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Understanding maladaptive daydreaming from the attachment framework: The intertwining roles of parental care, unresolved attachment, depression/anxiety and obsessive-compulsive symptoms

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ABSTRACT

Maladaptive Daydreaming (MD) is an excessive absorption in vivid fantasies interfering with individuals' daily functioning, which has been associated with adverse psychological outcomes and adult attachment insecurities. However, no study to date has addressed the relationships between MD, parental care, unresolved attachment, and psychological symptoms (depression/anxiety and obsessive-compulsive disorder; OCD) in a sample of young adults. In this study, 1295 young adults (401 males) completed an online survey including the Parental Bonding Instrument, Maladaptive Daydreaming Scale, Adult Unresolved Attachment Questionnaire, and the DSM-5 Level 1 Cross-Cutting Symptom Measure. The results evidenced the differential contribution of maternal and paternal care on individuals' psychological symptoms; whilst higher maternal care was negatively related to OCD symptoms, higher paternal care was negatively linked to depression/anxiety symptoms. A relationship between unresolved attachment, MD and psychopathological symptoms emerged; specifically, MD mediated the relationships between unresolved attachment and depression/anxiety and OCD symptoms. Overall, paternal and maternal care may have distinct roles in predicting individuals' psychopathological outcomes. In the presence of unresolved attachment, MD may represent a dissociative response that allows individuals to deal with negative experiences through psychopathological symptoms. Understanding the specific pathways that lead to different psychopathological outcomes could have important implications in developing preventive clinical interventions.

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1. Introduction

Daydreaming is a normal mental activity characterized by off-task thoughts, such as the occurrence of spontaneously arising thoughts which are unrelated to the ongoing task or activity (Singer, 1975). Although the majority of individuals experience daydreaming on a daily basis without any negative consequences (Singer and McRaven, 1961), a minority of them develops a psychiatric disorder named Maladaptive Daydreaming (MD; 2.5%; Soffer-Dudek and Theodor-Katz, 2022). MD is a distinct syndrome characterized by an excessive and persistent immersion in vivid fantasizing, which hinders the emotional, social, and cognitive functioning of those affected by it. Kinesthetic stereotypes (e.g., circular pacing) and the use of evocative music are often observed in individuals with MD as a means to intensify such immersion (Somer, 2023). Although not yet included in any nosographic classification (e.g., the Diagnostic and Statistical Manual of Mental Disorders [DSM] and the International Classification of Diseases [ICD]), an increasing body of research is demonstrating the clinical validity, specificity, reliability, and sensitivity of MD (Bigelsen et al., 2016).

To date, the developmental pathways of MD have yet to be fully understood. Evidence suggests that the predisposition for dissociative absorption in fantasy is necessary but not sufficient for developing MD (Somer et al., 2016a). Indeed, some predisposed individuals may develop alternative fantasy worlds in an attempt to deal with childhood adversities and attachment insecurities (Abu-Rayya et al., 2020; Mariani et al., 2022).

The attachment theory (Bowlby, 1969/1982; Bowlby, 1973, 1980, 1988) offers valuable insights into the patterns of interpersonal relationships and emotional bonds that individuals form with their primary caregivers during early childhood. According to this theoretical framework, caregivers function as secure bases from which children can explore the world and to which they can return for comfort and support. As such, the emotional bond established with caregivers during childhood shapes the individuals' subsequent internal representations of themselves, others, and relationships throughout life (i.e., Internal Working Models). These representations, in turn, influence subsequent interpersonal and behavioral patterns (Thompson, 2008). The literature on the topic has so far demonstrated how insecure attachment can significantly hinder the development of individuals' effective emotion regulation capacities, with enduring implications for their mental health (Ambruster and Witherington, 2016; Cassidy, 1994; Eilert and Buchheim, 2023; Schimmenti, 2016; Thompson, 2008). On a similar line, there is abundant evidence highlighting the positive impact of a secure emotional bond between caregivers and children in promoting adaptive emotional regulation and overall well-being (Eilert and Buchheim, 2023). However, there is an urgent need for studies specifically examining the distinct roles of paternal and maternal care (i.e., the time and resources given by each parent to children) in predicting individuals' psychopathological outcomes. Initial evidence suggested a differential role of maternal and paternal care: while higher levels of depression were related to a poor quality of maternal and paternal care, higher levels of anxiety were associated with a poor quality of maternal care only (Kullberg et al., 2020).

