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Proposal for an empirical model of mentalization for clinical and research purposes

Propuesta de un modelo empírico de mentalización con propósitos clínicos y de investigación

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Abstract

Mentalization is a psychological construct that has gained more and more attention over the last few years. Despite this growing interest, researchers have emphasized its multidimensional and complex nature, suggesting it encompasses several interrelated polarities under a broader, unified framework. This study aims to examine the underlying factor structure of key mentalization measures, with the objective of proposing an empirically grounded and comprehensive model applicable in both clinical and research settings. In addition, we provided normative data (percentile ranks) for each individual measure as well as for the extracted factors. A total of 1,190 Spanish adults from the general population (M_{age} = 34.38; 68.2% female) completed an online survey including the Interpersonal Reactivity Index, the Toronto Alexithymia Scale, the Reading the Mind in the Eyes Test, and the Mindful Attention Awareness Scale. Exploratory and confirmatory factor analysis of these instruments supported a two-factor solution, labelled Cognitive Mentalization and Emotional Mentalization. Furthermore, these dimensions contributed to a higher-order global factor, termed Mentalization. Overall, we observed small negative correlations with age, and women scored higher than men.

Keywords: Mentalization; Cognitive Mentalization; Emotional Mentalization; Factorial Analysis; Clinical Psychology.

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Resumen

La mentalización es un constructo psicológico que ha suscitado un interés creciente en los últimos años. Diversos investigadores han subrayado su naturaleza multidimensional y compleja, sugiriendo que engloba varias polaridades interrelacionadas integradas dentro de un marco unificador más amplio. El presente estudio tuvo como objetivo examinar la estructura factorial subyacente de las principales medidas de mentalización, con el propósito de proponer un modelo integral y empíricamente fundamentado, aplicable tanto en contextos clínicos como de investigación. Asimismo, se aportaron datos normativos (percentiles) para cada una de las medidas individuales, así como para los factores extraídos. Un total de 1.190 adultos españoles de la población general (M edad = 34,38; 68,2 % mujeres) completaron una encuesta online que incluía el Interpersonal Reactivity Index, la Toronto Alexithymia Scale, el Reading the Mind in the Eyes Test y la Mindful Attention Awareness Scale. Los análisis factoriales exploratorios y confirmatorios de estos instrumentos respaldaron una solución bifactorial, denominada Mentalización Cognitiva y Mentalización Emocional. Además, ambas dimensiones contribuyeron significativamente a un factor global de orden superior, denominado Mentalización. En conjunto, se observaron correlaciones negativas de pequeña magnitud con la edad, y las mujeres obtuvieron puntuaciones significativamente más altas que los hombres.

Palabras clave: mentalización; mentalización cognitiva; mentalización emocional; análisis factorial; psicología clínica.

In recent years mentalization has been studied in a relevant way in different clinical-related fields with significant contributions (Fekete et al., 2019; Fischer-Kern & Tmej, 2019; Volkert et al., 2019). Indeed, the ability to mentalize allows one to understand one's own functioning and that of others by being aware of mental states, such as thoughts, desires, actions, or feelings. It is, therefore, a human capacity that facilitates social interaction (Simonsen et al., 2020). Mentalizing involves becoming aware of mental states in order to be able to explain one's own and others' behaviour. Mental states occurring outside or inside one's own mind substantially influence the form of social relations (Vogt & Norman, 2019). Mentalizing involves activating a coherently organised set of capacities in relation to our own behaviour, as well as facilitating differentiation from others in a psychological way (Bate et al., 2019). In essence, mentalizing is strongly related to the ability to see ourselves as a person from outside, allowing perspective taking, as well as others from within, attending to our mental states. In this way misunderstandings make sense and it is possible to recover the mental states that might have led to errors (Bateman et al., 2016; Choi-Kain & Gunderson, 2008).

