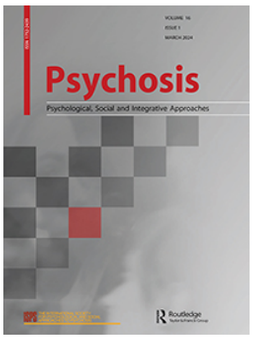

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# Assessing disorganized attachment in Mexican individuals with psychosis-risk symptoms: initial psychometric evaluation of a Spanish version of the revised Psychosis Attachment Measure

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**ABSTRACT**

**Background:** Knowledge of the role of attachment in psychosis would be enhanced by research in low- and middle-income countries and increased availability of measures of disorganized attachment. The Psychosis Attachment Measure is a widely-used self-report questionnaire recently expanded to incorporate the assessment of disorganized attachment. The present study examined the psychometric properties of a Spanish-language adaptation of the revised Psychosis Attachment Measure (PAM-R) in Mexican individuals reporting psychosis-risk symptoms.

**Methods:** The sample comprised 264 individuals with a positive screen for high risk for psychosis, drawn from a more extensive general population study. Participants completed a battery of questionnaires via an online survey.

**Results:** An exploratory factor analysis of the 23 items yielded three factors interpreted as representing anxious, avoidant, and disorganized attachment. Four items had poor loadings on all factors and were not retained. The dimensions demonstrated adequate internal consistency, but convergent validity was only supported for the anxious and disorganized attachment dimensions. Disorganized attachment showed medium-sized associations with childhood maltreatment, attenuated positive symptoms, and symptom-related distress.

**Discussion:** The findings provide initial support for using the disorganized subscale in the Mexican context and for continuing the examination of the measure to further determine its research and clinical utility in Spanish-speaking populations.

**KEYWORDS**
Attachment style; disorganized attachment; assessment; psychosis risk; childhood maltreatment

## Introduction

Researchers have increasingly used attachment theory as a framework for advancing our understanding of the development and expression of psychosis (Berry et al., 2023; Harder, 2014; Read & Gumley, 2008). In recent years, systematic reviews and meta-analyses have demonstrated that different forms of attachment insecurity are associated with clinical and subclinical psychotic symptoms (e.g. Carr et al., 2018) and with poor outcomes among persons with psychotic disorders (e.g. van Bussel et al., 2021). However, despite substantial interest in the role of attachment in

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psychosis, the field has been limited by the paucity of measures to assess disorganized attachment in individuals across the psychosis continuum. In the current study, we sought to evaluate a Spanish version of a widely-used English self-report questionnaire which was recently expanded to incorporate the assessment of disorganized attachment.

Attachment theory emphasizes the effects of early relational experiences on socio-emotional health across the lifespan (Bowlby, 1973; Gillath et al., 2016). Within the social-psychological approach to attachment research in adolescence and adulthood, scholars have primarily centered on measuring attachment styles, which refer to the characteristic patterns of expectations, feelings, and behaviors that individuals exhibit in their close relationships (Mikulincer & Shaver, 2007). Individual differences in attachment styles are considered to result from a person's cumulative history of interactions with attachment figures, beginning in the early caregiving environment (Bifulco & Thomas, 2013; Mikulincer & Shaver, 2007). Although there are different conceptualizations of attachment styles, there is general agreement that they can be characterized as secure or insecure, with the latter commonly including attachment anxiety, avoidance, and disorganization (Bifulco & Thomas, 2013).

Attachment security involves confidence and trust in close relationships and the use of effective strategies to cope with distress (Mikulincer & Shaver, 2007). Among the insecure styles, anxious (or preoccupied) attachment reflects a high need for closeness and worries about abandonment, whereas avoidant (or dismissing) attachment reflects discomfort with closeness and a strong preference for self-reliance (Bartholomew & Horowitz, 1991; Bifulco & Thomas, 2013; Gillath et al., 2016). Anxious and avoidant styles are considered organized forms of insecure attachment and are associated with consistent strategies for regulating distress. Specifically, anxious attachment is characterized by a hyperactivating (or maximizing) strategy, while avoidant attachment is characterized by a deactivating (or minimizing) strategy (Mikulincer & Shaver, 2007).

