General

Attachment Styles, Personality, and Frustration Intolerance

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Keywords: structural equation modeling, frustration intolerance, personality traits, attachment styles

https://doi.org/10.52965/001c.24551

Health Psychology Research

Vol. 9, Issue 1, 2021

The objective of the present study was to evaluate the relationships between attachment styles, personality traits, and their effects on frustration intolerance (FI) in a sample of 300 adults. The Argentine Attachment Styles Scale, the Eysenck Revised Personality Questionnaire (EPQ-RA), and the Frustration Intolerance Scale (EIF) was used. In the two Full Latent Variable Models developed, it was determined that neuroticism and avoidant attachment had the greatest mediating effects on FI. Avoidant attachment stood out for its mediating effect on anxious attachment. These two factors were found to explain a considerable percentage of neuroticism and, as a consequence, the four dimensions of FI. It is concluded that it is necessary to reinterpret certain concepts of neuroticism and study them from a perspective that starts from attachment theory.

INTRODUCTION

Amsel defines frustration as the organism's state triggered by the unexpected devaluation, omission, or inaccessibility of a positive reinforcer.[1] Frustration causes physiological, behavioral, and neural responses analogous to the presentation of aversive stimuli; they are similar to sensory pain, fear, and anxiety.[2] Ellis, in the clinical area, considered that psychological maladjustments originate in part from a high intolerance to frustration caused by irrational beliefs, in line with basic studies that show a more significant frustration when there is a high discrepancy between what is expected and what is obtained.[3]

FI has been related to personality; Eysenck's psychobiological theory is one of the main ones for having developed studies on the neurological bases for this relationship.[4] Eysenck developed a hierarchical model that ranges from the most general dimensions (extraversion, neuroticism, and psychoticism) to the most particular (specific traits, habits, and behaviors).[5] The dimensions were regarded as independent of each other, but current research has shown that they overlap conceptually, as neuroticism correlates negatively with extraversion and positively with psychoticism.[6,7] High neuroticism scores predict many mental disorders, such as comorbidity,[8–11] and negative coping styles.[12] In addition, they are associated with a variety of physical problems: Cardiovascular disease, eczema, asthma, and irritable bowel syndrome.[13,14] These relationships remain significant in longitudinal investigations.[15] Regarding FI, direct correlations were found with high neuroticism.[16–18]

Genetic load and early and environmental experiences, in general, are interrelated in a complex way with the etiology of individual differences in all behavior. Studies with animal and human models found that early experiences have a significant impact on the development of individual differences, generating a wide range of responses to stressful situations in adulthood, from greater vulnerability to greater resilience.[2,19–25]

Personality is 40 to 50% determined by genetic factors.[26] Regarding the environmental factors that influence personality and attachment styles were among the most studied. Bowlby's attachment theory emphasizes that the child's early experiences with his/her caregivers are crucial for optimal development;[27] the type of bond established between them depends fundamentally on the sensitivity and responsiveness of the adult concerning the needs of the child.[28] Through the *strange situation* experiment,[29] three classifications of attachment styles in children, emerged: secure, insecure-avoidant, and insecure-ambivalent. The proportion of children with secure attachment correspond to 66% of the total; 22% with insecure-avoidant attachment, and 12% with insecure-ambivalent attachment.[29,30]

Numerous studies found that anxious and avoidant attachment have positive correlations with neuroticism and negative associations with extraversion.[31] In another study, Jenkins-Guarnieri, and colleagues found associations between anxious attachment and these two personality traits.[32] Barel and colleagues evaluated the relationships between attachment style, personality, and temperament in adults.[33] They found that socio-environmental factors (perceived attachment styles in adults) are important moderating elements by linking personality variables with temperament. Furthermore, Mikulincer and Shaver describe the mechanism through which the unavailability of the attachment figure can lead to FI,[34] and Norberg and colleagues found associations between high FI and anxious attachment.[35]

To analyze the relationships between personality and attachment styles and to determine the most significant predictors of FI, in this research, two Full Latent Variable Models were developed: one that maximizes the explained

variances and the other that, interpreting secure attachment as a protective element,[36] used this factor as an independent variable.

The Ethics Committee approved this research of the Universidad Abierta Interamericana, Buenos Aires, Argentina.

METHOD

PARTICIPANTS

Intentional sampling was conducted, and the sample was made up of 300 adults (M age = 31.98, SD = 11.93, female = 205) residing in Argentina. 68% had an incomplete or higher university level. Taking into account the high number of female participants, it was decided to perform a multigroup analysis according to gender because it allows determining the factorial invariance of the model.[37]

INSTRUMENTS

Argentine Scale of Attachment Styles (EAEA).[38] Through a four-point Likert scale (1 = *Almost never* to 4 = *Almost always*), 20 items are answered, which assess the perception of *secure*, *anxious*, and *avoidant attachment* in romantic and non-romantic ties. The original validation study obtained Cronbach's alphas of $0.45 \leqslant \alpha \leqslant 0.52$.