It has been observed that not everyone can mentalize with the same intensity or with the same stability. In fact, people show a propensity to have mentalizing difficulties in situations of high emotional intensity or stress (Luyten & Fonagy, 2015). Along these lines, mentalization may vary according to the imaginative capacity, as well as the relational history developed with attachment figures (Clarke et al., 2020). In this regard, the multidimensional nature of mentalization has been described, identifying four polarities: (1) controlled versus automatic: this dimension reflects a slow process, requiring reflection and attention; in contrast, its opposite polarity involves a fast process that often acts as an "action-reaction" and manifests low or scarce attention; (2) about others versus self: this dimension allows mentalizing self-states or other people's states; (3) internal versus external: this dimension facilitates coming to internal inferences about the information made available to someone, as well as the situation itself; or, on the contrary, relying on external indicators of mental states; (4) cognitive versus affective: this

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dimension involves the ability to reason and to recognise mental states, as well as understanding their related feelings (Lieberman, 2007).

Mentalization can be operationalised through various polarities: (a) alexithymia, (b) mindfulness, (c) Theory of Mind and (d) empathy. Alexithymia allows us to identify difficulties in reflecting and regulating emotions. In this sense, indicators of alexithymia show deficits in describing and representing emotional states of mind (Grynberg et al., 2012). Some studies have linked alexithymia to empathy difficulties and interpersonal problems (Di Tella et al., 2020). Deficits in the ability to name, describe or identify emotions or feelings have been frequently reported in mental disorders such as addictions (Cruise & Becerra, 2018); suicidal ideation (Iskric et al., 2020); pregnancy (Gilanifar & Delavar, 2017), or personality disorders among others (Kılıç et al., 2020).

Regarding the second component, although there is no consensus on the concept, some authors define mindfulness as the ability to pay intentional attention to the present moment without judging the experience (Evans et al., 2008). In this line, it has been related to positive psychological effects, increasing subjective well-being, less emotional reactivity and greater strategies for regulating emotions and behaviour (Islam & Siddique, 2016). Similarly, it has been studied in a variety of clinical populations and it has been linked to increased emotional dysregulation or understanding of emotions. (Quaglia et al., 2019).

The third component, theory of mind, is a construct derived from social cognition, and its implication in normative and clinical populations has been significantly studied. Theory of mind allows us to interpret and predict people's behaviours and to be able to attribute intentions, thoughts, emotions, actions, desires and even the recognition of emotions in others. Therefore, theory of mind allows the anticipation of behaviour (Espinós et al., 2021). Moreover, the implication of deficits related to theory of mind has been reported in numerous studies. In this sense, they highlight greater difficulties in social interaction, as well as greater problems in choosing the most effective way to have optimal social functioning and decoding the information coming from others (facial expressions) (Espinós et al., 2019; Parola et al., 2020). Finally, empathy is a complex and multidimensional construct which favours prosocial behaviours. There are various ways of assessing empathy and some authors propose a measurement with cognitive and affective polarities (Bonfils et al., 2017). Like the previous constructs, it has an important influence on emotion regulation (Thompson et al., 2019).

In conclusion, the various dimensions of mentalization have thus far been examined in a relatively independent way. Given the complexity of the construct and the potential of these four variables to validly represent it, there is a clear need to develop an empirical model that supports this conceptualization. Such a model would enable its implementation in clinical protocols aimed at assessing mentalization in Spanish adult populations. Then, the present study aims to examine the factorisation of the four polarities of mentalisation. In order to this, first bivariate correlations among all of the variables involved in the research will be calculated. Second, both an exploratory factor analysis (parallel analysis) and a confirmatory factor analysis will be carried out on the data. With the results, a comprehensive clinical model will be proposed with the respective norms of each individual measure and the resulting factors.

Method

Participants

The sample consisted of a total of 1,190 participants from the Spanish normative population. Given that the study had a cross-sectional and correlational design, all of the participants conformed a single group which was assessed only once. Of these, 375 (31.5%) were male, 811 (68.2%) female and 4 (0.3%) of non-binary gender. The age range was between 18 and 89 years (M = 34.38, SD = 12.94). A large proportion of the participants (771, 64.8%) had university-level education, while 5 (0.4%) had not completed primary education, 50 (4.2%) had completed primary education, 119 (10.0%) had secondary education, 113 (4.2%) had completed secondary education, 113 (4.2%) had completed secondary education, and 11 (4.2%) had completed secondary education, 113 (9.5% had professional formation, and 132 (11.0%) had completed a vocational training.