Both secure and insecure attachment are considered organized forms of attachment which are characterized by coherent and predictable patterns between the child and their caregiver. Otherwise, in the cases of significant developmental trauma and/or inconsistent and unpredictable parental behaviors, some individuals might develop a disorganized/unresolved attachment (Cassidy and Mohr, 2001). Unresolved attachment is characterized by contradictory relational patterns and behaviors, leading to a lack of integration in the child's representation of themselves and others, and maladaptive coping and self-regulation strategies (Cassidy and Mohr, 2001; Eilert and Buchheim, 2023; Jacobvitz and Reisz, 2019). As such, unresolved attachment style is recognized as a relevant vulnerability factor for a wide range of psychopathologies, including internalizing and externalizing symptoms

(Paetzold et al., 2015).

Past research has suggested that the relationship between unresolved attachment and psychopathology may be mediated by various psychological mechanisms, such as dissociation (Bogdanović et al., 2023). For example, Bogdanović et al. (2023) found that dissociation mediated the link between unresolved attachment and depressive symptoms among individuals with a history of interpersonal childhood trauma. Consistently, MD – because of its dissociative state associated with an excessive immersion in a fantasy world – may function as a buffering mechanism against painful memories related to adverse childhood experiences (Ferrante et al., 2022; Somer et al., 2021). Indeed, although previous research showed that MD is positively associated with insecure adult attachment patterns and negatively associated with adult secure attachment (Costanzo et al., 2021; Mariani et al., 2022; Sándor et al., 2021), its relationship with retrospective attachment (i.e., the history of parent-child attachment) has yet to be investigated. A case report (Anandarami and Roneena, 2023) has recently described a 19-year-old patient with disorganized attachment who started to involve in fantasy activities to experience rewarding emotions by envisioning a positive and appreciated version of herself. However, this generated a vicious cycle in which overreliance on fantasy became dysfunctional (MD), thus leading to the functional impairment of the patient and an increase in their levels of psychological distress.

In addition to this, previous studies pointed at MD as a risk or associated factor for specific psychopathologies, such as anxiety, depression, and obsessive-compulsive disorder (OCD) symptoms (Alenizi et al., 2020; Musetti et al., 2023; Salomon-Small et al., 2021; Soffer-Dudek and Somer, 2018; Somer et al., 2017a,b). For example, a study evaluating the comorbidity profiles of 39 individuals with MD found high comorbidity rates between MD and these conditions; more specifically, 71.8% of the sample satisfied the criteria for generalized anxiety, 66.7% for depressive disorder and 53.9% for OCD (Somer et al., 2017a,b).

Taken together, these findings call for further investigation of the mediating role of MD in the association between retrospective attachment and psychopathology. To fill this gap, the present study aimed to investigate the relationship between unresolved attachment, parental care (i.e., maternal and paternal care), and psychopathological symptoms (i.e., anxiety/depression and OCD symptoms) in a sample of young adults ranging from 18 to 30 years of age. We focused on young adults as this population is at increased risk for mental health problems (Gibb et al., 2010; Moreno et al., 2022), and previous studies have shown higher rates of MD than older adults (Soffer-Dudek and Theodor-Katz, 2022).

Therefore, we evaluated an integrative model (Fig. 1) testing whether higher levels of unresolved attachment were associated with MD, which could be, in turn, related to symptoms of depression/anxiety and OCD. Moreover, we explored the differences between parental and maternal care in the relationships among the model constructs. Testing the indirect (i.e., mediated) effects (Holbert and Stephenson, 2003) and the total effects (i.e., the sum of all the direct and indirect effects) of the model, the following research questions were formulated.

- 1) Does lower parental care (i.e., maternal and paternal care, separately) statistically predict higher MD, depression/anxiety, and OCD symptoms?
- 2) Does unresolved attachment statistically predict higher MD, depression/anxiety, and OCD symptoms?
- 3) Does higher MD statistically predict more severe depression/anxiety, and OCD symptoms?
- 4) Does MD mediate the relationship between parental care, unresolved attachment, and depression/anxiety symptoms?
- 5) Does MD mediate the relationship between parental care, unresolved attachment, and OCD symptoms?

