

■ Correlates of dissociative experiences, mood symptoms and rumination in Spanish children

Elena García-Morales, Cristina Cuesta-Zamora, Marta Parra-Delgado, Verónica Jimeno-Jiménez, & Jorge Javier Ricarte

Universidad de Castilla-La Mancha, Psicología, Spain.

Abstract

There is a lack of research about dissociative experiences in young non-clinical population, especially in children. Considering this and the association of anxiety and depression symptoms along with rumination, this study aimed to explore the relationship between those transdiagnostic variables and dissociation in children. Children ($N= 588$, 46.4% were boys) aged between 9 and 12 years ($M_{age} = 11.04$ years, $SD = .76$) filled out the Patient Reported Outcomes Measure Information System, the Brief State Rumination Inventory, and the Adolescent Dissociative Experiences Scale. Children who exhibited higher scores in dissociative experiences were more likely to score higher in depressive symptoms, anxious symptoms, and rumination. Rumination, depression, and anxiety were significantly associated with dissociation considering gender and age as control factors. Our results showed the presence of dissociative experiences in children, and its association with other important variables that seem to predispose the detonation of this symptomatology. These outcomes highlight the undoubted necessity of an early prevention of dissociation where we should considerate the key role of rumination, depression, and anxiety.

Keywords: dissociation; depression; anxiety; rumination; prevention.

Resumen

Correlatos de experiencias disociativas, síntomas del estado de ánimo y rumiación en niños españoles. La literatura científica acerca de las experiencias disociativas en poblaciones jóvenes no clínicas, especialmente en niños, es escasa. Teniendo en cuenta la relevancia de los síntomas de ansiedad y depresión junto con la rumiación en el debut temprano de cualquier psicopatología, el objetivo de este estudio fue explorar la relación entre estas variables y la disociación en niños. Niños ($N = 588$; 46.4% chicos, 53.6% chicas) con edades comprendidas entre 9 y 12 años ($M_{edad} = 11.04$ años, $DT = .76$) cumplimentaron el Sistema de Información de Medida de Resultados Reportados por el Paciente (las subescalas referidas a la depresión y a la ansiedad), el Inventario Breve de Rumiación Estado y la Escala de Experiencias Disociativas para Adolescentes. Los niños que manifestaron mayores puntuaciones en experiencias disociativas fueron más propensos a puntuar más alto en síntomas depresivos, en síntomas ansiosos y en rumiación. La rumiación, la depresión y la ansiedad demostraron estar asociadas significativamente con la disociación controlando el género y la edad. Nuestros resultados muestran la presencia de experiencias disociativas en niños, y su asociación con otras variables frecuentes en población no-clínica. Estos resultados ponen de manifiesto la indudable necesidad de una prevención temprana de la disociación en la cual debemos considerar la implicación de la rumiación, la depresión y la ansiedad.

Palabras clave: disociación; depresión; ansiedad; rumiación; prevención.

In an extensive variety of mental disorders such as schizophrenia, major depression, anxiety, obsessive-compulsive symptoms, eating disorders and posttraumatic stress disorder (PTSD), a common symptom that usually occurs is dissociation (Stein et al., 2013; Vannikov-Lugassi et al., 2021). American Psychiatric Association (APA, 2013) defined dissociation as “a disruption, interruption, and/or discontinuity in the normal integration of behaviour, memory, identity, consciousness, emotion, perception, body representation, and motor control” (APA, 2013, p. 291). Particularly, depersonalization and dereali-

zation (a sensation of unreality or being distant and apart from the self or the surroundings) are more frequent than dissociative amnesia or identity disorder and are usually comorbid with schizophrenia, depression, anxiety, obsessive-compulsive symptomatology, eating disorders and PTSD (González et al., 2020; Stein et al., 2013; Vannikov-Lugassi et al., 2021).

In people with psychiatric clinical features, prevalence rates for dissociative pathologies vary between 5% and 58%, which is a wide range of prevalence being dissociative identity disorder the less prevalent (0.5-12%, Lipsanen et al., 2004a).

Corresponding author:

Jorge Javier Ricarte Trives.

Universidad de Castilla-La Mancha.

Plaza de la Universidad, 3, 02071, Albacete, España.

E.mail: jorgejavier.ricarte@uclm.es

The diversity of this data can be a consequence of the different instruments of measurement used in the multiple contexts (Friedl et al., 2000). Sar et al. (2014) found that the prevalence of dissociative disorder was 45.2% in a sample of teenager's outpatients, whose ages were between 11 and 17 years. These authors indicated that it is difficult to differentiate normative dissociation understood as from pathological one in this group of people.