Eysenck's Revised Personality Questionnaire (EPQ-RA), Argentine version by Squillace and colleagues.[39] It has 42 items that present the dimensions of *psychoticism*, *extraversion*, *neuroticism*, and *sincerity*; it is answered on a dichotomous scale (*Yes-No*). The authors obtained Cronbach's alphas $0.66 \leqslant \alpha \leqslant 0.84$. Since the sincerity factor is used to estimate the reliability with which the participant responds to the questions, it was excluded in the present study, having previously confirmed that they had acceptable levels.

Frustration Intolerance Scale (EIF), the Argentine version of Medrano and colleagues.[40] Irrational beliefs that promote FI are evaluated with 17 items on a 5-point Likert scale (1 = *It is not at all characteristic of me* to 5 = *It is very characteristic of me*). High scores demonstrate higher FI. These items are grouped into four dimensions: *intolerance of discomfort*, *demand for affection and rights*, *emotional intolerance*, and *intolerance to the absence of achievement*. In the original validation study, the subscales presented Cronbach's alphas of $0.61 \leqslant \alpha \leqslant 0.84$.

Ad hoc sociodemographic questionnaire. This inquired about age, gender, educational level, if the participant was undergoing any psychological treatment, and if the participant currently has a stable partner.

DATA ANALYSIS

The *Local Outlier Factor* (LOF) test was performed based on density analysis to detect multivariate outliers.[41] For this, we used the *dbscan* package.[42] The calculation of multivariate normality was carried out with the *MVN*,[43] and the Structural Equation Modeling (SEM), its development and adjustment, the calculation of the effects, and the factorial invariance analysis were carried out with the *lavaan* package.[44] Only latent variables (Full Latent Variable Model) were used. All the mentioned extensions are part of the R software;[45] A probability value = $p \leqslant 0.05$ was used as a significance criterion.

RESULTS

OUTLIERS AND MULTIVARIATE NORMALITY

We located 45 severe multivariate outliers, so they were excluded from the sample, reducing it to n = 255. Using Mardia's test,[46] we found the non-existence of multicollinearity and that the initial 79 items did not represent multivariate normality. Due to this and the fact that the EPQ-RA has a dichotomous scale, we used the weighted least squares method with robust standard error (WLSMV) to evaluate model fits.[47–49]

According to Hu and Bentler's suggestions,[50] a model is considered adequate when its fit indices are: SRMR (standardized root mean square residual) $\leqslant 0.08$, RMSEA (root mean square error of approximation) $\leqslant 0.06$, CFI (comparative fit index) $\geqslant 0.95$, and TLI (Tucker Lewis Index) $\geqslant 0.95$. Following preacher and Hayes' indications,[51] we used the bootstrapping method since it calculates confidence intervals for the regression analysis. This is especially important when calculating indirect effects and/or when data do not comply with the assumption of multivariate normality. Taking into account the sample size, the percentile-based method was used with 500 bootstrap samples.[52–54]

PURIFICATION MEASURES

In SEM, residuals are important, so Hair and colleagues recommend carefully analyzing items that exhibit many standardized residuals (> 2.50) with other items.[55] Applying this criterion, we carried out a purification measure and reduced all the instruments to three items per dimension. After this, the following items represented their respective factors: *neuroticism*, 12, 18, 36; *extraversion*, 6, 11, 24; *psychoticism*, 16, 22, 39; *anxious attachment*, 2, 8, 13; *avoidant attachment*, 3, 6, 16; *secure attachment*, 7, 11, 17; *emotional intolerance*, 2, 7, 11; *demand for affection and rights*, 10, 13, 15; *intolerance of discomfort*, 3, 9, 12; and *intolerance to absence of achievement*, 8, 14, 17.

As shown in Table 1, the psychometric properties improved substantially, thus complying with all the fit indices proposed by Hu and Bentler.[50] Thus, we used the brief versions EPQ-RA (9), EAEA (09), and EIF (12) for the development of the Full Latent Variable Models.

DEVELOPMENT OF THE FIRST FULL LATENT VARIABLE MODEL

DIRECT EFFECTS OF PERSONALITY TRAITS AND ATTACHMENT STYLES ON FI

According to the first objective, we used the four dimensions of FI as dependent variables and personality traits and attachment styles as independent variables. As evidenced in Table 2, only *neuroticism*, *anxious attachment*, and *psychoticism* directly affected the FI scales.

