



## Dyadic Analysis of the Inventory of Family Integration in Fathers and Mothers in the city of Arequipa

### Análisis diádico del Inventario de Integración Familiar en padres y madres de la ciudad de Arequipa

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#### Abstract

The present study analyzes the psychometric properties of the Inventory of Family Integration (IFI) by means of a dyadic analysis based on the responses of fathers and mothers in families from the city of Arequipa, southern Peru. For this purpose, 264 married couples living with their families were non-probabilistically selected and administered the 52-item IFI. An analysis of dimensionality and reliability was carried out, and a factorial invariance analysis was applied under a dyadic approach and, finally, a comparative analysis using Cohen's d was performed. The results reported moderate correlations between the values of fathers and mothers in each family holon: personal, spousal, parental, sibling and familial. Likewise, the dimensionality fit of each holon in fathers and mothers was adequate with acceptable magnitudes, and the reliability indices calculated with Cronbach's alpha and McDonald's Omega tests were high. The five-factor internal structure and internal consistency in both fathers and mothers were corroborated.

**Keywords:** family integration, family systemic approach, dyadic analysis, psychometrics.

#### Resumen:

El presente estudio analiza las propiedades psicométricas del Inventario de Integración Familiar (IIF) mediante un análisis diádico en función de las respuestas de padres y madres que conforman una familia procedente de la ciudad de Arequipa, al sur de Perú. Para ello, se seleccionó de manera no probabilística a 264 parejas casadas que viven con sus familias, a quienes se les aplicó el IIF que consta de 52 ítems. Se realizó un análisis de la dimensionalidad y la confiabilidad, y se aplicó un análisis de invarianza factorial bajo un enfoque diádico y finalmente un análisis comparativo mediante la d de Cohen. Los resultados reportaron correlaciones moderadas entre los valores de los padres y madres en cada holón familiar: personal, conyugal, parental, fraternal y familiar. Asimismo, el ajuste de dimensionalidad de cada holón en padres y en madres fue adecuado con magnitudes aceptables, y los índices de confiabilidad calculados con las pruebas alfa de Cronbach y Omega de McDonald fueron elevados. Se corrobora la estructura interna de cinco factores y la consistencia interna tanto en padres como en madres.

**Palabras clave:** integración familiar, enfoque sistémico familiar, análisis diádico, psicometría.



## Introduction

A common characteristic of Latin Americans is their attachment to family and their rootedness in traditional family values (Kapke et al., 2017). This is also reflected in the interest, in the study, of the family and various associated psychosocial variables. Examples of this focus are the various research institutes specialized in family that exist in Latin America, such as the Family Institute of the Universidad de la Sabana in Colombia or the Institute of Family Sciences of the Universidad de los Andes in Chile, among others. In addition, there are specialized family journals published in the region, such as the Revista Latinoamericana de Estudios de Familia of the Universidad de Caldas in Colombia or the journal Atención Familiar of the Postgraduate Unit of the Faculty of Medicine of the Universidad Nacional Autónoma de México.

In Peru, there are also some institutions and publications specializing in the family. In Arequipa, the Institute for Marriage and Family was created at the Catholic University San Pablo in 1998, and the journal Perspectiva de Familia has been published since 2016 (Arias, Rivera, Laurie, & Ceballos, 2019). In 2001, the Family Institute was created at the Universidad Femenina del Sagrado Corazón, with an orientation in family law, and has published the journal Persona y Familia since 2012 (Vidal, 2014). In 2005, the Institute for Family Sciences was created at the University of Piura, which promotes the publication of books and studies on the family, and also offers a Master's Degree in Marriage and Family (Corcuera, 2013).

Likewise, in Peru, Alarcón (2002) reported that the three most predominant sources of happiness among Peruvians are family, health and religion. For that reason, the family is a widespread topic of study in Psychology and other social sciences, which has been addressed through the investigation of family functionality (Galagarza, & Arias, 2017; Laurie et al., 2018; Reusche, 1995; Villarreal-Zegarra, 2015); the impact of the family on education (Arias et al., 2016; Beltrán, 2013; Sotil, 2002); intrafamily violence (Arias et al., 2017; Delgado, 2016; Castro & Rivera, 2015; Castro et al., 2017; Miljánovich et al., 2010; Miljánovich et al., 2013); family and mental health in children with respect to mood disorders, anxiety disorders, suicidal ideation, antisocial behavior, and psychoactive substance use (Araujo, 2005; Capa et al., 2010; Costa et al., 2020; Mallma, 2016; Mayorga, & Ñiquen, 2010; Pérez, 2016; Rivera et al., 2018; Rivera, & Cahuana, 2016; Rosas, 2014; Tirado et al., 2008; Yucra, 2016); family and well-being (Alarcón, 2014; Arias et al., 2014; Cárdenas, 2016; Caycho et al., 2016; Pliego, & Castro, 2015); the relationships between family, work and economy (Arias et al., 2018; Castro et al., 2013; Castro et al., 2016; Castro, Rivera, & Seperak, 2017; Muñoz, 2004; Prado, & Del Águila, 2010;