In general population, the studies are less numerous, but it has been estimated that the prevalence of dissociative disorders is situated in a range of values between 9.1% and 18.3% in America, while other studies contextualized in Finland have found a prevalence of 3.5% for pathological dissociation (Loewenstein, 2018). All these studies have followed a longitudinal methodology which ensure its results.

When examining the young population, in a study conducted in Finland focusing on adolescents, it was discovered that 5.5% of a sizable sample obtained the highest scores on the Adolescent Dissociative Experiences Scale (A-DES). This subgroup scored notably higher compared to the remainder of the sample (Tolmunen et al., 2007). Most research on dissociation in young people and childhood focuses on exploring the association between early adverse experiences such as maltreatment, neglect, and other traumatic episodes, and the presence of dissociative symptoms (Ertek et al., 2022; Sar et al., 2014; Simeon & Putnam, 2022). It is widely established that dissociation commonly co-occurs with post-traumatic stress disorder (PTSD), with dissociation either serving as a triggering factor for dissociative pathology or as a mediator between experiencing trauma and developing PTSD (Ertek et al., 2022).

In teenagers, elevated levels of dissociation have been found to be associated with a higher likelihood of self-injury, substance use problems, smoking, poorer academic achievement, social isolation, and delinquency (Loewenstein, 2018; Sar et al., 2014), highlighting the severity of dissociation. Moreover, not only do the consequences of dissociative experiences increase its severity, but high levels of other variables commonly found in the population can also exacerbate dissociation. One such variable is rumination, which has been shown to amplify dissociative experiences (Vannikov-Lugassi et al., 2021). Rumination has been identified as a mediator in the relationship between trauma and dissociation (Ródenas-Perea et al., 2023), but beyond traumatic experiences, in general population, rumination has demonstrated to be a predictor of depersonalization and derealization experiences (Vannikov-Lugassi et al., 2021).

In children and adolescents, the relationship between rumination and dissociation has been only studied in specific contexts such as nightmares (Secrist et al., 2019) or traumatic experiences (Diseth, 2005), but not in general young population.

Dissociation is highly connected to other mental health conditions such as depression and anxiety (Cernis et al., 2021). Dissociation has demonstrated to correlate significantly with depression in non-clinical populations (Lipsanen et al., 2004b) whereas trait anxiety has shown to be moderately associated to dissociation symptoms in teenagers (Lofthouse et al., 2023). Nevertheless, the direction of these two relationships is unclear as it could have not been ensured if there was a pathway from anxiety and from depression to

dissociation, or from dissociation to anxiety and depression (Cernis et al., 2021). What is clear is that, along with rumination, trait anxiety and cognitive appraisals of dissociation could explain the majority of the variance in depersonalisation and feelings of anomaly (Lofthouse et al., 2023).

It is important to consider that mental disorders often debut in adolescence, though they can begin in childhood (Kessler et al., 2007). Solmi et al. (2022) found that anxiety symptoms typically manifest around age 5.5 years, while mood disorders, which include depression and bipolar disorders, onset around age 20.5 years. Early prevention is crucial, given the significance of adolescence in psychopathology development.

Taking all these arguments into account, the main aim of this study was to test whether dissociation is significantly linked to rumination and symptoms of anxiety and depression, controlling for age and gender in a very young population, particularly, in children in the last courses of primary education. The ages concerned by these courses are ranged from 9 to 12 and involve a transitory period. It is during the adolescence when the debut of different disorders tends to occur, so the appearance of symptomatology in this population could signify the presence of premorbidty highlighting the importance of prevention in this period or even earlier.

Two hypotheses were formulated based on previous findings in the field of research. Building upon the established association between dissociation and mood symptomatology (Cernis et al., 2021; Lipsanen et al., 2004b; Lofthouse et al., 2023), the first hypothesis predicted that higher levels of dissociative symptoms would correlate with increased symptoms of depression and anxiety, as well as heightened experiences of rumination.

Furthermore, considering the early onset age of depression and anxiety (Solmi et al., 2022), which suggests their occurrence before the onset of dissociative symptoms—an aspect relatively underrepresented in existing literature—the second hypothesis proposed that depression and anxiety could serve as significant predictors of dissociation. This hypothesis also anticipated that rumination could predict dissociation, as suggested by previous studies (Vannikov-Lugassi et al., 2021).