Table 1. Fit indices of confirmatory factor analysis

Competing models	$\chi 2_{WLSMV}$	df	χ2/df	Scaling	p	RMSEA (90% CI)	SRMR	CFI	TLI
EPQ-RA (42)	1159,701	813	1,426	2,007	0,000	0,041 (0,036 - 0,046)	0,078	0,781	0,768
EPQ-RA (9)	52,135	48	1,086	0,929	0,316	0,018 (0,000 - 0,046)	0,045	0,985	0,979
EAEA (20)	245,738	167	1,471	0,813	0,000	0,043 (0,031 - 0,054)	0,062	0,893	0,878
EAEA (09)	26,133	24	1,089	0,538	0,346	0,019 (0,000 - 0,056)	0,040	0,991	0,987
EIF (17)	239,255	113	2,117	0,766	0,000	0,066 (0,055 - 0,078)	0,065	0,907	0,888
EIF (12)	78,796	48	1,642	0,516	0,003	0,050 (0,029 - 0,070)	0,045	0,966	0,953

Notes. n = 255; $\chi 2^{WLSMV}$ - Chi-square using weighted least squares method with robust standard error; df, degrees of freedom; Scaling, scaling correction factor for de WLSMV estimator; RMSEA, root mean square error of approximation; SRMR, standardized root mean square residual, CFI, comparative fit index; TLI, Tucker Lewis Index; number in parentheses, number of items.

DIRECT EFFECTS BETWEEN PERSONALITY TRAITS AND ATTACHMENT STYLES

Table 3 shows all the direct effects between personality traits and attachment styles. We found several reciprocal effects: *Anxious attachment* with *extraversion*, *avoidant attachment* with *psychoticism*, *anxious* with *avoidant attachment*, and *avoidant* with *secure attachment*.

ESTABLISHMENT OF THE FIRST FULL LATENT VARIABLE MODEL

In developing SEM, reciprocal paths can emerge. Although these may be legitimate, Byrne states that not all of them may be of interest.[37] That is why in the first model, the four dimensions of FI were used as dependent variables and, to establish the relationships between personality traits and attachment styles, we continued working with the direct effect with a lower probability value *p*. In this way, we found the first SEM. Still, we noted that the effect of *avoidant attachment* on *psychoticism* and the effects of *anxious attachment* on *intolerance to discomfort* and *emotional intolerance* were no longer significant, so we excluded them from the model. Using the method proposed by Saris and colleagues,[56] we reviewed the modification indices and added a direct effect of *anxious attachment* on *neuroticism*.

As reflected in Table 4, the following effects are highlighted as the most significant of the first model: *avoidant attachment* on *secure attachment*, *anxious attachment* on *neuroticism*, *neuroticism* on *intolerance to discomfort*, and *neuroticism* on *demand for affection and rights*.

Fit indices were calculated and the first model obtained the following values: $\chi 2^{WLSMV}$ (Chi-square using the weighted least squares method with robust standard error) = 421.268; df = 380; Scaling (standard error correction adjustment factor) = 1.290; p = 0.085; RMSEA = 0.021, 90% CI [0.000; 0.031]; SRMR = 0.051; CFI = 0.971 and TLI = 0.966. According to the suggestions of Hu and Bentler,[50] it can be stated that a significantly accurate model was developed.

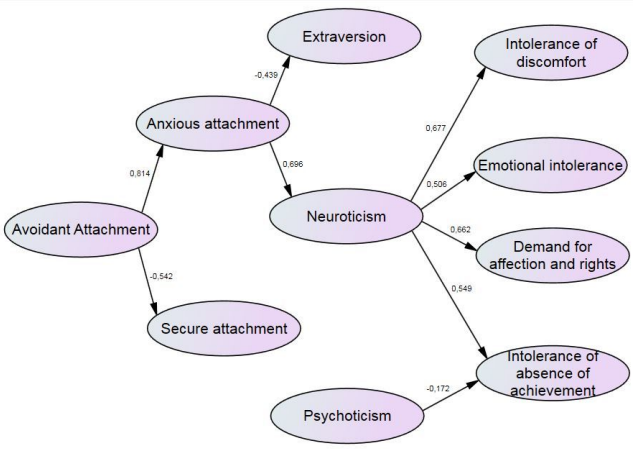

Figure 1. First Full Latent Variable Model

Figure 1 represents the first model with the standardized regression values (β). It is observed that, in addition to the dimensions related to FI, *extraversion* and *secure attachment* resulted as dependent variables.

To analyze all direct and indirect effects, we calculated the matrix of total effects that can be observed in Table 5. As variables with the most significant effects on the four dimensions of FI, *neuroticism*, *anxious attachment*, and *avoidant attachment* are highlighted. In addition, many explained variances were characterized by a large effect size as indicated by Cohen.[57]

MEASUREMENT INVARIANCE

We performed multiple group analysis. In M2, factor loadings were constrained to be equal across groups; in M3, factor loadings and intercepts and, in M4, factor loadings, intercepts, and residuals. To evaluate measurement invariance, we used the changes of CFI and RMSEA. According to the content of Table 6, it can be stated that all the changes

Table 2. Regression results using FI as criteria and personality traits and attachment styles as predictors.

