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# The Interpersonal Style Questionnaire (ISQ): Factor structure and preliminary validity

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✎ **ABSTRACT.** Alcune teorie cliniche che assumono una prospettiva orientata alla complessità concepiscono la personalità come un fenomeno processuale: attraverso esperienze ripetute con gli altri, alcuni modelli relazionali emergono e creano gradualmente un senso coerente di sé. L'*Interpersonal Style Questionnaire (ISQ)* è stato progettato secondo queste teorie. Vengono presentati due studi: il primo è la validazione preliminare della struttura fattoriale dell'ISQ condotta su 547 adulti italiani. L'analisi fattoriale esplorativa ha evidenziato un modello a 7 fattori. Il secondo studio ha convalidato questo modello usando un campione indipendente ( $N = 506$ ; 377 femmine) e ha testato la validità concorrente del ISQ. L'ISQ si è rivelato essere un promettente nuovo questionario per valutare le manifestazioni interpersonali della personalità con validità e affidabilità soddisfacenti.

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✎ **SUMMARY.** Some clinical theories assuming a complexity-oriented perspective conceive personality as a processual phenomenon: through repeated experiences with others, some relational patterns emerge and gradually create a coherent sense of self. The *Interpersonal Style Questionnaire (ISQ)* has been designed according to these theories. Study 1 presented the preliminary validation of the ISQ factor structure. Italian adults ( $N = 547$ ; 367 females) completed the ISQ and Ten Item Personality Measure (TIPI). Seven factors have been found using exploratory factor analysis, labeled based on item content: I. Dependent-Independent, II. Withdrawn-Sociable, III. Confident-Resigned, IV. Responsible-Impulsive, V. Ambitious-Modest, VI. Open-Stable and VII. Gregarious-Competitive. Study 2 cross-validated the seven factors using an independent sample ( $N = 506$ ; 377 females) and Exploratory Structural Equation Modeling (ESEM). ISQ has been tested for concurrent validity using, International Personality Item Pool Representation of Big Five Measure, (IPIP-BFM-50); Mini Questionnaire of Personal Organization (MQPO); Reflective Function Questionnaire, RFQ; Relationship Questionnaire (RQ). The seven-factor model achieved close-fit test, and the ISQ items were found to measure the corresponding factors with sufficient reliability. Dependent-Independent and Confident-Resigned were associated with Neuroticism, Responsible-Impulsive with Conscientiousness, and Withdrawn-Sociable and Gregarious-Competitive with Agreeableness. Open-Stable and Ambitious-Modest were less strongly associated with the canonical Big-Five. The ISQ factors also showed significant correlations with the clinical scales, especially Dependent-Independent with RQ Anxious/Self Model, RFQ Certainty about mental states, and MQPO Contextualized scores. In conclusion, the ISQ is a promising new questionnaire for assessing the interpersonal manifestations of personality with satisfactory validity and reliability.

**Keywords:** Interpersonal styles, Personality, Personality meaning organization, Relational patterns

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## INTRODUCTION

The most widely accepted personality theories focus on the necessity of integrating biological determinants with psychological and environmental ones (Hopwood et al., 2011). Since Allport's definition, personality is a dynamic psychophysical system organization that determines people's unique adjustment to the environment (Allport, 1971). Accordingly, personality is considered the result of interaction between a biologically determined temperament and character, acquired due to interchanges with the environment. In this view, temperament involves procedural memory, pre-semantic knowledge, and affective valence; character corresponds to the processes of symbolization and abstraction based on conceptual learning. Essentially, temperament represents individual modalities that govern the acquisition of emotion-based, automatic behavioral traits and habits that remain relatively stable throughout one's life span (Cloninger, Svrakic & Przybeck, 1993).

In this study, we sought to investigate personality from another epistemological point of view. We adopted a complexity-oriented perspective on the human being, in which subjectivity affects the investigated phenomena circularly - especially the mental ones. Scientific acquisitions are only inter-subjectively shared temporary hypotheses, and the circularity of the interactions systems is the most plausible explanation of reality (Brown, 2009; George & Jones, 2001; Hatch & Cunliffe, 2013; Negri, Andreoli, Belotti, Barazzetti & Martin, 2019). This paradigm shift leads the human being to no longer be conceived and studied as an isolable entity. Instead, personality is considered a processual phenomenon emerging from ongoing individual-context relationships, and therefore it has to be investigated within the constraints and possibilities of such relationships. For this reason, we sought to develop an assessment tool that focused on the interpersonal manifestations of personality as the most defining and distinctive aspects of subjective functioning.

The importance of investigating interpersonal ability in relationships with others is growing. For instance, new instruments have been developed to assess interpersonal characteristics, such as empathy, social and emotional intelligence (Buhrmester, Furman, Wittenberg & Reis, 1988; Di Girolamo, Giromini, Winters, Serie & De Ruiter, 2019; Reniers, Corcoran, Drake, Shryane & Völlm, 2011). Moreover, exploring interpersonal functioning is relevant because it is

the basis of many significant psychological experiences, such as personal satisfaction, self-esteem, and wellbeing. Adapting behavior to new contexts, people, and experiences, is also linked with psychopathological relapse (Kim, Pilkonis & Barkham, 1997). The impact of interpersonal relationships on people's functioning is worth exploring to foster an understanding of interpersonal competencies (Gironimi et al., 2016).

The *Interpersonal Style Questionnaire (ISQ)* has been designed within this theoretical frame. In other words, we assumed that the individual identity is dotted with self-other relationships that are structured during development and through repeated experiences in different contexts that make some relational patterns more stable than others and reproduced more easily.

## Self, environment, and interpersonal styles

As biological systems, individuals are governed by physical and chemical laws of spontaneous self-organization (Corning, 2007). However, individuals are equipped to connect with the social and physical environment, and this capability enables adapting and learning processes that guide the individual's development in an interplay of exogenous and endogenous constraints. Neurosciences' contribution has extended our knowledge of self-organization and adaptation abilities in areas like emotion regulation (Gross, 2008), attachment (Carver, 1997; Simmons, Gooty, Nelson & Little, 2009), mentalization (Bateman & Fonagy, 2016; Karterud & Kongerslev, 2019), subjective time in psychotherapy (De Pascale & Maiello, 2010), consciousness, language, and narratives (Bucci, 2021; Salvatore, De Luca Picione, Cozzolino, Bochicchio & Palmieri, 2021).

Guidano (1987, 1991), recognizing the value of the attachment relationship, developed the Personal Meaning Organization (PMO) concept to describe the gradual construction of a coherent sense of self through interactions with others. The PMO model pays specific attention to the self-organization's categories that give meaning to living experience and a consistent sense of self. Such personal meaning and sense are clearly expressed by their processual definition: "A PMO [...] a unitary ordering process in which continuity and internal coherence are sought in the specificity of the formal, structural properties of its knowledge

processing (i.e., flexibility, generativity, and abstracting level), rather than in the definite semantic properties of its knowledge products. This leads to the adoption of a systems/process-oriented methodology [...]” (Guidano, 1987 p. 33). For this reason, we wondered if one can identify a PMO with an assessment methodology focused on the subject-environment relationship.

## The four main interpersonal styles

In the present study, we referred to three different theories (Carli & Paniccia, 2003; Guidano, 1982; Ugazio, 1998, 2012), which, independently and from different perspectives, converge on the assumption that few prototypical interpersonal styles, grounded in basic emotions, are prevalent and recurrent in man’s way of relating to his context (Cameron, Benz & Reed, 2021; Hyatt et al., 2018; Mariani, Mussino & Negri, 2018; Nardi, Arimatea, Vernice & Bellantuono, 2012; Riggio, Tucker & Coffaro, 1989; Rohmann, Hanke & Bierhoff, 2019; Ugazio, Negri & Fellin, 2015;).