In relation to marital status, 492 (41.3%) were single, 621 (52.2%) were married, 65 (5.5%) were separated or divorced and 12 (1.0%) were widowed. Finally, in relation to socio-economic status, the majority of the wage bracket was distributed as follows: 131 (11.0%) people earning less than 5,000 euros; 130 (10.9%) between 5,000-10,000 euros; 198 (16.6%) between 11,000-15,000 euros; 176 (14.8%) between 16,000-20,000 euros; 220 (18.5%) between 21,000-30,000 euros; 136 (11.4%) between 31,000-40,000 euros; 89 (7.5%) between 41,000-50,000 euros; and 110 (9.2%) more than 50,000 euros. The only requirement for participation in the study was to be over 18 years of age. All participants were volunteers and did not receive any compensation for participating.

Instruments

The following instruments were considered for the present study and reflect the internal consistency values of the sample collected in the study.

The Toronto Alexithymia Scale (TAS-20). Is a psychometric instrument consisting of subscales (Bagby, Parker, & Taylor, 1994): first, difficulty in identifying emotions and differentiating between bodily and physiological sensations (α = .90), difficulties in the verbal expression of emotions (α = .84), and style of thought oriented to external details (α = .68). The self-report questionnaire is composed of 20 items with 5 alternatives (1 = strongly disagree; 5 = strongly agree). The Spanish version of the TAS-20 (Martínez-Sánchez, 1996) was used.

Reading the Mind in the Eyes Test (RMET) (Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001; Redondo & Herrero-Fernandez, 2018). The RMET is a psychometric instrument that uses 19 black and white photographs in which only the eyes of the face are visible. Around the image of the eyes, four alternatives appear that reflect the mental state and each participant must choose the word that best reflects what he or she thinks or can feel that look of the person in the photo. Responses are scored as 0 (incorrect) or 1 (correct), and the maximum score obtained is 19. Due to the dichotomous style of the responses, the internal consistency of the instrument was low (α = .43), as reflected in the Spanish version.

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The Mindful Attention Awareness Scale (MAAS) (Brown & Ryan, 2003; Soler et al., 2012). Is a 15-item self-report questionnaire, with Likert-type responses of 6 response types (1 = almost always; 6 = almost never). This instrument assesses the competence of being attentive in the present tense. The MAAS questionnaire emphasises the element of mindfulness related to the absence of mindfulness (called "mindlessness"), through items written in reverse. The Spanish version of this scale has shown good psychometric properties and good temporal stability (Soler et al., 2012). Internal consistency was high (α = .88).

Interpersonal Reactivity Index (IRI). The IRI (Davis, 1980) is a self-report questionnaire that is structured in 28 Likert-type questions and each subscale has 7 questions and answers ranging from (1= does not describe me well; 5= describes me very well). It also has four subscales that measure the generic empathy construct: Perspective-Taking (α = .74), Fantasy Scale (α = .79), Empathic Concern (α = .69) and Personal Distress (α = .74). In this case, the Spanish version of the IRI was applied (Pérez-Albéniz, Paúl, Torres, Montes, & Etxebarria, 2003).

Procedure

Participants completed the self-report questionnaires through Google Forms, which were sent through social networks and virtual platforms. More specifically, the link was distributed by email, WhatsApp, Facebook, and the virtual platform of the European University of the Atlantic. In this way, it was made possible to reach a significant number of the Spanish elderly population. This method known as Snowball has been validated in other studies where it can be seen that there are no differences in terms of psychometric properties (Herrero-Fernández, 2015).

Anonymity and voluntary participation were reflected in the letter of informed consent and in the information sheet where the objectives of the present study were clearly reflected. Once the conditions of the study had been accepted, participants were able to download a copy of the signed information. This research has been approved by the Research Ethics Committee of the European University of the Atlantic.

Results

First, the bivariate correlations (Pearson´s *r*) among the main variables were calculated. The results are detailed in Table 1. As it can be observed, almost all of the correlations attained signification, with low-to-medium effect sizes. In general, positive measures (e.g., IRI, MAAS and RMET) were positively related to each other, and negatively with negative measures (TAS).

Second, the whole sample was randomly split in two subsamples of 595 participants each. The first subsample was used to compute a Parallel Analysis in order to analyse the distribution of the polarities of mentalization, whereas the second subsample was used to verify the Parallel Analysis results through a Confirmatory Factor Analysis.

