THE INTERPLAY OF ATTACHMENT STYLES AND DEFENSE MECHANISMS ON EATING DISORDERS RISK: CROSS-SECTIONAL OBSERVATION IN THE COMMUNITY POPULATION

Vittorio Lenzo, Alberto Sardella, Nadia Barberis, Carmen Isgrò, Roberta Torrisi, Serena Giunta, Maria Cristina Petralia, Valeria Verrastro, Maria C. Quattropani

Abstract

Objective: Eating Disorders (Eds) are considered a broad group of pathological conditions characterized by dysregulated eating-related behaviors and habits. Attachment styles and defense mechanisms appear to be linked to the development of Eds-related unhealthy behaviors; however, these factors have been seldom investigated jointly. This study aimed at exploring the shared association between attachment styles, defense mechanisms, and Eds-related behaviors; additionally, we aimed at investigating whether defense mechanisms might be potential mediators of the association between attachment and Eds behaviors.

Method: A community-based sample was recruited (88% females, mean age= 22.33 ± 4.81 years) and underwent a comprehensive evaluation protocol assessing attachment styles, defense mechanisms, and risk of eating disorders.

Results: Several shared associations between attachment styles, defense mechanisms, and eating disorders scores were found. Additionally, a maladaptive defense style appeared to be a significant mediator of the association between attachment styles and Eds-related symptoms.

Conclusions: The integrated evaluation of attachment and defense mechanisms could generate a more comprehensive framework of the psychological antecedents related to Eating Disorders, and it could be a beneficial factor involved in therapies.

Key words: clinical psychology, attachment, defense mechanisms, maladaptive style, psychological maladjustment, eating disorders

Introduction

The term “Eating Disorders” (Eds) describes a broad range of pathological conditions characterized by dysregulated eating-related behaviors and habits (American Psychiatric Association, 2013). Since Eds frequently expose individuals to severe psychological and medical negative outcomes (Hricova et al., 2018; Barberis et al., 2018), a better understanding of the potential antecedent factors related to Eds is crucial.

A longstanding line of clinical research showed that interpersonal aspects are a core factor in the onset of Eds symptomatology (Arcelus et al., 2012), and in this regard dimensions such as dysfunctional relational experiences during infancy have been highlighted as a major risk factor (Gonçalves et al., 2019). It is known that the quality of early family relationships might play a role in the development of children’s affect regulation (Díec et al., 2017; Freda & Díec, 2017; Lindblom et al., 2016). In this regard, attachment theory (Bowlby, 1969) provided a relevant contribution to the understanding of the development of intimate relationships. Attachment refers to how individuals form emotional bonds in childhood and how these influence future relationships (Hazen & Shaver, 1987).

It was showed that attachment styles are related to the ability to manage individual emotions (Cooke et al., 2018). Specifically, Tasca (2019) argues that an insecure attachment, since it negatively affects the ability to modulate emotions, can foster the development of different types of psychiatric symptoms, including Eds.

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It was showed that attachment styles are related to the ability to manage individual emotions (Cooke et al., 2018). Specifically, Tasca (2019) argues that an insecure attachment, since it negatively affects the ability to modulate emotions, can foster the development of different types of psychiatric symptoms, including Eds. A recent meta-analysis (Faber et al., 2017) reported
that attachment insecurity was significantly related to
more problematic eating behaviors, whereas higher
attachment security was related to lower unhealthy
eating behaviors.

Although several cross-sectional (Kuipers, et al.,
2016; Troisi et al., 2005) and longitudinal (Ferriter
et al., 2010; Dakanalis et al., 2015) studies have
consistently highlighted the association between
attachment insecurity and unhealthy eating-related
symptoms and attitudes, a consensus regarding the
presence of potential mediating factors is still
inconclusive. Several psychological mediators have
been suggested as potential contributors to the onset
of EDs symptomatology (Cortés-García et al., 2019).
The Authors of a recent meta-analysis including
seventy studies (Faber et al., 2018) found an effective
association between attachment and EDs; additionally,
the Authors highlighted the need to develop further
researches focused on investigating potential mediators
of the association between attachment and problematic
eating behaviors.