The ISQ items were developed to cover the recurrent content in four interpersonal styles. These styles are dotted by the elements that, in the three theories taken as reference, are common to four relational and personality organizations that frequently emerge in clinical practice and underlie the main psychopathologies in their most rigid form. They can be briefly described as follow.

*Free-dependent*: this style is centered on the management of proximity-distance from others. People showing this style perceive the world as full of dangers and threats. For this reason, some people seek to stay emotionally close and tied to others to find protection; other people seek to face the risks and challenges that the world poses to demonstrate their independence and strength. In both instances, depending on others to cope with this sense of insecurity is experienced as humiliating and frustrating. Fear and courage are the emotions around which these people’s lives revolve.

*Responsible-transgressive*: the core of this style is the management of desires with others. People showing this style feel that satisfying their wants and needs has a negative connotation because they feel guilty and bad toward others. At the same time, sacrificing and caring for the needs of others makes feel good and right. However, when people renounce or sacrifice themselves for others, they also feel disappointed or mortified, primarily if others do not act in

the same sacrificing manner. People showing this style can be generous, responsible, and therefore very dedicated to their duties and respectful of the rules, or they can be impulsive, selfish, and transgressive, accepting to feel bad in their own and other people’s eyes. Guilty and innocence are the predominant emotions of people adopting this style.

*Winner-loser*: people with this style are focused on managing power in relationships. Their main goal is to define who has the power to make decisions. They try to find the winner or loser in any situation, defined by reaching or not reaching the aspired standards. Because there are no winners without losers, they feel themselves engaged in endless competition with others. Some people take the position of winner due to their determination and tenacity, which gives them a great sense of superiority and self-esteem. Still, at the same time, they feel threatened by failing and receiving negative criticism from those who are always trying to fight. Some people take the loser position, deriving their identity validation by becoming submissive to others or removing themselves from the competition, but they feel they are on the wrong side. The predominant emotions felt by people reflecting this style are shame, embarrassment, as opposed to self-confidence and pride.

*Recognized-neglected*: this style focuses on how to manage recognition, belonging, and affect in relationships. Identity is anchored in being or not being part of relationships with those deemed estimable and can offer esteem and affective recognition. They are involved in patterns that deserve more or less attention from others. They need to be a part of others’ relationships, or they need to be apart from others to define themselves. Some people try to be very kind and lovely to make themselves worthy of receiving attention and love from others. Other people are solitary, resigned, or often angry because they are not tolerant when not seen. They find a way to actively or passively exclude themselves from relationships with others. The emotions connected with this style are happiness and joy if they are recognized, in opposition to anger and sadness if they feel neglected. Hence, being enthusiastic or pessimistic are part of this style.

## The present study

The main goal of the present paper is to define and validate the factor structure of the *Interpersonal Style Questionnaire (ISQ)* that we developed in a previous study

(Mariani et al., 2018) to operationalize the core aspects of the interpersonal styles described above. To this end, we carried out two studies. Study 1 used an Exploratory Factor Analysis approach to assess the factor structure of the ISQ. Study 2 used Structural Equation Modeling to estimate parameters and evaluate hypotheses about the ISQ Factors. Internal consistency reliability and correlations with clinical and non-clinical measures were also assessed in both studies. Accordingly, we explored the relationships between ISQ and other constructs that interface interpersonal dimensions, such as the well-known Big Five model (Goldberg et al., 2006). Also, we aim to explore the relationship between the ISQ factors and specific internalized relational patterns such as secure vs. insecure attachment styles and hyper- and hypo-mentalizing functions (Fonagy & Target, 1997; Horowitz, Rosenberg & Bartholomew, 1993). Lastly, we want to explore the relationship between ISQ factors and the four personality organizations from post-rationalism Guidano's model, such as Controller, Detached, Contextualized, and Principle-Oriented (Nardi et al. 2012).

## STUDY 1: EXPLORATORY FACTOR ANALYSIS

### Study 1: Methods

#### *Participants*

A convenience sample (e.g., undergraduate students and their relatives) was contacted by e-mail and, after a brief presentation of the questionnaire and the study aim (validation of a new instrument on interpersonal styles), they were asked to complete the questionnaires via an online platform. In total, 547 participants completed the ISQ and the *Ten Item Personality Measure (TIPI)*; see *Measures*). Females were 367 (67.1%), males were 180 (32.9%). Age varied from 18 to 74 years ( $M = 35.31$ ,  $SD = 11.86$ ). Participant education varied from junior-high-school ( $N = 21$ , 4%) to high-school ( $N = 219$ , 38%), to university degree ( $N = 317$ , 58%). The majority of participants were from Northern Italy ( $N = 342$ , 63%); the remaining participants were from Central ( $N = 167$ , 30%) or Southern Italy ( $N = 38$ , 7%). Marital status was distributed as follows: Single ( $N = 309$ , 57%), Married or Cohabiting ( $N = 210$ , 38%), Divorced or Separated ( $N = 18$ , 3%), Widowed ( $N = 10$ , 2%). The local ethical committee for psychological research approved all aspects of the study.

#### *Measures*

- *Interpersonal Style Questionnaire (ISQ)*. The questionnaire includes 85 items using a five-step Likert format from 1 (strongly disagree) to 5 (strongly agree). The items were selected from a larger set of 256 items. Item reduction was based on a preliminary exploration of the ISQ factor pattern (Mariani et al., 2018). An Exploratory Factor Analysis yielded seven orthogonal factors, and 73 content items were identified with the highest loadings on each factor. These items were retained for the final scale version. Twelve items were subsequently added to assess social desirability (i.e., #9, #19, #29, #39), tendency to lie (i.e., #8, #18, #28, #38, #47), and opposite behaviors (i.e., #10, #20, #30). These items were considered fillers in the present study, pending the completion of psychometric trials to verify their ability to capture response bias under experimental conditions. On average, completing the ISQ takes 20-30 minutes.
- *Ten Item Personality Inventory (TIPI)* (Chiorri, Bracco, Piccinno, Modafferi & Battini, 2014; Gosling, Rentfrow & Swann, 2003). It is a 10-item measure of the Big Five, or Five-Factor Model validated for an Italian population. The structure analysis and results confirmed it as a valid measure of the Big Five Personality traits: Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness. The TIPI was developed using descriptors from other well-established Big Five instruments. Each item consists of two descriptors, separated by a comma, using the standard stem: "I see myself as....". The rating scale used a 7-point scale ranging from 1 (strongly disagree) to 7 (strongly agree). The questionnaire showed good internal consistency and reliability in previous research (Chiorri et al., 2014).

#### *Statistical analyses*

ISQ items were submitted to Exploratory Factor Analysis of polychoric correlations using Unweighted Least Square for model fit and parameter estimation. This method has no distributional assumptions and is suited to analyze ordinal categorical items (Sellbom & Tellegen, 2019). Bartlett and Kaiser-Meyer-Olkin (KMO) tests were performed to evaluate item sampling adequacy and correlation matrix factorability. To determine a range of factor solutions to be considered for interpretation, we integrated theoretical expectations with the following decision rules: Scree-plot and Parallel Analysis (Cattell, 1966; Horn, 1965), Minimum Average Partial

(MAP; Velicer, 1976), Very Simple Structure (VSS; Revelle & Rocklin, 1979), and the Bayesian Information Criterion (BIC). Oblique Promax rotation was used for factor interpretation. All analyses were carried out using the *psych* package for R (Revelle, 2017).