In the case of the Parallel Analysis, the Factor 10.4.01 software was used (Lorenzo-Seva & Ferrando, 2013). The selected procedure for determining the number of dimensions was the optimal implementation of Parallel Analysis (Timmerman & Lorenzo-Seva, 2011), and the Robust Maximum Likelihood (RML) method for factor extraction and parameters estimation was selected. This is the most

recommended method for continuous variables in those cases in which multivariate normality cannot be assumed (Mardia, 1970). The rotation method to achieve factor simplicity was the Simplimax (Kiers, 1994), because it was expected that the factors were correlated with each other. Several robust goodness of fit statistics were calculated to assess the quality of the model fit: the χ^2 / degrees of freedom (df) ratio (Wheaton et al., 1977), which should be lower than 5; the Root Mean Square Error of Approximation (RMSEA) (Browne & Cudeck, 1993), whose values should be lower than .08, and the Non-Normed Fit Index (NNFI), the Comparative Fit Index (CFI), the Goodness of Fit Index (GFI) and the Adjusted Goodness of Fit Index (AGFI), whose values should be > .95 (Hu & Bentler, 1999). The Root Mean Square of Residuals (RMSR) was calculated to assess the residuals of the model. Its value should be lower than Kelley´s criterion (Kelley, 1935). The simplicity of the structure was assessed through the Bentler´s S simplicity index, where values close to 1 indicate a simple structure (Bentler, 1977). Besides, due to a factor score will be proposed, the quality and effectiveness of factor score estimates was analyzed through the Factor Determinacy Index (FDI), which should be above .80, and the Sensitivity Ratio (SR), whose value should be above 2 (Ferrando & Lorenzo-Seva, 2018). Finally, the generalized H index was calculated as a measure of construct replicability, with values above .80 indicate a well-defined latent variable. It implies that it is more likely the factor to being stable across studies (Ferrando & Lorenzo-Seva, 2018).

The results showed initially the adequacy of the sample, according to the Kaiser-Meyer-Olkin test (KMO = .72) and the Bartlett´s statistic [$\chi^2(36) = 1352.9$, $p < .001$]. The results suggested the existence of two well-interpretable factors, with a good fit of the model: χ^2 / df = 3.79; RMSEA = .069 (90% C.I.:

Table 1
Correlation coefficients (Pearson´s r*) among the variables*

	1	2	3	4	5	6	7	8
1.IRI PT	-							
2.IRI FS	.30***	-						
3.IRI EC	.46***	.46***	-					
4.IRI PD	-.12***	.22***	.18***	-				
5.TAS Dif Disc	-.18***	.14***	.11***	.42***	-			
6.TAS Dif Expr	-.24***	-.03	-.10***	.26***	.61***	-		
7.TAS Think	-.47***	-.32***	-.29***	.19***	.31***	.42***	-	
8.MAAS	.10***	.05	.12***	-.09**	-.15***	-.13***	-.09**	-
9.RMET	.14***	.14***	.11***	-.02	-.07*	-.12***	-.25***	-.16***

Note. IRI PT: Perspective-Taking; IRI FS: Fantasy Scale; IRI EC: Empathy Concern; IRI PD: Personal Distress; TAS Dif Disc: Difficulties identifying emotions; TAS Dif Expr.: Difficulties in verbal expression of emotions; TAS Think: Style of though oriented to external details.
*$p < .05$, *$p < .01$, ***$p < .001$