Riesco, & Arela, 2015); family structure or composition (Chuquimajo, 2017; García, & Diez Canseco, 2019; Laguna, & Rodríguez, 2008; Oporto, & Zanabria, 2006; Prado, & Del Águila, 2004; Silva, & Argote, 2007; Villarreal-Zegarra, & Paz-Jesús, 2017), parenting styles and parent-child communication (Araujo, 2007, 2008; Muñoz, 2016; Reusche, 1999; Sobrino, 2008); marital satisfaction (Dianderas, 2017; Núñez, 2018; Rebaza, & Julca, 2009); family climate or environment (Cruz, 2013; Matalinares et al., 2010; Oruna, 2016) and various psychological variables in families with children with physical or mental disabilities (Cahuana et al., 2019; Cahuana et al., 2022; Delgado, & Arias, 2022).

However, despite this academic interest in family research in Peru, there are no psychological scales created in the country, although several measurement instruments created in other countries to assess variables associated with the family received psychometric support, among which the Family Satisfaction Scale (Arias, Rivera, & Ceballos, 2018; Arias et al., 2019; Villarreal-Zegarra et al., 2017), the Family Functionality Scale (Bazo-Alvarez et al., 2016), the Steinberg Parenting Styles Scale (Merino, & Arndt, 2004), the Parenting Behaviors Perception Inventory (Merino et al., 2003; Merino et al., 2004), the Parenting Styles Scale (Matalinares et al., 2014; Manrique et al., 2014), the Family Interaction Quality Scale (Dominguez-Lara, and Alarcón, 2017; Dominguez et al., 2013), the APGAR-family Scale (Castilla et al., 2014), the Marital Satisfaction Scale (Arias and Rivera, 2018), the Satisfaction with Family Life Scale (Caycho-Rodríguez et al., 2018) and the Work-Family Interaction Questionnaire (SWING) (Chuquilin et al., 2021).

The Inventory of Family Integration (IFI), Arias et al., 2013 is an exception to the above. Since its creation, this scale was used in several family researches and its psychometric properties were analyzed. The IFI has been designed according to the theoretical principles of systemic family therapy, considering a nuclear family structure, family evolution cycles and family dynamics with respect to family boundaries and roles in different subsystems or holons (Haley, 2002; Minuchin, & Fishman, 1996; Satir, 1995; Watzlawick et al., 1999). In this sense, family integration is defined as:

the degree of health, balance and harmony of the relationships that are born from the Spousal bond and that are naturally oriented to satisfy the needs of personal transcendence based on respect, dialogue and communion among its members considering their responsibilities, and according to the family's life cycle. (Arias et al., 2013, p. 196)

Regarding its design and validation, the IFI was theoretically structured in five subsystems or holons: individual, spousal, parental, sibling and family (Haley, 2002)

and was originally composed of 64 items that were maintained after analyzing the evidence of content validity through the criteria of three expert judges. However, after being applied to 334 people in the city of Arequipa with a Likert-type response scale of five response options (from Always to Never), it was reduced to 52 items with a unidimensional structure and a reliability level of .739, obtained through exploratory factor analysis (EFA) and the internal consistency method with Cronbach's Alpha test. The scales for its rating were also obtained with three levels: high, medium and low (Arias et al., 2013). Based on these first psychometric results, the IFI was applied to 844 people from 13 districts of the city of Arequipa and it was found that approximately 62% had a low level of family integration. The degree of higher education, marital status and evangelical religion were the sociodemographic variables that contributed to family integration (Castro et al., 2013). In another later study with 395 people, it was found that family integration correlates positively and significantly with happiness, in addition; the number of children and life satisfaction positively predicted family integration (Arias et al., 2014).

Finally, also with this unidimensional version of the IFI, another predictive associative research was conducted in which other instruments that assess psychosocial risks at work were applied within the thematic framework of family-work conflict (Kampowski, & Gallazzi, 2015), where it was found that marital satisfaction, family satisfaction and family integration are related to each other and, in addition, have a positive impact on job satisfaction, buffering the effects of burnout syndrome in workers (Arias et al., 2018). These results also evidenced that the IFI had convergent validity by correlating positively with variables associated with family well-being such as marital satisfaction and family satisfaction.