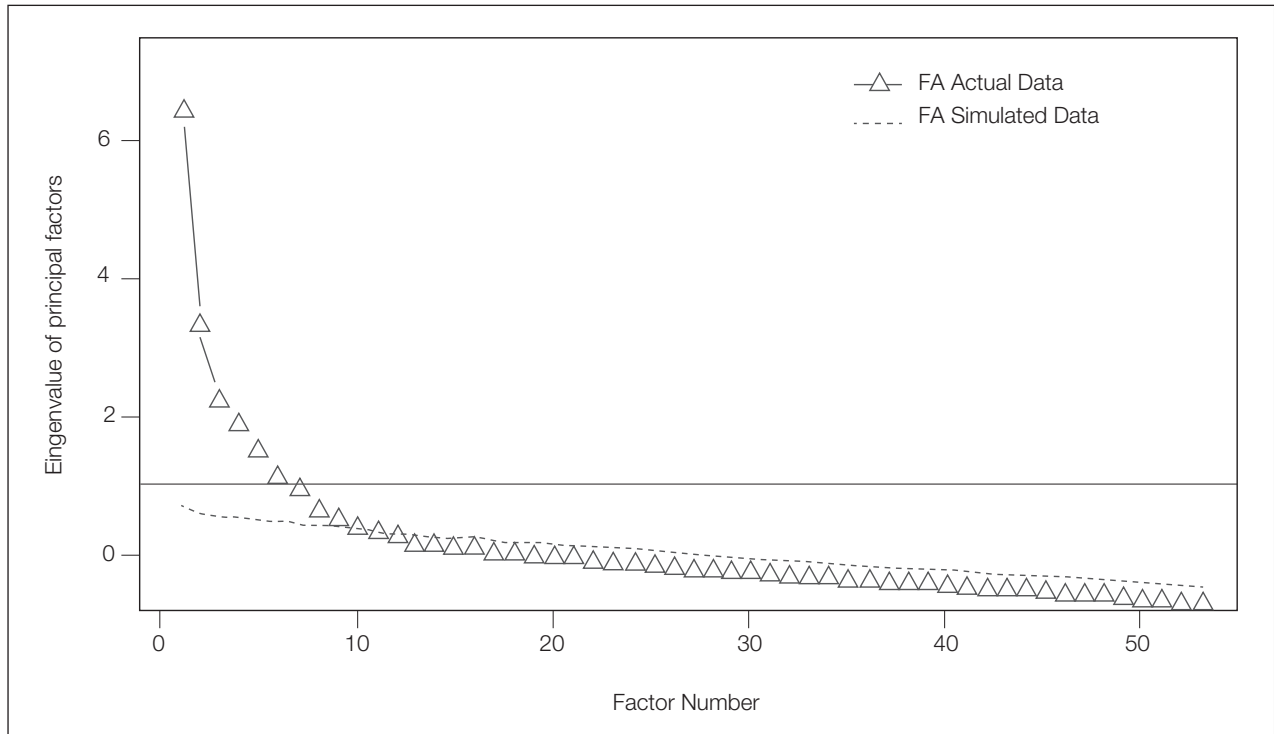
## Study 1: Results

A significant Bartlett's test ( $\chi^2 = 17263.26$ ,  $df = 2628$ ,  $p < .001$ ) and a KMO value equal to .80 indicated that the polychoric correlation matrix was suitable for factor analysis to proceed. The VSS suggested retaining 2, 4, and 5 factors. However, the scree-plot revealed a visible elbow at the seventh eigenvalue (see Figure 1), and the BIC also achieved a minimum of -7487.23 with seven factors. The parallel analysis indicated an asymptotically flattening trend after the ninth eigenvalue, a solution supported by the MAP, which achieved a minimum of .01 with nine factors. Because

different decision rules supported either 7 or 9 factors, we considered that only seven eigenvalues greater than one were extracted, and 7 was also the number of theoretically expected factors. Seven factors were retained and obliquely rotated for interpretation.

Table 1 shows the factor pattern matrix after oblique Promax rotation. The first factor (9% of explained variance) loaded items, such as "Changing jobs makes me nervous", "Changes worry me", "Deciding disorients me", "I ask for advice", "I prefer a guide" in opposition to "I don't get confused in worrying situations", "I face with courage". Worry, fear, anxiety were also common contents of this factor (items #1, #31, #40). Accordingly, this factor was labeled Dependent-Independent. The second factor (6% of explained variance) loaded items such as "Bonding's bother me", "I don't like who binds", "I do not get attached" in opposition to items like "I devote myself to those in need", "I make myself useful", "Investing in an emotional relationship". This factor was labeled Withdrawn-Sociable. The third factor (5%

**Figure 1** – Parallel analysis scree plot



**Table 1** – Study 1: Standardized factor loadings from the Promax rotated factor matrix of the ISQ items

Item	Brief description of item content <sup>1</sup>	F1	F2	F3	F4	F5	F6	F7
11	changing jobs makes me nervous	.71					-.30	
1	I don't manage anxiety	.70						
21	deciding disorients me	.68						
48	changes worry me	.67						
31	I feel anxious	.67		-.23				
40	I worry	.66						
55	I ask for advice	.63						
62	I feel fragile	.59		-.23			.21	
67	I get scared	.57						
72	I delegate decisions	.58						-.25
76	I prefer a guide	.61						
81	I prefer to do things I know	.54					-.32	
85	I lose lucidity	.51						
83	I don't get confused in worrying situations	-.49	.24					
79	I face with courage	-.47			.22		.32	
2	Bonding bothers me		.55					
12	I do not like to sacrifice myself		.51		-.20			
22	I don't like who binds		.54					
32	I am not warm		.55	-.31				
41	I do not get attached		.55					
77	feelings are weaknesses		.55					
49	I devote myself to those in need		-.51		.31			
56	I seem uncaring		.46					
68	I gesture to those who are loved		.45					
73	helping makes opportunists		.45					
63	I make myself useful		-.45		.44			
80	I invest in an emotional relationship		-.42					
82	thanking is superfluous		.38		-.20			
84	to be considered a friend	.33	-.35		.21		.20	
3	I am serene			.88				
13	I am cheerful			.80				
23	I am optimistic	-.20		.69				
33	full of energy			.59				
42	I do not enjoy life		.21	-.56				
50	I feel welcomed			.45				
57	I withstand unfair criticism			-.41				
4	I keep the word				.61			
14	I keep deadlines				.61			

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continued

Item	Brief description of item content <sup>1</sup>	F1	F2	F3	F4	F5	F6	F7
24	I am honest				.58			
43	I do not betray principles				.52			
51	I commit myself				.53			
34	I preserve correctness				.43			
58	I am consistent				.47			
64	I am not well organized	.35			-.45		.25	
74	I evaluate options				.38			
69	I am responsible				.37			
5	Being successful is important					.67		
15	I am not interested in honors					-.62		
35	I do not need to be the best					-.55		
44	I am not motivated by ambition				.25	-.54		
25	I like to decide					.53		.25
52	I am not defined by success					-.52		
65	I am a leader		-.23			.44		
60	I get what I want					.42		
70	It's meant to seek esteem		.29			-.35		
78	I'm on the side that decides					.30		
75	I reject trends					-.29		
6	I leave without plans						.66	
16	love to travel continuously						.55	
36	I am fascinated for thrill						.49	
45	new projects	-.24					.49	
59	I would like to change the world						.47	
26	I am visionary						.45	
53	I imagine and fantastic						.45	
66	I do not like to travel						-.44	
71	I do not digress in thoughts		.21	.21			-.38	
7	I don't let myself be provoked			-.21				.62
17	I answer openly							-.58
27	I am mild			-.22				.53
46	I support my point of view					-.22		-.52
37	I react aggressively							-.50
61	I do not modify myself							-.32
54	I accept commands							.35

*Legenda.* F1 = Dependent-Independent; F2 = Withdrawn-Sociable; F3 = Confident-Resigned; F4 = Responsible-Impulsive; F5 = Ambitious-Modest, F6 = Open-Stable, F7 = Gregarious-Competitive.

