

Defense Mechanisms, Gender, and Adaptiveness in Emerging Personality Disorders in Adolescent Outpatients

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Abstract: The present study focused on demographic and personality differences in the use of 30 defense mechanisms in adolescents with personality psychopathology and explored the hierarchical organization of personality traits based on the adaptiveness of defensive functioning. A total of 102 self-referred adolescent outpatients were interviewed and assessed on defense mechanisms and personality traits using the Defense Mechanisms Rating Scales and the Shedler-Westen Assessment Procedure 200 for Adolescents, respectively. Age and gender differences were found throughout the hierarchy. Pearson's correlations revealed a hierarchical organization of emerging personality disorders (PDs) in adolescence. More adaptive defenses were clearly associated with healthier personality style, whereas more pathological personality styles such as those with borderline traits were characterized by more rigid and maladaptive defenses. Dissociation was also associated with maladaptive personality types. Identifying the defenses associated with emerging personality disorders may inform the unconscious function of defense mechanisms in specific PDs. The systematic assessment of defense mechanisms might also help therapists to monitor changes during treatment.

Key Words: Defense mechanisms, adolescence, personality disorder, adaptation, dissociation

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Defense mechanisms are described as unconscious operations that protect the self from the awareness of feelings and thoughts regarding internal conflicts and external stressors (American Psychiatric Association [APA], 1994). Their role is known to influence physical and psychological well-being (Di Giuseppe et al., 2019a, 2019b, 2020; Koh et al., 2005; Marchini et al., 2018; Martino et al., 2019; Merlo, 2019), and their flexibility is associated with a higher level of adjustment (Di Giuseppe et al., 2018; Drapeau et al., 2011; Settineri et al., 2019). Empirical research on defense mechanisms has widely focused on the relationship of defenses with personality disorders (PDs) (Euler et al., 2019; Perry et al., 2013; Vaillant and Drake, 1985), showing that effective psychotherapy enhances the maturity of the defensive functioning of PDs (Babl et al., 2019; Bond and Perry, 2004; Di Giuseppe et al., 2014; Perry et al., 2019). Despite the large number of studies on adult populations affected by PDs, few have analyzed the relationship between defenses and emerging PDs in adolescence. Research on defense mechanisms in adolescence has focused primarily on age and gender differences (Cramer, 2000; Diehl et al., 1996;

Feldman et al., 1996), IQ (Cramer, 2009; Laor et al., 2001), stress (Steiner et al., 2007), and problematic behavior (Costa and Brody, 2013; Huemer et al., 2015; Martino, 2019; Martino et al., 2017). This study analyzes how individual defense mechanisms are associated with demographics and personality psychopathology in a sample of adolescents.

Research demonstrated an association between defense mechanisms and personality styles contributing to the identification of two types of psychological functioning in adolescents, defined as internalizing and externalizing personality styles (Rachão and Campos, 2015). Accordingly, Strandholm et al. (2016) found that neurotic, image-distorting, and immature defense styles in adolescence were associated with PDs in adulthood, whereas displacement, isolation, and reaction formation were independent predictors of an adult PD diagnosis. Other studies highlighted the relationship between defensive and personality adaptiveness (Di Giuseppe et al., 2019c) and how these are associated with psychopathological symptoms in adolescence (Muris et al., 2003). These findings pointed out a potential hierarchical organization of PDs based on their defensive maturity and highlighted the role of defense mechanisms in characterizing emerging PDs in adolescence. Other research suggested that defense mechanisms have direct effects on personality and ego development (Liu, 2013), and their changes might be observed in as short a time frame as one school year (Graovac et al., 2006).

Several studies examined gender differences in defensive functioning in adolescence (Feldman et al., 1996; Levit, 1991). The use of neurotic defenses was found to be prevalent in females at several stages of development (Di Giuseppe et al., 2019c; Marazziti et al., 2020; Tuulio-Henriksson et al., 1997), whereas boys used the defense of turning against objects more (Foto-Özdemir et al., 2016; Laor et al., 2001). Girls also showed more internalization, and boys more externalization. In both sexes, baseline immature defenses were associated with psychiatric disturbance at the 5-year follow-up, whereas only females showed negative correlations between mature defense style at baseline and psychological distress at follow-up (Tuulio-Henriksson et al., 1997).

Longitudinal studies on defense mechanism development demonstrated that defensive maturity increases from childhood to late adolescence (Cramer, 2007), and is related to the quality of social relationships and late-life physical health (Malone et al., 2013). Other studies found that adolescents tend to use more mature and fewer other-oriented defenses than children (Laor et al., 2001), with this trend increasing throughout adolescence (Di Giuseppe et al., 2019c). In line with the developmental approach to defense development, Evans and Seaman (2000) found that adolescents with a mature defense style reported significantly higher self-complexity than teenagers with an immature defense style, confirming previous results about the influence of defensive maturity on general adjustment in nonclinical adolescents (Erickson et al., 1996).

