JPS, 2025, Vol. 9 (2), pp. 1-21 Section: **ORIGINAL RESEARCH**

Received: 26 August 2025 Revised: 27 October 2025 Accepted: 10 November 2025

Doi: 10.23823/3pppvq18

A New Italian Standardization of the FACES-IV in an Adult Population

Una Nuova Standardizzazione Italiana del FACES-IV in una Popolazione Adulta

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Acknowledgements

Thanks are extended to the Directors of Psychotherapy Institutes/Centers, to the Istituto Italiano di Psicoterapia Relazionale, the Centro Studi e Applicazione della Psicologia Relazionale, the Centro Padovano di Terapia della Famiglia, and the President of the Società Italiana di Psicologia e Psicoterapia Relazionale, along with all individuals involved in the revisions. We extend our sincere gratitude to all individuals who contributed to this research, particularly those who dedicated their time and effort to participate in the study and complete the questionnaires.

Abstract

This study presents the new standardization of the Italian version of the FACES IV questionnaire (Olson, 2011) in an adult population. The aim is to promote its use in epidemiological studies, to evaluate the familial influence on medical, psychological, and psychiatric treatments, and the effectiveness of family and couple psychotherapies. Results were obtained through an initial phase of exploring the scale's structure using Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) techniques, followed by correlation analyses and the identification and discussion of family typologies based on Olson's model. Validation analysis revealed an acceptable overall factor structure and good internal consistency. However, some critical issues were identified, consistent with previous studies conducted on international samples. Specifically, the rigidity area presented less than fully sufficient fit indices during confirmatory analysis and modest construct validity. Despite these limitations, which could be due to item comprehension or the cultural nature of the rigidity dimension, this version of the questionnaire aligns more closely with the model's hypotheses compared to previous versions, contributing to capturing the curvilinearity and complexity of family systems.

Riassunto

Questo studio presenta la standardizzazione della versione italiana del questionario FACES IV (Olson, 2010) in una popolazione adulta. L'obiettivo è favorire l'uso di questo strumento nella valutazione del fattore famiglia negli studi epidemiologici e nei trattamenti medici, psicologici e psichiatrici. I risultati sono

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stati ottenuti attraverso una fase iniziale di esplorazione della struttura della scala utilizzando tecniche di Analisi Fattoriale Esplorativa (EFA) e Analisi Fattoriale Confermativa (CFA), seguita da analisi di correlazione e dall'identificazione e discussione delle tipologie familiari basate sul modello di Olson. L'analisi di validazione ha rivelato una struttura fattoriale complessivamente accettabile e una buona coerenza interna. Tuttavia, sono state identificate alcune criticità, coerenti con studi precedenti condotti su campioni internazionali. Nello specifico, l'area della rigidità ha presentato le maggiori criticità in termini di validità di struttura e costrutto. Nonostante queste limitazioni, discusse nel presente articolo, la versione del questionario qui presentata si allinea strettamente con le ipotesi del modello rispetto alle versioni precedenti, contribuendo a catturare la curvilinearità e la complessità dei sistemi familiari.

Keywords

FACES-IV, Validation, Circumplex Model, Family Functioning, Adult Population

Parole chiave

FACES-IV, Validazione, Modello Circonflesso, Funzionamento Familiare, Studi sulla popolazione adulta

Introduction

Despite the passage of nearly five decades since its initial conceptualization, the Circumplex Model of marital and family systems continues to demonstrate utility in the representation of familial relationships. The model's dimensions—*cohesion*, *flexibility*, and *communication*—remain relevant despite the numerous changes that have occurred in family formation, the construction of affective bonds, and the way relationships are conceived and experienced.

As highlighted in previous work (Loriedo, 2014), the Circumplex Model is rooted in systems theory and can be applied not only to the understanding of couple and family systems, but also to other systems such as school classes, work groups, and other (Olson, 2019).

Despite the model undergoing very few changes over time, the self-report questionnaire used to assess it — the Family Adaptability and Cohesion Evaluation Scales (FACES). FACES and the Clinical Rating Scale — have undergone several revisions (e.g. Olson et al., 1982; Olson, 1986; Olson, 1991). The current version of the questionnaire, FACES IV (Olson, 2011; Olson, 2017), has been almost completely redesigned, and the Clinical Rating Scale has been simplified compared to previous versions.

Given the interest in assessment tools that evidence-based medicine has generated, Hamilton and Carr (2016) list eight self-report measures that assess family functioning: the McMaster Family Assessment Device (FAD) (Epstein et al., 1983), the Circumplex Model Family Adaptability and Cohesion Evaluation Scales (FACES) (Olson et al., 2004), the Beavers Systems Model Self-Report Family Inventory (SFI) (Beavers et al., 2000), the Family Assessment Measure III (FAM III) (Skinner et al., 2000), the Family Environment Scale (FES) (Moos et al., 2009),

Received: 26 August 2025 Revised: 27 October 2025 Accepted: 10 November 2025

Doi: 10.23823/3pppvq18

the Family Relations Scale (FRS) (Tolan et al., 1997), the Systemic Therapy Inventory of Change (STIC) (Pinsof et al., 2015), and the Systemic Clinical Outcome Routine Evaluation (SCORE) (Stratton et al., 2010). They highlight that five of these instruments (FAD, FACES-IV, SFI, FAM III, SCORE) have demonstrated greater reliability.

