### Psychometric properties of the Angolan version of the Reflective Functioning Questionnaire – 8 (RFQ-8): An exploratory study

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**Abstract:** The Reflective Functioning Questionnaire (RFQ-8) is a brief self-report psychometric instrument designed to assess an individual's reflective functioning abilities. This study aimed to examine the psychometric properties of the Angolan version of the RFQ-8, namely, to assess its factor structure and to examine its correlations with related constructs and clinical variables in a sample of the general population of Angola.

A cross-sectional study was conducted with 132 participants (aged  $\geq$ 18 years) with Angolan residency and nationality, recruited through non-probability, convenience and snowball sampling procedures. The online research protocol included a Portuguese translation of the RFQ-8 and a battery of selfreport measures (Brief Symptom Inventory; Adult Attachment Scale – Revised; Beck Cognitive Insight Scale).

Consistent with previous research, results supported a two-factor structure for the RFQ-8 (assessing certainty and uncertainty about mental states; RFQc and RFQu subscales) with satisfactory internal consistency. RFQ-8 scores also showed significant correlations to psychopathological symptoms, suggesting a close relation between uncertainty about mental states and clinical problems, consistent with the mentalization framework; statistically significant relationships with different attachment patterns that support mentalization's developmental schema; significant correlations with cognitive insight, a construct closely related to reflective functioning. Even though the RFQ-8 was designed to assess two impairments in reflective functioning (hypermentalization and hypomentalization), it seems that only hypomentalization is adequately addressed by this instrument. Further research is thus needed to analyze the probable unidimensionality of the RFQ-8 and the viability of different scoring procedures.

In conclusion, this study offers preliminary evidence on the reliability and validity of the Angolan version of this scale. Besides its usefulness in clinical assessment, it could also contribute to developing research on mentalization and the efficacy of psychotherapeutic interventions, including patients' responses to mentalization-based treatments.

Keywords: Mentalization, Reflective functioning questionnaire, Psychometric properties, Factor structure.

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#### Introduction

The Reflective Functioning Questionnaire (RFQ-8) is a brief self-report psychometric instrument designed to assess an individual's reflective functioning abilities (Fonagy et al., 2016). Reflective functioning or mentalizing refers to the ability to understand the self and others and to interpret behaviors in terms of underlying mental states, including emotions, desires, thoughts, and beliefs (Fonagy et al., 2002). Research suggests that reflective functioning plays a substantial role in typical and atypical development and in psychotherapeutic processes and outcomes (Badoud et al., 2015).

Until the development of the RFQ-8, the only well-validated measure that directly assessed reflective functioning was interview-based: the Reflective Functioning Scale (RFS) (Fonagy et al., 1998) applied to the Adult Attachment Interview (AAI) (George et al., 1996) and to the Parent Development Interview (Slade et al., 2004; Sleed et al., 2020). Even though some authors argue that the RFS remains the gold standard for measuring reflective functioning (Morandotti et al., 2018), it is time-consuming and requires highly trained administrators/raters, therefore limiting the scope of its applicability in most clinical and research contexts (Anis et al., 2020; Badoud et al., 2015). Recognizing the need for an instrument that could be deployed in large-scale epidemiological studies, Fonagy et al. (2016) devised a generic and easy-to-administer self-report measure of reflective functioning for adults, entitled the Reflective Functioning Questionnaire (RFQ-8).

The RFQ-8 has two subscales that assess uncertainty (RFQu) and certainty (RFQc) about mental states. It was hypothesized that higher scores on each subscale indicated impaired reflective functioning, namely hypomentalizing and hypermentalizing. Hypomentalizing refers to an inability or difficulty in considering the mental states of self and others, whereas hypermentalizing reflects an opposite tendency to develop excessively detailed models about the mind of oneself and others without appropriate empirical evidence to support them. Genuine mentalization, on the other hand, implies a certain degree of modesty and humility concerning the knowledge of mental states, recognizing their inherent opaqueness (Fonagy et al., 2016).

Since the development of the RFQ-8, other self-report tools for assessing mentalization have been developed: the Reflective Functioning Questionnaire – Youth (RFQ-Y; Sharp et al., 2009); the Mentalization Questionnaire (MZQ; Hausberg et al., 2012); the Parent Reflective Functioning Questionnaire (PRFQ; Rostad & Whitaker, 2016) and the Mentalization Scale (MentS; Dimitrijević et al., 2018). However, the RFQ-8 remains the most thoroughly analyzed and examined psychometric tool. It has been translated into several languages, and most validation studies highlight its reliability and capacity to identify deficits in reflective functioning (Table 1).

The literature review on the psychometric proprieties of the RFQ-8 indicates that, although some validation studies include clinical and non-clinical samples (e.g., Morandotti et al., 2018), as suggested by Fonagy et al. (2016), most of them resort to the general population and/or to college students' samples (e.g., Wozniak-Prus et al., 2022). Regarding statistical procedures for analyzing the RFQ-8 factor structure, most of the reviewed studies follow the indications of the authors of the scale, using Confirmatory Factor Analysis (CFA). However, it should be noted that some studies combine CFA with Exploratory Factor Analysis (e.g., Ruiz-Parra et al., 2023; Spitzer et al., 2020), while others use Principal Component Analysis (Griva et al., 2020; Morandotti et al., 2018). In congruence with the original study, bi-factor solutions (RFQu and RFQc) are prevalent, but more recent studies suggest a single-factor structure related to hypomentalization (Muller et al., 2022; Rueda et al., 2020; Ruiz-Parra et al., 2023; Wozniak-Prus et al., 2022).