Despite the interest in literature concerning the development of defense mechanisms and defensive changes across the individual's life course, it has not yet significantly revealed much about whether there are differential relationships among defensive functioning, age, gender, and emerging PD characteristics in adolescence. Moreover, most of the available literature has not considered the potential value of the hierarchical organization of defense mechanisms (APA, 1994; Perry, 1990),

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but instead apply measures based on different theoretical backgrounds. As a result of the different theoretical and methodological approaches, it is difficult to compare the available findings and arrive at a consistent interpretation.

Aim and Hypotheses

In line with a prior study on the same sample (Di Giuseppe et al., 2019c), the present work aimed to analyze the whole range of individual defenses hierarchically in association with demographic characteristics and emerging PDs. Accordingly, we used the Defense Mechanism Rating Scales (DMRS) (Perry, 1990), a comprehensive and largely validated observer-rated measure for the assessment of the whole hierarchy of defense mechanisms. Research has shown the relationships between the defensive functioning maturity and age, gender, and emerging PDs, focusing on the DMRS's summary categories of overall defensive functioning (ODF) and defense levels (Di Giuseppe et al., 2019c). The current report examined the associations between the 30 individual defense mechanisms included in the hierarchy and both age, gender, and emerging PDs.

Our first hypothesis was that differences in age and gender reflected differences in the use of defense mechanisms. Specifically, we expected that younger adolescents showed higher use of immature defense mechanisms as compared with older teens, whereas girls differed from boys for more use of neurotic defenses. Our second hypothesis was that certain defense mechanisms characterized specific personality traits in adolescence, highlighting the subtle defensive functioning behind each emerging PDs.

METHODS

Sample

The sample consists of 102 self-referred outpatient adolescents recruited from three Counseling and Psychotherapy Services in Central Italy. Inclusion criteria were the absence of diagnosed psychosis or intellectual disability, as assessed by clinicians following the *Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5)* criteria and the agreement of both living parents and the teenagers themselves in participating in the study. Each participant and his or her parents were asked to sign an informed consent to be interviewed and audio recorded by a graduate psychologist. Among 126 recruited adolescents, 10 did not meet inclusion criteria and 14 families did not give their consent. The final sample of 102 subjects was equally distributed by gender and normally distributed by age (mean, 16.32; SD, 1.22; skewness, -0.28 ; kurtosis, -0.71).

Measures

Each participant was interviewed using the Clinical and Diagnostic Interview (CDI) (Westen and Muderrisoglu, 2003) and assessed using two observer-rated measures: the DMRS (Perry, 1990) and the Shedler-Westen Assessment Procedure 200 for Adolescents (SWAP-200-A) (Westen et al., 2003).

Clinical and Diagnostic Interview

The CDI is a systematic clinical interview designed to help the assessment of personality pathology with the SWAP-200. Mirroring the interviewing approach of experienced clinicians, the CDI is not organized around the diagnostic criteria for each of the *DSM-IV* PDs but is designed to collect information about characteristic ways of thinking, feelings, emotion regulation, severity, frequency, duration, and history of symptoms and concerns. A validation study demonstrated that personality pathology can be reliably assessed by the CDI with a strong correlation (median $r > 0.80$) between interviewer and clinician SWAP-200 diagnoses (Westen and Muderrisoglu, 2003).

Defense Mechanisms Rating Scale

The DMRS (Perry, 1990) is an observer-based method that assesses on verbatim transcripts the use of 30 individual defense mechanisms, hierarchically ordered in seven levels of defensive adaptiveness (Table 1). For each of the 30 defense mechanisms, the DMRS provides a definition and description of the intrapsychic function, examples to aid in the qualitative discrimination of a defense from near-neighbor defenses. Three quantitative scores can be calculated: ODF, defense level scores, and individual defense scores. The DMRS's convergent and discriminant validity is good for the overall hierarchy of defense mechanisms (Perry and Høglend, 1998), and interrater reliability between trained raters is high for the ODF and defense levels (intraclass R values >0.80), slightly decreasing lower for individual defenses (intraclass R values between 0.50 and 0.60) (Perry and Henry, 2004).

Shedler-Westen Assessment Procedure 200 for Adolescents

The SWAP-200-A (Westen et al., 2003) is a personality assessment Q-sort method adapted from the well-known adult version and designed for clinical and research use. The SWAP-200-A rating is based on either longitudinal knowledge of the patient over the course of treatment or on a systematic clinical interview of the patient. This measure provides quantitative scores for 10 PD prototypes (PD scales), as described by the *DSM-IV* (APA, 1994), and 6 empirically derived personality factors (Q factors). Only PD scales were investigated in the present study. Furthermore, the SWAP-200-A includes a healthy personality prototype, namely, high-functioning (HF). Construct validity was strongly supported by correlation findings between behavioral patterns and SWAP-200-A dimensional diagnosis (Westen et al., 2005).

