinized mentalizing ability, accurately identified 72.3% of individuals as belonging to either the clinical or control group. Similarly, the second model, which focused on disruptions in epistemic trust, demonstrated an accuracy of 68.3% in classification. The comprehensive model, incorporating both mentalizing and epistemic stances, predicted the classification of cases with 73.3% accuracy. It was observed that poor mentalizing ability (Odds Ratio [OR] = 1.09, 95% Confidence Interval [CI] [1.06, 1.11]), and elevated levels of EM (OR = 1.27, 95% CI [1.02, 1.58]), and EC (OR = 1.24, 95% CI [1.05, 1.46]) were all individually linked with a higher probability of being classified within the clinical group.

Sensitivity analyses restricted to NHS TTad–referred participants replicated these findings, with modest improvements in model fit (see Supplementary Materials). In ET-inclusive models, all epistemic stance variables were significant when entered together; however, when mentalizing was added, EC was no longer significant. These models demonstrated slightly higher explanatory power and classification accuracy, though interpretation should be made cautiously (Supplementary Materials).

Discussion

The Epistemic Trust, Mistrust, and Credulity Questionnaire (ETMCQ) is increasingly used to assess individuals' ability

Table 6. Logistic regression analysis of predictors of diagnosis groups ($N = 735$).

Predictor	Model I				Model II				Model III			
	B (*SE* B)	Wald's X^2	OR	95% CI for OR	B (*SE* B)	Wald's X^2	OR	95% CI for OR	B (*SE* B)	Wald's X^2	OR	95% CI for OR
M	0.10 (0.01)	122.71**	1.11	1.09–1.13					0.08 (0.01)	56.31**	1.09	1.06–1.11
EM					0.66 (0.09)	48.30**	1.93	1.60–2.32	0.24 (0.11)	4.74*	1.27	1.02–1.58
EC					0.36 (0.08)	21.60**	1.44	1.23–1.68	0.21 (0.08)	6.34*	1.24	1.05–1.46
Model Fit												
Nagelkerke R^2		0.35				0.28				0.37		
Cox & Snell R^2		0.26				0.21				0.28		
−2LL		785.74				837.71				772.62		
X^2		220.44**				168.48**				233.56**		

Note.
*$p < .05$.
**$p < .001$.
Gender, age, household income, and educational attainment were included as covariates. M: Mentalizing; ET: Epistemic Trust; EM: Epistemic Mistrust; EC: Epistemic Credulity.

to learn from social exchanges, but its psychometric properties had previously only been studied in community samples. This research expands on prior work by validating the ETMCQ in a clinical sample with common mental health disorders (CMHDs), confirming its partial consistency and utility across clinical and control groups. As expected, the clinical cohort exhibited significantly higher epistemic mistrust and credulity than controls. Unexpectedly, the clinical group also showed slightly elevated epistemic trust. Diminished mentalizing was linked to greater mistrust and credulity, both associated with a higher likelihood of clinical distress. Notably, the addition of epistemic stance variables to regression models already including mentalizing resulted in only a limited increase in explanatory power, suggesting that these factors may exert an interrelated, but not strongly additive, influence on psychopathology.

Consistent with the original ETMCQ study and subsequent adaptations (Asgarizadeh & Ghanbari, 2024; Campbell et al., 2021; Greiner et al., 2024; Liotti et al., 2023), our findings support the three-dimensional model—trust, mistrust, credulity—in clinical samples. However, as in previous studies (Campbell et al., 2021; Greiner et al., 2024), achieving good model fit required allowing correlated errors among items with similar content or wording. This adjustment, along with higher correlations between epistemic mistrust and credulity within the model, suggests a potential overlap in the conceptualization of these constructs, potentially affecting the clarity and distinctiveness of each dimension within the scale. This overlap may reflect an "epistemic dysfunction" where disruptions in epistemic trust co-occur with heightened mistrust and credulity (Campbell & Fonagy, 2022; Smits et al., 2024). This condition is observed not only in personality disorders but also in common mental health disorders, underscoring the interplay of these epistemic stances beyond specific psychopathological classifications. Other adaptations of the ETMCQ (Asgarizadeh & Ghanbari, 2024; Liotti et al., 2023), also required modifying item allocations or excluding certain items, underscoring persistent challenges in measuring epistemic trust across cultures.