In contrast, disorganized attachment has typically been conceived as a breakdown in attachment strategy resulting from competing tendencies to approach and avoid the attachment figure (Jacobvitz & Reisz, 2019; Paetzold & Rholes, 2020). For example, it is thought that one prominent pathway to attachment disorganization is experiencing the primary caregiver simultaneously as a source of comfort and alarm (Hesse & Main, 2000; Jacobvitz & Reisz, 2019). Research has shown that disorganized attachment is overrepresented in individuals with a history of maltreatment and may confer a greater risk for psychopathology than the organized-insecure styles (for review, see Siegel, 2012).

Attachment styles are frequently assessed with self-report measures. These measures have tended to focus on the dimensions of attachment anxiety and avoidance, with low scores on both considered to signify attachment security. Notably, self-report measures have rarely included the assessment of attachment disorganization (Whittington, 2023). Instead, researchers have sometimes assessed fearful attachment, a style characterized by the co-occurrence of attachment anxiety and avoidance (Bartholomew & Horowitz, 1991). Although fearful and disorganized attachment are not equivalent constructs, they are thought to share similarities, such as the presence of an approach-avoidance conflict (see Bartholomew, 1990; Pollard et al., 2023).

The Psychosis Attachment Measure (PAM; Berry et al., 2006) is a self-report designed to assess attachment anxiety and avoidance. It was developed to address some of the difficulties of measuring attachment in the psychosis field, particularly that attachment self-reports tend to focus on romantic relationships, making them less suitable for individuals experiencing psychosis, who typically face challenges in making and maintaining romantic relationships (Cloutier et al., 2021). Therefore, PAM items refer to close relationships and not exclusively to romantic ones (Berry et al., 2006). The PAM has been used across clinical and nonclinical populations and has been adapted into other languages, including Spanish (Sheinbaum, Berry, et al., 2013). Although some studies support the PAM's two-factor structure, other work has failed to replicate it, particularly the avoidance dimension. For instance, Olbert et al. (2016) did not find the predicted structure of the PAM or evidence of a separate avoidance factor.

Recently, the original English PAM was revised to incorporate the assessment of disorganized attachment. The revised PAM (PAM-R; Pollard et al., 2020) was tested in the United Kingdom in a sample of individuals with psychosis. Using exploratory factor analysis, the authors identified three factors (anxiety, avoidance, and disorganization) that displayed good psychometric properties. Furthermore, the disorganized dimension was associated with theoretically-relevant constructs, including interpersonal trauma and positive psychotic symptoms. These findings provided initial support for the validity of the disorganized dimension, which has begun to be used both independently (Humphrey et al., 2022) and conjointly with the dimensions of attachment anxiety and avoidance (Degnan et al., 2022).

While further empirical evaluation of the PAM-R is needed, it seems to provide a promising measure to strengthen the study of attachment in the psychosis field, especially that of disorganized attachment. For instance, the measure may facilitate investigating models of psychosis vulnerability that emphasize the critical role of disorganized attachment in the development and maintenance of psychotic symptoms (Berry et al., 2023; Liotti & Gumley, 2008) – a line of work that until recently has remained largely theoretical. In this regard, prospective studies with individuals in the preclinical stages of psychosis, such as the stage of risk symptoms known as the clinical high-risk state, may inform the refinement of these theoretical models and point to targets for preventive intervention, particularly since focusing on these populations could advance knowledge of mechanisms relevant to psychotic disorders while minimizing confounding factors associated with clinical impairment and chronicity (Hinojosa-Marqués et al., 2022). To our knowledge, previous studies have not examined self-reported disorganized attachment in individuals with psychosis risk; however, research indicates a predominance of insecure and particularly fearful attachment in at-risk samples (Carr et al., 2018), supporting the value of examining disorganized attachment in this population.

### *The present study*

It is well-recognized that the lack of population diversity in psychosocial research on psychosis is a significant impediment to advancing the field (Burkhard et al., 2021). Indeed, most attachment and psychosis studies have been conducted in high-income countries, highlighting the need for research in low- and middle-income countries in Latin America, including Mexico. Although we are unaware of investigations on this topic in Mexico, the utility of this line of work is suggested by research with Mexican samples showing that insecure attachment contributes to other forms of psychopathology (e.g. Fuentes-Balderrama et al., 2023) and that interpersonal traumas and relational dynamics within the family predict vulnerability to psychosis (Domínguez-Martínez et al., 2023).

In the present study, we adapted the PAM-R for use in the Mexican cultural context and provided an initial examination of its psychometric properties in a sample of individuals reporting psychosis-risk symptoms. Specifically, we examined the measure's factor structure, internal consistency, and convergent validity with another measure of attachment. Furthermore, we investigated associations with childhood maltreatment and attenuated positive symptoms, which are constructs hypothesized to be especially related to disorganized attachment.