Procedures

Participants who agreed to be enrolled in the study were interviewed using the CDI. Each interview was recorded and transcribed verbatim. Two trained raters assessed defense mechanisms and personality dimensions using the DMRS and the SWAP-200-A. Evaluations were conducted blindly and independently to have each rater coding only one measure per participant. Interrater reliability was calculated on 20 cases, and the mean interclass correlations were 0.62 and 0.75 for DMRS individual defenses and SWAP-200-A PD scales, respectively.

Data Analysis

In accordance with previous research (Diehl et al., 1996; Laor et al., 2001), we first divided the sample into middle adolescence (age from 14 to 15 years) and late adolescence (age from 16 to 18 years). Afterward, we conducted independent sample t -tests to test differences regarding the use of defense mechanisms according to gender and age. We previously ruled out any age \times gender interaction (Di Giuseppe et al., 2019c). We calculated Pearson correlation coefficients between individual defenses, ODF, and PD variables to consider their differential relationships and overall defensive adaptiveness of each PD scale. Bonferroni correction was applied to all performed analyses, taking $p < 0.001$ as value for result significance.

RESULTS

Age and Gender Differences of Defense Mechanisms

Table 1 describes differences in the use of defense mechanisms between middle and late adolescence. High-adaptive and obsessional defense mechanisms such as sublimation, self-assertion, anticipation, intellectualization, and undoing were used significantly more frequently by older teenagers, whereas immature defense mechanisms such as rationalization, splitting of other's image, projective identification, and acting out were used more frequently by middle adolescents.

TABLE 1. Age Differences in the Use of Individual Defense Mechanisms in Adolescent Outpatients

	Middle Adolescents (n = 45)		Late Adolescents (n = 57)		Δ Mean	t	p
	Mean	SD	Mean	SD			
ODF	3.29	0.65	4.42	0.11	-1.13	-5.306	<0.001
Suppression	0.82	0.90	2.08	2.02	-1.26	-2.894	0.005
Sublimation	1.27	1.72	2.89	1.66	-1.62	-4.077	<0.001
Self-observation	1.78	2.39	3.63	2.51	-1.85	-3.151	0.002
Self-assertion	1.13	1.69	3.70	2.27	-2.57	-5.020	<0.001
Humor	1.52	0.81	2.16	1.77	-0.64	-1.695	0.093
Anticipation	0.43	0.95	2.23	1.77	-1.80	-4.675	<0.001
Altruism	1.31	0.77	1.90	1.65	-0.59	-1.664	0.099
Affiliation	2.02	2.17	2.93	1.75	-0.91	-2.073	0.041
Isolation	3.67	3.52	4.46	3.67	-0.79	-0.918	0.361
Intellectualization	1.35	1.45	4.11	3.15	-2.76	-4.066	<0.001
Undoing	3.71	2.50	5.78	2.28	-2.07	-3.750	<0.001
Repression	6.24	4.87	5.97	1.99	0.27	0.404	0.687
Dissociation	4.68	2.95	2.90	2.82	1.78	2.639	0.010
Reaction formation	3.53	2.02	4.66	2.37	-0.13	-0.246	0.806
Displacement	4.25	0.91	4.92	1.67	-0.67	-1.849	0.067
Devaluation others-images	4.07	1.44	4.69	2.20	-0.62	-1.269	0.207
Devaluation self-image	2.51	1.58	2.78	1.82	-0.27	-0.650	0.517
Idealization others-images	3.13	3.36	3.46	1.26	-0.33	-0.715	0.477
Idealization self-image	2.93	1.05	3.67	2.54	-0.74	-1.365	0.175
Omnipotence	4.16	3.31	3.06	2.44	1.10	1.756	0.082
Denial	4.73	2.33	3.91	1.90	0.82	1.726	0.088
Rationalization	6.71	1.99	5.27	1.82	1.44	3.266	0.001
Projection	4.41	2.97	3.06	2.32	1.35	-2.303	0.023
Autistic fantasy	1.99	0.98	2.76	1.48	-0.77	-2.347	0.021
Splitting object's image	4.98	1.66	2.46	2.66	2.52	4.292	<0.001
Splitting self-image	3.32	1.70	2.05	2.76	1.27	2.096	0.039
Projective identification	6.16	1.90	2.06	2.46	4.10	7.353	<0.001
Passive aggression	2.74	2.19	2.34	1.74	0.40	0.925	0.357
Help-rejecting complaining	1.27	0.75	2.32	1.80	-1.05	-2.731	0.007
Acting out	9.77	2.84	3.07	3.32	6.70	8.769	<0.001

Note: Significant correlations (bold) after Bonferroni correction $p < 0.001$.

Gender differences are described in Table 2. Significant mean differences between boys and girls were found for 13 defense mechanisms: boys showed higher scores on high-adaptive and obsessional defenses as suppression, self-observation, self-assertion, humor, isolation of affects, and intellectualization, whereas girls showed higher scores on dissociation and immature defenses as splitting of self-image and object-images, projective identification, and passive aggression. Minor image distortion defenses were used differently within the two genders: boys' used significantly more omnipotence, whereas girls used more devaluation of self-images. For a graphical description of age and gender differences, see Figure 1.