Methods

Participants

A total of 588 Spanish children (46.4% were boys) were recruited from public schools. Inclusion criteria were: (1) present an informed consent signed by parents or legal guardians; (2) belong to a school in Albacete; (3) be enrolled in a course of the second or third cycle of primary education, and (4) have an adequate understanding of Spanish language. Exclusion criteria were: (1) the presence of learning difficulties or mental conditions that prevent or limit the understanding of questionnaire instructions and corresponding items; (2) the lack of proficiency in Spanish as a native language, or (3) the absence of an adequate level of verbal comprehension in Spanish. The age range of the sample was between 9 to 12 years ($M_{age} = 11.04$ years, $SD = .76$). Regarding family types, 63.80% belonged to a two-parents family, 8.70% to a one-parent family, 5.20% to an extended family, 0.50% to a reconstructed family, 1% lived with grandparents and we had no information on the family

Table 1. Descriptive statistics and Pearson correlations for girls (n = 315) and boys (n = 273)

	-1	-2	-3	-4	<i>M (SD) girls</i>	<i>M (SD) boys</i>	<i>Mann-Whitney U</i>
(1) Dissociation		.47**	.42**	.31**	21.50 (17.60)	23.04 (16.84)	40544 (<i>p</i> = .14)
(2) Anxiety	.35**		.68**	.47**	18.08 (7.42)	17.75 (6.67)	43380 (<i>p</i> = .91)
(3) Depression	.45**	.63**		.50**	13.34 (6.82)	13.36 (6.19)	41785 (<i>p</i> = .37)
(4) Rumination	.37**	.31**	.35**		324.92 (197.47)	354.89 (198.06)	39781 (<i>p</i> = .06)

Note. ** = $p < .001$; girls above the diagonal and boys below the diagonal

structure of the other 20.80%.

Procedure

The Clinical Research Ethics Committee approved the study protocol (reference number: Record n° 025/2019), which was also approved by the principal and board of governors of the schools. This research respects the ethical principles of the Declaration of Helsinki and the code of ethics of the Spanish Association of Psychologists. The principles of confidentiality in dealings with the children were safeguarded under the current national laws on data protection (Organic Law 3/2018 of 5 December).

Six public schools collaborated with the study. Participation was voluntary. All the participants' parents were given prior information about the study and gave their signed informed consent. All parents and legal tutors authorized their children to be part of this research, so there was a 100% of participation between the people surveyed.

Data were collected in group sessions in the children's own classrooms during the school schedule, with the collaboration of their class teachers. Instructions were given test by test to ensure they were properly understood.

Instruments

In order to ensure the correct comprehension of the scales' items, the assessment was performed under the supervision of a psychologist.

The Patient Reported Outcomes Measure Information System (Cella et al., 2010). To collect data about depression and anxiety symptoms, it was used the brief measurement *The Patient Reported Outcomes Measure Information System* (PROMIS). For this study, it was used Devine et al. (2018) translated adaptation of this subscales. The PROMIS - Anxiety Short Form and the PROMIS Emotional Distress - Depression Short Form are both formed by eight items which assessed participants' experiences of these symptoms taking into account its cognitive and affective features. Each item is answered using a Likert scale of frequency from 1 to 5 points, being 1 comparable to never and 5, to always. The more score punctuated, the more presence of anxiety and depression over the past 7 days in the life of the respondent (Cella et al., 2010). Previous longitudinal research (Sherlock et al., 2022) have approved its adequacy to be administered in children and young population. Both scales have demonstrated adequate psychometric properties: Cronbach alpha values for the overall anxiety and depression levels were .82 and .89, respectively.

The Brief State Rumination Inventory (Marchetti et al., 2018). Participants had to provide information about their current

levels of rumination (negative repetitive focus on emotional states and experiences) through six items such as *Currently, I am reflecting on my mood* or *Currently, I am repeating on my mind recent things that I have said or done*. Each item is punctuated from 0 (completely disagree) to 100 points (completely agree). It has been demonstrated that this visual analogue scale has similar properties to Likert scales. The psychometric evaluation of this measurement was carried out in a double study with four different and independent samples. The results ensure its validity and reliability (its internal consistency was .91) as an assessment of state rumination, and the potential generalization of the outcomes obtained through it (Marchetti et al., 2018). In this sample, Cronbach alpha value for the Brief State Rumination Inventory was .80.