			95% CI					
Criterion	Predictors	*b*	LL	UL	SE B	z	Beta (β)	p
Emotional Intolerance								
	Neuroticism	0,951	0,365	1,538	0,299	3,177	0,336	0,001**
	Extraversion	0,075	-0,720	0,870	0,406	0,185	0,017	0,853**
	Psychoticism	-0,077	-0,481	0,327	0,206	-0,373	-0,033	0,709**
	Anxious attachment	0,525	0,118	0,932	0,208	2,527	0,312	0,012**
	Avoidant attachment	-0,095	-0,633	0,444	0,275	-0,345	-0,046	0,730**
	Secure attachment	0,138	-0,165	0,440	0,154	0,892	0,097	0,373**
Demand for affection and rights								
	Neuroticism	0,909	0,291	1,526	0,315	2,883	0,298	0,004**
	Extraversion	0,540	-0,346	1,426	0,452	1,195	0,114	0,232**
	Psychoticism	0,160	-0,259	0,579	0,214	0,748	0,064	0,454**
	Anxious attachment	0,360	-0,107	0,826	0,238	1,510	0,199	0,131**
	Avoidant attachment	0,190	-0,483	0,862	0,343	0,553	0,085	0,580**
	Secure attachment	-0,344	-0,721	0,032	0,192	-1,793	-0,226	0,073**
Intolerance of discomfort								
	Neuroticism	0,445	0,075	0,815	0,189	2,360	0,274	0,018**
	Extraversion	0,170	-0,326	0,666	0,253	0,672	0,067	0,501**
	Psychoticism	-0,175	-0,411	0,061	0,120	-1,451	-0,130	0,147**
	Anxious attachment	0,377	0,050	0,704	0,167	2,258	0,391	0,024**
	Avoidant attachment	0,145	-0,248	0,539	0,201	0,724	0,122	0,469**
	Secure attachment	0,067	-0,096	0,229	0,083	0,805	0,082	0,421**
Intolerance to absence of achievement								
	Neuroticism	0,826	0,186	1,465	0,326	2,531	0,277	0,011**
	Extraversion	0,667	-0,278	1,612	0,482	1,384	0,144	0,166**
	Psychoticism	-0,502	-0,984	-0,020	0,246	-2,042	-0,204	0,041**
	Anxious attachment	0,333	-0,162	0,828	0,253	1,318	0,188	0,188**
	Avoidant attachment	0,306	-0,391	1,003	0,355	0,861	0,140	0,389**
	Secure attachment	-0,097	-0,439	0,246	0,175	-0,554	-0,065	0,580**

Notes. n = 255; ** p <.01; * p <.05; CI, confidence interval; LI, lower limit; UL, upper limit.

were within acceptable ranges with | ΔCFI | ⩽ 0.010 according to Cheung and Rensvold,[58] and | ΔRMSEA | ⩽ 0.015 according to Chen,[59] so we can affirm that the model evaluates, regardless of gender, the same construct.

DEVELOPMENT OF THE SECOND STRUCTURAL MODEL

Following the second objective, an alternative model was developed to assess whether *secure attachment* can decrease the likelihood of maladaptive attachment styles arising and, consequently, FI arising. We used the *Backwards Elimination* technique since this variable selection procedure begins with the global model that does not assume bias.[60] As a stopping rule, the inclusion of *secure attachment* was established.

According to the results of Table 2, we eliminated the variables without direct effects on the dimensions of FI and calculated the regression values again. We noted that the direct effect of *psychoticism* on *discomfort intolerance* and the direct effect of *anxious attachment* on *emotional intolerance* were no longer significant and therefore eliminated them.

To include *extraversion*, *avoidant attachment*, and *secure attachment* in the model, we added these factors as independent variables and *anxious attachment*, *neuroticism*, and *psychoticism* as dependent variables. As can be seen in Table 7, there were several probability values ⩾ 0.05, so we eliminated the respective effects of the model: *Extraversion* on *neuroticism*, *secure attachment* on *neuroticism*, *secure attachment* on *anxious attachment*, *extraversion* on *psychoticism*, and *secure attachment* on *psychoticism*. After these modifications, *avoidance attachment* no longer had a significant effect on *psychoticism*, so it was excluded from the model.

ESTABLISHMENT OF THE SECOND STRUCTURAL MODEL.

To include the *secure attachment* in the model, we analyzed whether this factor directly affected *extraversion* and

Table 3. Regression results using personality traits and attachment styles as criteria and predictors