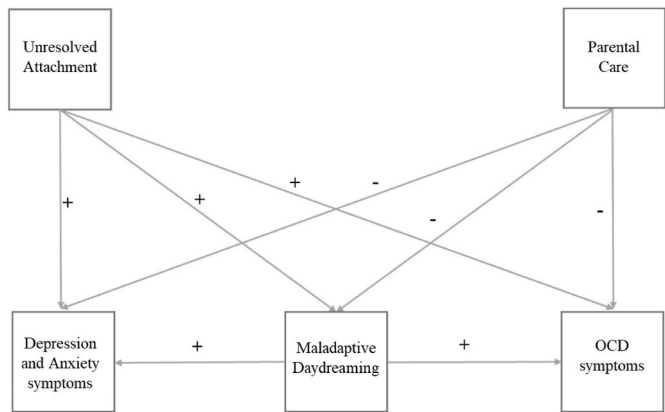


Fig. 1. Hypothesized model.

2. Method

2.1. Participants and procedure

The sample consisted of 1295 young adults who completed an online survey. Young adults living in Italy and aged between 18 and 30 years were eligible to participate. Of the total sample, 67.03% ($n = 868$) individuals were females, 30.96% ($n = 401$) were males, and 2.01% ($n = 26$) reported other gender identities. Overall, the mean age of the participants was 23.55 years ($SD = 3.13$) and most of them were Italian ($n = 1263$; 94.4%). Additional details regarding the sociodemographic characteristics of the sample are presented in Table 1. Data were collected through an online survey using a snowball sampling technique through different online platforms (e.g., Facebook). Participants voluntarily enrolled in this cross-sectional study. No compensation was offered for their participation. Prior to their involvement, participants were fully informed about the study objectives and procedures and they provided their online consent. To ensure the privacy of participants, participants' identities were not collected. This study was approved by the Research Ethics Board of the University of Parma(protocol number 266545). This study adhered to the ethical guidelines established by the Italian Psychological Association and the principles outlined in the 1964 Declaration of Helsinki, as well as its subsequent revisions.

2.2. Measures

Parental care. The Italian version of the Parental Bonding Instrument (PBI; Scinto et al., 1999; original version by Parker et al., 1979) is a

bidimensional self-report questionnaire designed to assess the parenting style based on individuals' childhood experiences with their caregivers during the first 16 years of life. The PBI comprises two sections, each containing 25 items, which evaluate the bonds with the father and mother. The items are categorized into two scales: care and protection. In line with the purpose of this study, we focused on evaluating one dimension of organized retrospective attachment, specifically parental care. Each item is rated on a 4-point Likert scale ranging from 0 (unlikely) to 3 (very likely). The total score for the care dimension ranges from 0 to 36. In this study, the care dimension demonstrated excellent internal consistency, with Cronbach's alpha values of 0.92 for maternal care and 0.93 for paternal care.

Maladaptive Daydreaming. The Italian-validated version of the Maladaptive Daydreaming Scale (MDS-16; Schimmenti et al., 2020; original version by Somer et al., 2016b) was used to assess the degree of MD. The measure is composed of 16 items assessing the interference of extensive fantasy activity with daily life and the use of kinesthesia-related activities to increase the absorption in fantasy. Each item is rated on a scale ranging from 0 (never/none of the time) to 100% (all of the time/extreme amounts), with intervals of 10%. The total MD score is calculated by averaging the items of the scale, with higher scores indicating higher levels of MD. The Italian MDS-16 has demonstrated great psychometric properties (Schimmenti et al., 2020), as in the present study, in which the observed Cronbach's alpha for the total score was 0.94.