While the internal consistency values for the ETMCQ subscales in the current clinical sample were generally acceptable (α = 0.70–0.78), it is noteworthy that these values often clustered just above the commonly accepted threshold of 0.70. This pattern is consistent with both the original and subsequent validation studies (Campbell et al., 2021; Liotti et al., 2023), several of which have reported comparable or even lower coefficients for certain subscales (Asgarizadeh et al., 2023; Greiner et al., 2024). Collectively, these findings suggest that while the internal consistency of the ETMCQ subscales is generally adequate across different samples, reliability estimates should be interpreted with some caution.

The study identified key associations between epistemic stance, mentalising, and related constructs within the clinical sample. A small negative correlation emerged between adverse childhood experiences and the trust component, aligning with findings from community samples (Campbell et al., 2021; Liotti et al., 2023), although the French adaptation study (Greiner et al., 2024) did not report a significant association with a small effect size. No significant relationship was found between anxious attachment and the trust subscale; however, a moderate to strong negative correlation with avoidant attachment was observed, consistent with previous research with similar effect sizes (Asgarizadeh & Ghanbari, 2024; Greiner et al., 2024; Liotti et al., 2023). This finding partially aligns with Campbell et al. (2021), which additionally reported a small negative correlation with anxious attachment. A negative association was also observed between epistemic trust and overall psychopathology severity, consistent with findings by Campbell et al. (2021) and Liotti et al. (2023). However, this relationship was not replicated in Greiner et al. (2024), despite all studies employing the BSI to assess psychopathology. In contrast to a study on psychosomatic inpatients, which reported no significant associations between epistemic stances and mentalizing abilities as measured by the MZQ (Riedl et al., 2023), our findings indicate that higher epistemic trust is associated with enhanced mentalizing capabilities.

Strong positive associations were observed between higher levels of epistemic mistrust and credulity with both mentalising difficulties and increased psychological symptoms, consistent with previous findings (Asgarizadeh & Ghanbari, 2024; Campbell et al., 2021; Greiner et al., 2024; Liotti et al., 2023). These associations suggest that dysfunctional epistemic stances may be linked to impairments in social learning and adaptive functioning, which in turn could contribute to the exacerbation of psychopathological conditions; however, the cross-sectional nature of our study precludes conclusions about causality. Regarding attachment styles, epistemic mistrust was associated with both avoidant and anxious attachments, with medium effect sizes, while

epistemic credulity was more strongly linked to anxious attachment. This pattern suggests that mistrust reflects general skepticism about the relevance and reliability of new information, whereas credulity may reflect excessive dependence on external input, compromising epistemic agency and increasing vulnerability in interpersonal interactions (Campbell et al., 2021; Greiner et al., 2024).

Overall, the convergent validity of the ETMCQ within a clinical sample were consistent with prior community studies. Although the epistemic trust subscale showed similar associations to earlier research, the small magnitude of these correlations and inconsistencies in the literature raise concerns about its validity indicate a need for further refinement, especially in clinical contexts.

Regarding the demographic findings, a notable gender difference emerged, with women reporting significantly higher epistemic trust than men. This aligns with Benzi et al. (2024) and Riedl et al. (2023) who reported similar gender-specific trends limited to trust, and partially with Campbell et al. (2021) and Asgarizadeh and Ghanbari (2024), who also found differences in mistrust and/or credulity. Conversely, Liotti et al. (2023) found no gender differences. Additionally, a small but significant negative correlation between age and trust was observed, consistent with previous research suggesting increased skepticism with age (Campbell et al., 2021; Greiner et al., 2024). Higher education was linked to increased epistemic trust and decreased epistemic mistrust and credulity, supporting findings that suggest epistemic trust may be a dynamic factor influencing the learning process in academic contexts (Durkin & Shafto, 2016). Interestingly, no significant relationship was found between household income and any epistemic stance, despite theoretical predictions that adversity and deprivation may foster chronic mistrust, potentially contributing to mentalizing deficits (Campbell et al., 2021, 2024). Campbell et al. (2021) found inconsistent results in this area, initially reporting a small negative correlation between epistemic mistrust and income, which was not replicated in their confirmatory sample. Similarly, Tanzer et al. (2024) reported a small, negligible negative correlation between epistemic mistrust and income, but no association with other epistemic stances. These findings may reflect the limitations of cross-sectional data, which may not fully capture the nuances of how trust and income interact over time (Sareen et al., 2011).