Particularly interesting is also the association
between attachment styles and defense mechanisms,
through which individuals cope with stressful events.
Since the newborn generally develops not only the
awareness of both him/herself and others, but also the
protective mental processes that allow him/her to cope
with stressful events in the attachment relationship
(Laczkovics et al., 2018), the quality of experienced
attachment represents one of those factors that might
influence the development of dysfunctional defense
mechanisms (Khademi et al., 2019). It is thus reasonable
to hypothesize that such defense mechanisms are part
of the relationship between attachment and EDs.

Findings from previous studies (Besharat & Khajavi,
2013; Laczkovics et al., 2018) suggested that defense
mechanisms might mediate the association between
attachment dimensions and psychopathology. Defense
styles are commonly categorized in three patterns,
namely mature, neurotic and immature (Andrews
et al., 1993); furthermore, similarly to attachment,
defense styles originate during infancy (Cramer, 1991;
Hilsenroth et al., 2003). The mature defense style
describes normal and adaptive processes of coping with
distressing experiences, whereas the immature and
the neurotic styles refer to dysfunctional and maladaptive
coping strategies (Besharat & Khajavi, 2013).

In the context of EDs, previous findings have
already shown the existing link between defense mechanisms and the development of dysfunctional
eating behaviors (Poikolainen et al., 2001; Blaase &
Elklit, 2001). Patients with EDs seem usually incline
to exhibit peculiar defense styles often characterized
by higher levels of sublimation, undoing, and passive
aggression compared to controls (Poikolainen et al.,
2001); moreover, women with EDs frequently adopt
a primitive defense style and perceive themselves as
more exposed to stress than healthy women (Blaase &
Elklit, 2001). Eventually, it has been recently suggested
that women with EDs might benefit from group
psychotherapy to improve their defense and adaptation
strategies (Hill et al., 2015).

Attachment relationships and defense strategies both
appear to be significantly linked to the development
of EDs-related unhealthy behaviors. However, these
factors have been seldom investigated jointly. Therefore,
the main purpose of the present study is to explore the
shared association between attachment styles, defense
mechanisms and EDs-related symptoms. Additionally,
since defense mechanisms are commonly considered
automatic protective responses to negative events

(Proud et al., 2019), we aimed at investigating whether
defense mechanisms might be a potential mediator of
the association between attachment and EDs.

Specifically, this study intended to test a model
in which attachment dimensions are associated
with defense mechanisms styles, which lead in turn
to problematic eating behaviors. In line with the
attachment theoretical framework, we hypothesised
that dysfunctional dimensions of attachment would
be associated with dysfunctional defensive styles.
Similarly, functional attachment dimensions would be
associated with adaptive defense mechanisms. We also
expect problematic eating behaviors to have a direct
relationship with attachment dimensions.

Material and Methods

Study design

The present study was designed as cross-sectional,
according to the Strengthening the Reporting of
Observational Studies in Epidemiology (STROBE)
guidelines (von Elm et al., 2007).

Participants

Subjects were volunteers and were recruited
by soliciting local associations and organisations,
psychology students and the researchers’ acquaintances.
The sample consisted of 284 Caucasian community-
dwellers (251 females, 33 males), aged from 18 to
49 years old (mean age: 22.3 ± 4.81); the majority of
subjects had a high school education (77%), and were
students (77%). 17% of subjects were employees,
2% were housewives. Each subject was of Italian
nationality and lived in the south of Italy. Participants
were excluded from the study if they reported to suffer
from any health condition that might independently
affect appetite, or might require medication that alters
food intake.

Measures and procedure

The Italian version of the Attachment Style
Questionnaire (ASQ) was used to evaluate attachment
relationships (Fossati et al., 2003). The ASQ is a 40-
item questionnaire with a response system based
on a 6-point Likert-type scale, ranging from 1 (total
disagree) to 6 (totally agree).