Unresolved attachment. The Adult Unresolved Attachment Questionnaire (AUAQ; West et al., 2000; validated for young adults by Bureau et al., 2010) was employed to evaluate participants' current perception of their childhood relationships with the parent who spent the most time with them during that period (e.g., see Caron et al., 2012). This scale is composed of 10 items divided into three subscales: (1) failed protection/aloneness, which measures the degree to which the parent is perceived as unavailable during times of need (e.g., "I never expect my parent to take my worries seriously"), (2) fear, which assesses the emotional reaction of fear in response to a failure of care and protection (e.g., "I'm afraid that I will lose my parent's love"), and (3) anger/dysregulation, which gauges the level of negative affective responses to the caregiver's perceived failed care (e.g., "I get really angry because I never get enough help from my parent"). Items are rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The instrument provides a total score, with higher values indicating higher levels of unresolved attachment. The AUAQ has demonstrated good test-retest reliability, internal consistency, and discriminant and convergent validities (West et al., 2000). In this study, the observed Cronbach's alpha for the total score was 0.87.

Psychopathological symptoms. The DSM-5 Level 1 Cross-Cutting Symptom Measure (CCSM; 5th ed.; DSM-5; American Psychiatric Association, 2013; Italian version by Fossati et al., 2015) is a self-report tool designed to screen and assess mental health domains across psychiatric diagnoses over the past two weeks. The CCSM includes 23 items evaluating 13 psychopathological domains: depression, anger, mania, anxiety, somatic symptoms, suicidal ideation, psychosis, sleep problems, memory, repetitive thoughts and behaviours, dissociation, personality functioning, and substance use. Items are rated on a 5-point Likert scale, from 0 (none, not at all) to 5 (severe, nearly every); higher scores suggest the presence of psychopathological symptoms. Based on the aim of the present study, we focused on the dimensions of depression (e.g., "Little interest or pleasure in doing things?") and anxiety (e.g., "Feeling nervous, anxious, frightened, worried, or on edge?"), which were combined into a single depression/anxiety dimension; moreover, we focused on repetitive thoughts and behaviours (e.g., "Unpleasant thoughts, urges, or images that repeatedly enter your mind?"), which were labelled as OCD symptoms. The CCSM has shown a good clinical utility and test-retest reliability in DSM-5 studies carried out on clinical samples of adults and college students in the United States and Canada (APA, 2013; Bravo et al., 2018).

Table 1
Sociodemographic characteristics of the study sample ($N = 1295$).

Sociodemographic Characteristics		
Education; n (%)		
	Middle school diploma	59 (4.6%)
	High school diploma	696 (53.7%)
	Bachelor's degree	370 (28.6%)
	Master's degree	160 (12.4)
	Post-graduate degree	10 (0.7%)
Occupational status; n (%)		
	Unemployed	70 (5.4%)
	Employed	246 (18.9%)
	Self-employed	58 (4.5%)
	Retired	1 (0.1%)
	Student	664 (51.3%)
	Working student	256 (19.8%)
Marital status; n (%)		
	Cohabiting	113 (8.7%)
	Divorced	3 (0.2%)
	In a relationship	543 (41.9%)
	Single	635 (49.1%)
	Widowed	1 (0.1%)

2.3. Statistical analysis

Descriptive statistics were computed for the investigated variables. The associations among depression/anxiety symptoms, OCD symptoms, maternal care, paternal care, unresolved attachment, and MD were examined by estimating Pearson’s *r* coefficient. Differences in maternal versus paternal care were analyzed with a *t*-test; the effect size was calculated using Cohen’s *d* values. Study hypotheses were tested through two path analyses (i.e., structural equation modeling for observed variables) for maternal (Model 1) and paternal (Model 2) care. All analyses were performed using R software and path analyses were computed through the R package *Lavaan* (Rosseel, 2012; R Development Core Team, 2012). We used the single observed scores for each variable in the models. The covariance matrix of the observed variables was analyzed with the maximum likelihood method estimator. The fit of the models was evaluated through the *R*² of each endogenous variable.

3. Results

Descriptive statistics, including means, standard deviations (SD) and intercorrelations among study variables are reported in Table 2. As expected, all the study variables were correlated with each other. Specifically, negative correlations were found between maternal and paternal care and symptoms of depression/anxiety and OCD, unresolved attachment and MD. Symptoms of both depression/anxiety and OCD were positively correlated with unresolved attachment and MD. Positive correlations were also found between unresolved attachment and MD as well as between maternal and paternal care. Paired *t*-test revealed maternal care to be statistically significantly higher than paternal care (*t* [1294] = 15.96, *p* < .001, Cohen’s *d* = 0.47).