*Note.* <sup>1</sup> The ISQ items are available in Italian and can be requested to the corresponding author of this article.

of explained variance) loaded items such as “I am serene”, “I am cheerful”, “I am optimistic”, as opposed to “I do not enjoy life” and “I withstand unfair criticism”. This factor was labelled Confident-Resigned. The fourth factor (5% of explained variance) loaded items such as “I keep deadlines”, “I keep the word”, “I am honest”, “I do not betray principles”, “I commit myself” in opposition to “I am not organized”. This factor was labeled Responsible-Impulsive. The fifth factor (4% of explained variance) loaded items such as “Being successful is important”, “I like to decide”, “I am a leader”, as opposed to “I am not interested in honors” “I don’t need to be the best” “I am not ambitious”. This factor was labeled Ambitious-Modest. The sixth factor (4% explained variance) loaded items such as “I leave without plans”, “love to travel continuously”, “I am fascinated for thrill”, as opposed to “I do not like to travel”, “I do not digress in thoughts”. This factor was labelled Open-Stable. The seventh factor (3% explained variance) loaded items such as “I don’t let myself be provoked”, “I am mild”, “I accept commands”, as opposed to “I answer openly”, “I react aggressively”, “I support my point of view”. This factor was labelled Gregarious-Competitive.

Table 2 shows the correlations between ISQ factor-derived scales and TIPI scores. Dependent-Independent and Confident-Resigned were highly correlated with Emotional Stability and with Extraversion to a lesser extent. Responsible-Impulsive corresponded to Conscientiousness. Withdrawn-Sociable was negatively associated with Agreeableness and Extroversion as well as with Openness. Gregarious-Competitive was also linked with Agreeableness and Extroversion, but it lacked significant correlations with other TIPI scores. Similarly, Ambitious-Modest correlated significantly with Agreeableness and Extroversion, but the coefficients were smaller than those resulting for Withdrawn-Sociable and Gregarious-Competitive. Notably, Open-Stable was only weakly associated with the corresponding Openness score of the TIPI. This finding raises the question of whether the TIPI Openness score incorporated only a narrow view of the corresponding Big-Five domain or whether the Open-Stable factor of the ISQ encompassed a significant amount of non-Big-Five variance. In the subsequent study, we use a more extensive set of scales to explore the concurrent validity of ISQ factor derived scales.

**Table 2** – Study 1: correlations of IQ factors and TIPI scores (N = 245)

ISQ	TIPI				
	Extraversion	Agreeableness	Conscientiousness	Stability	Openness
Dependent–Independent	–.34**	–.07	–.29**	–.66**	.08
Withdrawn–Sociable	–.27**	–.40**	–.26**	–.08	.30**
Confident–Resigned	.49**	.30**	.32**	.62**	–.40**
Responsible–Impulsive	.09	.09	.59**	.27**	–.16*
Ambitious–Modest	.27**	–.26**	.15*	–.03	–.13*
Open–Stable	.06	–.02	–.13*	.00	.19**
Gregarious–Competitive	–.29**	.38**	–.04	.02	.08

\*\* Correlation is significant at the .01 level (two-tailed), \* correlation is significant at the .05 level (two-tailed).



## STUDY 2: CONFIRMATORY FACTOR ANALYSIS

### Study 2: Methods

#### *Participants*

Five hundred and six participants completed the ISQ and other scales for concurrent validity purposes (see *Measures*). Females were 377 (74.5%); males were 126 (24.9%). Three participants were of undisclosed gender. Age varied from 18 to 50+ years. Eighty percent of the sample was under 30 years old ( $N = 405$ ). Participant education varied from junior-high-school ( $N = 16$ , 3%) to high-school ( $N = 229$ , 45%), to university degree ( $N = 261$ , 52%). The majority of participants were from Central ( $N = 286$ , 56.5%) or Northern ( $N = 204$ , 40.3%) Italy; the remaining participants were from Southern Italy ( $N = 16$ , 3.2%). Marital status was distributed as follows: Single ( $N=376$ , 74%), Married or Cohabiting ( $N = 112$ , 22%), Divorced or Separated ( $N = 17$ , 3%). Participants' recruitment was for convenience (e.g., undergraduate students and their relatives). They were contacted by e-mail and, after a brief presentation of the questionnaire and the general study aim (i.e., validation of a new instrument about interpersonal styles). Those who agreed to participate in the study were asked to complete the ISQ via an online platform. The local ethical committee for psychological research approved all aspects of the study.

#### *Measures*

- *Interpersonal Style Questionnaire (ISQ)*. As in Study 1.
- *Ten Item Personality Inventory (TIPI)*; Gosling et al., 2003). As in Study 1.
- *International Personality Item Pool Representation of Big Five Measure (IPIP-BFM-50)*; Goldberg et al., 2006). This questionnaire was developed as part of the *International Personality Item Pool (IPIP)* project to measure the same traits as the original IPIP-NEO but with fewer items. It consists of 50 items that provide summated ratings of the canonical five factors of personality (Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness).
- *Reflective Functioning Questionnaire (RFQ)*; Fonagy et al., 2016). It is a short self-report measure of reflective functioning (i.e., the ability to understand self and others' mental states) that is presumed to capture individual

differences in hypo and hyper-mentalizing recently validated in Italian (Morandotti et al., 2018). RFQ comprises two 8-item scales measuring the perceived degree of uncertainty and certainty about mental states, respectively. Items are scored on a 7-point Likert scale (ranging from “completely disagree” to “completely agree”). Two scores can be obtained from the RFQ: the certainty and the uncertainty scales. High levels of certainty about mental states are assumed to reflect hyper-mentalizing, and high levels of uncertainty are assumed to reflect hypo-mentalizing.

- *Relationship Questionnaire (RQ)*; Bartholomew & Horowitz, 1991). This is a five-item questionnaire used to evaluate adult attachment styles. The first item asks participants to read four sentences (each describing a prototypical attachment style) and indicate how well they described them, giving a categorical variable that indicated the prevalent attachment style. The RQ was designed to obtain continuous ratings of each of the four attachment patterns. The following items ask to rate on a seven-point scale the degree to which each style pertains to them where a score of 1 is ‘not at all like me’, a score of 4 is ‘neutral/mixed’ and a score of 7 is ‘very much like me’. The RQ generates two scores for the prevalent pattern relationship. Higher scores on the Anxiety/Self Model indicate higher anxiety and more negative models of self; higher scores on the Avoidance/Other Model describe higher avoidance and more negative models of the other. Lower scores on both models suggest a secure and adaptive pattern relationship.
- *Mini Questionnaire of Personal Organization (MQPO)*; Nardi et al., 2012). This questionnaire has been constructed in order to comply with the inward/outward Personal Meaning Organization's (PMO) theory. According to Nardi's adaptive post-rationalist approach, predictable and invariable caregivers' behaviours allow inward focus and a physical sight of reciprocity; non-predictable and variable caregivers' behaviours allow outward focus and a semantic sight of reciprocity. MQPO is composed of 20 items, scored on a five-step Likert scale from 1 (extremely false) to 5 (extremely true). Four different factors have been found in previous research: Controller is a stable personality where separation from the caregiver and environmental exploration is possible when the subject feels the situation is under control and sure. Detached is constructed to assess detachment and loneliness that the subject perceives as the habitual condition of their life-

span, trying to find the necessary resources to realize themselves. Contextualized gives relevant importance to comparison with others, to the results achieved, and to the adaptive research of people, situations, and activities, which enables the person to draw the better self-esteem possible. Principle-Oriented consists in evaluating the world according to his/her values; high scorers appear consenting to instructions and rules, but they are also looking for a new and original theories on life, concerning the significance of skills, relations, and goals.

### Statistical analyses

An Exploratory Structural Equation Modeling (ESEM) analysis was conducted using M-plus (Version 8.4). Consistent with Study 1, we fitted the Polychoric correlation matrix using Weighted Least Squares estimators (WLSMV). Seven oblique factors were specified, each corresponding to one of the ISQ factors. To cross-validate and confirm the factor structure emerging from Study 1, we used an oblique target rotation, in which the items were forced to load the most on the corresponding factor (e.g., Dependent-Independent items on the Dependent-Independent factor). Cross-loadings were targeted to be as close to zero as possible. The WLSM  $\chi^2$  and other descriptive indices were used to evaluate the model's fit. Both CFI and TLI greater than .95 indicate a good fit, while values greater than .90 are deemed acceptable. Good fit corresponds to an RMSEA of .06 or less, while values of .08 are acceptable. A cut-off value of .08 for the SRMR supports a good fit between the model and the data.