Correlations Between Defense Mechanisms, Adaptiveness, and Emerging PDs

Table 3 displays Pearson correlations between the individual defenses arranged hierarchically in rows from the bottom (acting out) to the top (affiliation) and the PD scales arranged hierarchically from the most adaptive (HF PD scale) to the least adaptive (borderline PD scale). The hierarchical order of personality traits was based on Pearson correlations between ODF and PD scales (Di Giuseppe et al., 2019c).

The HF PD scale was the personality trait with the greatest positive correlation with the ODF ($r = 0.978$; $p < 0.001$). It had significant positive correlations with almost all high-adaptive, obsessional, and neurotic defense mechanisms, except for dissociation, which showed a negative correlation. On the other hand, significant negative correlations were found with the majority of immature defense mechanisms.

The obsessive-compulsive PD scale had positive correlations with ODF and individual defenses belonging to the highest section of the hierarchy, and negative correlations with individual defenses belonging to the lowest section of the hierarchy. Interestingly, minor image distortion defenses correlated with the obsessive-compulsive PD scale in a particular manner: devaluation of self-image and idealization of other's image were positively correlated, whereas devaluation of other's image and omnipotence were negatively correlated.

The schizoid PD scale also showed positive correlations with ODF and several high-adaptive and obsessional defenses such as self-assertion, sublimation, suppression, isolation of affect, intellectualization, and undoing. Negative correlations were found for immature defense mechanisms such as idealization of self-images, omnipotence, rationalization, splitting of self-images and others-images, projective identification, and acting out, except for devaluation of self-images.

TABLE 2. Gender Differences in the Use of Individual Defense Mechanisms in Adolescent Outpatients

	Boys (<i>n</i> = 51)		Girls (<i>n</i> = 51)		Δ Mean	<i>t</i>	<i>p</i>
	Mean	SD	Mean	SD			
ODF	4.67	0.90	3.66	0.12	1.01	5.804	<0.001
Suppression	2.54	2.24	1.06	1.06	1.48	4.273	<0.001
Sublimation	3.00	1.65	2.06	1.85	0.94	2.722	0.008
Self-observation	4.16	2.61	2.27	2.22	1.89	3.943	<0.001
Self-assertion	4.26	2.26	1.98	1.97	2.28	5.409	<0.001
Humor	2.76	1.76	1.28	1.05	1.48	5.187	<0.001
Anticipation	2.76	1.83	0.90	1.14	1.86	6.173	<0.001
Altruism	2.00	1.85	1.54	1.06	0.046	1.549	0.125
Affiliation	2.90	2.22	2.57	1.47	0.033	0.882	0.380
Isolation	6.62	3.24	1.95	2.27	4.67	8.442	<0.001
Intellectualization	5.03	2.61	1.95	2.72	3.08	5.833	<0.001
Undoing	5.18	2.37	5.44	2.59	-0.26	-0.530	0.597
Repression	5.22	2.32	6.85	3.14	-1.63	-2.968	0.004
Dissociation	2.00	2.15	4.61	3.05	-2.61	-4.999	<0.001
Reaction formation	3.14	2.29	4.13	2.20	-0.99	-2.236	0.028
Displacement	5.05	1.71	4.49	1.33	0.56	1.831	0.070
Devaluation others-images	4.34	1.81	4.76	2.29	-0.42	-1.036	0.303
Devaluation self-image	2.14	1.27	3.31	2.00	-1.17	-3.501	0.001
Idealization others-images	3.32	1.59	3.45	2.23	-0.13	-0.348	0.729
Idealization self-image	3.43	1.50	3.58	2.94	-0.15	-0.332	0.740
Omnipotence	4.15	2.57	2.48	2.56	1.67	3.285	0.001
Denial	4.40	2.23	3.80	1.77	0.60	1.507	0.135
Rationalization	5.21	2.06	5.98	1.77	-0.77	-2.020	0.046
Projection	3.09	2.16	3.64	2.86	-0.55	-1.106	0.271
Autistic fantasy	2.50	1.31	2.69	1.52	-0.19	-0.684	0.496
Splitting object's image	1.64	2.00	4.43	2.56	-2.79	-6.148	<0.001
Splitting self-image	0.89	0.90	3.78	2.95	-2.89	-6.696	<0.001
Projective identification	1.80	2.31	4.17	2.97	-2.37	-4.510	<0.001
Passive aggression	1.58	1.12	3.29	2.04	-1.71	-5.224	<0.001
Help-rejecting complaining	1.72	1.40	2.46	1.87	-0.74	-2.277	0.025
Acting out	3.57	4.52	5.59	3.77	-2.02	-2.448	0.016

Note: Significant correlations (bold) after Bonferroni correction $p < 0.001$.

The schizotypal PD scale had only positive correlations with isolation of affect, intellectualization, and undoing, and negative correlations with a number of immature defense mechanisms. In descending order of magnitude, the seven negative correlations were splitting of others-images, idealization of self-images, devaluation of others-images, idealization of others-images, omnipotence, rationalization, and projective identification.