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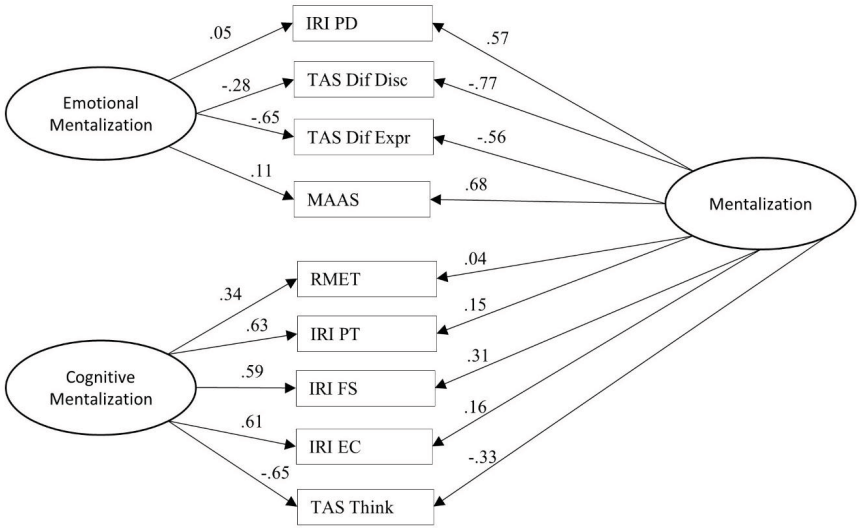
.067 – .070); NNFI = .94; CFI = .97; GFI = .99. The analysis of residuals also supported the existence of this two-factor structure, as the value of the RMSR was lower than the Kelly´s test: RMSR = .036; Kelley´s test = .041. Besides, the factorial solution showed a very simple structure, S = .96. Considering the variables loading in each one of the factors, the first one was labelled as "Emotional Mentalization" (explaining 35.83% of the variance), whereas the second factor was labelled as "Cognitive Mentalization" (explaining 29.99% of the variance). Both factors showed good quality and effectiveness: Emotional Mentalization, FDI = .92, SR = 2.33; Cognitive Mentalization, FDI = .88, SR = 1.89. Finally, both factors showed good construct replicability (Emotional Mentalization: H = .85; Cognitive Mentalization H = .78), and were significantly related, r = .28, p < .05.

Based on these results, a CFA was conducted with the second sub-sample. It was made with the EQS 6.1 software (Bentler, 2005), with the same method of estimation of parameters and the same goodness of fit indexes than in the previous PA. The results showed a poor fit of the model to the data, χ^2 / df = 9.08; RMSEA = .117 (90% C.I.: .103 – .131); NNFI = .75; CFI = .84. Then, considering the factorial loadings attained in the PA, a bifactor model was tested, assuming that all of the indicators loaded in a more general factor (labelled "Mentalization"), as well as their respective factor. The analysis showed a good fit of the model to the data, χ^2 / df = 3.35; RMSEA = .063 (90% C.I.: .044 – .083); NNFI = .93; CFI = .97. The path diagram is detailed in Figure 1. As it can be observed, most of the factorial loadings were high, considering that the variance of each one of the observed variables was divided in two latent variables.

Figure 1.
Structural model of Mentalization



Note. IRI PT: Perspective-Taking; IRI FS: Fantasy Scale; IRI EC: Empathy Concern; IRI PD: Personal Distress; TAS Dif Disc: Difficulties identifying emotions; TAS Dif Expr: Difficulties in verbal expression of emotions; TAS Think: Style of though oriented to external details.

Once a structural model was obtained, descriptive statistics of all of the observed and latent variables were analysed. The results are detailed in Table 2. As it can be observed, all of the variables were symmetrically distributed, considering the normal values between ±1.5, and the kurtosis showed also a clone to normal distribution, as values between ± 2.5 indicate normal distribution (Field, 2005). The scores of the latent variables were calculated considering the direction of the measurements. Therefore, the variables referred to the IRI, RMET and MAAS were considered positively (the higher the score is, the higher the mentalization). Otherwise, the variables related to the TAS were considered negatively (the lower the scores are, the lower the mentalization is). Then, the scores of Cognitive Mentalization, Emotional Mentalization, and Total Mentalization were calculated by summing up or subtracting the scores of each one of the composing measures.

Then, the relationship of both age and gender with mentalization was explored. The results showed that age was negatively related to cognitive mentalization, r = -.22, p < .001, positively with emotional mentalization, r = .08, p = .008, and negatively with global mentalization, r = -.12, p < .001.

Regarding gender, a one-way MANOVA showed a significant multivariate effect, $F(2, 1183)$ = 40.07, p < .001, η^2 = .06. Univariate analysis showed significant differences in the case of Cognitive Mentalization, $F(1, 1185)$ = 79.78, p < .001, η^2 = .06, female (M = 80.17, SD = 15.81) scoring over male (M = 71.38, SD = 15.66), and in the case of Total Mentalization, $F(1, 1185)$ = 46.03, p < .001, η^2 = .04, female (M = 158.51, SD = 21.09) also scoring over male (M = 149.48, SD = 21.76). Finally, no significant differences were observed in the case of Emotional Mentalization, $F(1, 1185)$ = 13.90, p = .805, η^2 = .00.