The questionnaire explores the following five
attachment factors: Confidence (e.g. “I feel confident
that other people will be there for me when I need
them”), Discomfort with Closeness (e.g. “I prefer to
depend on myself rather than other people”), Need for
Approval (e.g. “I wonder why people would want to be
involved with me”), Preoccupation with Relationship
(e.g. “I often feel left out or alone”), and Relationship as
Secondary (e.g. “To ask for help is to admit that you are
a failure”). The ASQ was widely used in several studies
(Fossati et al., 2003; Axford et al., 2017) and has shown
good psychometric properties. As shown in table 1, the
internal consistency of the five factors was adequate.

Defense mechanisms were explored through the
Italian version of the Defense Style Questionnaire
(DSQ) (San Martini et al., 2004). DSQ is a self-report
88-item questionnaire commonly used to evaluate
conscious manifestations of defense mechanisms.
The response system is based on a 9-point Likert-type
scale. The questionnaire investigates the following four
Table 1. Descriptive analyses and correlations

|                      | M    | SD  | Skew | Kurt | α   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|----------------------|------|-----|------|------|-----|---|---|---|---|---|---|---|---|---|
| 1. Confidence        | 32.05| 6.47| -1.47| 5.24 | .72 |  |  |  |  |  |  |  |  |  |
| 2. Discomfort with Closeness | 36.25| 7.9  | -1.04| 3.48 | .69 | - .04** |  |  |  |  |  |  |  |  |
| 3. Relationships as Secondary | 14.07| 5.2  | .50  | .75  | .76 | -.20**  | .33** |  |  |  |  |  |  |  |  |
| 4. Need for Approval | 18.33| 6.44 | .19  | .11  | .78 | -.28**  | .35**  | .50** |  |  |  |  |  |  |  |
| 5. Preoccupation with Relationships | 26.93| 7.49 | -.49 | 1.09 | .77 | -.23**  | .37**  | .25**  | .60** |  |  |  |  |  |  |
| 6. Maladaptive Style | 3.82 | .92  | .16  | .09  | .81 | -.41**  | .38**  | .34**  | .53**  | .53** |  |  |  |  |
| 7. Image – distorting Style | 4.09 | 1.14 | .21  | -.14 | .64 | -.06  | .27**  | .25**  | .19**  | .20**  | .51** |  |  |  |
| 8. Adaptive Style    | 4.99 | 1.39 | 0.33 | 2.61 | .58 | .04  | -.03  | -.02  | -.06  | .18**  | .17** |  |  |  |
| 9. General Psychological Maladjustment | 52.37| 24.67| 1.23 | 2.15 | .90 | -.48**  | .41**  | .33**  | .49**  | .45**  | .63**  | .27**  | .05 |  |
| 10. Eating Disorder Risk | 26.84| 18.37| .85  | 0.22 | .92 | -.17**  | .18**  | .18**  | .21**  | .25**  | .30**  | .07  | -.06 | .53**  |

Note: ** p<.01.

Statistical analyses

The data were analysed using IBM SPSS v.22 and R statistical software. Pearson’s correlation analysis was performed to measure the degree of correlations between variables. Path-analysis was used to examine the relationship between the included variables. In this tested model, GPM and EDR are considered the main outcomes, whereas attachment factors are considered the predictor variables; defense styles are considered as potential mediators. Analysis of the covariance matrices was conducted using R and solutions were generated based on maximum-likelihood estimation. Values of $p < .05$ and $p < .01$ were considered statistically significant.

Results

Descriptive results and correlations

For each variable, means, standard deviations, skewness and kurtosis are shown in Table 1. Furthermore, Table 1 illustrates the correlations between the dimensions of the questionnaires.

Summary of the tested model

Path analysis was conducted to test a model in which attachment dimensions (i.e., Confidence, Discomfort with Closeness, Relationship as Secondary, Need for Approval and Preoccupation with Relationships) were considered as the predictor variables. The model also accounted the defense mechanisms (i.e., Maladaptive Style, Image-distorting style, Self-sacrificing style and Adaptive style) as potential mediators; GPM and EDR were considered as the outcome; age and gender were included in the model as covariates.