Regarding our second objective, configural, metric, partial scalar and partial strict invariance of the ETMCQ were established across clinical and control groups. However, scalar invariance required intercept adjustments for Items 1, 3, and 4. Consistent with challenges noted in prior adaptations of the ETMCQ (Asgarizadeh & Ghanbari, 2024; Greiner et al., 2024), Item 1 ("I usually ask people for advice when I have a personal problem") and Item 3 ("I'd prefer to find things out for myself on the internet rather than asking people for information") were problematic. These items, removed in the French adaptation due to their low factor loadings on the epistemic trust subscale. We speculate that the lack of invariance for these items may shed light on a nuanced aspect of epistemic trust. Specifically, those with high epistemic mistrust and credulity might experience an intense need for external validation, termed "epistemic hunger," especially in the face of unclear personal situations, leading them to seek but not fully integrate social knowledge (Fonagy & Campbell, 2015). This phenomenon indicates that epistemic mistrust reflects not a disinterest in social engagement but a difficulty in learning from such interactions. Therefore, Items 1 and 3 might not effectively measure epistemic trust, as they may focus more on the pursuit of validation rather than the acquisition and assimilation of knowledge. Furthermore, Item 4 ("I often feel that people do not understand what I want and need") also varied between groups, potentially due to the inclusion of individuals with common mental health issues known for impairing social functionality, such as social anhedonia and impaired emotional recognition, thereby complicating their ability to comprehend and interact with others (Dalili et al., 2015).

Further adjustments were necessary for strict consistency in Items 2, 12, and 14, indicating only partial invariance across groups. Notably, Item 14 was excluded in the Iranian adaptation, with researchers suggesting its content on the presumed reliability of advice contradicts the skepticism characteristic of epistemic mistrust (Asgarizadeh & Ghanbari, 2024). Similarly, Li et al. (2023) indicated that Item 2 might conflate source familiarity with its validity, complicating its interpretive consistency. These inconsistencies highlight the need for further exploration of item-level issues in the ETMCQ.

In line with our third objective, our study corroborates that individuals with CMHDs exhibit elevated levels of epistemic mistrust and credulity compared to controls. This supports and extends prior research (Locati et al., 2023; Parolin et al., 2024) which associated these epistemic stances with internalizing symptoms in adolescents, broadening the applicability of these findings across age groups and clinical contexts. Riedl et al. (2023) also indicated significant associations between increased epistemic mistrust, credulity, and heightened symptoms of depression and anxiety among adult psychosomatic inpatients. These findings align with theoretical propositions by Fonagy et al. (2019), suggesting that disruptions in epistemic trust potentially heighten vulnerability to a range of psychopathologies by impeding effective mentalization and the assimilation of social knowledge. Such disruptions could potentially initiate a cyclical relationship where epistemic disturbances contribute to and result from common mental health disorders. While these cross-sectional findings provide valuable insights, the causal directions of these relationships remain to be elucidated. Therefore, longitudinal studies are crucial to determine whether epistemic disturbances serve as precursors or consequences of psychopathological conditions, which could significantly inform therapeutic interventions.

Contrary to expectations, the clinical group in our study demonstrated higher epistemic trust scores compared to the control group, albeit with a small effect size. This finding diverges from previous research, which either reported no association between epistemic trust and psychopathology (Kampling et al., 2022; Tanzilli et al., 2022) or identified negative associations (De Coninck et al., 2024; Liotti et al., 2023; Riedl et al., 2023). However, some studies (Asgarizadeh & Ghanbari, 2024; Brauner et al., 2023; Hauschild et al., 2023) reported similar paradoxical increases in epistemic trust in

conjunction with various psychopathological conditions. Based on these inconsistent results, previous researchers suggested that epistemic trust may not function as a protective factor against psychopathology, potentially representing a neutral mode of social functioning that does not confer additional mental health benefits (Campbell et al., 2021; Locati et al., 2023). However, in light of these findings—specifically, higher levels of epistemic trust in the clinical group, alongside elevated mistrust and credulity, and small negative associations between epistemic trust and psychopathology, as well as inconsistent findings in the previous studies with community groups—we have concerns about the accuracy of the epistemic trust subscale in the ETMCQ. Supporting this, Asgarizadeh et al. (2023) found minimal to no incremental utility of epistemic trust in predicting mentalizing and emotion regulation difficulties, suggesting the issue may lie with measurement rather than the construct itself. At the time of data collection for this study, alternative measures such as the Epistemic Trust Questionnaire were unavailable. Future studies should compare multiple self-report instruments to clarify whether these issues are due to measurement limitations or fundamental aspects of epistemic trust.