However, given that the initial psychometric study of the construction of the IFI did not corroborate the five-factor structure as initially proposed according to the representation of boundaries that designate recognizable roles and functions in various family subsystems (i.e., the personal holon, the marital holon, the parental holon, the sibling holon and the family holon [Haley, 2002]), consistent with a systemic conception of family (Minuchin, & Fishman, 1996), psychometric studies continued to be carried out. Such is the case in a subsequent psychometric study in which 420 people from Arequipa were evaluated, and an AFE was again practiced with the optimal implementation method of parallel analysis, with which a four-factor structure was found with construct reliability indices (coefficient  $\omega$ ) which fluctuated between .867 and .932 (Arias et al., 2019).

More recently, a new psychometric study was designed with the aim of analyzing the internal structure and reliability of the IFI in couples with children and without children (Arias et al., 2022), given that in recent decades the structure of families has changed, so that couples are not usually married (Pearce et al., 2014; Sible-Rushton, & McLanahan, 2002) and have fewer and fewer children than before (Espinoza, & Colil, 2015; Huarcaya, 2011; Merce, 2015; Mitchell et al., 2015; Pugliese, 2009). In addition, divorce rates have increased and nuclear families have registered a decline (Tay-Karapas et al., 2020; Ullman et al., 2010), while single-parent families have increased (Jociles, 2008; Rodríguez, & Luengo, 2003; Salvo, & González, 2015; Vicente, & Royo, 2006). In that research, 420 people who had families with nuclear structures with children and 82 couples without children were evaluated. In the first case, the original five-factor theoretical structure was corroborated, with reliability indices estimated, with the ordinal alpha ( $\alpha_{ordinal}$ ), with values between .869 and .932; while in the second case a unidimensional structure with high reliability was obtained ( $\alpha_{ordinal} = .993$ ). Although in this sample only the spousal holon and the personal holon were considered, in both cases the internal structure was calculated through confirmatory factor analysis (CFA) with adequate goodness-of-fit indices and reliability through the internal consistency method (Arias et al., 2022).

However, during the construction of the IFI and its first applications, the scale was administered only to fathers or mothers separately, who responded, from their perspective, about the entire family system, leaving aside the responses of their spouses, as well as all the content that they could contribute. For this reason, the joint analysis of the responses was justified, so, the objective of the present study was to perform a dyadic analysis of the internal structure of the IFI to demonstrate that each subsystem is represented in a similar way in fathers and mothers, which would make comparisons fairer since, if each holon is represented in a similar way between fathers and mothers (measurement invariance), the differences could be attributed to the presence of the construct and not to other factors.

In this sense, it is likely that there are significant differences between one and the other, depending on gender differences (García, & Nader, 2009) and their beliefs resulting from the experiences acquired in the family of origin of each of them (Arias, 2012). For example, several studies have reported that differences in the responses of the members of the couple could be manifested in aspects such as the assumption of their individual roles that is evaluated by the personal holon (Bowen, 1998; Tamés, 2003), the perception of the couple's relationship that is evaluated by the marital holon (Eguiluz et al., 2012; Villegas, & Mallor, 2012), parenting that is evaluated by the parental holon (García, 2021; Pérez et al., 2021; Rodríguez et al.,

2009; Rodríguez-Sánchez et al., 2020; Santander et al., 2020), attitudes towards sibling relationships that are assessed by the sibling holon (Aldeas Infantiles, 2022) and on their conceptions about the family, its orderings and dynamics inherent to it that are assessed through the family holon (Castro et al., 2013; Dirección General de Infancia, 2022; Valdez et al., 2014).

It should be emphasized that the dyadic assessment of psychological measurement instruments, and, in particular, those that assess aspects related to the family in people whose joint action is determinant to ensure functionality (e.g., fathers and mother), are necessary, since, depending on the answers issued by one or the other member of the couple, very different results could be obtained that would lead to a wrong diagnosis of the family or the associated variables being measured. Despite this, there are few studies that assess the dyadic fit of the responses in tests that assess family variables, in a proportion close to 25% of the research published in specialized journals such as Journal of Family Psychology, Journal of Family and Marriage or Famliy Relations (Claxton et al., 2015). Therefore, the present study is of practical and methodological relevance, as it addresses a novel topic for psychometrics in the Latin American context, and because of its multiple implications for family interventions, whether in the clinical, evaluative or psychotherapeutic field.