			95% CI					
Criterion	Predictors	*b*	LL	UL	SE B	z	Beta (β)	p
Neuroticism								
	Extraversion	-0,151	-0,551	0,249	0,204	-0,740	-0,091	0,459**
	Psychoticism	0,020	-0,120	0,159	0,071	0,275	0,026	0,784**
	Anxious attachment	0,054	-0,139	0,247	0,098	0,549	0,091	0,583**
	Avoidant attachment	0,185	-0,054	0,423	0,122	1,517	0,278	0,129**
	Secure attachment	-0,017	-0,142	0,109	0,064	-0,259	-0,033	0,796**
Extraversion								
	Neuroticism	-0,051	-0,186	0,083	0,069	-0,749	-0,086	0,454**
	Psychoticism	0,035	-0,058	0,128	0,047	0,738	0,077	0,460**
	Anxious attachment	-0,151	-0,277	-0,026	0,064	-2,357	-0,428	0,018**
	Avoidant attachment	-0,024	-0,159	0,111	0,069	-0,347	-0,060	0,729**
	Secure attachment	-0,033	-0,123	0,058	0,046	-0,706	-0,107	0,480**
Psychoticism								
	Neuroticism	0,038	-0,228	0,304	0,136	0,277	0,028	0,782**
	Extraversion	0,198	-0,339	0,734	0,274	0,723	0,089	0,470**
	Anxious attachment	-0,027	-0,248	0,193	0,113	-0,242	-0,035	0,809**
	Avoidant attachment	0,309	0,055	0,563	0,130	2,382	0,350	0,017**
	Secure attachment	0,187	-0,014	0,388	0,102	1,821	0,278	0,069**
Anxious attachment								
	Neuroticism	0,083	0,152	-0,214	0,380	0,547	0,049	0,584**
	Extraversion	-0,685	0,294	-1,262	-0,109	-2,330	-0,243	0,020**
	Psychoticism	-0,022	0,090	-0,198	0,155	-0,242	-0,017	0,809**
	Avoidant attachment	0,602	0,157	0,294	0,910	3,829	0,535	0,000**
	Secure attachment	-0,111	0,088	-0,284	0,063	-1,251	-0,129	0,211**
Avoidant attachment								
	Neuroticism	0,210	-0,063	0,483	0,139	1,510	0,140	0,131**
	Extraversion	-0,080	-0,540	0,380	0,235	-0,341	-0,032	0,733**
	Psychoticism	0,183	0,006	0,360	0,090	2,024	0,161	0,043**
	Anxious attachment	0,446	0,194	0,699	0,129	3,465	0,502	0,001**
	Secure attachment	-0,207	-0,388	-0,027	0,092	-2,252	-0,272	0,024**
Secure attachment								
	Neuroticism	-0,052	-0,447	0,343	0,202	-0,258	-0,026	0,796**
	Extraversion	-0,301	-1,134	0,532	0,425	-0,708	-0,091	0,479**
	Psychoticism	0,305	0,019	0,592	0,146	2,091	0,205	0,037**
	Anxious attachment	-0,226	-0,558	0,105	0,169	-1,337	-0,194	0,181**
	Avoidant attachment	-0,572	-0,969	-0,175	0,202	-2,826	-0,436	0,005**

Notes. n = 255; ** p <.01; * p <.05; CI, Confidence interval; LI, lower limit; UL, upper limit.

avoidant attachment. Table 8 represents the regression values of the final model. The following direct effects exhibited the highest standardized values (β): *secure attachment* on *avoidant attachment*, *avoidant attachment* on *anxious attachment*, and *neuroticism* on *demand for affection and rights*.

Next, we evaluated the fit indices and found that the second model obtained favorable indices according to the indications of Hu and Bentler:[50] $\chi 2^{WLSMV} = 448.859$; df = 387; Scaling = 1.357; p = 0.016; RMSEA = 0.025, 90% CI [0.012; 0.035]; SRMR = 0.055; CFI = 0.956 and TLI = 0.950. Figure 2 represents the second model with the respective standardized regression values.

To deepen the analysis of the model developed, the matrix of total effects was calculated, which comprises the direct and indirect effects. Table 9 shows that *neuroticism* had the most considerable effects on the four dimensions of FI. The most significant effects that *neuroticism* received were the positive effect of *avoidant attachment* and the negative impact of *secure attachment*. On the other hand, there was a significant effect that *anxious attachment* had on *intolerance*

Table 4. Regression results of the Full Latent Variable Model

Criterion	Predictors	*b*	95% CI LL	95% CI UL	*SE B*	z	Beta (β)	p
Intolerance of discomfort								
	Neuroticism	1,546	0,804	2,288	0,379	4,083	0,677	0,000**
Emotional intolerance								
	Neuroticism	1,997	1,119	2,874	0,448	4,460	0,506	0,000**
Demand for affection and rights								
	Neuroticism	2,807	1,687	3,928	0,572	4,911	0,662	0,000**
Intolerance to absence of achievement								
	Neuroticism	2,285	1,278	3,291	0,514	4,448	0,549	0,000**
	Psychoticism	-0,388	-0,750	-0,026	0,185	-2,102	-0,172	0,036**
Neuroticism								
	Anxious attachment	0,321	0,189	0,453	0,067	4,767	0,696	0,000**
Extraversion								
	Anxious attachment	-0,179	-0,282	-0,076	0,052	-3,416	-0,439	0,001**
Anxious attachment								
	Avoidant attachment	0,925	0,542	1,308	0,195	4,737	0,814	0,000**
Secure attachment								
	Avoidant attachment	-0,798	-1,214	-0,383	0,212	-3,766	-0,542	0,000**

Notes. n = 255; ** p <.01; * p <.05; CI, Confidence interval; LI, lower limit; UL, upper limit.