## Methods

### *Participants*

Participants encompassed 264 individuals reporting psychosis-risk symptoms drawn from a more extensive ongoing study examining risk and protective factors for psychopathology in the Mexican general population. The reported data were collected between March and December 2022. Participants in the larger study were Mexican-born individuals between 15 and 45 years of age who agreed to participate in an online survey administered via Qualtrics® software. The present report included the participants from the larger study who met the screening criteria for high risk for psychosis according to the Spanish

version of the Prodromal Questionnaire-Brief (PQ-B; Fonseca-Pedrero et al., 2016). Participants were deemed ineligible if they self-reported a psychotic disorder or a psychosis-related hospitalization. The mean age of the current sample was 26.6 years (S.D = 7.6), and 77.7% ($n = 205$) were women. Of the participants, 45.8% ($n = 121$) reported currently receiving psychological and/or psychiatric treatment. Regarding educational level, 51.1% ($n = 135$) reported a secondary or high school education (or equivalent), and 48.9% ($n = 129$) reported a bachelor's or graduate education. Most participants were current students (42.4%, $n = 112$) or had an economically-remunerated occupation (42%, $n = 111$). The majority of the sample was not involved in a romantic relationship (58.3%, $n = 154$).

## Procedure

The invitation to participate in the survey was distributed through personal and institutional (educational and health institutions) social media platforms. Youth were also invited through participating high schools, which sent information about the study to parents/guardians via institutional e-mail. Participants aged 18 and older provided informed consent. Youth provided informed assent, and a parent/guardian provided informed consent. Participants did not receive compensation for participating. The Research Ethics Committee of the Ramón de la Fuente Muñiz National Institute of Psychiatry (CEI/C/019/2021) approved the study.

## Measures

### Revised Psychosis Attachment Measure (PAM-R)

The PAM-R (Pollard et al., 2020) contains 23 items assessing anxious (eight items), avoidant (six items), and disorganized (nine items) attachment. Items are answered on a 4-point scale from "not at all" to "very much". Subscale scores are calculated by averaging individual item scores.

The translation/adaptation of the PAM-R was performed with the permission of the corresponding author of the English version, who provided the measure. For the anxiety and avoidance subscales, the Spanish PAM items (Sheinbaum, Berry, et al., 2013) were used, with slight wording modifications to make them more appropriate for the Mexican context. For the disorganized subscale, two independent translations of the items were generated and subsequently reviewed by a bilingual attachment researcher who identified discrepancies and provided suggestions for improvement. The final items were derived through consensus among the translation team and were checked through a back-translation. In the adaptation process, we prioritized semantic and conceptual equivalence. As an example, in some items referring to closeness, we clarified "emotionally close" because the literal translation would have been ambiguous. The final Spanish items are provided in the Supplementary Material.

### Relationship Questionnaire (RQ)

The RQ (Bartholomew & Horowitz, 1991; Schmitt et al., 2004) is a brief attachment measure commonly used in the psychosis field. It contains four paragraphs, each describing a prototype of attachment according to Bartholomew's (1990) model: secure (low avoidance/low anxiety), preoccupied (low avoidance/high anxiety), dismissing (high avoidance/low anxiety), and fearful (high avoidance/high anxiety). Participants select the paragraph that best describes how they approach close relationships and score each paragraph on a 7-point scale from "strongly disagree" to "strongly agree". The continuous ratings of each prototype were used for analyses.

### Childhood Trauma Questionnaire (CTQ)

Childhood maltreatment was assessed with the 28-item CTQ (Bernstein & Fink, 1998; Hernández et al., 2013), which provides dimensional scores for five types of maltreatment: sexual abuse, physical abuse, emotional abuse, physical neglect, and emotional neglect. Items are answered on a 5-point scale from "never true" to "very often true". The sum of the five subscales was used for analyses.

### *Prodromal Questionnaire-Brief (PQ-B)*

The PQ-B (Fonseca-Pedrero et al., 2016; Loewy et al., 2011) is a psychosis-risk screening instrument that contains 21 items assessing the presence of attenuated positive symptoms and accompanying levels of distress. The symptom items are rated dichotomously (yes/no), and the distress items are rated on a 5-point scale from "strongly disagree" to "strongly agree". The total symptom and distress scores were used for analyses.