## Method

### Research design

The present study follows an instrumental design (Ato et al., 2013) whose objective is the analysis of the psychometric properties of the Family Integration Inventory.

### Participants

We worked with a sample of 264 heterosexual couples united in marriage, whether civil, religious or both; with an average relationship time of 18 years and an average of 2.3 children. 14.4% have one child, 51.1% have two children, 22.3% have three children, 6.4% have four children, and 5.9% have more than four children. 76.9% were Catholic couples, 17.8% identified themselves as evangelicals, 2.3% as Christians, 1.5% agnostics, 0.8% atheists, and the remaining 0.8% did not fill out this information. The mean age of the male spouse was 42 years ( $SD = 19.1$ ) within a range of 20 to 85 years; with an average monthly income of 4,500 soles. Regarding their level of education, 16.3% have secondary studies, 22.7% have technical

studies, 59.1% have university studies and 2% have postgraduate studies. The mean age of the female spouse was 40 years ( $SD = 17.3$ ) within a range of 18 to 80 years; with an average monthly income of \$USD 350 dollars. Regarding their educational level, 18.2% have primary studies, 19.3% have secondary studies, 6.4% have technical studies, 54.5% have university studies and 1.5% have postgraduate studies. The couples were selected by non-probabilistic sampling with the quota sampling technique according to the following inclusion criteria: being of legal age, being married, agreeing to participate voluntarily, signing the informed consent and that both members of the couple respond to the instrument in a same moment but separately.

### Instrument

A sociodemographic data sheet was applied with information on the relationship time, the number of children, religion, the age of the father and mother, their level of education and their monthly income. On the other hand, the Family Integration Inventory that was designed and validated by Arias et al. (2013) and consists of 52 items arranged on a Likert-type response scale that goes from Always (5) to Never (1), and which presents five factors: personal holon, spousal holon, parental holon, sibling holon and family holon. It can be administered individually or collectively and takes approximately 25 minutes to complete. The test has been validated through confirmatory factor analysis, finding five factors, which represent the different family holons, and has internal consistency indices between .869 and .932 for its factors (Arias et al., 2022). Likewise, it presents scales for its qualification in three ranges of interpretation, by calculating percentiles: low level (score between 94 and 203), moderate level (score between 204 and 236) and high level (score between 237 and 260).

### Procedure

Data collection was carried out in various meeting spaces for couples through the participation of a team of interviewers who were duly trained to apply the instrument. All the couples signed the informed consent after knowing the objectives of the study, as well as the treatment that their data would receive. Once their participation was accepted, they answered the scale in different physical spaces. The study was approved by the Ethics Committee of the Psychological Research Center of the San Pablo Catholic University. The data was collected between October and December 2019.

## Data analysis

### Estimation and statistical programs

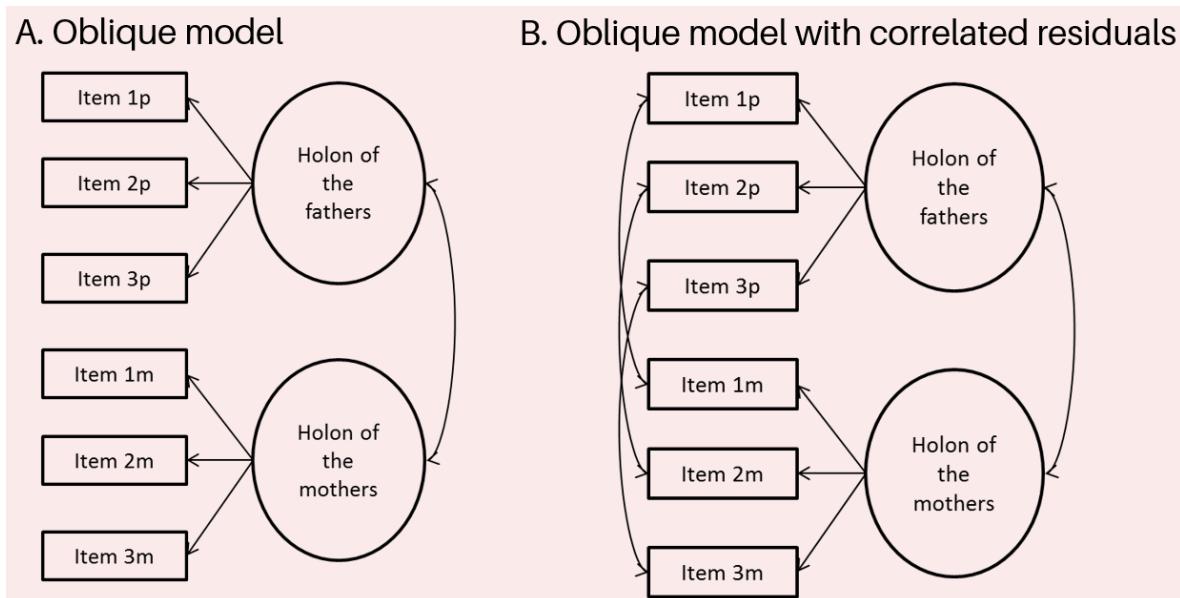
Initially, the measurement models were evaluated with a confirmatory factor analysis (CFA) in fathers and mothers, using the Weighted Least Squares Mean and Variance Adjusted (WLSMV) estimation method, considering the matrix of polychoric correlations. For factor analysis and measurement invariance analysis, the Mplus version 7 program (Muthén, & Muthén, 1998 - 2015) was used, while the correlations were processed with the SPSS software.