Full regression model including Attachment, Defence Mechanisms, and EDs

The estimation of the full regression model was...
initially performed through a saturated model with a perfect fit. Moreover, estimation of the saturated model showed significant paths from Confidence to Maladaptive Style ($\beta = -.24$; $p < .05$), GPM ($\beta = -.22$; $p < .05$) and EDR ($\beta = -.12$; $p < .05$). Significant paths were also found from Relationship as Secondary to Maladaptive Style ($\beta = .21$; $p < .05$) and Image Distorting Style ($\beta = .18$; $p < .05$). In addition, a significant path was found from Discomfort with Closeness to Image Distorting Style ($\beta = .20$; $p < .05$). Finally, a significant path was found from Preoccupation with Relationship to Maladaptive Style ($\beta = .28$; $p < .05$).

**Mediation models including indirect effects**

We used the bootstrap-generated bias-corrected confidence interval approach (Preacher & Hayes, 2004; Shrout & Bolger, 2002) to explore the significance of emerged indirect effects (i.e., drop from the total to direct effect).

Accordingly, Confidence was indirectly associated with GPM ($\beta = -.10$; $p < .05$) and EDR ($\beta = -.11$; $p < .05$) through the effect of Maladaptive Style. Moreover, Need for Approval was indirectly associated with GPM ($\beta = .09$; $p < .05$) and EDR ($\beta = .10$; $p < .05$) through the effect of Maladaptive Style. Additionally, Preoccupation with Relationships was indirectly associated with GPM ($\beta = .12$; $p < .05$) and EDR ($\beta = .14$; $p < .05$) through the effect of Maladaptive Style.

**Mediation models after removing non-significant paths**

In line with the common procedure to test the saturated model (Kline, 2011), each non-significant path was removed, and several indices indicated that the data fit the final model: $\chi^2 (19) = 62.12$; $p = .07$, SRMR = .05, CFI = .96, RMSEA = .04 (90% CI = .00 – .06) (figure 1).

Similar to the saturated model, the results showed significant paths from Confidence to Maladaptive Style ($\beta = -.30$; $p < .05$), GPM ($\beta = -.26$; $p < .05$) and EDR ($\beta = -.14$; $p < .05$). Moreover, a significant path was found from Discomfort with Closeness to Image Distorting Style ($\beta = .23$; $p < .05$). Additional significant paths were found from Need Approval to Maladaptive Style ($\beta = .26$; $p < .05$), and from Preoccupation with Relationships to Maladaptive Style ($\beta = .26$; $p < .05$). Further significant paths were found between Maladaptive Style to GPM ($\beta = .54$; $p < .05$) and EDR ($\beta = .46$; $p < .05$), and between Adaptive Style to GPM ($\beta = -.11$; $p < .05$).

The results showed that Confidence was indirectly associated with GPM ($\beta = -.16$; $p < .05$) and EDR ($\beta = -.14$; $p < .05$) through the effect of Maladaptive Style. Furthermore, Preoccupation with Relationships was indirectly associated with GPM ($\beta = .14$; $p < .05$) and EDR ($\beta = .12$; $p < .05$) through the effect of Maladaptive Style. Eventually, Need for Approval was indirectly associated with GPM ($\beta = .14$; $p < .05$) and EDR ($\beta = .12$; $p < .05$) through the effect of Maladaptive Style.

**Discussion**

The purpose of this study was to explore the shared associations between attachment styles, defense mechanisms and EDs-related symptoms; additionally, we tested the hypothesis that defense mechanisms might be a potential mediator in the association between attachment styles and EDs. EDs represent a relevant clinical condition, which may expose those who suffer from it to a high risk of negative outcomes, such as complications related to the malnutrition, even including mortality (Balbo et al., 2017). The multidimensional nature of the symptoms makes it a difficult condition to manage, also due to the occurring presence of peculiar frontal dysfunctions (Ciberti et al., 2020), and the adoption of a psychopharmacological approach is increasingly encouraged (Martiadis et al., 2007).

In our study, several associations between attachment styles and defense mechanisms have been highlighted, consistently with previous observations showing the presence of maladaptive defense mechanisms in subjects with insecure attachment styles (McMahon et al., 2005; Besharat & Khajavi, 2013; Laezkovics et al., 2018; Lenzo et al., 2020a).