In this paper, we present the standardization of the Italian version of the FACES IV questionnaire (Olson, 2011) in an adult population with the aim of promoting its use in population studies, to evaluate the family resonance of medical, psychological, and psychiatric treatments, and the effectiveness of family and couple psychotherapies.

The circumplex model of marital and family systems as measured by FACES IV

The Circumplex Model of marital and family systems describes family relationships and functioning styles through three operational dimensions and a series of measures to organize and quantify them (Olson et al., 1979; Olson et al., 1983). The term "circumplex" derives from the combination of the words "circular" and "complex" (Scaiola & Favez, 2010). Circularity refers to the hypothesis that each dimension develops in a curvilinear manner, where central values are the most functional and extreme values the most dysfunctional; complexity refers to the understanding of the family system according to multiple dimensions.

After examining the main explanatory concepts of the family functioning in sociological, research, and clinical fields (Parsons & Bales, 1955; Epstein & Bishop, 1983; Constantine, 1993; Leary, 1957; Leff & Vaughn, 1985; Reiss, 1981), the authors identified the dimensions of cohesion, flexibility (previously called adaptability), and communication as central to the study of the family.

Cohesion is defined as the emotional bonding that couple or family members have towards each another and encompasses balanced cohesion and the unbalanced aspects of disengagement and enmeshment; flexibility is defined as the amount of change in leadership, role in the relationship, and relationship rules, and includes balanced flexibility and the unbalanced aspects of rigidity and chaos; communication refers to the actions of providing information, ideas, thoughts, and feelings between family members. Cohesion and flexibility represent the primary dimensions and exhibit a curvilinear pattern, while communication is intended as a facilitating dimension with a linear pattern (Olson et al., 1979; Olson et al., 2019).

One of the most salient features of the Circumplex Model is that it is accompanied by tools that assess the family system using the same dimensions as the theoretical model, allowing for empirical verification of its assumptions. The primary instrument associated with the Circumplex model is the self-report questionnaire called FACES, which has undergone several revisions over time. FACES IV is the latest version and includes several novelties compared to previous versions named FACES I, FACES II, and FACES III. FACES IV is based on studies by Dean Gorall (2006) and Judy Tiesel (1994), which focused on the assessment of the unbalanced aspects of cohesion and flexibility and were

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Doi: 10.23823/3pppvq18

designed to improve the adequacy of the assessment and the measurement of the model.

The evolution of the instrument can be characterized by two sequential phases. The first phase encompasses the initial three versions of FACES, where innovations concerned the selection and appropriateness of individual items. The second phase relates to the ability to capture the curvilinearity of the model, specifically the capacity to identify unbalanced values situated at the distal ends of the central range. This necessity arose from the observation that previous questionnaires failed to capture this characteristic, offering a linear and progressive evaluation.

Consequently, the FACES IV questionnaire was developed by re-proposing items from prior iterations to assess the balanced dimensions of cohesion and flexibility, alongside the incorporation of novel items designed to capture the unbalanced poles of each dimension. Olson's (2011) validation study analyzed 84 initially selected items, identifying five factors: Cohesion vs. Disengagement, Flexibility, Enmeshment, Rigidity, and Chaos. Half of the items exhibited loadings greater than 30, and these 42 were retained for subsequent analyses to develop the final scales; the remaining 42 items were removed. A further significant modification from preceding versions is the inclusion of dedicated scales for communication and satisfaction that resulted in 62 items, which constitute the final version of the scale.

For a comprehensive overview of the new instrument (Olson, 2011; 2019), the following characteristics are highlighted:

- a new acronym, Flexibility and Cohesion Evaluation Scales, replacing the previous Family Adaptability and Cohesion Evaluation Scales;
- three scales to assess balanced and unbalanced cohesion (disengagement and enmeshment);
- three scales to assess balanced and unbalanced flexibility (rigidity and chaos);
- a scale for communication;
- a scale for satisfaction;
- new indicators: scores for individual scales; the ratio indicator (Ratio), representing the relationships between balanced and unbalanced scales to evaluate the curvilinearity of the scales, where optimal functioning is indicated by higher values on balanced scales compared to unbalanced scales; A new computational method was employed to identify the salient dimensions for the visual representation of family systems;
- a revised graphic dimension and new family typologies. Individual scale scores can be entered into a table that generates family profiles. Through cluster analysis, profiles for new family typologies have been identified (balanced families, rigidly balanced families, mid-range families, flexibly unbalanced families, chaotically disengaged and unbalanced families [see Figure 1]);
- a different formulation of the Clinical Rating Scale for the evaluation of families through observation;
- the addition of the satisfaction dimension to the model's

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Doi: 10.23823/3pppvq18

hypotheses;

The italian standardization of the FACES IV

The Italian translation and standardization of the FACES questionnaire, as presented in the latest Administration Manual (Olson, 2017), was undertaken by the Italian Institute of Relational Psychotherapy (I.I.P.R.) in collaboration with the Psychology Department of the University of Catania. The preliminary phase of the study involved the evaluation of the English version translated into Italian by independent judges. They were asked to indicate the congruence with the English version (on a scale from 0 to 5) and the clarity in Italian (also on a scale from 0 to 5). Subsequently, a back-translation process was performed with the same evaluation of correspondence and understandability conducted by native English speakers. Following the attainment of the final Italian version, it was used for the standardization study presented in this paper.

The 2011 Administration Manual (Olson, 2011) constitutes the reference version, which presents modifications compared to the 2004 and 2006 versions in two key areas: the content of the items and the method for converting raw scores to percentile values.