Finally, given the clinical implications of the current research as a conceptualization of mentalization, norms (percentiles) of the three factors were calculated. The results are provided in Table 3.

Table 2
Descriptive statistics of all of the variables

	Min	Max	*M*	*SD*	Sk.	Kur.
Total Ment.	33	212	134.73	28.70	-0.24	-0.09
Emot. Ment.	-18	105	57.34	21.48	-0.52	0.04
IRI_PD	7	35	16.65	5.08	0.48	0.03
TAS_DifDis	0	35	11.87	8.42	0.59	-0.44
TAS_DifExp	0	25	10.45	6.37	0.29	-0.82
MAAS	18	90	63.01	12.90	-0.57	0.15
Cog. Ment.	29	117	77.39	16.29	-0.19	-0.53
RMET	3	19	13.16	2.48	-0.46	0.36
IRI_PT	7	35	25.59	4.87	-0.20	-0.36
IRI_FS	7	35	23.18	6.09	-0.06	-0.60
IRI_EC	10	35	27.47	4.48	-0.48	0.07
TAS_Think	0	29	12.01	5.83	0.19	-0.52

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Table 3
Norms (percentiles) of separate polarities of mentalization

PC	RMET	IRI PT	IRI FS	IRI EC	TAS TH	IRI PD	TAS DD	TAS DE	MAAS	COG. MEN.	EMO. MEN.	TOTAL MEN
1	7	15	9	16	-	8	-	-	29	41	-2	63
3	8	16	12	18	2	-	-	-	34	46	11	78
5	9	18	13	20	3	9	-	1	39	49	19	85
10	10	19	15	21	4	10	2	2	45	55	28	97
15	-	20	17	23	5	11	3	3	49	60	34	106
20	11	21	18	24	7	12	4	4	53	63	39	111
25	-	22	19	-	8	-	5	5	56	66	44	115
30	-	23	20	25	-	13	6	6	58	69	48	120
35	12	-	-	26	9	14	7	7	60	71	50	124
40	-	24	21	-	10	15	8	8	62	73	54	128
45	-	25	22	27	11	-	9	9	63	75	58	132
50	13	-	23	-	12	16	10	10	64	78	60	136
55	-	26	24	28	-	-	11	11	66	80	63	139
60	-	27	25	29	13	17	13	12	67	82	65	143
65	14	-	26	-	14	18	14	13	69	85	68	147
70	-	28	27	30	15	19	16	14	70	88	70	151
75	-	29	28	31	16	20	18	15	72	90	73	156
80	15	30	29	-	17	21	20	17	74	93	75	160
85	-	31	30	32	18	22	22	18	76	95	79	165
90	16	32	31	33	20	24	24	20	78	98	83	171
95	-	-	33	34	22	25	27	21	82	103	88	179
97	17	34	34	-	23	26	29	22	84	106	92	186
99	18	35	35	35	25	31	34	25	89	110	98	195

Discussion

The aim of this study was to analyse the factorisation of the four polarities of mentalization. Bivariate correlations among the variables were calculated. Moreover, an exploratory factor analysis (parallel analysis) and a confirmatory factor analysis were performed on the data. With the results, a comprehensive empirical model with the respective norms of the individual measures and the resulting factors was proposed.

In relation to the above, the data found in the present study suggest the existence of a bifactorial model of mentalization. On the one hand, the individual measures loaded into two factors, labelled Cognitive Mentalization and Emotional Mentalization. Both of these factors showed good values of

quality, stability, and replicability, especially in the case of Cognitive Mentalization. On the other hand, all of these individual measures loaded into an only global factor, labelled Mentalization. On the other hand, age was found to be differentially related to the mentalization factors. That is, Cognitive Mentalization was negatively related to age, as was Global Mentalization. In contrast, Emotional Mentalization was positively related to age. All in all, the effect sizes of the correlations were small. In this regard, some studies indicate that information about mental states may increase with age and therefore improve with it (Poznyak et al., 2019). The results also suggest that women mentalize better than men in Cognitive and Global Mentalization, indicating no differences in Emotional Mentalization between men and women. Similar data have been reported, indicating that in some tests, such as the RMET, significant gender differences were observed. Indeed, women would show higher scores than men (Baron-Cohen et al., 2001; Rutherford et al., 2012). These data are confirmed by functional MRI studies, indicating sex differences in mentalization-related tasks (Krach et al., 2009).