### *Statistical analyses*

The analyses were conducted with SPSS 21. Skewness and kurtosis were calculated to examine the distribution of the Spanish PAM-R items, followed by an item-by-item frequency analysis. The factor structure of the measure was examined using exploratory factor analysis (EFA). EFA has been recommended as the initial analytic approach in the context of scale translations and cultural adaptations (to be followed by confirmatory factor analysis [CFA] in a separate sample; for details, *see* Orçan, 2018; Swami et al., 2021). Note that using CFA on the same sample used for the EFA is not recommended (Izquierdo et al., 2014). The exploratory approach was further deemed appropriate considering that our study population (at-risk) differed from that used in the EFA of the English PAM-R (clinical) and in light of the inconsistency in the factor structure reported for the original PAM (from which the anxiety and avoidance subscales were derived). Therefore, following Pollard et al. (2020), an EFA with Principal Axis Factoring extraction and Direct Oblimin rotation was used. The Kaiser-Meyer-Olkin measure and Bartlett's test of sphericity were calculated to determine the adequacy of the EFA. The scree plot was used to determine the number of factors to extract since it is considered an appropriate method in samples with more than 200 participants (Field, 2013). The factors before the "elbow" were retained as the successive eigenvalues describe less evident factors. The pattern matrix was used to interpret the data as these coefficients indicate the unique contribution of each variable to a factor (Hair et al., 2014). Items with factor loadings of .40 and above were retained based on practical significance considerations (Stevens, 2009). After the EFA, the reliability of the resulting factors was estimated using Cronbach's alpha. Corrected item-total correlations by factor were explored, with values above .30 considered adequate (Field, 2013). Finally, Pearson correlations were used to examine convergent validity with the RQ and associations with childhood maltreatment, attenuated positive symptoms, and symptom-related distress.

## Results

All items exhibited acceptable values of skewness (range = −0.53 to 0.83) and kurtosis (range = −1.32 to −0.23). The item-by-item analysis showed that all answer options were used. The highest percentage for one item response was 48.5% ($n$ = 128), which was found for item 6 (*I usually discuss my problems and concerns with other people*).

An EFA with Principal Axis Factoring and Direct Oblimin rotation was performed on the items. The Kaiser-Meyer-Olkin measure of sampling adequacy was .87, and Bartlett's test of sphericity was significant ($p < .001$). Based on the inspection of the scree plot (Figure 1), we examined a three-factor solution.

Table 1 presents the rotated factor loadings, eigenvalues, and variance explained by each factor. Based on the clustering of the items, we used the same factor labels as Pollard et al. (2020): Disorganized attachment for the first dimension, avoidant attachment for the second dimension, and anxious attachment for the third dimension. From the 23 items included in the analysis, 18 loaded onto the corresponding dimensions of the English PAM-R (eight from the anxiety dimension, three from the avoidance dimension, and seven from the disorganized dimension). One item from the English disorganized dimension (*When I form close relationships, I lose sense of who I am*) loaded onto the anxiety dimension. The remaining four items had loadings below .40 on the three factors and were not retained. These items included three from the English avoidance dimension (*I prefer not*