Authors	Participants	Construct validity evaluation procedures	Factor structure	Internal consistency	Temporal stability	Convergent/ divergent validity	Discriminant validity
Badoud et al. (2015) French version	Adolescents aged between 12 and 18 years $(n=130)$ Adults $(n=253)$	Confirmatory Factor Analysis (CFA)	Two factors (RFQc and RFQu)	Adults σ=.72 RFQc σ=.64 RFQu Adolescents α=.74 RFQc α=.68 RFQu	Adults r=.55 RFQu r=.70 RFQc	Basic Empathy Scale (BES) Toronto Alexitiymia Scale (TAS) Kentucky Inventory of Mindfulness Skills (KIMS) Borderline Inventory Personality (BIP) Youth and Adult Self-Reports (YSR/ASR)	
Fonagy et al. (2016) Original version	Patients with Borderline Personality Disorder (BPD) and Eating Disorder (ED) (n=108) Normal controls $(n=295)$	Exploratory Factor Analysis (EFA) Confirmatory Factor Analysis (CFA)	Two factors (RFQe and RFQu) Non-clinical sample	Clinical sample α=.65 RFQc α=.77 RFQu α=.67 RFQc α=.63 RFQu α=.63 RFQu	/≕.84 RFQu /=.75 RFQc	Mindful Awareness Attention Scale (MAAS) Basic Empathy Scale (BES) Perspective-Taking Subscale (PTS) of the Interpersonal Reactivity Index Eating Attitudes Test (EAT) Multi-Impulsivity Scale (MIS) Beck Depression Inventory-II (BDI) Borderline Personality Inventory (BPI) Zamarini Rating Scale for Borderline Personality Disorder (ZAN)	Clinical vs. non-clinical participants RFQc ( $t=0.209$ , $p=0.04$ ) RFQu ( $t=99$ , $p=0.001$ ) Logistic regression analyses confirm the RFQu superiority in discriminating samples
Morandotti et al. (2018) Italian version	Healthy controls $(n=154)$ BPD patients $(n=59)$	Principal Component Analysis (PCA)	Two one-component solutions for RFQc and RFQu	α=.75 RFQe α=.77 RFQu	<i>i</i> −.81 RFQc <i>i</i> −.85 RFQu	Reading the Mind in the Eyes Test (RMET) Empathy Quotient (EQ) Kentucky Inventory of Mindfulness Skills (KIMS) Toronto Alexithymia Scale (TAS-20) Autism Spectrum Quotient (AQ) Shedler-Westen Assessment Procedure (SWAP 200)	ANCOVAs: significant effect of diagnosis (BPD vs. controls) on RFQc and RFQu scores ROC analyses: RFQu subscale discriminated BPD publishts from healthy controls
Spitzer et al. (2020) German version (RFQ-6)	General population $(n=2477)$	Confirmatory Factor Analysis (CFA) Exploratory Factor Analysis (EFA) with oblique factor rotation	6 items (RFQ-6) representing a single latent construct.	α=.88	I	Patient Health Questionnaire-4 (PHQ-4) Giessen Subjective Complaints List (GBB-8)	-
Rueda et al. (2020) Colombian version	University students $(n=232)$ Patients with mental and/or personality disorder $(n=57)$	Confirmatory Factor Analysis (CFA)	Two factors (RFQc and RFQu)	α=.72 RFQc α=.77 RFQu	I	I	Statistically significant differences in RFQu scores according to clinical status
Griva et al. (2020) Greek version	Participants with type 1 diabetes $(n=102)$ Healthy participants $(n=117)$	Principal Component Analysis (PCA) with promax rotation	Two factors (RFQc and RFQu)	Healthy group σ=.81 RFQc σ=.79 RFQu Type 1 diabetes σ=.86 RFQc σ=.81 RFQu	I	Symptom Checklist for psychological distress (SCL-10R) Wong and Law Emotional Intelligence Scale (WLEIS) Toronto Empathy Questionnaire (TEQ)	1
Paiva (2021) Portuguese version	Adults ( $n=369$ )	Confirmatory Factor Analysis (CFA)	Two factors (RFQc and RFQu)	α=.85 RFQc α=.86 RFQu	<i>r</i> =.59 RFQc <i>r</i> =.62 RFQu	1	Ι

Literature review concerning the validation and evaluation of psychometric properties of the RFQ-8