## Study 2: Results

Although the seven-factor model yielded a significant chi-square ( $\chi^2 = 3584.62$ ;  $df = 2138$ ;  $p = .000$ ), the RMSEA was excellent and achieved the close-fit (Estimate = .037, 90% CI = .034-.039,  $p$ -close = 1.000). The CFI = .896 approached the conventional standard of acceptable fit; the TLI = .873 was insufficient. According to Kenny, Kaniskan and McCoach (2015), the CFI and TLI might not be very informative when the baseline model's RMSEA is <.158. In the specific case, the baseline RMSEA = .102 was lower than the threshold mentioned above. Therefore, we appraised the fit of the seven-factor model as overall acceptable.

As shown in Table 3, the model yielded fairly defined factors. All items significantly loaded on the hypothesized

factor. This was what we have found for Dependent-Independent ( $|\lambda| = .48$ -.69,  $M_{|\lambda|} = .60$ ), Withdrawn-Sociable ( $|\lambda| = .36$ -.63,  $M_{|\lambda|} = .50$ ), Confident-Resigned ( $|\lambda| = .31$ -.73,  $M_{|\lambda|} = .55$ ), Ambitious-Modest ( $|\lambda| = .30$ -.61,  $M_{|\lambda|} = .45$ ), Responsible-Impulsive ( $|\lambda| = .48$ -.68,  $M_{|\lambda|} = .56$ ), Open-Stable ( $|\lambda| = .38$ -.70,  $M_{|\lambda|} = .50$ ), and Gregarious-Competitive ( $|\lambda| = .38$ -.70,  $M_{|\lambda|} = .50$ ). Although the model resulted in several statistically significant cross-loadings, all items had target loadings greater than cross-loadings, except item #57 of the Confident-Resigned factor. Only in 29% of cases, the cross-loadings exceeded .19 (see underlined  $\lambda$ -s in Table 3), and only sporadically they were larger than .40 (see items #81 and #63). In no other case were cross-loadings high enough to threaten item validity and good factor definition.

To assess whether ISQ items measured the hypothesized latent factor with sufficient precision, we assessed the proportion of variance in the latent factor explained by its indicators, called factor replicability. The following indices were obtained: Dependent-Independent ( $H = .91$ ), Withdrawn-Sociable ( $H = .86$ ), Confident-Resigned ( $H = .84$ ), Responsible-Impulsive ( $H = .87$ ), Ambitious-Modest ( $H = .80$ ), Open-Stable ( $H = .82$ ), and Gregarious-Competitive ( $H = .87$ ). All ISQ factors met with the standard of replicability (i.e.,  $H > .80$ ; Hancock & Mueller, 2001). Because we will use factor scores in subsequent validity analyses, we also evaluated the factor score determinacy (FD). FD represents the correlation between factor scores and the latent variables in the model. It is strongly advised that FD be  $> .90$  to use factor score estimates as proxies of latent factors. The following indices were obtained: Dependent-Independent (FD = .95), Withdrawn-Sociable (FD = .92), Confident-Resigned (FD = .91), Ambitious-Modest (FD = .88), Responsible-Impulsive (FD = .92), Open-Stable (FD = .90), and Gregarious-Competitive (FD = .87). These results are overall satisfactory but recommend caution when interpreting Ambitious-Modest and Gregarious-Competitive scores.

To study the concurrent validity of the ISQ, we correlated the factor scores emerging from previous analyses with the TIPI and IPIP Big-Five questionnaires, the RFQ and RQ questionnaires, and the MQPO (see Table 4). We found high correlations of the Dependent-Independent factor with emotional stability (negatively) and neuroticism (positively). We also observe from Table 4 that this factor is also positively correlated with an anxious attachment style and negatively correlated with the hyper-mentalization/certainty about mental states score of the RFQ. Last, the

**Table 3** – Study 2: standardized factor loadings from the Seven-Factor Exploratory Structural Equation Modeling target rotation of the ISQ

Item	Dependent-Independent	Withdrawn-Sociable	Confident-Resigned	Responsible-Impulsive	Ambitious-Modest	Open-Stable	Gregarious-Competitive
31	.69 (.000)	-.09 -(0.002)	<u>-.39</u> (.000)	.07 -(0.020)	.11 (.000)		.15 (.000)
21	.68 (.000)			-.16 (.000)			-.18 (.000)
48	.68 (.000)		-.07 -(0.030)	<u>.21</u> (.000)		<u>-.23</u> (.000)	
55	.67 (.000)	-.06 -(0.101)	.16 (.000)	-.14 (.000)	-.13 (.000)	.13 -(0.001)	<u>-.24</u> (.000)
1	.66 (.000)	-.11 -(0.001)	<u>-.29</u> (.000)		.13 (.000)		<u>.21</u> (.000)
72	.66 (.000)	.10 -(0.004)	.12 -(0.001)	-.12 -(0.001)			-.08 -(0.032)
85	.62 (.000)		-.07 -(0.041)	-.15 (.000)			.11 -(0.007)
76	.60 (.000)		<u>.20</u> (.000)		-.11 -(0.002)		<u>-.27</u> (.000)
11	.59 (.000)	.07 -(0.048)	.11 -(0.004)	.18 (.000)	.12 -(0.001)	<u>-.27</u> (.000)	
67	.58 (.000)	-.10 -(0.011)		-.14 (.000)			-.09 -(0.028)
62	.58 (.000)		<u>-.29</u> (.000)			.19 (.000)	.08 -(0.028)
81	.56 (.000)	.10 -(0.008)	<u>.21</u> (.000)	.07 -(0.044)		<u>-.42</u> (.000)	
40	.48 (.000)		<u>-.20</u> (.000)	<u>.24</u> (.000)			
83	-.48 (.000)	<u>.20</u> (.000)	<u>.24</u> (.000)	.19 (.000)			
79	-.51 (.000)		<u>.23</u> (.000)	.15 (.000)	-.08 -(0.017)	<u>.28</u> (.000)	.10 -(0.010)
77		.63 (.000)			-.10 -(0.014)	.10 -(0.015)	
22		.59 (.000)		.14 -(0.001)		.13 -(0.001)	-.11 -(0.012)
41		.59 (.000)		.12 -(0.002)		.09 -(0.025)	
2	.14 (.000)	.55 (.000)		.17 (.000)		.10 -(0.008)	.14 -(0.001)
32	.16 (.000)	.52 (.000)	<u>-.22</u> (.000)	.08 -(0.029)			-.13 -(0.001)
56		.45 (.000)	.10 -(0.024)	<u>-.23</u> (.000)		<u>.20</u> (.000)	.12 -(0.004)
73	.13 -(0.001)	.41 (.000)			-.09 -(0.024)		
12		.40 (.000)	.10 -(0.026)	<u>-.28</u> (.000)		-.18 (.000)	
68		.40 (.000)		.14 -(0.001)	.12 -(0.006)		<u>.23</u> (.000)
82		.40 (.000)		-.16 -(0.001)			.14 -(0.021)
84	<u>.39</u> (.000)	-.36 (.000)	.11 -(0.025)		<u>-.31</u> (.000)	.10 -(0.033)	
80	.09 -(0.029)	-.51 (.000)	<u>.22</u> (.000)				.15 -(0.002)
63	<u>.26</u> (.000)	-.58 (.000)	.16 (.000)	<u>.40</u> (.000)	.10 -(0.024)	<u>.40</u> (.000)	
49	<u>.30</u> (.000)	-.59 (.000)	.11 -(0.014)	<u>.31</u> (.000)		<u>.31</u> (.000)	
3		-.19 (.000)	<u>.73</u> (.000)		-.09 -(0.004)		
23	<u>-.22</u> (.000)	-.06 -(0.029)	<u>.69</u> (.000)				-.07 -(0.044)
13	-.13 (.000)		<u>.66</u> (.000)	-.14 (.000)			
50	-.11 -(0.004)	<u>-.24</u> (.000)	<u>.48</u> (.000)			-.09 -(0.015)	
33	<u>-.29</u> (.000)	-.10 -(0.003)	<u>.47</u> (.000)		-.13 (.000)		
57			<u>.31</u> (.000)	.11 -(0.005)	<u>.26</u> (.000)	.13 (.000)	<u>-.46</u> (.000)