### Preliminary analysis

Given that we worked with dyadic data, the degree of linear dependence between homologous items (e.g., item 1 of the first factor in fathers and item 1 of the first factor in mothers) was evaluated with the Pearson correlation coefficient (Claxton et al., 2015) from an effect size approach. In this sense, values less than .20 indicate a relationship of insignificant magnitude, between .20 and .50 of small magnitude, between .50 and .80, of moderate magnitude; and greater than .80, a large association (Ferguson, 2009).

### Measurement models

Preliminarily, the dimensionality of each holon was examined in both fathers and mothers. After that, for the invariance analysis, an oblique model was analyzed in order to represent the association between the holons of the fathers and mothers (Figure 1A), and subsequently the correlations between residuals were modeled to reflect the local dependence between the homologous items of fathers and mothers (Figure 1B).



**Figure 1.** Graphical representation of measurement models (Note: The numbering and quantity of items per dimension is referential)

### Evaluation of the models

The measurement models were evaluated considering three criteria. The first, the CFI fit indices ( $> .90$ ; McDonald, & Ho, 2002), the RMSEA both as a point estimate ( $< .08$ ; Browne, & Cudeck, 1993) and based on the upper limit of its confidence interval. ( $< .10$ ; West et al., 2012), and finally the WRMR ( $< 1$ ; DiStefano et al., 2018); The second criterion is based on the representativeness of the construct considering the magnitude of the factor loadings ( $> .60$ ; Dominguez-Lara, 2018) and the average variance extracted (AVE  $> .37$ ; Moral de la Rubia, 2019); Lastly, the magnitude of the interfactorial correlations ( $\phi$ ), where values greater than .70 would indicate little empirical difference between factors (Byrne et al., 2016).

### Measurement invariance

Measurement invariance between fathers and mothers was explored independently with each holon (Figure 1) following the established recommendations for dyadic data management (Claxton et al., 2015). Regarding the configural invariance, this was established with the oblique model of two factors (of the father and of the mother) for each holon, including the correlation between the aforementioned homologous items for control the data dependence between these items. Regarding the metric invariance, the statistical equivalence of the factor loadings of the homologous items within the model was established. Finally, strong invariance consisted of the statistical equivalence of the thresholds. Thus, an

acceptable degree of invariance was accepted considering the variations of the CFI and RMSEA during the process ( $\Delta\text{RMSEA} \leq .015$ ;  $\Delta\text{CFI} \geq -.01$ ; Chen, 2007).

### Reliability

After the analysis of invariance, the reliability of the scores ( $\alpha > .70$ ; Ponterotto, & Charter, 2009) and of the construct ( $\omega > .70$ ; Hunsley, & Marsh, 2008) was analyzed in fathers and mothers. On the other hand, a method was used to compare the  $\alpha$  coefficients based on the confidence interval (CI) of the difference (Domínguez-Lara et al., 2017), that is, if the CI includes zero, it indicates that the difference between coefficients  $\alpha$  is not significant.

### Comparative analysis

To analyze the differences between fathers and mothers regarding the assessment of family integration, Cohen's d was used: values less than .41 indicate an insignificant difference, between .41 and 1.15 a small difference, between 1.15 and 2.70, an insignificant difference. moderate; and greater than 2.70, a big difference (Ferguson, 2009).