Table 5. Matrix of standardized total effects of the first Full Latent Variable Model

Criterions	Predictors: Avoidant attachment	Anxious attachment	Psychoticism	Neuroticism	R^2
(1) Anxious attachment	0,814	0,000	0,000	0,000	0,663
(2) Neuroticism	0,567	0,696	0,000	0,000	0,484
(3) Secure attachment	-0,542	0,000	0,000	0,000	0,294
(4) Extraversion	-0,357	-0,439	0,000	0,000	0,192
(5) Intolerance to absence of achievement	0,311	0,382	-0,172	0,549	0,322
(6) Demand for affection and rights	0,375	0,461	0,000	0,662	0,438
(7) Emotional intolerance	0,287	0,352	0,000	0,506	0,256
(8) Intolerance of discomfort	0,384	0,471	0,000	0,677	0,458
FI mean (5-8)	0,339	0,417	-0,043	0,599	-

Notes. n = 255.

to discomfort.

MEASUREMENT INVARIANCE

According to the content of Table 10, it can be stated that the second model represents measurement invariance according to gender since the changes in the fit indices were found within adequate ranges with | ΔCFI | ⩽ 0.010 according to Cheung and Rensvold,[58] and | ΔRMSEA | ⩽ 0.015 according to Chen.[59]

Table 6. Model fit and model comparisons testing for measurement invariance of the first Full Latent Variable Model regarding gender

Model	Model fit						Model comparisons				
	$\chi2^{WLSMV}$	df	χ2/df	Scaling	RMSEA	CFI	$\Delta\chi2^{WLSMV}$	Δdf	p	ΔRMSEA	ΔCFI
M1: Configural	788,084	760	1,037	1,672	0,017	0,976					
M2: Weak	805,938	780	1,033	1,908	0,016	0,978	17,854	20	0,597	-0,001	0,002
M3: Strong	831,309	800	1,039	1,914	0,018	0,973	25,371	20	0,188	0,002	-0,005
M4: Strict	863,607	830	1,040	1,964	0,018	0,971	32,298	30	0,354	0,000	-0,002

Notes. n = 255; female = 178; male = 77; $\chi 2^{WLSMV}$ - Chi-square using weighted least squares method with robust standard error; df, degrees of freedom; Scaling, scaling correction factor for the WLSMV estimator; RMSEA, root mean square error of approximation; CFI, comparative fit index.

Table 7. Regression results using FI as criteria and personality and attachment styles as predictors, including possible indirect effects.

			95% CI					
Criterion	Predictors	*b*	LL	UL	SE B	z	Beta (β)	p
Intolerance of discomfort								
	Neuroticism	0,837	0,220	1,455	0,315	2,657	0,386	0,008**
	Anxious attachment	0,243	0,010	0,476	0,119	2,046	0,254	0,041**
Emotional intolerance								
	Neuroticism	1,835	1,002	2,667	0,425	4,317	0,485	0,000**
Intolerance to absence of achievement								
	Psychoticism	-0,456	-0,804	-0,109	0,177	-2,577	-0,191	0,010**
	Neuroticism	2,237	1,242	3,231	0,507	4,408	0,564	0,000**
Demand for affection and rights								
	Neuroticism	2,834	1,735	3,934	0,561	5,053	0,697	0,000**
Anxious attachment								
	Extraversion	-0,617	-1,166	-0,069	0,280	-2,206	-0,226	0,027**
	Avoidant attachment	0,882	0,411	1,353	0,240	3,671	0,667	0,000**
	Secure attachment	-0,079	-0,271	0,114	0,098	-0,801	-0,092	0,423**
Neuroticism								
	Extraversion	-0,032	-0,269	0,205	0,121	-0,266	-0,027	0,790**
	Avoidant attachment	0,342	0,130	0,555	0,108	3,163	0,588	0,002**
	Secure attachment	-0,037	-0,129	0,055	0,047	-0,785	-0,098	0,433**
Psychoticism								
	Extraversion	0,169	-0,266	0,604	0,222	0,762	0,085	0,446**
	Avoidant attachment	0,304	0,013	0,595	0,148	2,047	0,314	0,041**
	Secure attachment	0,181	-0,017	0,379	0,101	1,795	0,291	0,073**

Notes. n = 255; ** p <.01; * p <.05; CI, Confidence interval; LL, lower limit; UL, upper limit.

DISCUSSION

To determine the relationships between attachment styles, personality traits, and FI, this research developed two accurate models that determine the most significant FI predictors. In addition, the factorial invariance of both models has been verified so that their results represent the same construct, independent of gender.

The first model was developed to maximize the explained variances; priority was given to the significance level of the effects (p and β). *Neuroticism*, *anxious attachment*, and *avoidant attachment* were found to be the strongest predictors of FI. Even so, three essential aspects must be taken into account: (1) only *neuroticism* had a direct effect on FI, (2) only *anxious attachment* had a direct effect on *neuroticism*, and (3) *avoidant attachment* was the only independent variable of the model.