The avoidant PD scale had positive correlations with individual defenses widespread throughout the hierarchy. In decreasing order of magnitude, they were devaluation of self-images, intellectualization, undoing, passive aggression, repression, displacement, and self-assertion. Negative correlations fell all in the range of immature defense mechanisms, such as omnipotence, splitting of others-images, acting out, idealization of self-images, projective identification, and rationalization.

The paranoid PD scale had the least number of significant correlations overall. It correlated positively with isolation of affect and negatively with splitting of others-images. However, results must be carefully interpreted because this personality was scarcely represented in the sample.

The dependent PD scale had positive and negative correlations widespread throughout the hierarchy of defense mechanisms. In decreasing order of magnitude, positive correlations were found with

repression, devaluation of self-images, reaction formation, passive aggression, splitting of self-images, dissociation, undoing, and affiliation. On the other hand, negative correlations were found with omnipotence, isolation of affect, denial, and devaluation of others-images.

Interestingly, personality prototypes referring to cluster B of the *DSM-IV* axis II (APA, 1994) were all negatively correlated with ODF and those defense mechanisms belonging to the highest levels (levels 6 and 7) of the hierarchy.

The narcissistic PD scale had positive correlations with omnipotence, rationalization, devaluation of others-images, idealization of self-images, denial, projection, splitting of others-images, and projective identification, all of which were immature defenses. Negative correlations were found with a number of high-adaptive, obsessional, and neurotic defenses, although negative correlations were found with two immature defenses such as devaluation of self-images and passive aggression.

The antisocial PD scale had correlations similar in direction to the narcissistic PD scale, but of greater magnitude. In addition, it had positive correlation with acting out. The antisocial PD scale also had significant negative correlations with high-adaptive, obsessional, and neurotic defenses, with the addition of immature defenses as devaluation of self-images and passive aggression.

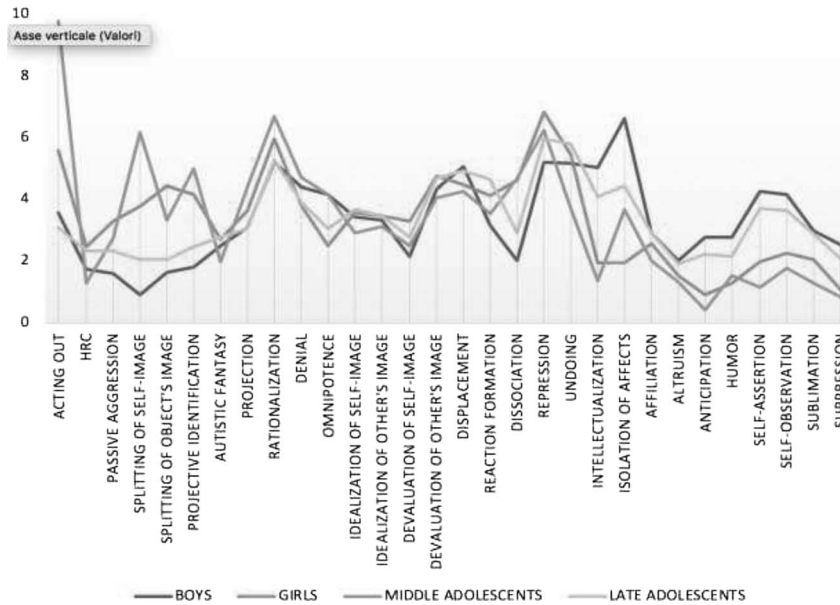


FIGURE 1. Individual defense mechanism scoring in four subsamples of adolescent outpatients. The numbers of subjects for each subsample were as follows: $N_{boys} = 51$, $N_{girls} = 51$, $N_{middle\ adolescents} = 45$, and $N_{late\ adolescents} = 57$.

The histrionic PD scale had positive correlations with dissociation and a number of immature defenses. In descending order of magnitude, these were splitting of others-images, projective identification, rationalization, acting out, splitting of self-images, dissociation, idealization of self-images, projection, and omnipotence. Negative correlations were found at neurotic, obsessional, or high-adaptive levels.

The borderline PD scale had the highest positive correlations with defense mechanisms belonging to action and major image distortion defense levels. In addition, it had positive correlation with two disavowal defenses such as projection and rationalization, and with the neurotic defense of dissociation. This PD scale also had the highest negative correlations with ODF and most of the high-adaptive and obsessional defense mechanisms.

DISCUSSION

The present study highlighted the important role played by defense mechanisms in adaptation during an adolescent's personality development, and informed about a) the extent to which age and gender were associated with the use of individual defense mechanisms in adolescents with psychological difficulties, and b) the degree to which specific defense mechanisms were differently associated with individual PD types. A specific pattern of defenses in a given PD type indicates the automatic and unconscious ways a person with that type of PD responds to internal and external stressors and conflicts.