The study also found that epistemic mistrust and credulity were moderately effective in distinguishing individuals with CMHDs from control participants, supporting the notion that disturbances in epistemic trust may have a broader impact across various psychopathologies, beyond severe personality disorders (Asgarizadeh & Ghanbari, 2024). This is further supported by the persistence of associations between epistemic stances and group classifications even after controlling for mentalizing capacities, albeit with reduced effect sizes. However, adding epistemic stance variables to models already including mentalizing resulted in only limited increases in explanatory power, suggesting that while epistemic trust and mentalizing are distinct constructs, their roles in clinical presentations may be interrelated (Nolte et al., 2019).

These results may have important clinical implications. Our findings indicate that individuals may still be oriented to engage in prosocial behaviors such as asking questions or seeking advice, but that does not necessarily translate into the socially transmitted information becoming internalized. In the clinical setting, this may take a form similar to the pseudo-mentalizing mode (i.e., pretend mode) as indicated in mentalization-based treatment (MBT) (Bateman & Fonagy, 2016). This may suggest that mere participation in therapy and outwardly seeking guidance may not always indicate genuine engagement or assimilation of therapeutic insights. Correspondingly, clinicians may want to closely monitor alterations in patients' beliefs toward themselves and the world to capture latent aspects of epistemic dysfunctions. However, it's important to emphasize that these insights are preliminary and require further exploration to fully grasp their significance in clinical practice.

This study has several limitations. Firstly, reliance on self-report measures may introduce social desirability bias and inflate correlations due to shared method variance. To validate these results, future research incorporating experimental designs is essential. Secondly, the clinical participants were solely sourced from primary care referrals. Future studies should examine epistemic stance in broader and more severely affected clinical populations to better understand differences across diagnostic categories and severities. Additionally, clinical characteristics in the current sample were based on primary problem descriptors—selected primarily for treatment allocation purposes—rather than standardized diagnoses, and the limited number of participants within each category precluded meaningful subgroup analyses. Future studies should aim to recruit larger and more diagnostically homogeneous samples to allow for examination of potential differences in epistemic stance across distinct diagnostic groups. Additionally, an earlier version of the ETMCQ, which included three additional items, was used. Even though the analysis proceeded without these items, the quantity and arrangement of items could potentially modify participant responses and impact the findings (Dillman, 2015). Finally, the absence of formal attention checks in the survey represents a limitation, and future studies should incorporate direct measures of data quality to further ensure the reliability of responses collected online.

To summarize, the primary goal of this research was to examine the psychometric characteristics of the ETMCQ within a clinical context and to shed light on the nuanced aspects of epistemic stance across a diverse range of clinical conditions. The outcomes affirm the ETMCQ's applicability for clinical populations, enhancing the body of evidence on the significance of epistemic trust in psychopathology. Findings suggest that clinical distress is linked to altered epistemic trust, supporting its potential role in understanding diverse mental health conditions. Contrary to prior research, the current results challenge the notion that epistemic trust correlates with resilience. This inconsistency may stem from limitations within the epistemic trust scale itself. Further investigations are essential to verify these preliminary findings and to deepen our understanding of epistemic trust's role in mental health.

Transparency and Openness

The data that were used in this study are part of a continuing larger cross-sectional study entitled Probing Social Exchanges—A Computational Neuroscience Approach to the Understanding of Major Depressive Disorder (see previous publications, e.g., Euler et al., 2021; Kumpasoğlu et al., 2025; Rifkin-Zybutz et al., 2021; Stagaki et al., 2022). The data of the current study has been using to study various research questions distinct from the current research, hence the data are available from the corresponding author on reasonable request.

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Open scholarship

This article has earned the Center for Open Science badges for Preregistered. The materials are openly accessible at https://osf.io/m3u9k.

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