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Item	Dependent- Independent	Withdrawn- Sociable	Confident- Resigned	Responsible- Impulsive	Ambitious- Modest	Open- Stable	Gregarious- Competitive
42	<u>.35</u> (.000)	<u>.29</u> (.000)	<u>-.51</u> (.000)	.09 $-(.013)$		.10 $-(.004)$	
14				<u>.68</u> (.000)	-.18 (.000)	<u>-.22</u> (.000)	-.14 $-(.001)$
24	-.10 $-(.016)$	-.16 (.000)		<u>.66</u> (.000)	-.13 (.000)		
4		-.09 $-(.034)$	.10 $-(.009)$	<u>.65</u> (.000)			.09 $-(.025)$
58	-.13 $-(.003)$			<u>.54</u> (.000)			
69	.16 (.000)		<u>-.24</u> (.000)	<u>.54</u> (.000)		.09 $-(.032)$	
51	-.11 $-(.003)$	-.12 $-(.005)$		<u>.53</u> (.000)	-.14 (.000)		
43	-.08 $-(.048)$			<u>.52</u> (.000)	.13 $-(.001)$		
74	.12 $-(.007)$			<u>.49</u> (.000)	-.11 $-(.013)$		
34	.09 $-(.029)$			<u>.48</u> (.000)		.12 $-(.002)$	.15 $-(.001)$
64	<u>.28</u> (.000)	.15 (.000)	.13 $-(.003)$	<u>-.48</u> (.000)	.17 (.000)	<u>.35</u> (.000)	
15					<u>.55</u> (.000)		.10 $-(.016)$
35		-.13 $-(.003)$	.10 $-(.015)$		<u>.55</u> (.000)		
52		-.15 (.000)	.14 $-(.001)$		<u>.51</u> (.000)		.15 $-(.001)$
44	.12 $-(.003)$	.08 $-(.038)$	.17 (.000)		<u>.45</u> (.000)		
70		.16 (.000)		<u>.25</u> (.000)	<u>.35</u> (.000)	.10 $-(.017)$	.18 (.000)
75		.18 (.000)		<u>.21</u> (.000)	<u>.30</u> (.000)	.11 $-(.011)$	.10 $-(.028)$
60		.11 $-(.007)$	<u>.24</u> (.000)		<u>-.31</u> (.000)	.15 (.000)	<u>.29</u> (.000)
65	.10 $-(.013)$	<u>-.21</u> (.000)	<u>.20</u> (.000)	<u>.25</u> (.000)	<u>-.39</u> (.000)	.12 $-(.005)$	.18 (.000)
78		.18 (.000)	.16 (.000)		<u>-.42</u> (.000)		<u>.24</u> (.000)
25	-.13 (.000)	.06 $-(.072)$	.15 (.000)		<u>-.50</u> (.000)	.11 $-(.004)$	<u>.39</u> (.000)
5				<u>.36</u> (.000)	<u>-.61</u> (.000)		
6	-.07 $-(.050)$			-.12 (.000)		<u>.70</u> (.000)	
16	-.08 $-(.029)$	.13 (.000)	-.15 (.000)			<u>.64</u> (.000)	-.10 $-(.009)$
36		.10 $-(.009)$		-.12 $-(.001)$		<u>.49</u> (.000)	
45	<u>-.39</u> (.000)	-.11 $-(.001)$		.15 (.000)	-.15 (.000)	<u>.48</u> (.000)	.10 $-(.014)$
59	-.16 (.000)	.15 $-(.001)$				<u>.46</u> (.000)	
53	.09 $-(.037)$	<u>-.24</u> (.000)	.16 (.000)	-.19 (.000)	.15 $-(.001)$	<u>.42</u> (.000)	.16 $-(.001)$
26			<u>.22</u> (.000)	.13 $-(.003)$	-.16 (.000)	<u>.40</u> (.000)	.12 $-(.010)$
71	-.11 $-(.018)$	<u>.30</u> (.000)		<u>.20</u> (.000)		<u>-.38</u> (.000)	
66	.19 (.000)	.11 $-(.012)$	<u>.25</u> (.000)		<u>.21</u> (.000)	<u>-.51</u> (.000)	<u>.21</u> (.000)
17	-.11 $-(.003)$	.10 $-(.004)$				.11 $-(.001)$	<u>.61</u> (.000)
46	-.13 $-(.001)$			.12 $-(.003)$	-.09 $-(.012)$		<u>.57</u> (.000)
37	<u>.22</u> (.000)	<u>.21</u> (.000)	.11 $-(.010)$	.16 (.000)	<u>-.27</u> (.000)		<u>.39</u> (.000)
61	-.12 $-(.006)$	<u>.25</u> (.000)		<u>.26</u> (.000)	.16 (.000)		<u>.27</u> (.000)
7		.14 $-(.001)$	<u>.33</u> (.000)	.18 (.000)	.15 (.000)		<u>-.38</u> (.000)
54	.15 (.000)		<u>.24</u> (.000)	.18 (.000)			<u>-.40</u> (.000)
27			<u>.23</u> (.000)	.19 (.000)	<u>.22</u> (.000)	.12 $-(.001)$	<u>-.54</u> (.000)

**Table 4** – Study 2: correlations of ISQ factors and TIPI scores

	Dependent- Independent	Withdrawn- Sociable	Confident- Resigned	Responsible- Impulsive	Ambitious- Modest	Open-Stable	Gregarious- Competitive
<b>TIPI<sup>1</sup></b>							
Extraversion	-.18**	-.15*	.29**	-.18**	.22**	.18**	-.25**
Agreeableness	-.12*	-.43**	.29**	.19**	-.17**	-.01	.44**
Conscientiousness	-.35**	-.19**	.19**	.59**	.14*	-.16**	.03
Stability	-.72**	-.22**	.58**	.10	.01	.08	.16**
Openness	-.02	.08	-.16**	.09	-.19**	.18**	.08
<b>IPIP<sup>2</sup></b>							
Extraversion	-.47**	-.28**	.61**	.04	.32**	.22**	-.20**
Agreeableness	.00	-.50**	.27**	.11*	-.19**	-.03	.45**
Conscientiousness	-.38**	-.28**	.36**	.61**	.21**	-.08	-.14*
Neuroticism	.70**	.24**	-.73**	-.12*	-.09	-.12*	-.14*
Openness	-.01	-.24**	.03	.05	.02	.37**	.05
<b>RFQ<sup>3</sup></b>							
Certainty	-.32**	-.09	.12	.13	.11	-.04	-.05
Uncertainty	.09	.10	-.05	.03	-.10	.04	-.20**
<b>RQ<sup>3</sup></b>							
Anxious/Self Model	.48**	.09	-.51**	-.08	-.05	-.08	.03
Avoidant/Other Model	.06	.42**	-.27**	.12	.03	.02	-.08
<b>MQPO<sup>3</sup></b>							
Contextualized	.52**	-.05	-.21**	-.06	.17*	-.07	.01
Detached	.28**	.34**	-.47**	.00	-.10	.11	-.12
Controller	.28**	.19**	-.11	.08	.03	-.12	-.10
Principle-Oriented	-.21**	.17*	.21**	.30**	.04	.18*	-.26**

\*\* Correlation is significant at the .01 level (two-tailed); \* correlation is significant at the .05 level (two-tailed).