Considering the unconscious nature of defense mechanisms, we used a well-validated observer-rated measure such as the DMRS (Perry, 1990) for assessing defenses in clinical adolescence, thus avoiding the potential bias of self-report. Although the DMRS has largely been applied to adult samples, our study is the first to examine emerging PDs in adolescents with the ability to consider defenses vis a vis the hierarchy of their general level of adaptiveness. Our previous report (Di Giuseppe et al., 2019c) examined ODF and defense levels, whereas the present report focuses on individual defenses. To the best of our knowledge, this makes a unique contribution.

Our first hypothesis—that age and gender are related to the use of specific defense mechanisms in teenagers—was fully confirmed. Older adolescents tended to use adaptive defenses more than younger

adolescents, whereas younger adolescents used defenses lower in the hierarchy more frequently than did older adolescents. A number of defense mechanisms in the middle of the hierarchy were equally used by both groups, with the exception of dissociation, which was prevalent in younger teens. These findings are in line with previous research, demonstrating the ontogenetic line of development of defense mechanisms from childhood to adulthood (Cramer, 2000, 2007). Moreover, results confirm the validity of the hierarchical organization of defense mechanisms (APA, 1994; Perry, 1990; Vaillant, 1992). Gender differences partially confirmed recent findings that boys have higher defensive functioning than girls (Di Giuseppe et al., 2019b, 2019c), adding information about the use of obsessional, neurotic, and minor image distortion defenses. Findings revealed that boys tended to use obsessional defenses such as intellectualization and isolation of affect to keep a distance from stressful feelings, whereas girls relied on neurotic defenses such as repression, dissociation, and reaction formation far more than boys. This is an observation that suggests that girls more often were aware of distress but without a conscious awareness of the attendant ideas or details that give it a clear meaning. In line with previous findings on gender differences in adolescents' internalizing and externalizing problems (Leadbeater et al., 1999; Schlack and Petermann, 2013), our findings showed also that boys tended to deal with self-esteem conflicts by using omnipotence, whereas girls tended to devalue their self-image in response to self-esteem problems.

Findings also confirmed our second hypothesis. Individual defense mechanisms were associated with specific PD scales and, as a result, revealed a hierarchical organization of emerging PDs in adolescence. The healthy personality prototype was perfectly described by the high positive correlation with high-adaptive defenses and, to a lesser extent, obsessional and neurotic defenses. Conversely, immature defenses were negatively correlated, as one would expect. The 10 PDs described in the *DSM-IV* (APA, 1994) were found to be differentially associated with defense mechanisms, confirming that there is a hierarchical organization of emerging PDs in adolescence. The obsessive-compulsive, schizoid, schizotypal avoidant, and dependent PD scales showed better levels of adaptiveness than the other scales. Similarly, these PD scales were all positively associated with devaluation of self-images and negatively associated with omnipotence and major image-distorting defenses. This suggests that these five PDs have more

TABLE 3. Pearson Correlations Between Individual Defense Mechanisms and Emerging PDs