## Results

### Preliminary analysis

Overall, direct and significant relationships are observed between the fathers and mothers items in the spousal holon ( $r_{\text{Average}} = .429$ ; Range = .249 - .668), parental holon ( $r_{\text{Average}} = .370$ ; Range = .194 - .609), sibling holon ( $r_{\text{Average}} = .524$ ; Range = .409 - .704), family holon ( $r_{\text{Average}} = .308$ ; Range = .103 - .63), and in the individual holon ( $r_{\text{Average}} = .383$ ; Range = .235 - .587).

### Measurement invariance: preliminary analysis

Preliminarily, the fit of the dimensionality of each holon in fathers and mothers was adequate except for the magnitude of the RMSEA and WRMR (Table 1). Also, factor loadings ( $> .50$ ) and AVEs ( $> .37$ ) of acceptable magnitude were observed (Table 2).

**Table 1. Dimensional analysis of the holons of fathers and mothers**

	CFI	RMSEA	CI90%	WRMR
Spousal Holon				
Fathers	.961	.106	.093, .120	1.040
Mothers	.970	.097	.084, .111	0.934
Parental Holon				
Fathers	.896	.134	.124, .144	1.509
Mothers	.923	.115	.105, .126	1.286
Sibling Holon				
Fathers	.982	.168	.145, .192	1.343
Mothers	.974	.155	.132, .179	1.070
Family Holon				
Fathers	.927	.129	.113, .145	1.180
Mothers	.922	.115	.099, .132	1.106
Personal Holon				
Fathers	.986	.130	.062, .210	0.430
Mothers	1.000	.000	.000, .107	0.165

Note: CFI: Comparative fit index; RMSEA: Root mean square error of approximation; WRMR: Weighted root mean square residual

**Table 2. Factor loadings and variance extracted per factor**

	Spousal Holon		Parental Holon		Sibling Holon		Family Holon		Personal Holon					
Nº	$\lambda_F$	$\lambda_M$	Nº	$\lambda_F$	$\lambda_M$	Nº	$\lambda_F$	$\lambda_M$	Nº	$\lambda_F$	$\lambda_M$	Nº	$\lambda_F$	$\lambda_M$
1	.825	.785	14	.824	.705	30	.763	.714	38	.774	.723	49	.676	.642
2	.797	.804	15	.653	.682	31	.899	.897	39	.786	.709	50	.737	.700
3	.782	.723	16	.792	.837	32	.895	.832	40	.613	.608	51	.844	.902
4	.718	.72	17	.726	.738	33	.779	.767	41	.643	.649	52	.698	.671
5	.778	.79	18	.801	.781	34	.728	.698	42	.835	.767			
6	.706	.792	19	.768	.763	35	.832	.821	43	.752	.678			
7	.879	.864	20	.632	.709	36	.942	.899	44	.748	.758			
8	.870	.901	21	.740	.776	37	.947	.912	45	.774	.773			
9	.710	.694	22	.672	.704				46	.615	.582			
10	.709	.687	23	.794	.707				47	.647	.595			
11	.757	.788	24	.703	.642				48	.604	.512			
12	.728	.684	25	.644	.706									
13	.676	.64	26	.775	.796									
			27	.728	.768									
			28	.727	.710									
			29	.815	.810									
AVE	.588	.582		.541	.542		.726	.675		.508	.454		.550	.542
$\omega$	.949	.947		.950	.951		.954	.943		.918	.900		.829	.823
$\alpha$	.929	.930		.933	.936		.942	.928		.893	.866		.784	.766
Cl <sub>diff</sub>	-.019, .017		-.020, .014		-.003, .031		-.004, .059		-.045, .082					

Note:  $\lambda_F$ : Factor loadings-Father;  $\lambda_M$ : Factor loadings-Mother; AVE: Average variance explained;  $\alpha$ : Coefficient alpha;  $\omega$ : coefficient omega; Cl<sub>diff</sub>: confidence interval for differences

## Measurement invariance

The oblique model was then analyzed with each holon (Figure 1A), and the fit was adequate except in the family and personal holons, although in all the models the RMSEA and WRMR exceeded the allowed limits, with evidence of interfactor correlations ( $> .80$ ). When establishing configural invariance with the oblique model including correlations between residuals of homologous items (Figure 1B), the fit improved significantly in all holons (Table 3), and the high correlation between dimensions was maintained ( $> .70$ ). Likewise, the CFI and RMSEA variance indicate a reasonable approximation to metric and strong invariance.