Table 1

Table 1 (coni	t.)						
Bizzi et al. (2021) Italian version (RFQ-6)	Adolescents aged between 13 and 20 years ( <i>n</i> =593)	Confirmatory Factor Analysis (CFA)	Six-item RFQ model model with a two factor structure (RFQc and RFQu)	α=.65 RFQc α=.69 RFQu	1	Symptom Checklist 90 Revised (SCL-90-R) Toronto Alexithymia Scale (TAS-20)	
Mousavi et al. (2021) Persian version	Adolescents aged between 12 and 18 years $(n=3.69)$	Confirmatory Factor Analysis (CFA)	Two factors (RFQc and RFQu)	α≕.71 RFQc α≕.62 RFQu	<i>i</i> =.81 RFQc <i>i</i> =.78 RFQu	Relationship structures questionmaire of the Experiences in Close Relationships Revised (ECR-RS) Toronto Alexithymia Scale (TAS) Interpersonal Reactivity Index (IRI) Basic Empathy Scale (BES) Mindful Attention Awareness Scale (MAAS) Meta-Cognitions Questionmaire (MCQ) Youth Self Report (YSR)	1
Muller et al. (2022) German and English versions	Sample 1 (inpatients of a psychosomatic clinic ranging in age from 18 to 68; <i>n</i> =861) Sample 2 (young adults aged between aged between 18 and 30 years; <i>n</i> =566) Sample 3 (non-clinical US participants; <i>n</i> =862)	Exploratory Factor Analysis (EFA) Confirmatory Factor Analysis (CFA)	Unidimensional structure (related to hypomentalization)	Sample 1 ∞= 79, (admission/disch Sample 2 – ∞=.8		Brief Symptom Inventory (BSI) Inventory of Interpersonal Problems (IIP-32) WHO-5 Well-Being Index (WHO-5) Patient Health Questionnaire (PHQ) Inventory of Personality Organization (IPO-16) Operationalized Structural Diagnostic Questionnaire – Short Form (OPD-SQS) Bront form (OPD-SQS) Evenelity Inventory for DSM-5 – Brief Form (PID-5-BF) Level of Personality Functioning Scale – Brief Form 2.0 (LPFS-BF) Certainty About Mental States Questionnaire (CAMSQ) Empathy Quotient (EQ) Self-Reflection and Insight Scale (SRIS) UPPS-P Impulsive Behavior Scale (UPPS-P) Difficulties in Emotion Regulation Scale (DERS) Personality Inventory for DSM-5 (PID-5) Personality Inventory for DSM-6 (PID-5) Personality Assessment Inventory – Borderline Features (PAI-BOR)	1
Wozniak-Prus et al. (2022) Polish version	University students aged between 17 and 50 years ( <i>n</i> =538)	Exploratory Factor Analysis (EFA) Confirmatory Factor Analysis (CFA)	Single factor structure (assessing uncertainty concerning mental states)	α=.75	1	Difficulties in Emotion Regulation Scale (DERS) General Health Questionnaire (GHQ-28) Relationship Structures Questionnaire (ECR-RS) Borderline Personality Inventory (BPI)	1
Ruiz-Parra et al. (2023) Spanish version	Non-clinical participants ( <i>n</i> =602) Participants with personality disorder ( <i>n</i> =41)	Exploratory Factor Analysis (EFA) with promax rotation Confirmatory Factor Analysis (CFA)	One-factor model (unidimensional questionnaire aimed at measuring hypomentalization)	Non-clinical sample $\alpha$ =.76 Clinical sample $\alpha$ =.78	Intraclass Correlation Coefficient (ICC)=.75	Interpersonal Reactivity Index (IRJ) Toronto Alexithymia Scale (TAS) Mindfitl Attention Awareness Scale (MAAS) Personality Organization Inventory (IPO-83) Symptom Checklist 90 Revised (SCL-90-R) Beck Depression Inventory-II (BDI-II) Personality Inventory for DSM-5 Brief Form (PID-5-BF) Inventory of Interpersonal Problems (IIP-32)	RFQ-8 mean values discriminated between the non-clinical sample and the clinical sample

In terms of internal consistency, the results indicate reliability between adequate and good, with Cronbach's alpha values ranging from .65 to .86 for the RFQc subscale (Bizzi et al., 2021; Fonagy et al., 2016; Griva et al., 2020) and between .62 and .86 for the RFQu subscale (Mousavi et al., 2021; Paiva, 2021). Test-retest reliability was analyzed in some studies, with correlation values ranging from .59 to .81 for the RFQc subscale (Morandotti et al., 2018; Mousavi et al., 2021; Paiva, 2021) and between .55 and .85 for the RFQu subscale (Badoud et al., 2015; Morandotti et al., 2018), suggesting temporal stability. Finally, the convergent validity of the RFQ-8 was assessed using a wide range of psychometric instruments. Besides the expected significant relations to theoretical-clinical constructs closely related to reflective functioning, such as empathy, perspective-taking, and mindfulness, RFQ-8 scores also showed several associations with psychopathological symptoms and attachment styles. According to mentalization theory, the capacity to mentalize develops in the context of secure attachment relationships, and disruptions in reflective functioning processes were linked to vulnerability to various psychopathological conditions. However, as Muller et al. (2022) point out, the RFQc and RFQu subscales show opposing correlational patterns with these variables (e.g., Badoud et al., 2015; Fonagy et al., 2016). The RFQu was often negatively associated with mental health (an indicator that the subscale is effectively assessing hypomentalization), whereas the RFQc tends to show positive correlations, suggesting that, instead of assessing hypermentalization, it is capturing adaptive reflective functioning. Studies on the discriminant validity of the instrument also consistently found that the RFQu was better able to discriminate clinical cases from healthy controls (Fonagy et al., 2016; Morandotti et al., 2018). Another issue identified by Muller et al. (2022) refers to the inadequate coverage of the reflective functioning construct, as defined by the creators of the scale, in the RFQ-8. According to Fonagy et al. (2016), reflective functioning refers to the capacity to reflect on internal mental states concerning self and others, but item content analysis reveals that most refer to understanding oneself (only one item includes thinking about others).

Despite its limitations, the RFQ-8 has achieved broad acceptance and is used in a growing body of literature. Considering the promising properties of the RFQ-8 as a brief screening tool for clinical assessment and quantitative research, the contemporary relevance of mentalization-based theoretical models and therapeutic interventions, and taking into account the scarcity of validated psychological assessment instruments for the Angolan population, this exploratory study aims to translate and validate the Angolan version of the RFQ-8 and to analyze its psychometric properties in a sample of the general population of this country. More specifically, we aimed to examine the scale's factor structure, explore its internal consistency and convergent validity, and analyze its correlations with sociodemographic variables.