Note. 1  $N = 303$ ; 2  $N = 323$ ; 3  $N = 203$ .

**Table 5** – Study 2: descriptive statistics of ISQ factors and tests of gender differences

ISQ Factor (score range)	Total Sample <sup>1</sup>		Females <sup>2</sup>		Males <sup>3</sup>		Gender differences		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i> -test	<i>p</i>	Cohen's <i>d</i>
Dependent–Independent(17–75)	46.1	11.31	47.2	10.85	42.6	11.93	4.06	<.001	.42
Withdrawn–Sociable (14–51)	29.7	7.55	28.9	7.5	31.9	7.33	–3.94	<.001	–.41
Confident–Resigned (7–34)	22.1	5.08	22	5.09	22.4	4.99	–.80	.423	–.08
Responsabile–Impulsive (12–50)	40.7	5.51	41.2	5.38	39.4	5.63	3.23	<.001	.33
Ambitious–Modest (14–50)	34.6	6.23	34.7	5.94	34.2	6.94	.86	.392	.09
Open–Stable (14–45)	31.4	5.89	30.9	5.81	33	5.89	–3.58	<.001	–.37
Gregarious–Competitive (7–32)	18.6	4.47	18.4	4.43	19.2	4.53	–1.80	.072	–.19

Note. <sup>1</sup> *N* = 506; <sup>2</sup> *N* = 377; <sup>3</sup> *N* = 126.

Dependent-Independent factor was positively associated with all the dysfunctional relational styles of the MQPO, particularly with the contextualized style, which describes a person focusing on external context looking for approval and disapproval. Taken together, the underlying construct of Dependent-Independent turns out to be a fundamentally neurotic aspect of personality.

The Responsible-Impulsive was associated with Conscientiousness scores of the TIPI and IPIP scales. There was no evidence that this factor was linked with attachment style, reflective function, or dysfunctional relationship styles. However, it was observed that greater accountability was associated with a Principle-Oriented relational style, which is related to self-commitment, evaluating one's behavior according to one's values and rules, not to results.

Negative correlations characterized the Withdrawn-Sociable factor with both TIPI and IPIP Agreeableness and positive correlations with the avoidant attachment style and Detached relational style, which is described as related to managing loneliness that the subject perceives as the habitual condition of own life. This factor also reflects an intricate relational style, defined by an unfriendly attitude toward

others and deeply distrustful relationships. The data reported in Table 4 indicated that the Confident-Resigned factor had moderately high correlations with TIPI emotional stability (positively) and IPIP neuroticism (negatively) as well as moderate negative correlations with anxious and avoidant attachment styles, and all the dysfunctional relational styles of the MQPO and a positive correlation to Principle-Oriented. Basically, Confident-Resigned represents a functional personality factor, almost the mirror image of what has been observed for the Dependency-Independence factor.

Regarding the Open-Stable factor, the previous study suggested that this might include a significant non-Big-Five variance given the low correlation with the corresponding Openness TIPI score. Using the IPIP questionnaire as the Big-Five marker in Study 2, we observed that the Open-Stable factor continued to be weakly correlated with TIPI scores. However, the correlations with the Openness factor of the IPIP questionnaire were higher. Indeed, these results indicated that low correlations observed in both studies could be due to the different measurements of Openness in the TIPI and the IPIP, in the former case as intellect and the latter as Openness to new experiences. No other theoretically relevant

correlations were found for Open-Stable with attachment measures or relational styles. The Ambitious-Modest factor was linked with extraversion and conscientiousness, while no other noteworthy correlations were found with non-Big-Five concurrent validity criteria.

The Gregarious-Competitive factor was moderately correlated with Agreeableness and to some extent with a normative relational style and negatively correlated with the uncertainty about mental states score of the RFQ.

Because gender differences can be relevant variables in structuring an interpersonal style, we carried out a descriptive analysis of ISQ factor scores by gender (see Table 5). Four out of seven tests of gender differences turned out to be statistically significant. Females described themselves in interpersonal relationships as significantly more dependent, responsible, sociable, and seeking stability than males did.

## DISCUSSION

The present study investigated the factor structure and concurrent validity of the ISQ, a new questionnaire for assessing the interpersonal manifestations of personality according to clinical theories (Carli & Paniccia, 2003; Guidano, 1987, 1991; Ugazio, 1998, 2013). We found seven empirically robust factors across two independent studies, involving over 1000 participants and using both exploratory and confirmatory analyses. Besides sound factor structure and good model fit, the interpretation of the seven factors based on item content is consistent with the set of individual differences in broad personality traits and clinical constructs assessed in the present study.

The first factor, Dependent-Independent, was associated with neuroticism and emotional stability (negatively), anxious attachment, contextualized personal meaning organization, and certainty about feelings and mental states (negatively). Thus, individuals scoring high on this factor are prone to doubting their own and others' feelings and mental states (Bornstein, 1992). In contrast, people scoring low are more confident in their reflections and inferences. Previous research has shown that RFQ certainty is less associated with psychopathology, particularly in non-clinical groups (Müller et al. 2020; Spitzer et al., 2021). Collectively, these results support our interpretation of Dependent-Independent as inherently linked with experiencing psychological distress, feeling uncertain about the availability of attachment figures,

and doubting one's self-worth. The second factor, Withdrawn-Sociable, was negatively associated with Agreeableness and positively with an Avoidant/Other model and a Detached personal meaning organization. We interpreted these correlations as evidence that the Withdrawn-Sociable factor reflects a structured negative view of others and a tendency to disengage from interpersonal relations. Almost a perfect mirror image of Dependent-Independent in terms of relations with criteria instruments, the third factor, Confident-Resigned, was characterized by marked extroversion and emotional stability. Considering the negative correlations of this factor with Anxious and Avoidant models, it also seems likely that Confident-Resigned is intertwined with a secure attachment style and the ability to develop and foster meaningful emotional bonds (Marshall et al., 1992). In sum, the first three ISQ factors seem to reflect the three attachment styles that influence adult preference for establishing emotional bonds with other people (e.g., Shaver and Mikulincer, 2005).

The fourth factor, Responsible-Impulsive, was strongly tied to Conscientiousness, reflecting fairness and honesty towards others, focusing on one's ideals and rules. Although these personality characteristics are not specifically interpersonal, they might predispose the individual to maintain adaptive social behaviors. For example, conscientious adolescents have been found to have better quality friendships and greater peer acceptance (Jensen-Campbell & Malcolm, 2007). If confirmed in adulthood, these findings suggest that the ISQ's Responsible-Impulsive factor - like conscientiousness - might predict important life outcomes (e.g., academic & job performance, longevity) and promote adaptive behaviors in social situations.

The fifth factor, Ambitious-Modest, was only moderately correlated with Extroversion and rather weakly correlated with the other variables used as criteria in the present study. This factor resonates with the HEXACO Honesty-Humility factor (Lee & Ashton, 2004). Indeed, Humility - like Modesty - characterizes individuals who do not believe they are entitled to higher social status. In contrast, Ambition mirrors a tendency to feel a strong sense of self-importance, which is just the opposite of Humility. Despite the relevance of desire for job success, personality assessment has overlooked the construct of Ambition (e.g., it appears only in the *Hogan Personality Inventory*). No personality trait taxonomy views ambition as a unitary construct. For example, Ambition is spread across Neuroticism, Extroversion, and

Conscientiousness, both in the Big-Five and HEXACO models (Jones, Sherman & Hogan, 2017). Thus, the fifth ISQ factor has the potential to provide a direct assessment of this job-related trait, also in opposition to modesty.