In line with this evidence, an insecure attachment might increase the internalization of dysfunctional interpersonal patterns, which can lead an individual to reinforce a distorted self-image to protect the self (Tasca et al., 2005). For instance, the perception of others as not reliable often worsens distressful situations even in the context of close relationships (Cramer & Kelly, 2010). On the other hand, our study showed that Confidence, which is a key feature of a secure attachment, was negatively associated with EDR. This evidence supports the idea that the longstanding emotional bond between individuals allows for functional strategies to self-regulate emotions (Fabér et al., 2018), thus reducing the odds of engaging eating disorders as a way to handle distressing states.

It is broadly known that internal working models of attachment that originate in early childhood may affect adjustment processes during adulthood (O'Shaughnessy & Dallos, 2009; Kuipers & Bekker, 2012; Lenzo et al., 2021). Therefore, insecure attachment styles could make individuals vulnerable to EDs by leading them to use non-adaptive strategies to keep emotions under control (Del Vecchio et al., 2014; Tasca, 2019).

In this regard, EDs symptoms appear linked not only to attachment experience, but also to specific defense strategies, which are strongly connected to attachment styles, and are implemented to manage distressing emotions (Besharat & Khajavi, 2013). Interestingly, our study showed a significant path between Discomfort with Closeness and Image Distorting Style. This evidence suggests that the difficulty in sharing feelings and the consequent reduced social interactions would make individuals more inclined to split the image of themselves and others into good or bad, due to the prolonged sense of social alienation, in order to preserve their inner identity (Bond, 1983), which could lead to the inability to develop mature relationships.

As expected, our study showed a significant role of defense mechanisms in mediating the relationship between attachment styles and EDs-related symptoms. Defense mechanisms appear strongly linked to the processes of emotion regulation and psychological distress (Conversano et al., 2020; Di Pierro et al., 2015); indeed, defense mechanisms can be considered as automatic protective reactions to potentially negative or stressful events; therefore, they can modulate the flexibility of individual responses to the environment (Prout et al., 2019). The clinical relevance of defense mechanisms has been further supported, suggesting that an increased use of immature defensive mechanisms, as well as a reduced use of mature defensive mechanisms, might have a negative impact on the development of personality (Granier et al., 2017).
consequently may exhibit high levels of psychological maladjustment in the context of EDs-related behaviors. The constant seeking for approval decreases individual self-evaluation and may not allow the development of adequate strategies to keep distress under control, leading to reduced social relationships (DeMarco & Newheiser, 2018). The concomitant presence of Need

Table 2. *Path estimates, SEs and 95% CIs of the non-saturated model.*

| Path                          | β    | SE  | Lower bound (BC) 95% CI | Upper bound (BC) 95% CI |
|-------------------------------|------|-----|-------------------------|-------------------------|
| Direct Effect                 |      |     |                         |                         |
| Confidence→Maladaptive Style | -0.30| 0.01| -0.06                   | -0.03                   |
| Need for Approval→Maladaptive Style | 0.26 | 0.01| -0.01                   | 0.05                    |
| Preoccupation with Relationship→Maladaptive Style | 0.26 | 0.01| -0.01                   | 0.04                    |
| Confidence→Image-distorting Style | 0.03 | 0.01| -0.02                   | 0.03                    |
| Discomfort with Closeness→Image-distorting Style | 0.23 | 0.01| -0.01                   | 0.05                    |
| Maladaptive Style→General Psychological Maladjustment | 0.54 | 1.52| 11.37                   | 17.34                   |
| Adaptive Style→General Psychological Maladjustment | -0.11 | 0.71| -3.45                   | -0.59                   |
| Confidence→General Psychological Maladjustment | -0.26 | 0.23| -1.55                   | -0.65                   |
| Maladaptive Style→Eating Disorder Risk | 0.46 | 0.38| 1.90                    | 3.37                    |
| Confidence→Eating Disorder Risk | -0.14 | 0.06| -0.25                   | -0.02                   |