#### Method

#### Participants

Approval from the Miguel Torga Institute of Higher Education research ethics committee was obtained (CE-P12-22). Inclusion criteria included: being 18 years of age or older; Angolan residency and nationality; absence of impairments and/or difficulties that compromised understanding of the evaluation protocol. Non-probability, snowball, and convenience sampling techniques were used. The research protocol was shared with a small number of participants residing in Luanda who met eligibility criteria, and these initial informants then shared the protocol with members of their social networks. Sample collection was also supported by the Instituto Politécnico Tundavala (Lubango, Angola), which shared the questionnaire among students and teachers of the institution.

The sample comprises 132 adults, 62.9% female (n=83). The mean age of participants is 30.48 years (SD=10.9), and most (69.7%) were single. Regarding educational level, 38.6% reported having an undergraduate degree, and most respondents (50.8%) were students. According to the Classification of Professions of Angola (Republic of Angola, 2016), 26.5% work in intellectual and scientific activities. The "insufficient information" category was created to encompass all subjects whose job descriptions were not specific enough to allow accurate classification (e.g., government employees) (Table 2). The sample size in this study allowed resorting to CFA (more than 5 cases per estimated parameter) (Bentler & Chou, 1987).

#### Table 2

		Sample Size (N=132)			)
Variable		М	SD	Min	Max
Age (years)		30.48	10.92	20	66
			n	9/	<u></u>
Sex	Male Female	2	49 33	37 62	.1 .9
Marital status	Single Married / De facto union Separated / Divorced Widowed		92 35 4 1	69 26 3	.7 .5 .0 .8
Educational level	Up to 9 <sup>th</sup> grade 10 <sup>th</sup> to 12 <sup>th</sup> grade Bachelor's degree Undergraduate degree Postgraduate Master's degree		3 30 38 51 6 4	2 22 28 38 4 38	.3 .7 .8 .6 .5 .0
Employment status	Employed Unemployed Retired Student	(	54 7 4 57	40 5 3 50	.9 .3 .0 .8
Occupation	Specialists in intellectual and scientific activities Intermediate level technicians and professionals Administrative staff Personal safety and security services workers and vendors Skilled workers in industry, construction and craftsmen Operators of machine installations and assembly workers Representatives of legislative and executive powers, directors directors and organities	]	35 13 11 3 1 3	26 9 8 2 2	.5 .8 .3 .3 .3 .3
	Unskilled workers Insufficient information	(	3	2 47	.3

Sociodemographic characteristics of the sample

Note. M=Mean; SD=Standard Deviation; Min=Minimum value; Max=Maximum value.

#### Measures

Sociodemographic Questionnaire. All participants completed a brief questionnaire covering sociodemographic information: sex, age, marital status, education level, employment status, and occupation.

*Brief Symptom Inventory* (BSI; Derogatis & Melisaratos, 1983; Portuguese version by Canavarro, 1999). The BSI is a 53-item self-report instrument designed to assess psychological distress covering nine primary symptom dimensions (Somatization, 7 items, e.g., "Feeling weak in parts of your body"; Obsession-Compulsion, 6 items, e.g., "Having to check and double check what you do"; Interpersonal

Sensitivity, 4 items, e.g., "Feeling that people are unfriendly or dislike you"; Depression, 6 items, e.g., "Thoughts of ending your life"; Anxiety, 6 items, e.g., "Suddenly scared for no reason"; Hostility, 5 items, e.g., "Having urges to beat, injure, or harm someone"; Phobic Anxiety, 5 items, e.g., "Feeling afraid to travel on buses, subways, or trains"; Paranoid Ideation, 5 items, e.g., "Feeling that people will take advantage of you if you let them"; and Psychoticism, 5 items, e.g., "The idea that someone else can control your thoughts"). Respondents are asked to rate the extent to which they have experienced each symptom during the last week on a 5-point Likert scale (0=Not at all; 4=Extremely). Regarding internal consistency, Cronbach's alpha values of the subscales ranged from .71 to .85 (Derogatis & Melisaratos, 1983). In the Portuguese version, Cronbach's alpha values ranged from .62 to .80 (Canavarro, 1999). In the present study, Cronbach's alpha values ranged from .66 to .82.

*Beck Cognitive Insight Scale* (BCIS; Beck et al., 2004; Portuguese version by Pinho et al., 2021). The BCIS is a 15-item self-report instrument originally developed for assessing cognitive insight in psychotic patients, namely their self-reflectiveness and overconfidence in the interpretation of personal experiences. The BCIS has two subscales: Self-Reflectiveness (the capacity to reflect on their thoughts and beliefs and consider alternative perspectives; 9 items; e.g., "At times, I have misunderstood other people's attitudes towards me") and Self-Certainty (the level of confidence an individual has in their thoughts and beliefs; 6 items; e.g., "My interpretations of my experiences are definitely right"). Participants are asked to rate the extent to which they agree with a list of sentences describing how people think and feel using a 4-point Likert scale (0=Do not agree at all; 3=Completely agree). Regarding the internal consistency of the original version, Cronbach's alpha values were .70 for both subscales and .63 for the total scale. In the present study, we obtained Cronbach's alpha values of .76 (Self-Reflectivity) and .69 (Self-Certainty).