Regarding point (1), previous studies found a positive association between both variables,[16–18] but the present investigation could account for its direct association, showing a high probability that *neuroticism* is a link between FI and the other variables. Since *neuroticism* exhibits correlations with FI and many different conditions six, it is necessary to determine which factors favor increased levels of this personality trait. This need leads directly to the analysis of

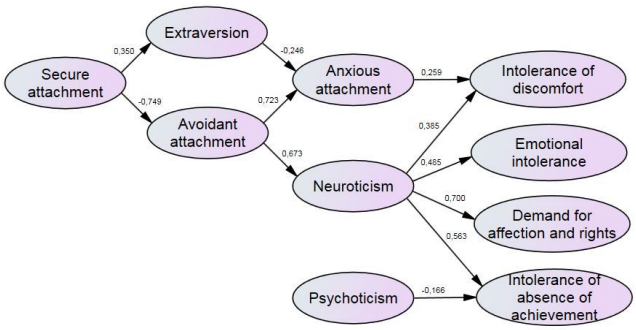

Figure 2. Second Full Latent Variable Model

points (2) and (3). Noftle and Shaver and Jenkins-Guarnieri, and colleagues found significant associations between *anxious attachment* and *neuroticism*,[31,32] so the present study results are in line with previous findings. Nonetheless, we should bear in mind that Jenkins-Guarnieri and colleagues found no correlations between *avoidant attachment* and *neuroticism* and,[32] according to Noftle and Shaver's summary, the associations found between these two factors were either weak or non-existent.[31]

Following the first model developed, an explanation can

Table 8. Regression results of the second Full Latent Variable Model

Criterion	Predictors	*b*	95% CI		SE B	z	Beta (β)	p
			LL	UL				
Intolerance of discomfort								
	Neuroticism	0,837	0,217	1,456	0,316	2,646	0,385	0,008**
	Anxious attachment	0,247	0,010	0,485	0,121	2,039	0,259	0,041**
Emotional intolerance								
	Neuroticism	1,841	1,009	2,672	0,424	4,338	0,485	0,000**
Demand for affection and rights								
	Neuroticism	2,853	1,757	3,948	0,559	5,105	0,700	0,000**
Intolerance to absence of achievement								
	Psychoticism	-0,386	-0,758	-0,013	0,190	-2,030	-0,166	0,042**
	Neuroticism	2,240	1,252	3,228	0,504	4,444	0,563	0,000**
Anxious attachment								
	Extraversion	-0,658	-1,153	-0,163	0,252	-2,608	-0,246	0,009**
	Avoidant attachment	0,988	0,525	1,451	0,236	4,182	0,723	0,000**
Neuroticism								
	Avoidant attachment	0,404	0,211	0,597	0,099	4,103	0,673	0,000**
Extraversion								
	Secure attachment	0,136	0,023	0,249	0,058	2,351	0,350	0,019**
Avoidant attachment								
	Secure attachment	-0,569	-0,933	-0,205	0,186	-3,067	-0,749	0,002**

Notes. n = 255; ** p <.01; * p <.05; CI, Confidence interval; LL, lower limit; UL, upper limit.

be given to the weak association between *avoidant attachment* and *neuroticism* since its effect is not direct. According to this model, which maximizes the explained variances, *avoidance attachment* is the only independent variable, so this factor predicts high levels of *anxious attachment*, through this, high degrees of *neuroticism* and FI. This last result becomes even more important when considering that *avoidant* and *anxious attachment* explains 48.4% of the variance of *neuroticism*. Likewise, 45.8% of the variance corresponding to *intolerance to discomfort* and 43.8% of the variance of *demand for affection and rights* are explained through these three factors. These percentages could be considered high since a psychometric instrument must explain 60%,[55] or 50% of its variance.[61]

We developed the second model interpreting *secure attachment* as a protective element, and,[36] to use this factor as the only independent variable, the *Backwards Elimination* method was used.[60] Like the first model, *neuroticism* and *avoidant attachment* played primary roles. Even so, there were three differences. Firstly, the protective factor of *secure attachment* is in line with previous studies,[36] and Bowlby's attachment theory;[62] furthermore, the diminished importance of *anxious attachment* in predicting the four dimensions of FI and, essentially, the relationship between the two maladaptive attachment styles. Although high levels of *avoidant attachment* continue to predict high *anxious attachment* significantly, the latter receives a moderating effect from *extraversion*. That shows that an individual with low levels of *extraversion* will be more prone to developing *anxious attachment*. While numerous studies found correlations between *extraversion* and these two attachment styles,[31,63] this research described the relationship between them in more detail. Likewise, most of the effects of *anxious attachment* appear to be on *intolerance of discomfort*.