Finally, differences by age and gender were obtained in mentalization. On the one hand, female showed greater mentalization abilities than male in both cognitive and global mentalization, with medium effect sizes. Likewise, age was negatively correlated with cognitive mentalization and global mentalization. These results are coherent with previous research suggesting that female mentalize better than male (Poznyak, et al. 2019; Parada-Fernández, et al., 2021).

In terms of the practical implications of the study, it is worth noting that there are currently various ways of measuring mentalization, such as questionnaires, self-reports, computerized tests and others (Lahera et al., 2014; Luyten et al., 2017). However, most studies use a single test that measures only some aspects of mentalization. This study aimed to use a comprehensive factor model which contributes to the identification of both cognitive and affective polarity, as well as a measure of global mentalization. This allows these polarities to be separated in order to be able to effectively assess their quality. Furthermore, to date, no similar models have been found to measure the polarities of mentalization. The use of the bifactor model proposed in this study can contribute to both the normative and clinical population. Taking into account that mentalization contributes to the understanding and re-evaluation of mental states, which in turn favours self-regulation and its involvement in interpersonal relationships, intrapsychic processes, improvement of therapeutic processes (Fonagy et al., 2002; Luyten et al., 2020), as well as a symptomatic reduction of various mental health problems (Jørgensen et al., 2013), it is therefore of real importance to contribute to its measurement. Moreover, the norms that have been provided could be very useful for clinicians in the process of assessing the mentalization from two perspectives. On the one hand, norms for each one of the individual measures has been provided. On the other hand, norms for the global scores have also been provided. Considering the sample size which was studied, these norms could be taken as a referent for the Spanish general adult population.

Besides these clinical implications, the empirical model that has been proposed could be useful for research purposes too. Considering the complex and multidimensional nature of mentalization, this comprehensive model allows researchers to operativizate it and include it in other statistical models. In fact, this theoretical framework of mentalization as a four-component construct has been employed previously, although the individual measures were taken as relatively independent from each other (Parada-Fernández et al., 2020, 2021).

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Future studies should try to replicate the current model with samples from other countries. Likewise, analysing the factorial invariance of the current model across different countries, or conducting the analysis with different kind of samples for a single country would be a relevant contribution. For instance, future research might try to replicate the model with clinical samples. Moreover, future studies could apply the current model in the prediction of several different outcomes, as well as searching for predictors of both Cognitive and Emotional Mentalization, and Global Mentalization. On the other hand, this new framework could be applied to specific contexts in which mentalization might be specially difficult, such as driving (Bogdan-Ganea & Herrero-Fernández, 2018). Finally, future research should deepen on both convergent and divergent validity of the current results. On the one hand convergent validity should be addressed by correlating both Cognitive and Emotional Mentalization, and Global Mentalization, with behavioural measures. On the other hand, divergent validity should be verified by correlating the obtained factors not only with direct (self-report or behavioural) measures of mentalization, but also with other related but different constructs, such as self-regulation, emotional intelligence, or mentalizing-mind.

It is important to point out that the present study had some limitations that we will now point out. Firstly, it is a cross-sectional study, so longitudinal studies would be advisable to verify these data. Secondly, the sample is made up of a normative population; it would be relevant to apply this model to clinical samples to see if the data can be replicated, given the great implication of mentalization in relation to mental health. Thirdly, the use of self-report instruments raises the question of the extent to which there may be measurement biases in the construct of mentalization, which is a complex concept that hinders the isolation of its multiple polarities. It is also encouraged to find new ways of measuring mentalization using different instruments from self-reports which allow access to the polarities of mentalization. Fourthly, it should be noted that the way in which the data was collected was by means of the snowball method using Google Forms. This could affect the self-reports used, as they were not validated online. Finally, it should be noted that in the case of the RMET test, it shows low psychometric data, and it would be relevant to consider this data for future studies.

Author Contributions

Pamela Parada-Fernández contributed to the investigation, supervision, validation, and writing (original draft; review and editing). David Herrero-Fernández contributed to the investigation, methodology, data analysis, and writing (original draft; review and editing). Irene Rodríguez-Arcos contributed to the investigation and writing (original draft; review and editing).

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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