Adult Attachment Scale – Revised (AAS-R; Collins & Read, 1990; Portuguese version by Canavarro et al., 2006). The AAS-R is an 18-item self-report instrument that assesses adult attachment styles, namely aspects related to fear of abandonment or undesirability, trust towards others, and the degree of proximity and intimacy with them. The AAS-R includes three subscales, each composed of six items: Anxiety (e.g., "I want to get close to people, but I worry about being hurt"), Close (e.g., "I find it relatively easy to get close to people"), and Depend (e.g., "I find it difficult to allow myself to depend on others"). Participants are asked to register, using a 5-point scale (1=Not at all characteristic of me; 5=Extremely characteristic of me), the extent to which each sentence describes how they feel about the affective relationships they establish. Regarding internal consistency, Cronbach's alpha values of the original version subscales were  $\alpha$ =.72 (Anxiety),  $\alpha$ =.69 (Close), and  $\alpha$ =.75 (Depend) (Collins & Read, 1990). In the Portuguese version, Cronbach's alpha values ranged from .54 to .84 (Canavarro et al., 2006). In the present study, we obtained Cronbach's alpha values of .81 (Anxiety), .57 (Close), and .58 (Depend).

Reflective Functioning Questionnaire – 8 (RFQ-8; Fonagy et al., 2016; Portuguese version by Farate et al., 2019). The RFQ-8 is an 8-item self-report measure that assesses the capacity for reflective functioning, comprising two subscales, each containing six items: certainty (RFQc) and uncertainty (RFQu) about mental states. Participants must respond using a 7-point Likert scale (0=Strongly Disagree; 7=Strongly Agree). To capture extreme levels of certainty (hypermentalization) the items of the RFQc are rescored to 3, 2, 1, 0, 0, 0, 0. Responses to the items of the RFQu subscale are recoded as 0, 0, 0, 1, 2, 3 (except item 7, which is rescored similarly to RFQc items) to capture extreme levels of uncertainty (hypomentalization) (Fonagy et al., 2016).

#### Procedures

The translation and adaption of the RFQ-8 followed the International Test Commission (ITC, 2017) recommendations. The back-translation method (Brislin, 1970) guaranteed content

equivalence. This process was carried out by two independent translators fluent in English and with Portuguese as their mother tongue. Two independent versions of the RFQ-8 were thus created. These versions were compared, and the research project members discussed the differences. Data collection was done exclusively through an online platform (Google Forms). The first page of the protocol contained information about the research project: (i) goals and expected outcomes of the study; (ii) inclusion criteria; (iii) indication of the voluntary, anonymous and confidential nature of participation, assuring the exclusive use of data for research purposes. Respondents could only access the remaining protocol by providing informed consent. The questionnaire was available between January 28, 2022, and June 7, 2022.

#### Analytical procedures

Statistical analysis was conducted using the Statistical Package for the Social Sciences (IBM SPSS Statistics, v.28) and Jeffreys's Amazing Statistics Program (JASP, v. 0.17.1; JASP Team, 2023). Descriptive statistics were used for the sample's sociodemographic characterization, with means and standard deviations calculated for continuous variables and frequencies and percentages for categorical variables. The distribution was analyzed using asymmetry (Sk) and kurtosis (Ku) measures. Sk values  $\leq |3|$  and Ku  $\leq |10|$  confirmed the absence of severe deviations from a normal distribution (Kline, 2011). Mahalanobis Distance (MD) was used to identify possible outliers. To assess the RFQ-8 structure, a CFA was performed using the Diagonally Weighted Least Squares (DWLS) estimation method using JASP, which is more appropriate for categorical data (Mîndrilă, 2010). The ratio of 5 cases per estimated parameter, suggested by Bentler and Chou (1987), was considered. The model's goodness of fit was estimated considering the following global fit indices: Chi-Square ( $\gamma^2$ ), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and Root Mean Squared Error of Approximation (RSMEA). Usually, for Maximum Likelihood estimation, the following cutoff criteria can be considered:  $\chi^2$ , p>.05; CFI and TLI $\ge 0.90$  (Kline, 2011; Marôco, 2010); RSMEA ≤ 0.08 (Marsh et al., 2004). However, since no well-defined cutoff criteria apply to DWLS, we decided to consider the goodness of fit indices as diagnostic tools, following the suggestions of Xia and Yang (2019). Klusáček and colleagues (2022) also adopted a similar methodology for validating a scale using DWLS. The following cutoff criteria for factor loadings were considered:  $\geq$ .32 poor,  $\geq$ .45 fair,  $\geq$ .55 good,  $\geq$ .63 very good, and  $\geq$ .71 excellent (Comrey & Lee, 1992). In order to analyze internal consistency, Cronbach's alpha ( $\alpha$ ) and composite reliability index (CR) were calculated. Cutoff criteria of Pestana and Gageiro (2020) for Cronbach's alpha values were considered: <.60 unacceptable,  $\geq$ .60 weak,  $\geq$ .70 reasonable,  $\geq$ .80 good,  $\geq$ .90 very good. Hair et al. (1998) state that values  $\geq$ .70 are adequate for the composite reliability index. The convergent validity of the scale was assessed using Pearson's product-moment correlations (Cohen et al., 2003). Pearson correlation coefficients between .10 and .29 were considered small, between .30 and .49 medium, and between .50 and 1.0 large (Cohen, 1988; Cohen et al., 2003). Student's ttest for independent samples was conducted to analyze the relation between RFQ-8 scores and sociodemographic characteristics (education level and sex).