3.1. Model 1

Model 1 is shown in Fig. 2. In this model, maternal care was negatively related to OCD symptoms (*b* = −0.01, *SE* = 0.01, *z* = −2.04, *p* = .04; *β* = −0.07) only. Moreover, unresolved attachment and MD were positively related to symptoms of both OCD (*unresolved attachment*: *b* = 0.03, *SE* = 0.01, *z* = 5.47, *p* < .001; *β* = 0.19; *MD*: *b* = 0.02, *SE* = 0.001, *z* = 15.80, *p* < .001; *β* = 0.39) and depression/anxiety (*unresolved attachment*: *b* = 0.02, *SE* = 0.01, *z* = 4.13, *p* < .001; *β* = 0.15; *MD*: *b* = 0.02, *SE* = 0.001, *z* = 17.04, *p* < .001; *β* = 0.43). Finally, unresolved attachment was positively related to MD (*b* = 0.76, *SE* = 0.11, *z* = 6.71, *p* < .001; *β* = 0.26).

Along with the direct paths shown in Fig. 2, statistically significant relationships were found between unresolved attachment and symptoms of both OCD (*b* = 0.02, *SE* = 0.002, *z* = 6.17, *p* < .001; *β* = 0.10) and depression/anxiety (*b* = 0.02, *SE* = 0.002, *z* = 6.17, *p* < .001; *β* = 0.10) mediated by MD. The *R*² for the endogenous variables indicated that the model accounted for 9% of the variance in MD, 27.4% of the variance in OCD symptoms, and 26.5% of the variance in depression/anxiety symptoms.

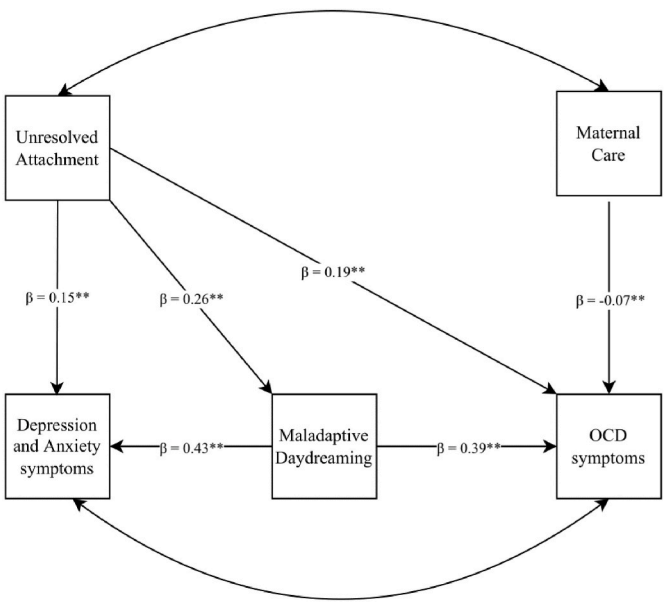


Fig. 2. Path analysis related to maternal care.

3.2. Model 2

Model 2 is shown in Fig. 3. In this model, paternal care was negatively related to depression/anxiety symptoms (*b* = −0.01, *SE* = 0.003, *z* = −4.01, *p* < .001; *β* = −0.11) only. Moreover, all other evaluated relationships resembled those reported in Model 1. Specifically, unresolved attachment and MD were positively related to symptoms of both OCD (*unresolved attachment*: *b* = 0.03, *SE* = 0.004, *z* = 7.52, *p* < .001, *β* = 0.22; *MD*: *b* = 0.02, *SE* = 0.001, *z* = 15.84, *p* < .001; *β* = 0.39) and depression/anxiety (*unresolved attachment*: *b* = 0.02, *SE* = 0.004, *z* = 4.21, *p* < .001; *β* = 0.12; *MD*: *b* = 0.02, *SE* = 0.001, *z* = 17.11, *p* < .001; *β* = 0.43). Finally, unresolved attachment was positively related to MD (*b* = 0.84, *SE* = 0.09, *z* = 8.99, *p* < .001; *β* = 0.29). Along with the direct paths shown in Fig. 3, statistically significant relationships were found between unresolved attachment and symptoms of both OCD (*b* = 0.02, *SE* = 0.002, *z* = 7.82, *p* < .001; *β* = 0.11) and depression/anxiety (*b* = 0.02, *SE* = 0.002, *z* = 7.82, *p* < .001; *β* = 0.11) mediated by MD. The *R*² for the endogenous variables indicated that the model accounted for 8.9% of the variance in MD, 27.3% of the variance in OCD symptoms, and 27.2% of the variance in depression/anxiety symptoms.