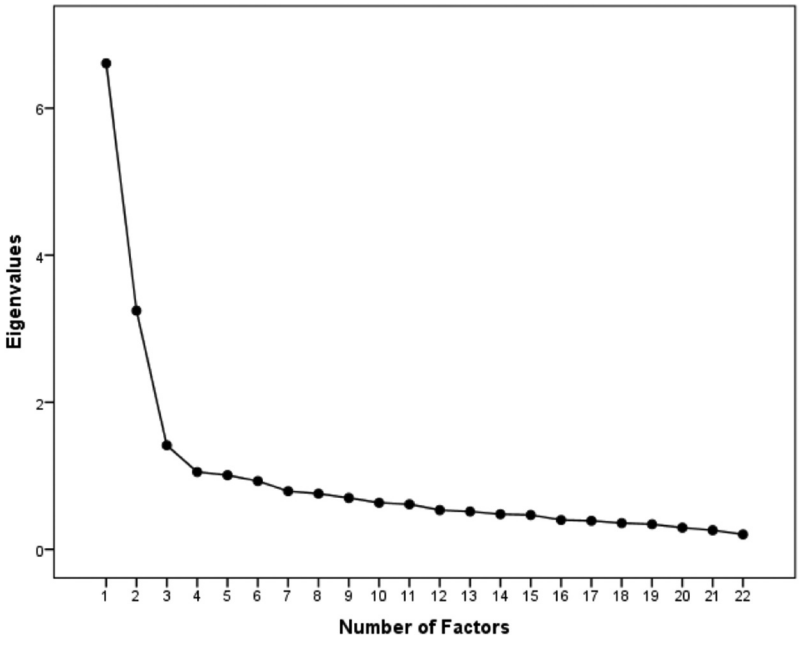


**Figure 1.** Scree plot of the Spanish PAM-R items.

**Table 1.** Exploratory factor analysis with Principal Axis Factoring extraction and Direct Oblimin rotation.

| | *PAM-R Items* | Factor 1 Disorganized | Factor 2 Avoidant | Factor 3 Anxious |
|---|---|---|---|---|
| 2 | I find close relationships overwhelming. | **.677** | .093 | −.088 |
| 4 | I feel frightened in close relationships. | **.779** | −.177 | −.051 |
| 12 | When I try to get close to someone, sometimes I shut down and find it difficult to think or move. | **.618** | .146 | .092 |
| 15 | Sometimes I am confused by my feelings towards others. | **.423** | −.025 | .395 |
| 17 | I want close relationships, but being close makes me feel frightened. | **.656** | .001 | .208 |
| 18 | I often freeze when I try to get close to someone. | **.695** | .041 | .102 |
| 21 | I want to be close to others but I often find myself pulling away when I am. | **.618** | .120 | .156 |
| 3 | I find it easy to depend on other people for support with problems or difficult situations.* | −.016 | **.618** | .068 |
| 6 | I usually discuss my problems and concerns with other people.* | .092 | **.657** | −.049 |
| 13 | It helps to turn to other people when I'm stressed.* | .158 | **.600** | −.118 |
| 5 | I tend to get upset, anxious or angry if other people are not there when I need them. | .081 | −.137 | **.616** |
| 7 | I worry that key people in my life won't be around in the future. | .032 | −.212 | **.453** |
| 9 | I ask other people to reassure me that they care about me. | −.205 | .120 | **.715** |
| 10 | If other people disapprove of something I do, I get very upset. | −.099 | .139 | **.835** |
| 14 | I worry that if other people get to know me better, they won't like me. | .285 | .082 | **.539** |
| 16 | I worry a lot about my relationships with other people. | .117 | −.082 | **.596** |
| 20 | I worry that if I displease other people, they won't want to know me anymore. | .103 | .094 | **.666** |
| 22 | I worry about having to cope with problems and difficult situations on my own. | .014 | −.176 | **.553** |
| 23 | When I form close relationships, I lose sense of who I am. | .240 | .074 | **.419** |
| **Eigenvalues** | | 6.81 | 3.29 | 1.44 |
| **Variance (%)** | | 29.62 | 14.28 | 6.28 |

Loadings of .40 and above are in bold. Items with loadings below .40 on the three factors were omitted. *Reverse-scored items.

*to let other people know my "true" thoughts and feelings*; *I find it difficult to accept help from other people when I have problems or difficulties*; *I try to cope with stressful situations on my own*) and one from the English disorganized dimension (*I find people I am in close relationships with to be*

**Table 2.** Pearson correlations of the PAM-R dimensions with the RQ attachment prototypes, CTQ childhood maltreatment, and PQ-B symptoms and distress.

| | RQ Secure | RQ Dismissing | RQ Preoccupied | RQ Fearful | CTQ Maltreatment | PQ-B Symptoms | PQ-B Distress |
|---|---|---|---|---|---|---|---|
| Avoidant | −.24*** | .11 | .05 | .28*** | .14* | .08 | .09 |
| Anxious | **−.30*** ** | −.24*** | **.40*** ** | .29*** | .22*** | .20** | **.32*** ** |
| Disorganized | **−.36*** ** | .01 | .12 | ***.54*** ** | **.32*** ** | **.31*** ** | **.40*** ** |

RQ = Relationship Questionnaire; CTQ = Childhood Trauma Questionnaire; PQ-B = Prodromal Questionnaire-Brief.
According to Cohen (1992), correlations of .10 indicate small effect sizes, .30 medium effect sizes (bold), and .50 large effect sizes (bold and italics).
***$p < .001$.
**$p < .01$.
*$p < .05$.