Specifically, the current iteration includes revised items and modifications within the balanced flexibility dimension (comprising 4 items), disengagement (1 item), rigidity (3 items), and chaos (2 items). Furthermore, this version is also applicable to dyadic assessment and can also be administered to couples.

Method

Sample

The present study's sample comprises 627 protocols derived from the administration and completion of the questionnaire by trainees of the Italian Institute of Relational Psychotherapy (I.I.P.R.) (sited in Rome, Ancona, Naples, Messina), the Paduan Center for Family Therapy (C.P.T.F.) (sited in Padua and Trieste), the Center for Studies and Application of Relational Psychology (C.S.A.P.R.), and members of the Italian Society of Psychology and Relational Psychotherapy (48%). Participants were additionally recruited via social media (21%), a sample of individuals with obesity but without reported psychological or psychiatric comorbidities (12%) (Paone et al., 2024), a restricted sample of individuals with substance-related and addictive disorders (4%), and a population-based survey (Scilipoti, Visani et al., in press) conducted in Sicily (23%).

The age of the participants who completed the questionnaires ranged from 18 to 84 years (M = 38.43, SD = 12.40).

The sample exhibited a prevalence of female individuals, with the majority holding a university degree and being employed (see Table 1).

Despite potential misunderstandings during completion, nearly half of the participants reported having parental roles, and among those with children, there was an equal representation of firstborn and subsequent siblings.

The majority of participants reported being married or cohabiting, while approximately one-fifth resided with their parents.

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Our sample differs from the previously conducted Italian standardization sample (Di Nuovo et al., 2014) and those carried out in other countries (Rivero et al., 2010; Koutra et al., 2013) by having a greater representation of the general population with a higher mean age and more established relationships.

Data analyses

In order to analyze the psychometric properties and descriptive characteristics of the FACES data, a series of statistical analyses were employed. Descriptive statistics, including means, standard deviations, and skewness/kurtosis, were computed for all FACES dimensions. The factorial structure of the FACES questionnaire was rigorously examined through both exploratory factor analysis (EFA), using the maximum likelihood estimation with varimax rotation, and subsequent confirmatory factor analysis (CFA), employing maximum likelihood estimation with robust standard errors. The internal consistency reliability of each FACES dimension was assessed using Cronbach's alpha (α). Following this, Pearson correlation analyses were conducted to examine the correlations among the various FACES dimensions. Finally, to empirically derive distinct family typologies, a k-means cluster analysis was performed on the FACES dimension scores. All statistical computations were executed using IBM SPSS Statistics for Windows, Version 23.0 (IBM Corp., 2015) and Mplus, Version 7.0 (Muthén & Muthén, 1998-2012).

Results

Exploratory factor analysis

Our analysis included all 62 items from the final version of the questionnaire, including the communication and satisfaction scales, which Olson himself identified as integral to Version IV.

The scales to which each item belongs are summarized below (abbreviations correspond to those in subsequent tables):

- Cohesion (COH): Items 1, 7, 13, 19, 25, 31, 37
- Flexibility (FLE): Items 2, 8, 14, 20, 26, 32, 38
- Disengagement (DIS): Items 3, 9, 15, 21, 27, 33, 39
- Enmeshment (ENM): Items 4, 10, 16, 22, 28, 34, 40
- Rigidity (RIG): Items 5, 11, 17, 23, 29, 35, 41
- Chaos (CHA): Items 6, 12, 18, 24, 30, 36, 42
- Family Communication (COM): Items 43-52
- Family Satisfaction (SAT): Items 53-62

We conducted an exploratory factor analysis (EFA) using SPSS software. Specifically, we employed the maximum likelihood estimation method to extract factors and applied a Varimax rotation to the extracted factors. The exploratory factor analysis reduced the dimensionality of the data and identified six factors (see Table 2).

- Factor 1 was strongly characterized by items primarily from the

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communication and satisfaction scales, indicating a central theme related to positive relational dynamics.

- Factor 2 showed significant loadings from items representing the flexibility and cohesion scales. Similar to Factor 1, this factor appears to represent a positive dimension of family functioning, with most of item loadings exceeding .50.
- Factor 3 was predominantly loaded by chaos items, all of which exhibited negative signs. Interestingly, this factor also included item 23 ("Our family is very organized") from the rigidity scale and item 32 ("In our family, we have clear roles and rules") from the flexibility scale. The inclusion of these items, with their opposite conceptual meaning to the primary chaos construct, suggests an inverse relationship or potentially a need for reverse-scoring in future analyses.
- Factor 4 comprised items from the over-involvement scales and one item from the rigidity scale (item 41, "In our family, it is very difficult to change decisions once they have been made"). This factor seems to capture dynamics related to excessive enmeshment and resistance to change.
- Factor 5 was defined by items from the disengagement scales and one item from the chaos scale (item 36, "In our family, it is difficult to know how each of us is fulfilling family commitments"). This suggests a dimension characterized by a lack of involvement and clarity regarding family responsibilities.
- Factor 6 clearly consisted of items from the rigidity scale, with two exceptions: item 23, which loaded on the chaos factor (Factor 3), and item 29 ("In our family, we tolerate changes in plans or routine very little"), which did not significantly load on any of the identified factors, indicating it may not align well with these core dimensions.