#### Results

#### Preliminary analysis

Data distribution was tested, confirming the absence of violations of the assumption of normality. Sk values varied between .04 and 1.34, and Ku values between -1.51 and .95. Items'

mean scores ranged from 2.41 (*SD*=1.7477) for item 2 to 4.11 (*SD*=2.213) for item 8. The existence of outliers was verified. However, in order to ensure ecological validity, these were not removed.

#### Confirmatory factor analysis

CFA was performed considering the eight original items distributed by two subscales (Model 1) proposed by Fonagy et al. (2016). As seen in Table 3, this two-factor model showed a good fit to the data. However, item 2 ("I don't always know why I do what I do.") and item 7 ("I always know what I feel."), both belonging to the Uncertainty subscale, had poor factor loadings (Figure 1). Therefore, we decided to compare changes in the goodness-of-fit indices by removing item RFQu7 (Model 2) and items RFQu2 and RFQu7 (Model 3). For Model 2, there was a decrease in the values of  $\chi^2$ , CFI, and TLI and an increase in the value of RMSEA compared to Model 1. For Model 3, the values of  $\chi^2$  decreased when compared to Models 1 and 2. The CFI and TLI values slightly increased compared to Model 1. We considered Model 1 as the final adjusted model. Despite the poor factor loadings of some items, they still showed statistical significance (p<.001) and had theoretical relevance. Moreover, the CFA conducted with all the items showed higher CFI and TLI values and the lowest RMSEA value compared to the other CFAs (Table 3). Figure 1 shows a graphic representation of the factorial structure model of the Angolan version of the RFQ-8.

#### Table 3

Goodness-of-fit and discriminant validity indicators of the RFQ-8

$\chi^2$	р	df	CFI	TLI	RMSEA
56.568	.34	53	.996	.995	.023
52.761	.15	43	.988	.984	.042
41.161	.19	34	.991	.988	.040
	χ <sup>2</sup> 56.568 52.761 41.161	$\begin{array}{c c} \chi^2 & p \\ \hline 56.568 & .34 \\ 52.761 & .15 \\ 41.161 & .19 \end{array}$	$\begin{array}{c cccc} \chi^2 & p & df \\ \hline 56.568 & .34 & 53 \\ 52.761 & .15 & 43 \\ 41.161 & .19 & 34 \\ \end{array}$	$\chi^2$ p         df         CFI           56.568         .34         53         .996           52.761         .15         43         .988           41.161         .19         34         .991	$\chi^2$ pdfCFITLI56.568.3453.996.99552.761.1543.988.98441.161.19.34.991.988



Figure 1. Factor structure model of the Angolan version of the RFQ-8

#### Internal consistency

The Certainty subscale presented a Cronbach's alpha of .71 and composite reliability of .80. The Uncertainty subscale, however, presented a Cronbach's alpha of .66 and composite reliability of .75. Although the Cronbach's alpha value is weak, the composite reliability value demonstrates internal consistency. It should be noted that excluding items would not improve the internal consistency, except for one item in the Uncertainty subscale. However, this increase would not be significant. As shown in Table 4, most item-total correlation values are above the established .3 cut-off point (Nunnally & Bernstein, 1994), except item 7, which nonetheless is within the .15 to .50 range proposed by Clark and Watson (2019).

Table 4

Descriptive statistics and corrected	l item-total correlations	of the RFQ-8 items
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Item	М	SD	Item-Total (r)
1. People's thoughts are a mystery to me.	3.75	2.215	.433
2. I don't always know why I do what I do.	2.41	1.747	.322
3. When I get angry I say things without really knowing why I am saying them.	2.83	1.975	.562
4. When I get angry I say things that I later regret.	3.27	2.085	.519
5. If I feel insecure I can behave in ways that put others' backs up.	2.98	2.090	.462
6. Sometimes I do things without really knowing why.	2.48	1.788	.433
7. I always know what I feel.	3.75	2.173	.236
8. Strong feelings often cloud my thinking.	4.11	2.213	.593

Note. M=Mean; SD=Standard Deviation.

#### Convergent validity

The convergent validity of the RFQ-8 was assessed by analyzing correlations between the two subscales (RFQu and RFQc) and three psychometric instruments (Table 5). Regarding cognitive insight, the correlations between the Certainty and Uncertainty subscales and "Self-reflexivity" were large, statistically significant, and negative and positive, respectively. On the other hand, the correlations between RFQ-8 scores and "Self-certainty" only showed a moderate, statistically significant, and negative relationship with the Certainty subscale.

As for the relation between attachment styles and reflective functioning, moderate, statistically significant, and negative relationships were found between the "Anxiety" subscale and the Certainty subscale, and moderate, statistically significant, and positive relationships were found between the same AAS-R subscale and the Uncertainty subscale. For the subscale "Depend," the correlation was weak yet statistically significant with the two subscales of reflective functioning (positive relation with the RFQc and a negative one with the RFQu). Correlation analysis between the RFQ-8 and the "Close" subscale was not statistically significant.

Finally, the correlational analysis between the RFQ-8 and BSI subscales revealed statistically significant associations between the reflective functioning subscales and all symptomatology subscales, ranging from weak to moderate associations. Negative and positive relationships were found in the Certainty and Uncertainty subscale correlations, respectively. The highest values, around -.40 and .40, were found in the Obsession-Compulsion, Interpersonal Sensitivity, Phobic Anxiety, and Anger-Hostility subscales. Lower magnitudes, around -.20 and -.20, were found in the relationship between the RFQ-8 and the BSI Somatization subscale.