*unpredictable in their actions and behaviors*). An EFA with the 19 retained items corroborated that the items loaded .40 or above on the same factor as in the analysis with the full scale.

High reliability was obtained for the disorganized (α = .87) and anxious (α = .85) attachment dimensions, and moderate reliability for the avoidant attachment dimension (α = .73). Corrected item-total correlations by subscale were all above .30.

Table 2 shows the Pearson correlations of the PAM-R dimensions with the measures of attachment, childhood maltreatment, and psychosis risk. The three dimensions exhibited negative correlations with the RQ secure prototype. Regarding the insecure prototypes, the anxiety dimension was most strongly associated with the RQ preoccupied prototype and also showed associations in the theoretically-consistent direction with the RQ fearful and dismissing prototypes. The avoidance dimension was associated with the RQ fearful prototype, but not with the RQ dismissing prototype. Finally, the disorganized dimension was associated with the RQ fearful prototype.

The three PAM-R dimensions were positively associated with childhood maltreatment. In addition, anxious and disorganized attachment were associated with attenuated positive symptoms and symptom-related distress.

## Discussion

A growing literature demonstrates the relevance of attachment concepts to understanding the development and expression of psychosis. However, this literature would be strengthened by greater sociocultural diversity since most studies have been conducted with samples from high-income countries. In addition, the study of disorganized attachment in the psychosis field has been limited by the scarcity of measures to assess the construct. In this regard, the English-language PAM-R recently emerged as a promising self-report to advance this area of research. Guided by these considerations, the present study evaluated the psychometric properties of a Spanish version of the PAM-R in a sample of Mexican individuals with self-reported psychosis-risk symptoms.

The results of the EFA yielded three factors that were interpreted as representing anxious, avoidant, and disorganized attachment. However, four of the 23 items had poor loadings on all factors, leaving 19 items in the Spanish questionnaire. As with the English version, the disorganized factor explained the most variance in our data. This factor taps characteristics such as fear and confusion in close relationships, contradictory approach-avoidance tendencies, and freezing behaviors. Thus, the dimension appears to provide adequate content coverage of disorganized features described in the literature (Whittington, 2023), which may reflect that the authors of the PAM-R used various sources for item development, including the review of unresolved/disorganized narratives from the Adult Attachment Interview.

Two English disorganized items were not included in the Spanish disorganized dimension, one that loaded onto anxiety (see next paragraph) and one (tapping the unpredictability of close others)

that did not sufficiently load on any factor. Although it is unclear why this latter item did not cluster with the disorganized items, its focus on others (their actions/behaviors) might provide some explanation since the remaining disorganized items focus on the self and relationships. Notably, despite having fewer items, the disorganized subscale displayed good internal consistency and had a large correlation with the RQ fearful prototype, which mirrors the findings of Pollard et al. (2020).

The anxiety factor included all the English anxiety items and one item designed to tap disorganized attachment. The anxiety items assess characteristics such as worry about relationships, fear of separation, and need for approval and reassurance. The fact that the item tapping the experience of losing the sense of self in close relationships clustered with this factor seems in line with anxiously attached people's tendency to exhibit enmeshed relationships, diffuse boundaries, and over-reliance on others for self-regulation (Bifulco & Thomas, 2013; Pietromonaco & Barrett, 2006). Nevertheless, researchers should continue to examine the functioning of this item across different populations. Additionally, we found that the anxiety subscale exhibited good internal consistency and demonstrated its strongest association with the preoccupied prototype from the RQ, as well as smaller correlations in the expected direction with the other prototypes. Although Pollard et al. (2020) did not examine the validity of the anxiety and avoidance dimensions, the pattern of correlations with the insecure prototypes resembles that reported for the Spanish PAM (Sheinbaum, Berry, et al., 2013).

Our results with the avoidance dimension were less consistent with those of the English PAM-R. In particular, we found that half of the English avoidance items did not load above the established cut-off on this (or any other) factor, suggesting they were not good indicators of avoidant attachment in this Mexican sample. This finding could be related to linguistic nuances or cultural differences in the expression of avoidant attachment (e.g. since this style is less congruent with values of closeness and connection that are relevant in the Mexican sociocultural context; Friedman et al., 2010). Considering that the retained items are all reverse-scored, another possibility relates to the observation that reverse-scored items sometimes load on a distinct factor (Kam, 2023). Ultimately, in light of studies that found that the avoidance dimension of the original PAM was not well-defined and had poor internal consistency (Olbert et al., 2016; van Bussel et al., 2023), the avoidance items may benefit from further examination.