Five items did not load significantly onto any of the extracted factors. Two of these items belong to the disengagement scale (items 3 and 9: "We are better off with people outside the family than among ourselves"; "When we are at home, everyone seems to avoid each other"). One item is from the enmeshment scale (item 22: "Each of us has little need for friends outside the family"). Another item belongs to the flexibility scale (item 26: "In our family, responsibilities for household chores can shift from one person to another"), and the previously mentioned item 29, which was hypothesized to load onto the rigidity factor.

Confirmatory factor analysis

Olson (2011) reported a confirmatory factor analysis on the 42 items of the final version (excluding the communication and satisfaction scales), yielding the following model fit: $x2 = 2058.76$ ($df = 804$, $p < .001$), IFI = .97; CFI = .97; RMSEA = .058. When we replicated this same six-factor analysis on our data, we obtained the following model fit: $x2 = 2099.008$ ($df = 776$, $p < .001$); CFI = .84; TLI= .82; RMSEA = .052. The suboptimal fit was observed despite the inclusion of several theoretically grounded covariance paths between item error terms, which were intended to account for shared unique variance (e.g., due to similar wording or content overlap) and improve model performance. However, these adjustments

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were not sufficient to reach optimal fit indices. The factor loadings for individual items are presented in Table 3.

The fit indices from the confirmatory factor analysis (CFA) conducted on the proposed model reveal some critical aspects. There are two primary concerns: first, a high correlation was observed between the flexibility and cohesion factors (r=.98), which could lead to identification issues between these two dimensions (See Table 4). Second, the rigidity scale includes items (e.g., items 5, 11, 29, 41) that frequently do not load adequately onto their intended factor.

Descriptive statistics

The Table 5 presents the descriptive statistics for the FACES IV scales analyzed in this study. For each scale, the mean, standard deviation, minimum and maximum values, skewness, and kurtosis are reported, which are useful for evaluating the distribution of scores. In addition to the six subscales of FACES IV, the table also includes data pertaining to the family satisfaction scale, the family communication scale, and the Ratio scores (which reflects the balance between cohesion and flexibility) (Olson, 2017). Considering the heterogeneity of the sample's composition, the basic statistics in our study, when compared to the data in the Administration Manual (Olson, 2011), reveal similar mean values for cohesion and higher mean values for flexibility, as well as for the unbalanced scales, alongside a smaller standard deviation across all scales. In comparison to the adaptation and validation study conducted in Poland (Margasiński, 2015), which included a similar population, we observed comparable values for cohesion and flexibility, and higher values on the unbalanced scales with the exception of chaos. The standard deviation values appeared similar across the scales.

The reliability analysis of the scales was conducted using Cronbach's α coefficient (Table 5). The constructs of communication and satisfaction demonstrate excellent reliability, suggesting highly reliable measurements. Cohesion, flexibility, disengagement, and chaos show good reliability, indicating acceptable internal consistency. The constructs of enmeshment and rigidity exhibit low reliability and may require further evaluation; in particular, the reliability of rigidity suggests that the measurement of this construct may be critical.

Dimensions correlations

The analysis of correlations among the investigated factors reveals, for most of them, medium to strong associations in the expected direction, with Pearson's correlation coefficients (r) supporting the theoretical hypotheses. However, the rigidity scale demonstrates a critical pattern, showing positive and significant correlations with theoretically opposite constructs (e.g., correlation between rigidity and flexibility: $r = .16$, $p < .001$). This pattern of unexpected associations suggests a potential measurement issue concerning the construct of rigidity and warrants caution in the interpretation of the results (See Table 6).

Analysis of family typologies

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Olson (2006) introduced a new conceptualization of family typologies in the FACES IV to identify patterns within family systems. Using K-means cluster analysis, he identified six family typologies, progressively ordered from more functional to more dysfunctional: Balanced, Rigidly Balanced, Mid-Range, Flexibly Unbalanced, Chaotic Disengaged, and Unbalanced families. In our study, based on cluster analysis and the percentiles provided in the manual (2011), we identified six family typologies, which we labeled: Balanced, Rigidly Cohesive, Intermediate - Balanced, Disengaged, Unbalanced-Intermediate, and Chaotic Disengaged families (see Figure 2).

The distribution of cohesion and flexibility ratios by family typology (Figure 3) illustrates a continuum, ranging from more balanced families reporting a high level of emotional bonding and sense of belonging within the family, to more unbalanced families where these values decrease. Observing the progression of ratios across individual typologies reveals varying degrees of family health and dysfunction.

When comparing and validating the identified family typologies with the communication and satisfaction scales, we generally observe that the values of one scale associate with the other, and their trends follow the varying degrees of health and dysfunction within each typology. An exception is the Unbalanced scale, where the presence of significant values across all unbalanced scales is associated with normal cohesion and flexibility scores (see Figure 4).

Discussion

The present Italian validation of the FACES IV scale showed interesting and relevant results, reflecting the complexity of the underlying model and the scale itself. The results from the EFA generally revealed a six-factor structure for the scale. This structure was characterized by several features, including the aggregation of the cohesion and flexibility dimensions onto a single factor, and the combination of satisfaction and communication items onto another. Furthermore, as expected by the exploratory phase, the analysis showed that some items lacked clear factor loadings, while others loaded onto unexpected dimensions. For instance, item 36, "In our family, it is difficult to know how each of us is fulfilling family commitments," which was hypothesized to belong to the disorganization scale, was instead interpreted as reflecting disengagement.