	HF	Obsessive-Compulsive	Schizoid	Schizotypal	Avoidant	Paranoid	Dependent	Narcissistic	Antisocial	Histrionic	Borderline
ODF	0.978*	0.582*	0.446*	0.013	0.236	0.174	-0.024	-0.323*	-0.529*	-0.646*	-0.818*
7. High-adaptive defense level	0.697*	0.675*	-0.059	-0.189	0.022	-0.191	0.302*	-0.119	-0.484*	-0.113	-0.347*
Affiliation	0.425*	0.200	-0.121	-0.166	-0.181	-0.181	0.121	-0.272*	-0.240	-0.144	-0.104
Altruism	0.676*	0.046	0.000	-0.166	-0.028	-0.243	-0.154	0.100	-0.075	-0.321*	-0.548*
Anticipation	0.543*	0.040	0.008	-0.051	-0.237*	-0.013	-0.132	0.107	-0.017	-0.071	-0.363*
Humor	0.871*	0.376*	0.401*	0.194	0.274*	0.110	-0.165	-0.273*	-0.381*	-0.712*	-0.790*
Self-assertion	0.818*	0.463*	0.195	0.074	-0.058	0.134	-0.072	-0.299*	-0.430*	-0.445*	-0.548*
Self-observation	0.633*	0.283*	0.336*	0.159	0.231	0.235	-0.079	-0.212	-0.361*	-0.525*	-0.602*
Sublimation	0.668*	0.342*	0.303*	0.187	0.051	0.062	-0.004	-0.422*	-0.433*	-0.446*	-0.456*
Suppression	0.185	-0.219	0.512*	0.371*	0.192	0.299*	-0.615*	0.059	0.204	-0.664*	-0.658*
Isolation of affects	0.719*	0.356*	0.580*	0.343*	0.446*	0.178	-0.159	-0.299*	-0.392*	-0.867*	-0.854*
Intellectualization	0.466*	0.426*	0.398*	0.343*	0.421*	0.178	0.355*	-0.458*	-0.544*	-0.214	-0.199
Undoing	0.148	0.603*	0.015	0.020	0.321*	-0.121	0.651*	-0.219	-0.490*	0.086	0.053
Repression	-0.346*	0.148	-0.055	0.142	-0.073	0.081	0.477*	-0.261*	-0.232	0.406*	0.540*
Dissociation	0.231	0.469*	0.101	-0.135	0.260*	0.147	0.574*	-0.554*	-0.524*	-0.051	0.154
Reaction formation	0.404*	0.064	0.223	0.048	0.274*	0.026	0.108	-0.253	-0.314*	-0.268*	-0.378*
Displacement	0.088	0.471*	0.306*	0.315*	0.501*	0.212	0.585*	-0.588*	-0.529*	-0.095	0.098
Devaluation S-I	-0.253	-0.462*	-0.218	-0.270*	-0.080	-0.176	-0.308*	0.485*	0.454*	0.141	0.086
Devaluation O-I	0.171	-0.139	-0.311*	-0.285*	-0.367*	-0.156	-0.229	0.477*	0.228	0.333*	-0.012
Idealization S-I	0.106	0.260*	-0.245	-0.257*	-0.178	-0.189	0.053	0.154	-0.077	0.058	-0.125
Idealization O-I	-0.353*	-0.677*	-0.276*	-0.230	-0.471*	-0.084	-0.703*	0.730*	0.786*	0.226	0.040
Omnipotence	-0.491*	-0.525*	0.011	0.017	-0.026	-0.138	-0.519*	0.377*	0.562*	0.034	0.052
Denial	-0.595*	-0.232	-0.406*	-0.277*	-0.325*	-0.164	-0.248	0.572*	0.553*	0.592*	0.417*
Rationalization	-0.653*	-0.561*	-0.159	-0.055	-0.098	-0.164	-0.219	0.344*	0.561*	0.268*	0.451*
Projection	0.005	-0.027	0.008	-0.101	0.256*	-0.117	-0.037	0.036	-0.045	-0.114	-0.209
Autistic fantasy	-0.666*	-0.234	-0.329*	-0.158	-0.038	-0.123	0.478*	-0.093	0.061	0.504*	0.769*
Splitting S-I	-0.837*	-0.478*	-0.626*	-0.439*	-0.418*	-0.273*	0.089	0.333*	0.460*	0.726*	0.869*
Splitting O-I	-0.834*	-0.368*	-0.456*	-0.264*	-0.343*	-0.227	0.019	0.259*	0.468*	0.603*	0.772*
Projective identification	-0.237	0.133	0.011	0.025	0.410*	-0.066	0.490*	-0.360*	-0.330*	0.002	0.312*
Passive aggression	-0.317*	-0.285*	-0.045	-0.025	0.176	0.005	-0.210	-0.027	0.006	0.072	0.172
HRC	-0.876*	-0.469*	-0.287*	-0.065	-0.382*	0.053	-0.215	0.317	0.594*	0.527*	0.663*
Acting out											

Note: Pearson coefficients for ODF in emerging PDs were extracted from a prior article referring to the present sample (Di Giuseppe et al., 2019c).

I-D indicates image distortion; O-I, object's image; S-I, self-image.

*Significant correlations after Bonferroni correction $p < 0.001$.

ambivalent object representations, where adolescents can hold contradictory thoughts and feelings about themselves, unlike the more severe PDs, which relied more on splitting (Perry et al., 2013). While dealing with the development of identity, the defense of omnipotence temporarily avoids the awareness of personal limitations and frustrations, whereas the defense of devaluation of self-image keeps the young person's attention on developmental tasks. Despite the fact that these defenses belong to the same hierarchical defense level (Perry, 1990), the role that they play in adolescence seems to distinguish the resulting adaptation and personality development.

In addition to previous findings on the same sample (Di Giuseppe et al., 2019c), these findings revealed that dissociation was prevalent in the most troubled adolescents, although this defense is placed in the middle-high section of the hierarchy of adaptiveness (Perry, 1990). This defense allows adolescents not to face unacceptable feelings and thoughts but to express them in uncharacteristic ways (e.g., a sudden outburst while disavowing any responsibility). This indicates that in adolescents, like in some adult disorders (e.g., borderline PD), dissociation keeps company with lower-level immature defenses.

Looking at the specific association between single defenses and emerging PDs, we found that obsessive-compulsive adolescents tended to idealize others-images while devaluing their self-images. This personality is described by high-adaptive and obsessional defenses, similar to the *schizoid* and the *schizotypal* personalities. However, these traits differ by the use of isolation of affect and relatively less use of other neurotic defenses. Differences can be interpreted basing judgment on these defense functions: adolescents with obsessive-compulsive personality were somewhat in touch with their emotions, although they tended to repress conflictual thoughts, needs, and desires, and change unpleasant feelings into their opposite ones (e.g., acting friendly toward someone who has hurt them) to avoid the anxiety associated with the expression of unpleasant affects. On the other hand, schizoid, schizotypal, and paranoid adolescents preferred to keep a distance from their feelings, but instead tended to displace their attention from the major stressor to minor related issues. Thus, they attended to low conflict issues that symbolically represent more conflictual situations, which they otherwise avoid facing. The defensive profiles of schizoid and schizotypal PDs did not reflect the defenses characteristic of borderline personality organization, as described by Kernberg (1975), something also noted in a study of schizotypal adults (Perry et al., 2013).