In addition, while the avoidance subscale had acceptable internal consistency, its convergent validity with the RQ was not supported. Specifically, the dimension demonstrated theoretically-consistent associations with secure and fearful attachment but did not significantly correlate with dismissing attachment. Thus, the Spanish avoidance dimension and the RQ dismissing prototype may largely tap different avoidant domains. Since the items retained in the Spanish version mostly assess barriers to confiding and relying or depending on others, the dimension might be enhanced by coverage of additional avoidant features, such as the preference for maintaining emotional distance.

We also investigated the associations of the PAM-R with relevant constructs used in the examination of the English disorganized subscale. We found that disorganized attachment was the dimension most strongly associated with childhood maltreatment, attenuated positive symptoms, and symptom-related distress. This is consistent with the developmental literature and attachment models of psychosis (e.g. Liotti & Gumley, 2008). Furthermore, to our knowledge, this is the first study to link self-reported disorganized attachment with these constructs in at-risk individuals, complementing recent work with clinical and student samples (Humphrey et al., 2022; Sheinbaum et al., 2020).

Although Pollard et al. (2020) did not examine the associations of these constructs with attachment anxiety and avoidance, the interrelations of attachment anxiety, childhood maltreatment, and positive symptoms are in line with previous research (Chatziioannidis et al., 2019). Moreover, while we interpret the results of the avoidance dimension with caution, the lack of association with attenuated positive symptoms and distress dovetails with research suggesting that styles characterized by deactivating strategies are less relevant to the positive symptom dimension in nonclinical samples (Berry et al., 2006; Sheinbaum, Bedoya,

et al., 2013). Taken together, the results suggest the links among these constructs are worthy of additional study and support prior calls for increased focus on attachment in at-risk groups to elucidate processes related to the expression of symptoms and recovery (Gumley et al., 2014; Partridge et al., 2022).

The findings of this study should be interpreted within the context of certain limitations. One limitation is that all instruments were self-reports, which are susceptible to reporting biases. Another shortcoming is that we did not administer specific measures to determine discriminant validity. Furthermore, we used the RQ to examine convergent validity since it assesses fearful attachment and does not focus specifically on romantic relationships. Nevertheless, using more psychometrically-refined instruments would be beneficial in future work. Relatedly, we did not include another measure directly assessing disorganized attachment. In this regard, we note that existing self-reports of disorganized attachment focus on romantic relationships or childhood experiences, limiting their comparability with the PAM-R. Along these lines, it is noteworthy that assessing disorganized attachment via self-report is a relatively new approach. Therefore, the extent to which self-reports can fully capture the complexity of disorganized attachment has yet to be determined. Future work using multimethod approaches may inform our understanding of this important issue. For instance, it would be helpful to examine links between self-reported disorganized attachment and disorganization as operationalized in the Adult Attachment Interview or the Attachment Style Interview (Bifulco & Thomas, 2013).

Another consideration is our online recruitment method, which may introduce biases and impact the validity of the data. In this study, the sample was predominantly female and reported higher education levels than the national average, posing limitations to generalizability and suggesting that additional recruitment strategies may be needed to obtain more representative samples. In addition, the EFA approach used in this study represents only an initial step in examining the Spanish-language adaptation; CFA and invariance analyses are necessary next steps. Moreover, future studies could use newer measurement models, including item response theory, to investigate and refine the instrument. Finally, research examining the psychometric properties of the Spanish PAM-R across different settings is needed, particularly in clinical samples.

## Conclusions

In sum, the exploratory approach used in this study yielded a three-factor model of anxious, avoidant, and disorganized attachment, albeit with fewer items. Future studies using CFA are needed to confirm the structure of this Spanish version of the PAM-R. The three attachment dimensions had adequate internal consistency, but convergent validity was only supported for the anxious and disorganized dimensions. Accordingly, further development of the scale might expand the number of items to capture additional avoidant domains. Furthermore, consistent with theory, disorganized attachment was associated with childhood maltreatment, attenuated positive symptoms, and symptom-related distress. Overall, the current findings provide initial support for using the disorganized subscale in the Mexican context and for continuing the examination of the measure to further determine its research and clinical utility in Spanish-speaking populations.

## Disclosure statement

No potential conflict of interest was reported by the author(s).

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## Data availability statement

The data are available from the corresponding author on reasonable request.

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