Adolescent Dissociative Experiences Scale (ADES-8; Armstrong et al., 1997). This eight-item scale named Adolescent Dissociative Experiences Scale was used to assess the levels of dissociative symptoms experienced by the participants. Each item is scored on a scale from "never" (0) to "always" (10) and the total score is the mean of all the eight items. The original scale (Armstrong et al., 1997) has a high reliability in teenagers, excellent internal consistency, and a proper test-retest reliability. Its impact as an established measurement of dissociation is huge since an important number of researchers has validated it in different contexts. The Spanish version of the scale (Martínez-Taboas et al., 2004) used in this research has also shown good psychometric properties (a test-retest reliability of .78 and a Cronbach alpha of .76). Its validation was carried out in a Spanish sample of youngsters from 11 to 17 (Martínez-Taboas et al., 2004). In the current research, the ADES-8 had a Cronbach alpha of .74.

Data Analyses

A series of Kolmogorov-Smirnov revealed that the variables were not normally distributed, therefore, non-parametric test were used. Descriptive statistics and Spearman correlations were conducted to examine associations between dissociation, rumination and symptoms of anxiety and depression. Mann-Whitney U tests were conducted to explore if there were significant differences between males and females on the levels of dissociation, rumination, anxiety and depression.

A hierarchical regression was imputed to analyse whether rumination and symptoms of anxiety and depression were predictive variables for dissociation, after controlling for age and gender. The dissociation was entered as the outcome variable in the hierarchical regression. Age and gender (0 = male; 1 = female) were entered as covariates in the first block. Symptoms of anxiety, depression and rumination were entered as covariates in the second block.

Results

Sample Characteristics

Table 2. Hierarchical regression analyses predicting dissociation (N = 588)

Model	Independent variables	F	Adj. R2	St. B	t
Model 1	Age	3.05	.01	-.03	-.90
	Gender			-.09	-2.21
Model 2	Age	39.15**	.24	-.03	-.91
	Gender			-.08	-2.35
	Anxiety			.21	4.55**
	Depression			.24	5.07**
	Rumination		.13	3.21*	

Note. * = $p < .01$; ** = $p < .001$; gender (0 = male; 1 = female). F = F-test value; Adj. R2 = Adjusted R2, St. B = Standardized Beta Coefficients; t = T-test value.

Table 1 shows descriptive statistics and Spearman correlations. The Spearman correlations showed that overall symptoms of dissociation were significantly and positively associated with anxiety, depression and rumination in both boys and girls. Correlation values were moderate (from $r = .28$ to $r = .67$). In all these cases, the correlations were positive and direct. In both genders, the highest significant correlation value was between depression and anxiety.

Levels of dissociation and rumination seem to be slightly higher in boys, whereas in girls we can find higher levels of anxiety. Nevertheless, Mann-Whitney *U* test did not reveal significant differences between males and females on dissociation, rumination and symptoms of anxiety and depression.

Regression Analysis

Table 2 shows the hierarchical regression models predicting dissociation as an outcome. In the final model, only rumination and symptoms of anxiety and depression emerged as significant predictors of dissociative experiences. However, age and gender were not significantly associated with dissociation. In other words, the hierarchical regression showed that only higher symptoms of anxiety and depression predicted significantly greater scores of dissociation. The final model predicted 24% of the dissociation variance.

Discussion

In spite of being considerably frequent, dissociative experiences are a phenomenon briefly studied in non-clinical situations. Besides, there is little research in the current literature regarding the role of anxiety, depression and rumination in dissociation among young people. Thus, the present article aims to screen dissociation and its relationship with anxiety, depression and rumination among children.

First of all, contrary to prior research indicating higher dissociative symptoms among males in a sample of Chinese adolescent students without diagnosed mental pathology (Cheng et al., 2023), the recent study found no gender disparities in dissociative symptoms. This finding challenges earlier notions and underscores the complexity of gender differences in psy-

chological symptoms. It aligns with the understanding that gender differences in internalizing symptoms tend to manifest during adolescence rather than earlier developmental stages (Hayward & Sanborn, 2002). Moreover, cultural nuances may also contribute to variations in emotional experiences across different societies. For instance, research suggests that collectivist cultures, like China, exhibit longer durations of emotional experiences compared to individualistic societies such as Spain (Fischer & Manstead, 2000). Thus, cultural influences remain crucial considerations in understanding the interplay of gender and psychological experiences.