4. Discussion

The aim of the present study was to assess the relationships between unresolved attachment, paternal and maternal care, MD, and psychopathology (i.e., depression/anxiety and OCD symptoms) in a sample of young adults. Specifically, we hypothesized that (1) lower levels of parental care (i.e., maternal and paternal care, separately) would

Table 2
Descriptive statistics and correlations of the investigated variables (*N* = 1295).

	Mean	SD	1.	2.	3.	4.	5.	6.
1. Depression and Anxiety symptoms	1.75	1.05	–					
2. Obsessive-Compulsive symptoms	0.99	1.15	0.56***	–				
3. Maternal care	24.97	7.81	−0.26***	−0.31***	–			
4. Paternal care	21.05	8.89	−0.26***	−0.23***	0.44***	–		
5. Unresolved Attachment	20.72	7.56	0.31***	0.36***	−0.73***	−0.55***	–	
6. Maladaptive Daydreaming	35.25	22.22	0.48***	0.47***	−0.24***	−0.18***	0.3***	–

Note. *** = *p* < .001.

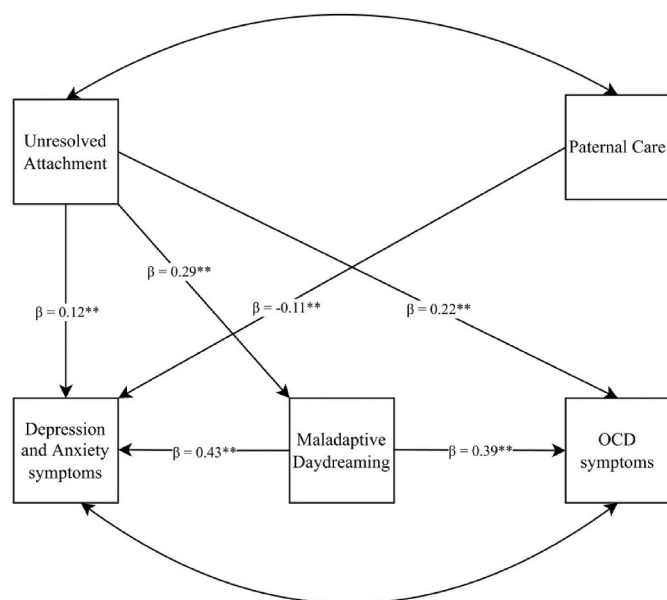


Fig. 3. Path analysis related to paternal care.

statistically predict higher MD, depression/anxiety and OCD symptoms; (2) unresolved attachment would statistically predict higher MD, depression/anxiety and OCD symptoms; (3) higher MD would statistically predict more severe depression/anxiety and OCD symptoms; (4) MD would mediate the relationships between parental care, unresolved attachment and depression/anxiety symptoms; (5) MD would mediate the relationships between parental care, unresolved attachment and OCD symptoms. Differences between parental and maternal care in the relationships among model constructs were explored.

As for the first hypothesis, we confirmed that lower levels of parental care predicted higher levels of psychopathological symptoms in young adults. Moreover, the path analysis showed differences in the relationships between maternal and paternal care and psychopathological symptoms (i.e., depression/anxiety and OCD symptoms). Specifically, while higher maternal care was negatively related to OCD symptoms, higher paternal care was negatively related to depression/anxiety symptoms. These results are in line with the previous literature enlightening the profound relationship between problematics in early close relationships and the development of psychopathology (Kobak and Bosmans, 2019) and with findings by Chen et al. (2017), who demonstrated that OCD symptoms might be related to lower mean scores of maternal care. Importantly, the present results may enlarge our understanding of parental differences, by pointing toward a differential role of paternal and maternal care in relation to psychopathology (Kullberg et al., 2020). Therefore, it can be hypothesized that paternal and maternal care play differential roles as resilient, protective factors in the development of different disorders, such as affective disorders and OCD. Future longitudinal studies should take a closer look at the parental differences in the development of specific psychopathological conditions to carefully replicate our results and inform preventive programs targeting parental care.