Regarding the CFA's suboptimal fit, a critical issue that prevented further model optimization and convergence beyond this point was the low loadings of items on the rigidity factor and the inter-factor correlations involving cohesion and flexibility, hindering the model's ability to achieve a superior, stable, and theoretically meaningful convergence. Specifically, regarding the cohesion and flexibility dimensions, although distinct in clinical practice, these dimensions are inherently interconnected, especially at their extreme poles. The construction of scales with items representing extreme values on both dimensions can lead to misinterpretations due to their interdependence. The high correlations observed between the cohesion and flexibility dimensions, although understandable given

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their reciprocal relationship, still require cautious interpretation. In addition, the rigidity area presented a major challenge in our analysis, showing less than fully sufficient fit indices during confirmatory analysis and modest construct validity. While this could be due to a lack of immediate comprehension of the items, it's also possible that the dimension of rigidity itself is culturally more challenging to identify today. It's important to remember that the authors define rigidity as a system not open to change, rather than simply an authoritarian system. Moreover, while the majority of inter-factor correlations aligned with theoretical predictions, exhibiting medium to strong associations in the expected direction, a different pattern emerged for the rigidity scale. Specifically, the scale demonstrated a statistically significant, positive correlation with constructs designed to measure its theoretical opposite. This counter-theoretical pattern strongly suggests a potential measurement issue or poor discriminant validity within the current operationalization of the rigidity construct. This lack of clear differentiation from its theoretical antonym highlights the potential difficulty in distinguishing between the balanced and unbalanced aspects of flexibility and necessitates caution in interpreting results involving this specific factor.

In the process of family typology construction via Cluster Analysis, the utilization of USA's normative percentiles was deliberately employed to maintain cross-cultural comparability with established data sets. Our cluster analysis identified six empirically derived family typologies: Balanced, Rigidly Cohesive, Intermediate -Balanced, Disengaged, Unbalanced- Itermediate, and Chaotic Disengaged families. Few distinct cross-cultural variations in family functioning profiles were observed when comparing our typologies to the established USA's profiles, particularly in the Disengaged and Unbalanced-Intermediate categories. In our sample, the Disengaged cluster was characterized by low, unbalanced levels across the Circumplex dimensions, with elevated scores observed exclusively on the disengagement subscale. This profile suggests a functional deficit centered on emotional distance, distinguishing it from potentially broader imbalances found in comparative profiles. Secondly, the Unbalanced-Intermediate cluster, which functionally substitutes the USA's Flexibly-Unbalanced cluster, exhibited a distinctive pattern. Contrary to the typical unbalanced designation, this cluster demonstrated also high-level scores on both the flexibility and cohesion dimensions. The label "Intermediate-Unbalanced" thus refers to its position in the overall hierarchy of functioning, rather than exclusively to its cohesion/flexibility scale scores. The Circumplex Ratio Score demonstrated a predictable, progressive decrement corresponding to functional health, ranging from the highest values in Balanced families to the lowest in Chaotic Disengaged families. Interestingly, the indices for family satisfaction and family communication followed a similar overall trend, displaying a progressive decrease mirroring the Circumplex Ratio score. However, these indices were notably elevated within the Intermediate-Unbalanced profile. This finding suggests that the high satisfaction and communication scores in the Unbalanced- Intermediate cluster are likely attributable to the observed high levels of cohesion and flexibility within this specific profile, supporting the premise that these balanced dimensions are key predictors of positive family outcomes. This pattern suggests a compensatory effect where high levels of system resources - cohesion and

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flexibility - buffer the potential deficits associated with an "intermediate" classification.

Conclusions

The Italian adaptation of Olson's (2010) FACES IV confirms the questionnaire's validity for assessing family functioning according to the Circumplex model. The validation analysis revealed an acceptable overall factor structure, including internal consistency. However, it also showed some critical issues, consistent with previous studies conducted on samples from other countries (Rivero et al., 2010; Koutra et al., 2013; Margasiński, A., 2015). Beyond the questionnaire's complex structure, cultural differences across countries likely influence how items are understood and weighted. While the simplicity of FACES III may be lost, FACES IV offers a more complex and dynamic perspective. Compared to its previous versions, FACES IV more accurately captures the multifaceted world of families by allowing for the simultaneous assessment of balanced and unbalanced values within both cohesion and flexibility dimensions. It also connects these with communication and satisfaction scores, providing clinicians and researchers with a more comprehensive understanding.

Limitations of the research and future directions

Despite the valuable insights evidenced by this study, several limitations warrant consideration when interpreting the findings. Some fit indices of the CFA model did not reach acceptable thresholds, particularly those related to the rigidity scale. This may stem from participant interpretation of items, where cultural nuances or complex phrasing might have influenced response patterns. Furthermore, the sample requires greater diversification—including wider ranges of ages, genders, and socioeconomic statuses—to broaden the external validity and ensure larger applicability to the general population. The exclusive reliance on online data collection also presents inherent limitations (e.g., digital literacy bias), suggesting that future work should employ diverse recruitment and data collection strategies, including offline methods, to enhance robustness.

Despite these points, it's important to highlight some strengths: the reliability analysis showed high Cronbach's Alpha values for most scales, indicating good internal consistency and measurement stability. If one of the researchers' goals was to capture the curvilinearity and complexity of family systems, it can be said that this version of the questionnaire, despite its limitations, more closely aligns with the model's hypotheses compared to previous versions.