Regarding the sixth factor, Open-Stable, the two studies revealed only low-moderate correlations with the criteria instruments. What seems to emerge quite clearly is that this factor is to some extent associated with the Openness trait of the Big Five. However, it is still believed today that Openness is a complex personality characteristic with at least two separable but linked aspects (DeYoung, Quilty & Peterson, 2007). On the one hand, openness to new experiences reflects the broadness of cultural interests and tolerance of different values, people, habits, and lifestyles; on the other hand, intellect reflects intellectual curiosity, creativity, and quick thinking. The low correlations of ISQ Open-Stable with the TIPI openness score may be due to the measurement of this trait as intellect, whereas the larger - but still moderate - correlation with the IPIP reflects the broader definition of the trait in terms of Openness to culture and new experiences. Indeed, the ISQ dimension captures a concept of Openness to experience, and thus change, rather than a more cognitive and thinking dimension.

The last factor retrieved in our study was Gregarious-Competitive. According to McCrae and Costa (2003), Gregariousness is one of the facets of Extraversion. However, in our research, we found mild negative correlations between Gregarious-Competitive and Extroversion. Instead, the largest correlation was with Agreeableness. This finding underscores the interpretation of the ISQ factor in terms of the desire to stay connected to others, being pleasant and friendly. Interestingly, high scores on Gregarious-Competitive were negatively associated with RFQ uncertainty. Therefore, competitive individuals tended to lack understanding of mental states and the ability to mentalize.

The seven factors accounted for 37% of the total variance in EFA. According to Peterson (2000), there is no gold standard for what constitutes an acceptable level of variance. However, the same study stated that the average percentage in social science studies was 56.6%. In this sense, our findings are undoubtedly suboptimal compared to this average value. However, Peterson (2000) also showed that the variance explained in EFA decays significantly as the number of items in the analysis increases. An exploratory factor analysis with up to 10 variables accounts for 63.2%, whereas the same analysis with 31 or more variables accounts for 48.1%

(Peterson, 2000). Our results align with this downward trend, considering that we analyzed more than twice as many variables as the upper bound reported by Peterson (2000). For instance, item-level analyses of well-established 60-item personality scales like the NEO-FFI or the HEXACO accounted for approximately 35% and 37% of the total variance, respectively (Ashton & Lee, 2009; Manga, Ramos & Morán, 2004). Considering this evidence, we can reassess our findings to align with what commonly emerges in similar studies of personality questionnaires.

It is worth noting that the variance explained in EFA is not the only criterion for assessing the empirical robustness of the factors. First, the EFA solution was cross-validated using an independent sample and a cutting-edge structural equation modeling approach. Second, the ISQ items measured the latent factor with sufficient precision. According to Hancock and Mueller (2001), well-defined latent variables have a construct replicability H index greater than .80, a value attained by all ISQ factors in Study 2. Of course, a future revision of the ISQ could develop a more balanced form, reducing the overabundant items that measure the first three factors and reinforcing the factors that explain the smaller portions of variance, which have shown acceptable reliability and validity in this study.

Gender differences are relevant variables in interpersonal behavior. Accordingly, our study found substantial gender differences in four of the ISQ's seven factors, with women describing themselves as more dependent, responsible, sociable, and seeking stability than men. These results are consistent with the literature, which highlights that women score higher in kindness, responsibility, and neuroticism than men (Fortes-Vilaltella, Oriol, Filella, Del Arco & Soldevila, 2013; Fuertes et al., 2020; Rubinstein, 2005). Men and women's basic personality traits appear to differ in various ways. For example, gender differences in negative emotionality characteristics (e.g., neuroticism, anxiety, depression, and rumination) have been documented in systematic reviews (Ellis, 2011; Hyde, 2014; Russo & Green, 1993; Schmitt et al., 2017), formal meta-analyses (De Bolle et al., 2015; Johnson & Whisman, 2013) and large cross-sectional studies (Bodas & Ollendick, 2005; Hopcroft & McLaughlin, 2012; Lippa, 2005).

It is worth recalling that the ISQ was devised to operationalize the four interpersonal styles described by three clinical theories (Carli & Paniccia, 2003; Guidano, 1982; Ugazio, 1998, 2012). A relevant theoretical question, thus, is how to link the seven empirical factors retrieved in the study



to each style of the theoretical framework that inspired the development of the ISQ.

Dependent-Independent and Open-Stable fit well with the description of the free-dependent style because they fall within the matrix of meanings generated by the prevailing emotions of fear and courage. The first factor reveals more the anxiety connected to the feeling of needing or not needing the affective closeness of the other, while the second factor highlights the resourcefulness of those who do not yield to the call of emotional and friendship ties and feel attracted towards new explorations or, on the contrary, feel the need for stable contexts.

Ambitious-Modest and Gregarious-Competitive are similar to the defining characteristics of the winner-loser style, where the emotions experienced by these people are pride and a sense of personal efficacy or embarrassment and shame. Therefore, the first factor detects the salience for these people of power and competitive dynamics, and the second factor focuses on the relational modes involved in achieving the different power positions that can be assumed in relationships.

Withdrawn-Sociable and Confident-Resigned are compatible with the recognized-neglected style. Joy and happiness, when one is welcomed and recognized, and sadness and anger, when one feels neglected and excluded, are the typical and central emotions of the subjects with this style. The two ISQ factors reveal both the relational strategies of withdrawing from the relationship or seeking affection and attention, and the motivations underlying these strategies, i.e., resignation and anger at not receiving the proper consideration of others or the confidence that it is possible to obtain it by making oneself worthy of it in various ways.

Regarding the Responsible-Transgressive theoretical style, we found the Responsible-Impulsive factor that seems to cover its contents partially. The matrix of meanings generated by the emotions of guilt and innocence mainly concerns two dimensions: the correctness or not towards others, rules and duties, and sacrificing one's own needs in favor of those of others, or, on the contrary, privileging one's own. The factor found in the ISQ covers the first aspect linked to guilt and the moral dimension of doing well and respecting others and the rules, resulting in feeling good and correct. The dimension of sacrifice or transgression and selfishness has not emerged in our previous study (Mariani et al., 2018). Likewise, these aspects have not been found in the present one. Future research should attempt to recover this missing content.

Our studies have some notable limitations that can guide future research. To begin with, the ISQ interpersonal styles cover only a small number of the many aspects of interpersonal interactions. Therefore, they do not reflect all possible interpersonal styles. For a thorough assessment of interpersonal functioning, additional tools are required. However, according to our clinical experience, the ISQ styles are the most likely to be involved in normal and problematic interpersonal relationships. Second, the tools we employed to assess the concurrent validity of ISQ factors did not fully establish whether the ISQ styles merely relate to individual personality characteristics or evaluate components of personality that are effectively involved in interpersonal contexts. Other measures that examine interpersonal connections directly might give further information in this area. Especially if used in the clinical setting, ISQ could receive robust confirmation of the hypothesis that interpersonal styles are prevalent in people with the more frequent mental disorders and that the reference theories assume are extreme manifestations of the four interpersonal styles described. Third, future ISQ studies might use observational methods to address the limits of self-report methodology, which is more suited to detecting individual subjective impressions than relational functioning in its complexity. Last, the samples used in both studies are unbalanced by gender and age, with a prevalence of young female participants. Because we employed a convenience sample, the proportion of young female participants who answered the call was higher. The higher engagement of young women in psychological research has been well documented in the literature (Moore & Tarnai, 2002; Porter & Whitcomb, 2005), and this might influence answers to interpersonal questions. Considering the well-established differences in interpersonal behaviors between males and females (Schmitt et al., 2017), we believe this finding adds to the validity of the ISQ. This is not to say that a well-balanced representative sample is not required to refine the ISQ and standardize it for personality assessment applications. Notwithstanding these limitations, ISQ is a promising new tool that allows researchers and clinicians to investigate the relational styles described as more frequent and prototypical by three converging theoretical perspectives (Carli & Paniccia, 2003; Guidano, 1987, 1991; Ugazio, 1998, 2012) regarding the relationship between human beings and their interpersonal contexts.

**Conflict of interests.** The authors declare that there is no conflict of interest. All authors have contributed equally.

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