**Table 3. Measurement invariance**

	CFI	RMSEA	IC90%	WRMR	$\Delta$ CFI	$\Delta$ RMSEA
Spousal Holon	$\phi$					
Baseline (Oblique)	.868	.925	.097 .091, .104	1.349		
Configural (Oblique)*	.825	.964	.069 .062, .076	1.000		
Metric*		.976	.055 .048, .063	1.053	.012	-.014
Strength*		.975	.052 .045, .059	1.104	-.001	-.003
Parental Holon						
Baseline (Oblique)	.803	.883	.091 .085, .096	1.544		
Configural (Oblique)*	.773	.911	.080 .075, .086	1.365		
Metric*		.931	.070 .064, .075	1.424	.020	-.010
Strength*		.928	.067 .061, .072	1.489	-.003	-.003
Sibling Holon						
Baseline (Oblique)	.820	.952	.136 .126, .147	1.465		
Configural (Oblique)*	.784	.970	.112 .101, .123	1.169		
Metric*		.975	.098 .087, .109	1.282	.050	-.014
Strength*		.975	.086 .076, .095	1.313	.000	-.012
Family Holon						
Baseline (Oblique)	.823	.814	.129 .122, .137	1.761		
Configural (Oblique)*	.726	.926	.084 .076, .092	1.174		
Metric*		.938	.074 .066, .083	1.240	.012	-.010
Strength*		.939	.067 .060, .075	1.284	.001	-.007
Personal Holon						
Baseline (Oblique)	.919	.873	.204 .181, .229	1.487		
Configural (Oblique)*	.736	.992	.058 .023, .091	0.452		
Metric*		.998	.029 .000, .064	0.461	.006	-.029
Strength*		.998	.019 .000, .049	0.596	.000	-.010

Note: \*: Includes the correlation between residuals (Figure 1B)

## Reliability

In all cases, high magnitudes of reliability were observed for both construct ( $\alpha$ ), which goes from .784 to .942, and scores ( $\omega$ ), from .829 to .954 (Table 2), being also similar between males and females.

## Comparison between fathers and mothers

No significant differences were observed between fathers and mothers in relation to the assessment of family integration (Table 4).

**Table 4. Comparative analysis between fathers and mothers**

		<b>M</b>	<b>SD</b>	<b>d</b>
Spousal	Fathers	49.720	9.539	0.088
	Mothers	48.864	9.931	
Parental	Fathers	62.046	12.220	0.139
	Mothers	63.974	12.096	
Sibling	Fathers	30.614	7.767	0.059
	Mothers	31.053	7.246	
Family	Fathers	41.527	8.055	0.071
	Mothers	42.076	7.406	
Personal	Fathers	16.178	3.026	0.066
	Mothers	16.371	2.862	

Note: M = Medium; SD = standard deviation; d = Cohen's d

## Discussion

The present study aimed to analyze the compatibility of the responses of fathers and mothers from the same family using the IFI. For this purpose, an analysis of dimensionality and reliability was first performed in each group, followed by a factorial invariance analysis with a dyadic approach based on the responses and finally a comparative analysis using Cohen's d test. First, the dimensionality fit of each holon in fathers and mothers was adequate except for the magnitude of the RMSEA and WRMR. This can be explained by considering the conceptual breadth of the holons, given that their content points to different aspects of family life. For example, the marital holon has items linked to satisfaction (items 1 and 7), time-sharing (items 4 and 10), etc., which perhaps represents misspecification (Saris et al., 2009) in the form of under-parameterization, i.e., that there are other aspects in the model that are not being considered (Dominguez-Lara & Merino-Soto, 2018). Therefore, it is likely that holons possess a multidimensional rather than a unidimensional structure, which can be explored in future studies. This situation could explain the very high magnitude of the RMSEA and WRMR because both are sensitive to misspecifications (DiStefano et al., 2018; Heene et al., 2011). All in all, the acceptable magnitudes of the factor loadings and AVEs is favorable, and the reliability indices, construct, and scores, were high with values above .90 in most of the holons. These results corroborate the internal structure of five factors (Arias et al., 2022) and that the measurement performed on fathers and mothers

contemplates a similar and tolerable measurement error, i.e., that does not significantly affect the interpretation of the scores.

On the other hand, the fit of the initial model (without incorporating the correlations between residuals associated with the invariance analysis) was adequate except for the family and personal holons, although the RMSEA and WRMR exceeded the limits allowed in the models for all holons. This suggests that there are some aspects within the current state of the model that do not allow for adequate fit, such as due to the wording or surrounding of the items within a holon (Domínguez-Lara, 2019). In addition, the interfactor correlations between the father and mother holon were greater than .80, suggesting dependence between holons. With respect to configural invariance, i.e., the oblique model described above that includes the correlations, between the residuals of homologous items the fit, were adequate in all holons, maintaining high correlations between dimensions with values above .70 between fathers and mothers. This allows the IFI to be answered by both the father and the mother, without representing discrepancies in terms of what was being assessed.