Future research must advance the psychometric properties of the FACES scale in the Italian context: first, the issues with rigidity necessitate either a targeted review or rewording of its items, or the use of qualitative research to explore the construct's cultural understanding; second, the conceptual overlap between cohesion and flexibility suggests a need for clearer operative definitions or item refinement; finally, a key step is conducting Multi-Group Confirmatory

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Factor Analysis (MGCFA) to formally assess measurement invariance across relevant subgroups (e.g., gender, age, clinical status), which is essential for establishing consistent measurement.

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Appendix

Table 1. *Descriptive statistics, sample size, and percentages of the sociodemographic variables of the sample*

Variable	Mean	Sd
Age	38.43	12.40
	N	%
Gender		
Men	178	28.7
Women	449	71.6
Education Level		
Elementary School	9	1,3
Middle or High School	176	28.1
Vocational Training	22	3.5
University Degree	306	48.8
Post-Graduate Specialization	114	18.2
Occupation		
Employed	366	58.4
Underemployed	14	2.2
Unemployed or Job Seeking	125	19.9
Homemakers	26	4.1
Students	53	8.5
Retired	24	3.8
Family Role		
Mothers	208	33.2
Fathers	80	12.7
Firstborn Children	129	20.6
Secondborn Children	116	18.5
Thirdborn Children	29	4.6
Children (4th or over)	16	2.5
Relationship Status		
Single	138	22
Married	224	35.7
Cohabiting	122	19.5
Separated	40	6.3
Widowed	2	0.3

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Living Situation		
Alone	75	12
With Parents	131	20.9
With Partner	151	24.1
With Partner and Children	192	30.6
With Other People	26	4.1

Table 2. *Exploratory Factor Analysis: Factor loadings for items after Varimax rotation.*

Item	Scale	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
57	SAT	**.84**	.21	.14	.02	-.17	.00
60	SAT	**.83**	.17	.13	.01	-.09	.02
61	SAT	**.79**	.13	.12	.02	.00	-.01
58	SAT	**.79**	.24	.14	.02	-.07	.02
62	SAT	**.71**	.31	.12	-.02	-.23	.00
54	SAT	**.67**	.20	.23	-.07	-.13	.03
43	COM	**.66**	.34	.19	.04	-.11	-.00
53	SAT	**.64**	.37	.15	.02	-.28	-.01
44	COM	**.62**	.40	.20	.04	-.13	.03
56	SAT	**.62**	.34	.18	-.07	-.25	.03
55	SAT	**.61**	.27	.11	-.06	-.06	-.03
59	SAT	**.59**	.15	.14	.03	-.25	.01
47	COM	**.56**	.39	.17	.05	-.14	.01
46	COM	**.54**	.44	.17	.06	-.10	-.05
45	COM	**.53**	.46	.09	.03	-.20	.00
50	COM	**.52**	.45	.18	-.08	-.12	.02
52	COM	**.52**	.39	.16	.00	-.13	.04
48	COM	**.50**	.42	.16	-.09	-.24	.01
51	COM	**.45**	.07	-.03	.03	.09	.04
49	COM	**.42**	.39	.23	-.09	-.07	.02
25	COH	**.40**	.39	.16	.07	-.27	.05
3	DIS	-.37	-.33	-.23	.13	.36	.07
9	DIS	-.35	-.35	-.30	.25	.31	.08
26	FLE	.26	.25	-.08	-.12	-.05	.00
7	COH	.32	**.61**	.09	.07	-.17	-.00
38	FLE	.36	**.60**	.16	-.11	-.07	-.00
37	COH	.36	**.58**	.12	-.24	.13	.04
20	FLE	.29	**.54**	.19	-.05	.03	.00
13	COH	.33	**.54**	.20	-.03	-.16	-.05
31	COH	.21	**.53**	.13	-.22	-.03	.09
1	COH	.11	**.50**	.01	.03	-.22	.13
2	FLE	.32	**.45**	.10	-.06	-.09	.09
19	COH	.26	**.44**	.17	.10	-.20	.08
14	FLE	.35	**.41**	.35	.02	.04	.04
8	FLE	.35	**.37**	.22	.04	-.07	-.03
6	CHA	-.25	-.15	**-.61**	.16	.09	.06
23	RIG	.35	.33	**.55**	.15	.02	.11
18	CHA	-.21	-.19	**-.54**	.20	.05	.13
42	CHA	-.32	-.29	**-.52**	.25	.13	-.01
12	CHA	-.15	-.08	**-.52**	.19	.11	-.05
24	CHA	-.00	-.05	**-.50**	.15	.16	-.05
32	FLE	.18	**.34**	**.43**	-.03	.08	.41
30	CHA	.03	.04	**-.35**	.06	.14	-.28
16	ENM	-.04	-.01	-.11	**.56**	-.13	.09
28	ENM	.08	.11	.02	**.54**	-.00	-.08
40	ENM	-.08	-.10	-.24	**.54**	-.07	.12
34	ENM	-.02	-.16	-.18	**.48**	.04	.18
4	ENM	-.02	-.05	-.06	**.47**	.02	-.01
10	ENM	.17	.16	-.01	**.36**	-.19	.09
41	RIG	-.08	-.26	-.19	**.31**	.15	.23
22	ENM	.16	-.13	-.14	.28	.02	.03
39	DIS	-.16	-.06	-.07	-.09	**.49**	-.03
27	DIS	-.30	-.35	-.28	.05	**.48**	-.02
21	DIS	-.27	-.31	-.30	.05	**.44**	.09