		RFQc	RFQu
BCIS	Self-Reflectivity	50**	.50**
	Self-Certainty	38**	.15
AAS-R	Anxiety	32**	.36**
	Close	03	.11
	Depend	.28**	24**
BSI	Somatization	19*	.18*
	Obsession-Compulsion	47**	.40**
	Interpersonal sensitivity	41**	.39**
	Depression	30**	.30**
	Anxiety	34**	.27**
	Anger-Hostility	39**	.37**
	Phobic Anxiety	35**	.40**
	Paranoid Ideation	33**	.21*
	Psychoticism	29**	.26**

# Table 5 Correlations between RFQ-8 and BCIS, AAS-R and BSI

*Note.* RFQc=Reflective Functioning Questionnaire Certainty Subscale; RFQu=Reflective Functioning Questionnaire Uncertainty Subscale; BCIS=Beck Cognitive Insight Scale; AAS-R=Adult Attachment Scale-Revised; BSI=Brief Symptom Inventory; \*\**p*<0,01. \**p*<0,05.

#### Reflective functioning and sociodemographic characteristics

The Certainty and Uncertainty subscales of the RFQ-8 revealed weak but statistically significant correlations with age (r=.21, p=.017 and r=.22, p=.011, respectively). No statistically significant differences in RFQ-8 scores were found according to sex and educational attainment.

#### Discussion

This study aimed to examine the psychometric properties of the Angolan version of the RFQ-8, namely, to assess its factor structure and its correlations with related constructs and clinical variables in a sample of Angola's general population.

Consistent with previous research (Badoud et al., 2015; Bizzi et al., 2021; Fonagy et al., 2016; Mousavi et al., 2021) that followed similar statistical procedures, results supported a two-factor structure for the RFQ-8 (RFQu and RFQc subscales). We also obtained satisfactory internal consistency for both subscales. Following a similar procedure to Badoud et al. (2015) and considering the small number of items in the scale, item-total correlations were also considered to analyze internal consistency. Contrary to previous research (Bizzi et al., 2021; Spitzer et al., 2020), we did not find evidence that removing items would significantly improve internal consistency.

Similarly to previous studies (Badoud et al., 2015; Bizzi et al., 2021; Fonagy et al., 2016; Griva et al., 2020; Morandotti et al., 2018; Ruiz-Parra et al., 2023; Spitzer et al., 2020), RFQ-8 scores were unrelated with sociodemographic characteristics. However, both RFQ-8 subscales showed weak statistically significant associations with age. These results were also reported by Fonagy et al. (2016) and Griva et al. (2020), suggesting that uncertainty about mental states tends to decrease with age.

The RFQ-8 showed adequate construct validity, as most correlations were aligned with theoretical predictions. The two subscales tended to exhibit similar correlation patterns but with opposite signs. The RFQ-8 shows significant correlations with psychopathological symptoms, suggesting a close relation between uncertainty about mental states and clinical problems, consistent with the mentalization framework (Fonagy et al., 2016); it also shows statistically significant relationships with different attachment patterns, supporting mentalization's developmental schema (Fonagy & Target, 2003); finally, it shows significant correlations with cognitive insight, a construct closely related to reflective functioning, which indicates convergent validity.

Both RFQ-8 subscales presented moderate statistically significant correlations with the Self-Reflexivity subscale of the BCIS (RFQu shows a positive sign correlation, and RFQc a negative sign correlation). These results show that uncertainty of mental states tends to increase with an individual's ability and willingness to observe their mental productions and consider alternative explanations (Beck et al., 2004). However, the Self-Certainty subscale of the BCIS showed a negative correlation with the RFQc subscale, a result that indicates that increasing overconfidence in the validity of beliefs (Beck et al., 2004) is associated with decreasing certainty regarding mental states. These results deserve careful consideration. First, it is important to emphasize the definition of cognitive insight underlying the BCIS as the ability to distance oneself from erroneous beliefs and the ability to evaluate interpretations correctly with the help of feedback from other individuals (Beck et al., 2004). In this sense, self-reflexivity, as assessed by the scale, is associated with openness to feedback, objectivity, and reflection, whereas self-certainty relates to rushing to conclusions, feeling certain of being correct, and resisting correction. Cognitive insight is then positively associated with self-reflexivity and negatively associated with self-certainty. Thus, uncertainty of mental states is expected to increase concomitantly with increased self-reflexivity by the general attitude of openness to alternative explanations. Not so expected was the correlation between the certainty of mental states measured by the RFO-8 and self-certainty, or the general attitude of being sure of being correct, as assessed by the BCIS. Such a result may be related to the fact that the RFQc subscale, rather than assessing an impaired ability to mentalize (hypermentalization), is associated with a more adaptive type of reflective functioning. Its correlations with attachment patterns and clinical symptomatology, detailed below, support this notion and help in understanding the negative relationship of this subscale with the attitude of self-certainty, which is a barrier to cognitive insight.