As for the second hypothesis, the path analysis showed that unresolved attachment statistically predicted more severe depression/anxiety and OCD symptoms and higher levels of MD in our sample. The results, showing a positive relationship between unresolved attachment and mood/affective symptoms in young adults, are in line with findings from a previous meta-analysis (Dagan et al., 2018), which demonstrated an association between attachment representations (specifically, insecure-preoccupied and unresolved attachment representations) and depressive symptoms in adulthood. Moreover, our results on the link between unresolved attachment and OCD symptoms extend previous

findings evidencing the robust effect sizes of organized insecure attachment (i.e., attachment anxiety and avoidance) in relation to OCD symptomatology (van Leeuwen et al., 2020). Future research using intervention-based designs should examine the mechanisms by which unresolved attachment leads to increased mood/affective and OCD symptoms, in order to encourage the possible integration of cognitive and attachment-based therapeutic approaches in dealing with these psychopathological conditions. Moreover, the evidence that unresolved attachment was positively linked to MD is consistent with previous findings showing that MD is negatively associated with secure attachment (Schimmenti et al., 2020). Furthermore, it corroborates the idea that MD may be described as a process of defensive absorption to cope with negative feelings (e.g., guilt, shame, low self-worth) related to emotional failures in attachment relationships during childhood (Ferrante et al., 2022).

Regarding the third hypothesis, as expected, the path analysis showed that higher MD was linked to more severe depression/anxiety and OCD symptoms. This result underscores the clinical significance of MD, considering that it exhibited positive associations with all the assessed psychopathological dimensions (i.e., depression/anxiety and OCD symptoms). In this regard, previous evidence (Soffer-Dudek and Somer, 2018) has pointed to a potential vicious circle between MD and OCD symptoms, which appear to share some underlying mechanisms (Salomon-Small et al., 2021). As observed in patients with OCD, individuals with high levels of MD feel that they have little control over their lives and experience recurrent intrusive thoughts, interfering with their thought flow. This self-sustaining pattern between MD and OCD was emphasized by Soffer-Dudek and Somer (2018); by employing a longitudinal daily-diary design, the authors observed that OCD symptoms were the sole temporal antecedents of MD, thereby describing MD as characterized by a “behavioral – mental compulsion” (Soffer-Dudek and Somer, 2018). Consistently, Chirico et al. (2022) found that OCD symptoms had a critical role in the MD condition; in fact, in individuals with MD, psychological symptoms were related to interference with life via OCD symptoms. However, while escaping into fantasy might be satisfying in the short term, intrusive obsessions or compulsions generally cause distress for individuals; this calls for the partially independent – although highly related – nature of the MD and OCD conditions. Future studies should aim to identify the transdiagnostic mechanisms shared between OCD and MD to better understand the etiopathogenesis of the different psychopathological conditions.

Of note, the findings related to the third aim can be better understood considering the results related to the fourth and fifth hypotheses. Specifically, and contrary to our expectations, MD did not mediate the association between parental care and psychopathology symptoms. Instead, in line with our hypotheses, MD mediated the relationships between unresolved attachment and depression/anxiety and OCD symptoms. Therefore, in the face of unresolved attachment, MD may represent a dissociative response that allows individuals to deal with negative experiences, although by showing psychopathological symptoms. According to Somer (2002), MD may represent a way to tamp down the negative emotions producing compensatory fantasies; this solution, however, soon proves to be pathological and to provide distress. It can be also assumed that MD might work as a protective form of distraction from negative experiences, such as rejection, disappointment, and loneliness. Therefore, we can hypothesize that daydreaming may initially play a defensive role, and subsequently become maladaptive (Musetti et al., 2023) by exposing individuals to the development of different psychopathological outcomes, such as mood/affective symptoms and OCD.