| Indirect effect via Maladaptive Style |        |     |                         |                         |
|--------------------------------------|--------|-----|-------------------------|-------------------------|
| Confidence→General Psychological Maladjustment | -0.16 | 0.13| -0.92                   | -0.41                   |
| Need for Approval→General Psychological Maladjustment | 0.14 | 0.14| -0.30                   | 0.30                    |
| Preoccupation with Relationship→General Psychological Maladjustment | 0.14 | 0.12| -0.25                   | 0.74                    |
| Confidence→Eating Disorder Risk | -0.14 | 0.12| -0.18                   | -0.07                   |
| Need for Approval→Eating Disorder Risk | 0.12 | 0.03| -0.05                   | 0.16                    |
| Preoccupation with Relationship→Eating Disorder Risk | 0.12 | 0.02| -0.05                   | 0.14                    |

Note: SE = standards errors; BC 95% CI = Bias Corrected-Confidence Interval.

**Figure 1. Mediation model between attachment, defense mechanism and eating disorders**

A further evidence highlighted by our study was the interesting association between Need for Approval and the General Psychological Maladjustment scale, which was mediated by Maladaptive Style; this result suggests that individuals who perceive a greater need for approval likely are more vulnerable, they adopt dysfunctional defense mechanisms and consequently may exhibit high levels of psychological maladjustment in the context of EDs-related behaviors. The constant seeking for approval decreases individual self-evaluation and may not allow the development of adequate strategies to keep distress under control, leading to reduced social relationships (DeMarco & Newheiser, 2018). The concomitant presence of Need...
for Approval and dysfunctional defense mechanisms is also consistent with previous evidence (Prunas et al., 2019), and additionally might suggest a potential premorbid pattern involved even in EDs.

Furthermore, Maladaptive Style mediated also the relation between Preoccupation with Relationships and EDs-related-outcomes. The prolonged need for support and relational inclusion by others promotes an increased need for ways to manage attachment states and efforts to avoid conflicts, which in turn increases the likelihood of developing difficulties in regulating emotions, thus predisposing individuals to EDs-type issues (Vidovic et al., 2003).

Limitations and future implications

Despite the challenging topic that was explored, the study presents limitations. Firstly, the relatively small sample size may preclude the generalizability of the results. Moreover, we did not account the different types of EDs, but we focused only on the presence of common EDs-related symptoms in community population. Eventually, the cross-sectional design did not allow drawing causal relationships between the variables. The use of dysfunctional defense mechanisms by people with EDs-related symptoms might represent either the impact of an ongoing disease that influences individual global adjustment, or a potentially premorbid risk factor for the onset of the disease itself (Stein et al., 2003).

However, this study provides potentially significant clinical insights. Previous researches have already pointed out the relevance of personality factors in the onset and maintenance of emotional disorders (Barberis et al., 2020; Lenzo et al., 2020b, 2020c, 2020d; Martino, et al., 2019; Quattropani et al., 2018, 2019). Consistently, our results highlighted that individuals who exhibit EDs-related symptoms also show dysfunctional attachment styles and immature defense mechanisms. Furthermore, since defense processes appear to be a significant mediator of the association between attachment styles and EDs, reinforcing effective and adaptive defense mechanisms could be considered an additional aim of group therapies involving subjects with EDs (Downey, 2014).

Because there is a growing interest for the psychological factors involved in chronic medical (Sardella et al., 2021), the understanding of attachment styles and defense mechanisms and their relationships with EDs could also increase the efficacy of interventions promoting healthy eating-related behaviors (Hill et al., 2015; Tasca et al., 2018). In this regard, future interventions may try to integrate some relevant variables derived from the psychoanalytic tradition that are empirically relevant in the context of attachment, in order to provide more tailored interventions.

Conclusion

The present study described shared associations between attachment styles, defense mechanisms and EDs. A specific cluster of defense mechanisms, namely Maladaptive Style, appeared to be a significant mediator of the association between attachment styles and EDs-related symptoms.

The integrated evaluation of attachment and defense mechanisms could help provide a more comprehensive framework of the psychological antecedents of EDs. Along with a deeper comprehension of the psychological antecedents, our findings might also be relevant for increasing the efficacy of psychological interventions for people suffering from EDs.

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