Table 9. Matrix of standardized total effects of the second Full Latent Variable Model

	Predictors						
Criterions	Secure attachment	Avoidant attachment	Extraversion	Psychoticism	Anxious attachment	Neuroticism	R^2
(1) Avoidant attachment	-0,749	0,000	0,000	0,000	0,000	0,000	0,562
(2) Extraversion	0,350	0,000	0,000	0,000	0,000	0,000	0,122
(3) Anxious attachment	-0,628	0,723	-0,246	0,000	0,000	0,000	0,677
(4) Neuroticism	-0,504	0,673	0,000	0,000	0,000	0,000	0,452
(5) Intolerance of absence of achievement	-0,284	0,379	0,000	-0,166	0,000	0,563	0,339
(6) Demand for affection and rights	-0,353	0,471	0,000	0,000	0,000	0,700	0,490
(7) Emotional intolerance	-0,244	0,326	0,000	0,000	0,000	0,485	0,235
(8) Intolerance of discomfort	-0,357	0,446	-0,064	0,000	0,259	0,385	0,321
Mean of FI (5-8)	-0,309	0,406	-0,016	-0,042	0,065	0,533	-

Notes. n = 255.

Table 10. Model fit and model comparisons testing for measurement invariance of the second Full Latent Variable Model regarding gender

Model	Model fit						Model comparison				
	$\chi2^{WLSMV}$	df	χ2/df	Scaling	RMSEA	CFI	$\Delta\chi2^{WLSMV}$	Δdf	p	ΔRMSEA	ΔCFI
M1: Configural	823,264	774	1,064	1,730	0,022	0,958					
M2: Weak	837,505	794	1,055	1,965	0,021	0,963	14,241	20	0,818	-0,001	0,005
M3: Strong	862,712	814	1,060	1,971	0,022	0,958	25,207	20	0,194	0,001	-0,005
M4: Strict	895,464	844	1,061	2,020	0,022	0,956	32,752	30	0,333	0,000	-0,002

Notes. n = 255; female = 178; male = 77; $\chi2^{WLSMV}$ - Chi-square using weighted least squares method with robust standard error; df, degrees of freedom; Scaling, scaling correction factor for the WLSMV estimator; RMSEA, root mean square error of approximation; CFI, comparative fit index.

Let's consider the two models as a whole and, based on the high level of explained variances. We can affirm that maladaptive attachment styles and *neuroticism* play transcendent roles in predicting high levels of FI. The finding that attachment styles predict a very considerable proportion of the *neuroticism* variance requires the reinterpretation of this dimension. This statement is based on the origin of attachment styles since Bowlby affirmed that they develop during childhood and remain throughout life,[64] although their intensity decreases.[27] Interestingly, *neuroticism* and FI also tend to decline throughout life,[65] affirming the relationship between these constructs. Taking the points mentioned above as a whole, we can support that, to a great extent, high levels of *neuroticism* are due to an unfavorable attachment style, which has possibly developed during the individual's childhood. This conclusion highlights the importance of the interaction between the infant and the attachment figure since Ainsworth and colleagues describe that the attachment figures of children with *secure attachment* are characterized by a greater degree of sensitive attention.[30]

If we compare the explained variance of *extraversion* with the explained variance of *neuroticism*, we can affirm that *extraversion* appears less related to attachment styles; its magnitude would not primarily depend on the interaction between the infant and the attachment figure.

It is noted that *avoidant attachment* occupies a transcendental position since its effect on *secure attachment* is more significant than the opposite effect. The same happens to *the anxious attachment*. Together with the relative independence of *extraversion*, this finding highlights that an avoidant behavior cannot be attributed to a personality trait but rather to a learned mechanism. The two models developed show that *avoidant attachment* initiates, in a certain way, a maladaptive process that leads to *neuroticism* and later to FI. In the *strange situation*, children with *insecure-avoidant attachment* avoid, during reunification phases, the attachment figure's contact and instead focus their attention on the environment. Children with *insecure-ambivalent attachment* actively seek closeness with the attachment figure but, on the other hand, avoid the comforting behavior of their attachment figure, tend to get angry, and are difficult to calm down.[29,30] As seen in these descriptions, children with *insecure-ambivalent attachment* also exhibit avoidant behavior, which is in line with the associations found in the present study.

Regarding *psychoticism*, we observed that it has a negative effect on *intolerance to the absence of achievements*, which means that, with high *psychoticism*, *intolerance to the lack of achievements* decreases. We can interpret that this effect was relatively mild compared to the positive impact that *neuroticism* had on this dimension of FI.

Regarding the limitations of this work, the sample size was relatively small, with non-probabilistic sampling conducted. Also, SEM does not show the existence of a causal relationship between certain factors, but instead, they can support a previous theory and/or must be validated with experimental designs.[37,66] In this sense, the results of this research support the theories that indicate a complex interaction between the genetic components of behavior, such as personality (especially *neuroticism* and frustration) and environmental ones, in this case, the attachment styles. These factors can significantly attenuate or increase the genetic contributions of individual differences.[26,67]

ACKNOWLEDGMENT

*** Anonymous ***

DATA ACCESSIBILITY STATEMENT

The data that support the findings of this study are openly available at: https://osf.io/ujqg3/?view_only=3429f93ace95455c9fb63e693fe15c7d

Submitted: May 31, 2021 EST, Accepted: June 03, 2021 EST

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