4.1. Limitations and future directions

Our findings should be interpreted in the light of several limitations and can point toward future directions. Firstly, it is important to acknowledge that we adopted a cross-sectional design; therefore, future

studies should incorporate longitudinal designs to better understand the temporal dynamics and causal associations between attachment, parental care, MD, and psychopathology. By employing a longitudinal approach, researchers would be able to track changes over time and provide more robust evidence regarding the developmental trajectories and causal influences of the variables. Further studies should also investigate the pathways that lead to the development of depression/anxiety and OCD symptoms, which in our study seemed to be differently related to paternal and maternal care. Moreover, future longitudinal research should confirm whether MD may represent a process of defensive absorption to cope with negative feelings stemming from failed attachment relationships.

In addition, while online surveys offer numerous advantages in terms of sample size, diversity, and ease of access, there are several limitations to consider. One is the potential presence of speeders, straight-line and fraudulent responders within the panel. Speeders are participants who rush through surveys without carefully considering their responses. Straight-line responders provide uniform or repetitive answers, indicating a lack of engagement or genuine thought. Fraudulent responders may intentionally provide inaccurate information. Additionally, the lack of counterbalancing in the presentation of the measures to participants poses another limitation. Without counterbalancing, the order in which the measures were presented could influence participants' responses, thus potentially confounding the results. Therefore, although online surveys are a legitimate method of data collection (Fielding et al., 2017), we cannot exclude biases in our findings. Finally, all the variables were self-reported and the single-informant nature of the study may provide biases in the evaluations. It must be noted, moreover, that we used retrospective measures of attachment related to adults' remembered childhood experiences; this may be a possible source of inaccurate recollections. Future studies should adopt a sounder methodology including multi-informant and multi-method approaches, that is, for instance, semi-structured interviews to collect data on participants' psychopathology and attachment. This concern may be relevant also for MD, which is best assessed by a structured clinical interview (Somer et al., 2017a,b). However, the self-report measures adopted in the present study (i.e., MDS-16) demonstrated to adequately discriminate between individuals who self-identify as with and without MD (Somer et al., 2016b).

4.2. Conclusion

Overall, to the best of our knowledge, this is the first study that examined the precise pathways linking retrospective attachment (parental care and unresolved attachment), MD, and psychopathological symptoms in young adults, with a particular focus on MD as a mediating factor. First, our results suggested that supportive and nurturing parenting may serve as a protective factor against the development and exacerbation of psychopathological symptoms. In addition, poor paternal and maternal care might differentially associate with affective and OCD symptoms. Moreover, we provided evidence on the links between unresolved attachment and depression/anxiety and OCD symptoms, as well as between unresolved attachment and MD. Interventions that focus on improving parenting skills, promoting secure attachment, and addressing unresolved attachment patterns may have positive effects on individuals' mental health and contribute to the prevention of MD. Finally, our findings on the mediation effect of MD can suggest a potential initial defensive role of MD, which might become a maladaptive coping mechanism over time, leading to the risk of developing mood/affective and/or OCD symptoms. These results could help clinicians to further improve their understanding of MD, so that tailored clinical and preventive interventions for populations that are more at risk of developing psychopathology, such as young adults, could be developed.

CRediT authorship contribution statement

Micol Gemignani: Data curation, Formal analysis, Methodology, Visualization, Writing – original draft. **Elisa Mancinelli:** Data curation, Formal analysis, Methodology, Visualization, Writing – original draft. **Tommaso Manari:** Writing – review & editing. **Giulia Gagliardini:** Writing – review & editing. **Giulia Bassi:** Visualization, Writing – review & editing. **Ilaria Chirico:** Writing – review & editing. **Giulia Gizzi:** Writing – review & editing. **Giulia Landi:** Writing – review & editing. **Maria Luisa Pistorio:** Writing – review & editing. **Virginia Pupi:** Writing – review & editing. **Eleonora Volpato:** Writing – review & editing. **Tania Moretta:** Conceptualization, Formal analysis, Methodology, Supervision, Writing – original draft, Writing – review & editing. **Alessandro Musetti:** Conceptualization, Investigation, Project administration, Resources, Supervision, Writing – original draft, Writing – review & editing.

Declaration of Generative AI and AI-assisted technologies in the writing process

The authors did not use generative AI technologies for preparation of this work.

Declaration of competing interest

None.

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