Regarding the relation between reflective functioning and attachment, both subscales of the RFQ-8 showed statistically significant associations with the subscales Anxiety and Depend of the AAS-R. Considering that the subscale Anxiety refers to the degree to which the individual feels worried about the possibility of abandonment or rejection (Canavarro et al., 2006), these results indicate that respondents who reported more insecure attachment also show greater uncertainty regarding their own and others' mental states. This finding is consistent with the developmental schema of mentalization, which suggests that anxious or avoidant attachments associated with early experiences of living with emotionally and physically unavailable caregivers are related to deficits in reflective functioning in adulthood (Fonagy & Luyten, 2009; Mousavi et al., 2021). Conversely, the Depend subscale refers to the feeling of being able to depend on others in case of need, which is associated with higher levels of certainty and lower levels of uncertainty.

Finally, statistically significant correlations were found between all nine dimensions of the BSI and both RFQ-8 subscales. The generic pattern of associations between the RFQu subscale and the clinical variables suggests that mentalization problems, namely hypomentalization, may play an essential role in many mental disorders (Fonagy et al., 2016). However, the RFQc was related in the opposite direction with psychopathological symptoms, suggesting that a certain degree of certainty about mental states may sustain adaptive functioning (Badoud et al., 2015). In this sense,

despite the scoring system being geared to capture extreme levels of certainty and uncertainty, thus reflecting two types of impaired reflective functioning (hypermentalization and hypomentalization), only hypomentalization is adequately addressed by this instrument. Further research is thus needed to analyze the probable unidimensionality of the RFQ-8 and the viability of different scoring procedures (Ruiz-Parra et al., 2023; Wozniak-Prus et al., 2022). Also, studies with clinical samples are relevant since previous validation studies indicate that the RFQu subscale has a greater discriminative capacity (Fonagy et al., 2016; Morandotti et al., 2018).

#### Limitations

Some limitations of the present study must be acknowledged. First, the absence of a clinical group didn't allow the analysis of the RFQ-8 discriminant abilities. Also, a test-retest analysis was not included to ascertain the instrument's temporal stability. The relationship between the RFQ-8 and other measures of mentalizing (self-report and interview-based) should also be addressed in future studies. Second, online data collection through convenience and snowball sampling procedures restricts participation to Internet users and might account for sample bias (in this case, the higher percentage of students and employed participants with high educational attainment). Further studies with larger, more representative samples of the Angolan population are thus needed.

#### Implications for practice and research

This study offers preliminary evidence on the reliability and validity of the Angolan version of the RFQ-8. Besides its usefulness in clinical assessment, particularly as a screening tool to identify difficulties in reflective functioning, the RFQ-8 could also contribute to developing research on mentalization and the efficacy of psychotherapeutic interventions, namely patients' responses to mentalization-based treatments. Even though the RFQu subscale satisfactorily measures impairments in mentalization (hypomentalization), further studies are needed to develop a self-report measure that adequately captures hypermentalization.

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#### **Authors contribution**

Conceptualization: HTV, CF, FD; Data curation: KM, LB; Formal analysis: KM, LB; Investigation: KM; Methodology: HTV, KM; Project administration: HTV; Supervision: HTV; Writing – Original draft: KM, HTV, LB; Writing – Review & editing: HTV, CF, FD.

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## Propriedades psicométricas da versão angolana do Questionário de Funcionamento Reflexivo — 8 (RFQ-8): Estudo Exploratório

**Resumo:** O Questionário de Funcionamento Reflexivo (RFQ-8) é um instrumento psicométrico de auto-relato breve, concebido para avaliar as capacidades de funcionamento reflexivo de um indivíduo. Este estudo teve como objetivo examinar as propriedades psicométricas da versão Angolana do RFQ-8, nomeadamente, avaliar a sua estrutura fatorial e examinar as suas correlações com constructos relacionados e variáveis clínicas numa amostra da população geral de Angola.

Foi realizado um estudo transversal com 132 participantes (idade ≥18 anos) com residência e nacionalidade Angolana, recrutados através de procedimentos de amostragem não probabilística, por conveniência e bola de neve. O protocolo de investigação online incluiu uma tradução portuguesa do RFQ-8 e uma bateria de medidas de auto-relato (Inventário de Sintomas Psicopatológicos; Escala de Vinculação do Adulto; Escala de Insight Cognitivo de Beck).

Em concordância com estudos prévios, os resultados suportaram uma estrutura bifactorial para o RFQ-8 (avaliando a certeza e a incerteza acerca de estados mentais; subescalas RFQc e RFQu) com consistência interna satisfatória. As pontuações do RFQ-8 também mostraram correlações significativas com sintomas psicopatológicos, sugerindo uma relação estreita entre a incerteza sobre estados mentais e perturbações clínicas, consistente com a teoria da mentalização; relações estatisticamente significativas com diferentes padrões de vinculação que reforçam o esquema desenvolvimental da mentalização; correlações significativas com o insight cognitivo, um constructo intimamente relacionado com o funcionamento reflexivo. Apesar de o RFQ-8 ter sido concebido para avaliar dois défices no funcionamento reflexivo (hipermentalização e hipomentalização), apenas a hipomentalização parece ser adequadamente analisada por este instrumento. Assim, é necessária investigação adicional para analisar a provável unidimensionalidade do RFQ-8 e a viabilidade de diferentes procedimentos de cotação.

Em conclusão, este estudo oferece evidências preliminares sobre a fiabilidade e validade da versão Angolana desta escala. Para além da sua utilidade na avaliação clínica, poderá também contribuir para o desenvolvimento da investigação sobre mentalização e sobre a eficácia de intervenções psicoterapêuticas, incluindo a resposta a tratamentos baseados na mentalização.

**Palavras-chave:** Mentalização, Questionário de funcionamento reflexivo, Propriedades psicométricas, Estrutura fatorial.

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