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33	DIS	-.00	.01	.00	-.21	**.43**	-.04
36	CHA	-.15	-.16	-.31	.28	**.39**	.01
15	DIS	-.13	-.18	-.19	.20	**.36**	-.01
11	RIG	-.02	.06	-.03	.02	-.06	**.64**
5	RIG	-.03	-.02	-.04	.12	-.01	**.60**
35	RIG	.15	.22	.31	.14	-.00	**.45**
17	RIG	.15	.09	.15	.37	.07	**.41**
29	RIG	-.23	-.14	-.08	.26	.15	.04
Explained Variance		18.75	3.26	2.03	1.40	1.42	.93
Variance %		30.25	5.26	3.28	2.27	2.30	1.25

Table 3. *Factor Loadings for the Six-Factor Confirmatory Factor Analysis*

Item	COH	FLE	DIS	ENM	RIG	CHA
1	*.52*					
7	*.65*					
13	*.66*					
19	*.59*					
25	*.61*					
31	*.57*					
37	*.64*					
2		*.59*				
8		*.53*				
14		*.60*				
20		*.63*				
26		*.34*				
32		*.53*				
38		*.69*				
3			*.69*			
9			*.71*			
15			*.47*			
21			*.68*			
27			*.74*			
33			*.16*			
39			*.37*			
4				*.41*		
10				*.30*		
16				*.57*		
22				*.30*		
28				*.43*		
34				*.59*		
40				*.64*		
5					*-.08*	
11					*.14*	
17					*.31*	
23					*.76*	
29					*-.24*	
35					*.46*	
41					*-.24*	
6						*.69*
12						*.55*
18						*.64*
24						*.48*
30						*.27*

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36						*.54*
42						*.76*

***Table 4**. Correlations among factors.*

		(1)	(2)	(3)	(4)	(5)	(6)
Cohesion	(1)	1					
Flexibility	(2)	.98**	1				
Disengagement	(3)	-.83**	-.79**	1			
Enmeshment	(4)	-.14*	-.21**	.30**	1		
Rigidity	(5)	.75**	.81**	-.65**	-.00	1	
Chaos	(6)	-.66**	-.74**	.80**	.54**	-.73**	1

* Significant correlation at $p < .05$; **Significant correlation at $p < .001$;

***Table 5**. Basic Statistics and Reliability Analysis of FACES Test Variables in the Italian Sample*

Dimension	M	SD	Minimum	Maximum	Skewness	Kurtosis	Cronbach's α
Cohesion	27.78	4.74	9.00	35.00	-0.94	0.92	0.80
Flexibility	25.81	4.72	11.00	35.00	-0.63	-0.16	0.75
Disengagement	16.42	4.91	7.00	31.00	0.49	-0.08	0.75
Enmeshment	15.74	4.56	7.00	32.00	0.49	0.15	0.66
Rigidity	18.79	3.97	7.00	31.00	0.12	0.11	0.60
Chaos	14.64	4.88	7.00	31.00	0.73	0.30	0.76
Family Communication	36.92	4.88	10.00	50.00	-0.72	0.36	0.92
Family Satisfaction	35.03	8.29	10.00	50.00	-0.38	-0.11	0.94
Cohesion Ratio	2.67	1.26	0.45	6.96	0.67	0.28	
Flexibility Ratio	2.16	0.90	0.48	6.56	0.63	0.72	
Total Ratio	2.42	0.99	0.46	6.68	0.41	0.11	

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Table 6. *Analysis of correlations among constructs.*

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Cohesion	(1)	1							
Flexibility	(2)	.79**	1						
Disengagement	(3)	-.61**	-.52**	1					
Enmeshment	(4)	-.04	-.08	.05	1				
Rigidity	(5)	.12	.16**	.01	.33**	1			
Chaos	(6)	-.46**	.48**	.55**	.32**	-.04	1		
Family Communication	(7)	.76**	.73**	-.58**	.01	.10	-.46**	1	
Family Satisfaction	(8)	.67**	.68**	-.59**	.01	.08	-.45**	.80**	1

**Significant correlation at $p < .00003$ after Bonferroni correction.

Figure 1. *FACES IV Profiles: Six Family Typologies.*

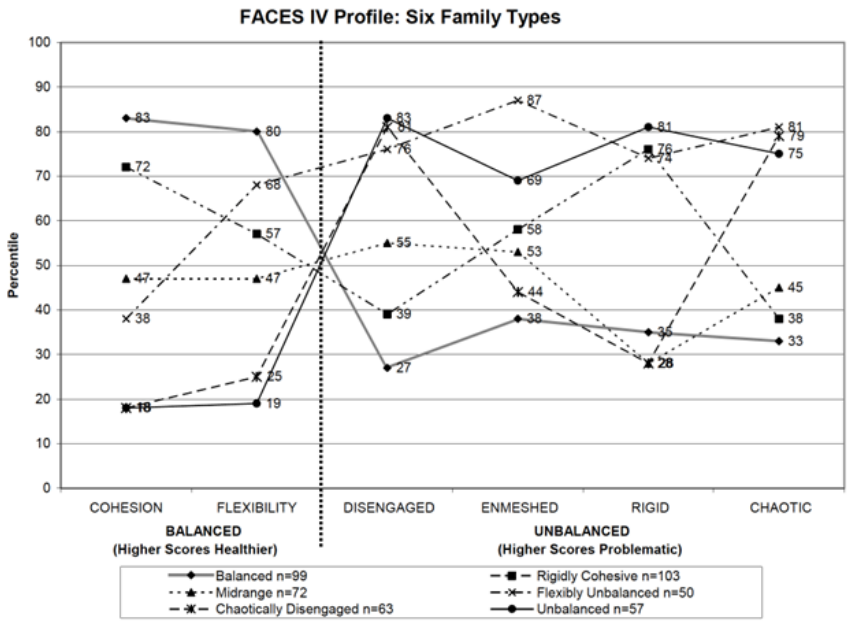

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Figure 2. *FACES IV Profiles: Six Family Cluster Typologies*