Regarding the first hypothesis, it was approved as this research reveal that dissociation is related to anxiety, depression and rumination in a significant way. All these links are positive and moderate, in other words, when children experience more dissociative symptoms, there is an increase of anxiety, depression and rumination. This corroborates previous studies (Ródenas-Perea et al., 2023; Vannikov-Lugassi et al., 2021) which found that rumination in addition to dissociation seems to predict better the presence of intrusive memories than independently. Intrusive thoughts and negative affect are other transdiagnostic variables that have been linked to dissociation and the exposure to traumatic situations during childhood (Ródenas-Perea et al., 2023), so they are potential explainers of dissociation.

Regarding the second hypothesis, it was also approved since the results expose that dissociation could be predisposed not only by trauma (Ertek et al., 2022), but also by high levels of anxiety, depression and rumination. This position would bring closer dissociative symptomatology to normative life further from traumatic experiences. This is in accordance with the outcomes highlighted by Vannikov-Lugassi et al. (2021). They concluded that rumination could lead to dissociative symptomatology in non-clinical adolescents. Moreover, previous research (Pan et al., 2022) also has manifested that higher levels of anxiety sensitivity predicted more severity of dissociation through more severity of depressive symptoms.

The majority of the previous research done about dissociation and other variables has been realized in psychiatric patients (Pan et al., 2022) or considering the relation with traumatic experiences during childhood and PTSD (e.g., Ródenas-Perea et al., 2023; Serrano-Sevillano et al., 2017). Therefore, these studies had a retrospective perspective, which interferes with the reliability of the data because of the normative bias that our memory is exposed to; and they do not take into consideration dissociative experiences beyond those related to trauma. On the contrary, this research has demonstrated an important connection between dissociation and transdiagnostic experiences (depression, anxiety and rumination) basing on data about present circumstances, not retrospective. Besides, the study has been carried out in a non-clinical sample from a non-psychopathological perspective.

The high prevalence of dissociative symptoms in this sense along with the strong relationship between them, frequent mood symptoms and a transdiagnostic variable such as rumination could be an indicator of the potential use of dissociation as a transdiagnostic variable (Ellickson-Larew et al., 2020) or, at least, of transdiagnostic perspective to develop more efficient treatments for dissociation (Lyssenko et al., 2018). On the basis of all these arguments, the main conclusion that we

can draw is the priority of an early prevention of dissociative symptomatology before the first onset of psychopathology that it should be implemented in childhood.

This study is not exempt from limitations. Although all the instruments have been validated in large samples (Marchetti et al., 2018) and in children (Martínez-Taboas et al., 2004; Sherlock et al., 2022), the type of measure used is self-report. This type of methodology implies intrinsically a probability that the scores are affected by bias such as desirability or simple misunderstanding of the items (which usually is countered by the researcher who collects the data and explain possible difficulties with the items). The cross-sectional design of this study is another limitation to take into account since the direction of the relationships between the variables could not be ensured as well as its evolution.

Hence, future research should prioritize longitudinal studies, enabling analysis of the temporal sequence of symptomatology. This includes investigating whether heightened levels of rumination, depression, and anxiety precede dissociation, or conversely, whether pre-existing dissociative symptoms contribute to the onset or exacerbation of depression, anxiety and rumination. Understanding the interaction between dissociation and these variables is crucial for addressing the mental health needs of teenagers and developing effective interventions.

Other future lines of research could focus on the role of other factors in dissociative symptomatology development in young people. A recent meta-analysis (Gavicchioli et al., 2021) including 57 studies postulated that dissociation is not only associated with rumination, but also with other maladaptive strategies such as worry or experience avoidance. This was assured by Serrano-Sevillano et al. (2017), who found that people with intense dissociative symptoms showed more difficulties in emotional regulation. Particularly, these authors (Serrano-Sevillano et al., 2017) suggested the personality profile related to dissociative experiences was characterized by more difficulty in rejection and lack of control, higher suggestibility, higher levels in alexithymia, more neuroticism and angry hostility. Following this pattern of premises, it can be assumed that dissociative experiences are associated to global emotional intelligence and, furthermore, to a wide range of variables that are present in general population and suppose basal factors in the development of psychopathology. As far as is known, this study constitutes the first attempt to study transdiagnostic correlates of dissociation in Spanish young population. Thus, the evidences of the present research also underline that it is foremost to continue investigating the nature and development of this construct in young people.

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Conflict of interest

The authors of this work declare that there is no conflict of interest.

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