The avoidant and dependent PDs showed the most protean defensive functioning, including defenses at all levels of the hierarchy. As a result, they were in the middle of the hierarchy of relative adaptation of all the PD types. They were both characterized by a wide use of passive aggression, devaluation of self-images, reaction formation, repression, and undoing, indicating both a self-sacrificing attitude toward personal problems and a tendency to turn angry feelings toward themselves to preserve relationships. However, the avoidant personality showed higher ODF when compared with the dependent PD, as the avoidant individuals were more likely to use self-assertion, sublimation, and intellectualization, whereas adolescents with dependent personality tended to rely on splitting of self-images, dissociation, and (more adaptively) affiliation.

The least adaptive defensive functioning was found for cluster B PDs, such as narcissistic, antisocial, histrionic, and borderline. This is no surprise to those familiar with the range of PDs, as these types largely represent the borderline personality organization level described by Kernberg (1975). They all showed extensive use of immature defenses such as rationalization, projection, splitting of others-images, and projective identification, but they differed from one to the other in the use of some specific defenses. Narcissistic and antisocial PDs had remarkably similar profiles resorting to an idealized and omnipotent self-image, whereas the significance of others is devalued or even denied. However, the narcissistic adolescent's defensive functioning was somewhat more adaptive, using more affiliation and less acting out than antisocials, who also used more isolation of affect. A study that used an earlier

semiquantitative version of the DMRS in adults (Perry et al., 2013) also found that the defense profiles of narcissistic and antisocial PDs were similarly high in the use of disavowal, minor image distorting, major image distorting, and action defenses and that antisocials used substantially more isolation of affect than did narcissistic PDs.

Histrionic and borderline PDs were the most maladaptive types in their defensive functioning and had similar defensive profiles with splitting of self-images and others-images, projective identification, and dissociation predominating. This suggests that the adolescents in this study did not present with the classic hysterical neurotic-level personality, but rather the hysteroid, or so-called hysteric type, which is a variant of borderline (Zetzel, 1968). The two disorders also shared acting out, rationalization, and projection, as well as a negative relationship with obsessional and mature-level defenses. However, the histrionic PD was characterized by self-idealization and omnipotence, more like the narcissistic PD, which borderline PD lacked, whereas the latter also used passive aggression, unlike histrionic PD. Clearly, borderline PD was the PD that most reflected the core defenses of borderline personality organization (Kernberg, 1975).

Despite its original and comprehensive analysis of defense mechanisms in adolescents' PDs, the present study has several limitations. The associations we found between defense mechanisms and PDs are limited by the cross-sectional design. The assessments of defenses and PD psychopathology were made on the same interview, which would maximize the extent of the correlations, although not bias them. Future research should implement longitudinal designs to better assess this issue. The sample was highly representative of certain personalities, although certain PDs were only occasionally represented. Further investigations should provide the representation of the whole range of emerging PDs and include normal adolescents as well. The absence of repeated assessment on the same sample does not allow further interpretation about the associations and does not indicate whether certain defenses influence the development of emerging PDs or whether they reflect some common etiological factors. Moreover, the age data might be biased by the influence of extraneous factors other than development. A potential example might be that families might tolerate some things in older adolescents but not in younger adolescents, thus biasing who is brought to the clinics at each age period. Also in this case, longitudinal studies including both clinical adolescents and community controls gathered in early adolescence and followed until adulthood are required to overcome these limitations. Finally, the lack of posttreatment data does not give information about changes in defense mechanisms and PD dimensions after treatment. Randomized controlled or comparative treatment designs with lengthy follow-up might better address this.

CONCLUSIONS

Consistent with a previous study conducted on the same sample (Di Giuseppe et al., 2019c), the present study enriches the understanding of age and gender differences in the use of defense mechanisms and their associations with emerging PDs. Findings revealed that the unconscious function of defense mechanisms, which differentiate the way adolescents deal with internal conflicts and external stressors, might be a potential sign of personality psychopathology. Moreover, findings suggested that the defense of dissociation should be considered as an immature way of defending the self from psychological frustrations in adolescence. This leaves open the possibility that the hierarchy of adaptation has some differences between adolescence and adulthood populations in the level of adaptation associated with dissociation. It is also possible that the presence of trauma may be a factor when dissociation occurs along with PDs versus in more neurotic conditions (Perry et al., 2013). This remains an avenue for further empirical inquiry.

Finally, our data suggest that the study of defenses in adolescents should be very fruitful for understanding and addressing more descriptive personality psychopathology, although our study did not address treatment.

DISCLOSURE

The authors declare no conflict of interest.

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