In this sense, on the evidence of measurement invariance, it is possible to interpret the differences found with greater precision and less bias; that is, there is evidence that the scale can be administered indistinctly to fathers and mothers with the objective of evaluating their perception of the integration of their families. These findings contribute positively to the knowledge of the psychometric properties of the IFI. However, according to the comparisons made with Cohen's  $d$ , there are no differences between fathers and mothers, which presents some discrepancies with the previous literature.

For example, the absence of difference in the marital holon contradicts studies that point out that the perceptions of males and females differ with respect to their couple relationship and the dynamics within it, since male stereotypes can influence the couple relationship (García & Nader, 2009), although sexism was not associated with marital satisfaction in Peru (Dianderas, 2017). With respect to infidelity and jealousy, which are determinants in couple relationships (Varela, 2014), Peruvian men are more jealous to their partners' sexual infidelity, while Peruvian women evidence more jealousy of emotional infidelity (Apaza, & Roberts, 2006). Thus, it is that communication and sexual satisfaction positively impact marital satisfaction (Eguiluz et al., 2012) and this in turn, predicts family satisfaction (Arias et al., 2018; Valdez et al., 2014) and thus the well-being of children (Demo, & Acock, 1996; Pliego, & Castro, 2015; World Family Map, 2014).

Likewise, it is known that the marital status of parents could influence marital and family satisfaction, so that married parent families are associated with higher levels of well-being in children (Brown et al., 2015; Langton, & Berger, 2011; Pliego, & Castro, 2015), while in cohabiting or cohabiting parent families, children tend to have lower levels of well-being or more indicators of affection in their mental health (Brown, 2004; Burgos et al., 2014). However, it has been criticized that these views tend to pathologize family structures that move away from the nuclear model (Chettiar, 2015). It should also be considered, that the life cycle of families may influence family integration, since at certain stages, crisis situations must be faced (Ríos, 2005). Villegas and Mallor (2012) have emphasized, for example, that family crises can be evolutionary or structural, depending on the symmetry or complementarity of couple relationships. A study conducted with couples in Mexico found that indeed, several of the vicissitudes faced by couples are related to parenting (García-Méndez et al., 2010).

In that sense, the absence of differences in the parental holon also contradicts studies that report that the perceptions of fathers and mothers differ from each other with respect to parenting (García, 2021; Rodríguez-Sánchez et al., 2020); although this could depend on the religion and socioeconomic level of the families (Santander et al., 2021), the culture in which the family is immersed (Tur-Porcar et al., 2015), the family structure (Connolly, 2015; Domínguez et al., 2019), whether the parents are separated (Pinzón, & Vanegas, 2018; Tay-Karapas et al., 2020), the sex and age of the children (Rodríguez et al., 2009), the number of children and their birth order (Pérez et al., 2021), so it would be convenient to incorporate these variables in future studies. On the other hand, it has also been pointed out that apart from all these considerations, communication between parents and children (Raimundi et al., 2017) and the establishment of limits and roles in each family subsystem are more determinant (Arias, 2012; Puello et al., 2014).

All these disquisitions favor a greater understanding of the dynamics inherent to the family, as well as the complexity of its study and the theoretical approaches on which it is based (Arias, 2020; Dolz et al., 1997). In this sense, the IFI marks an important precedent in the dissemination of the family systemic approach in Peru and Latin America, where systemic theories and the therapies derived from them are little known or applied (Arias et al., 2019; Jiménez-Torres et al., 2022), partly due to the dominance of cognitive or cognitive-behavioral approaches and their various therapeutic variants, and partly to the scarce dissemination of systemic approaches. Thus, with this new evidence, the IFI could initiate a new cycle of psychometric studies oriented to clinical or family intervention contexts. For example, longitudinal studies could be conducted to analyze its temporal stability and be used as a

measure of efficacy before and after the intervention. In this way, we could contribute to a systemic approach to the family in Peru and Latin America.

However, it is important to take into account some limitations of this research, such as the sampling method applied, which makes it impossible to generalize the results to the population of Arequipa or the entire country. Likewise, aspects related to the marital status of the couples evaluated were not considered in this analysis, since all of them were married; nor were variables on couple communication, relationship stability or others that we have alluded to in this paper. Despite these limitations, it can be affirmed that the IFI presents favorable psychometric evidence with respect to its internal structure and reliability based on the dyadic analysis performed.

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