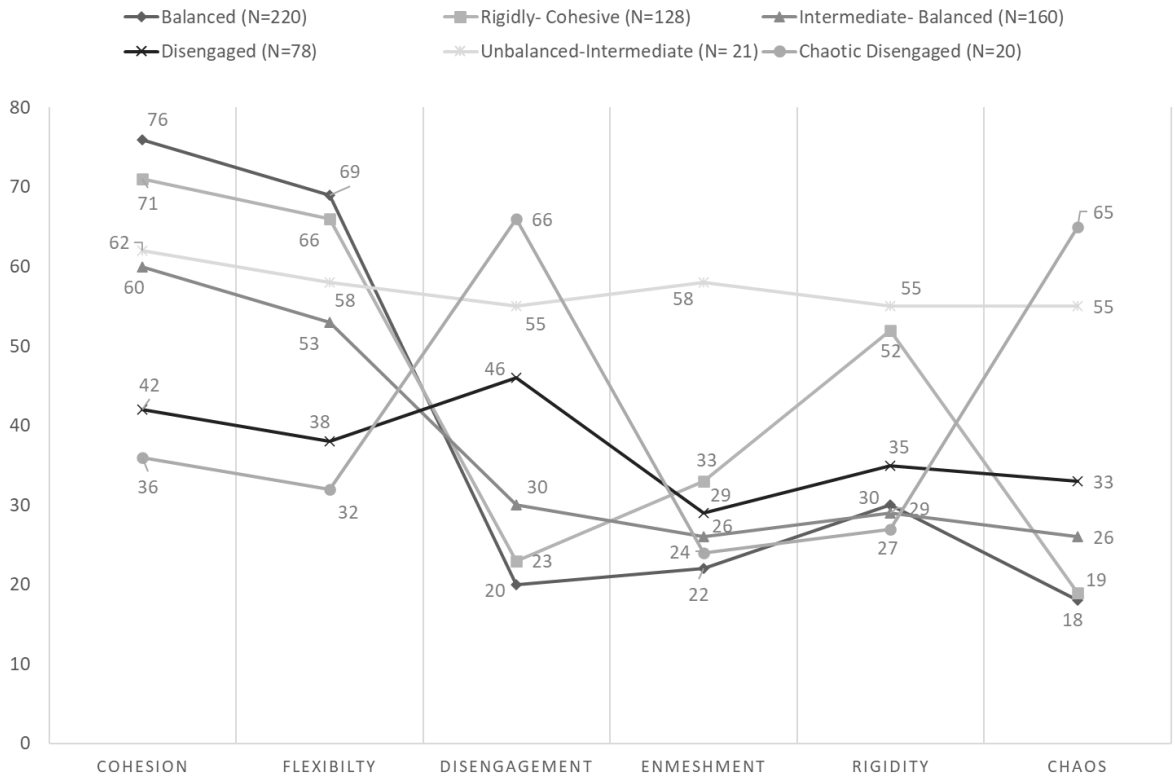

Figure 3. *Ratio Scores and Family Typologies*

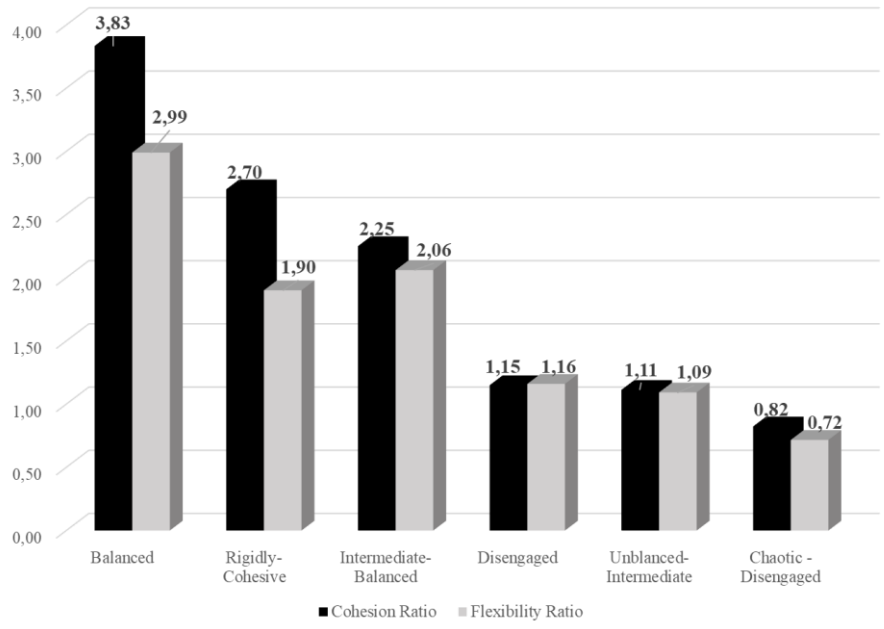

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Figure 4. *Family Communication and Satisfaction Scales by Family Typologies*