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Unresolved attachment and identity diffusion in adolescence

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Abstract

This study examined the severity of unresolved attachment underlying adolescent identity diffusion. Our sample consisted of 180 inpatient adolescents aged 14 to 18 years (77% female, $M_{age} = 15.13$, $SD = 1.35$; 23% male, $M_{age} = 14.85$, $SD = 1.41$) and 84 age-matched non-clinical adolescents (52% female, $M_{age} = 16.14$, $SD = 1.21$; 48% males, $M_{age} = 15.98$, $SD = 1.07$). We used the Adult Attachment Projective Picture System (AAP) interview to assess attachment representations and the Assessment of Identity Development in Adolescence (AIDA) questionnaire to evaluate the severity of identity diffusion. Our results demonstrate a higher amount of unresolved attachment and identity diffusion in the patient sample than in the control sample. Furthermore, patients with an unresolved attachment status scored higher on identity diffusion than those with no unresolved attachment pattern. Interestingly, this was not found in the control group. Furthermore, patients with a greater severity of unresolved attachment showed the highest maladaptive identity development scores. Psychotherapeutic interventions integrating attachment-related aspects might be useful to treat young people with identity diffusion.

Keywords: Adolescence; attachment; identity diffusion; mental disorders; personality disorders

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Introduction

Levels of personality functioning are considered as the entry criterion for the DSM 5 Alternative Model for Personality Disorders (American Psychiatric Association, 2013) and ICD-11 diagnosis of personality disorders (World Heath Organization, 2022). The concept of identity and identity diffusion became one of the main defining features of personality pathology and plays a key role in assessing and detecting personality disorders (PD), particularly in younger age groups (Goth et al., 2012; Sharp & Wall, 2021).

Adolescence is a crucial time for the development of a well-functioning identity (Bersonsky, 2011). During this developmental stage, individuals experience a considerable amount of identity changes that challenge a successful identity integration. Some theorists proposed that teenagers are faced with a crisis between identity integration and identity diffusion. An integrated identity is considered a hallmark feature of a healthy identity and is defined as a subjective sense of sameness and continuity across time and context (Syed & McLean, 2016). Individuals with an integrated identity demonstrate the capacity to experience feelings of wellbeing and personal meaning and they can establish satisfying social relationships (Bersonsky, 2011). Several studies demonstrated that an integrated identity is associated with mental health, less internalizing and externalizing symptoms, better social relationships and overall functioning (Penner et al., 2019). If an identity crisis during adolescence cannot be resolved, it leads to identity diffusion. Individuals with identity diffusion experience a painful incoherence and they feel unable to define themselves and to commit to values, life goals and relationships (Goth et al., 2012). Identity diffusion in young people is related to higher psychological symptoms, particularly in regard to personality pathology (Lind et al., 2019).

The mechanisms underlying identity diffusion in adolescents have received increasing attention in recent years. The quality of attachment relationships might play a key role for a successful identity integration in adolescents. The process of identity formation in adolescence takes place when the parent-teen relationship is also undergoing several major changes. Young people start to self-sufficiently deal with challenges of their daily life and parents are in need to adjust to their children's increasing adult maturity and encourage their autonomy strivings (Gander et al., 2017). As a result, the parent-teen relationship becomes less hierarchical and more egalitarian (Ávila et al., 2012; Matos et al., 1999). Secure attachment representations that are characterized by parental affective support, encouragement and sensitive availability provide a fertile ground for a healthy identity development (Ávila et al., 2012; Allen, 2008). Insecure attachment is linked to higher levels of identity diffusion (Buchheim & Diamond, 2018; Luyten et al., 2020; Matos et al., 1999).

In particular, attachment trauma might adversely influence identity development. Findings from an emerging body of research suggest a link between subjectively reported childhood trauma and maladaptive identity development. Adolescents who experienced maltreatment (Hecht et al., 2014), sexual abuse (Bailey et al., 2007), domestic violence (Idemudia & Makhubela, 2011) and physical neglect (Crick et al., 2005) demonstrated more identity problems than those who did not report these traumatic childhood events.

Furthermore, a recently published study by Penner et al. (2019) found that the self-reported combined maltreatment exposure, and in particular emotional abuse and neglect as well as physical neglect, represent important risk factors for identity diffusion in adolescent psychiatric inpatients.

As not all individuals develop severe identity diffusion after experiencing a traumatic childhood event, childhood maltreatment is often considered a nonspecific risk factor (Gander et al., 2020; Paris et al., 2014). It might be hypothesized that it is not the experience of a traumatic childhood event per se but rather the quality of attachment that impacts identity development during adolescence. In this regard, Luyten et al. (2020) proposed that the disorganized/unresolved attachment status might be of particular importance for intrapersonal functioning in young people. This attachment pattern is associated with experiences of threatened abandonment or potential danger from a caregiver (George & West, 2011). In unresolved individuals the core aspect of their trauma is not the frightening or frightened attachment figure per se but their experience of their caregiver's failure to sooth their hyperarousal and help them to restore safety when facing the traumatic event. This results in dysregulation and fear when confronted with a severe threat (i.e. separation, loss, solitude or danger). Following a traumatic event, these individuals feel desperately alone, helpless and caught in the situation (Gander et al., 2018; Zilberstein, 2014) as the contradictory behavior of their attachment figures can be frightening, confusing and distressing. These experiences lay out the foundation for attachment patterns that are characterized by a lack of resolution of loss and trauma (Bowlby, 1969; George & West, 2011). In adolescence, they tend to develop negative expectations regarding their self and their future, they suffer from self-blame, experience feelings of detachment and major disruptions in their social relationships and they demonstrate a diminished interest in activities (Penner et al., 2019; Scott et al., 2014). These adverse consequences of attachment trauma might also be related to a maladaptive identity development (Penner et al., 2019).

Research in patients with borderline personality disorders (BPD) provides some evidence for this relationship (BPD, (Buchheim & Diamond, 2018; Ibrahim et al., 2018; Luyten et al., 2020). BPD is often referred to as the most prototypical disorder in terms of identity diffusion as these individuals manifest sudden and dramatic changes of their self-concept, their personal values, career plans and life goals (Lind et al., 2019). Even though studies on identity diffusion in younger populations with a diagnosed BPD are still scarce, findings indicate severe identity disturbance (i.e. role absorption, lack of normative commitment) in adolescents with borderline features (Lind et al., 2019; Westen et al., 2011). Concerning attachment, studies in adults demonstrated that the unresolved attachment status predominates in patients with BPD, particularly regarding the lack of resolution of sexual and physical abuse (Buchheim & Diamond, 2018), suggesting that this attachment pattern represents a core feature to understand their intra- and interpersonal impairments.

Despite these theoretical links between attachment and identity diffusion in adolescents, no study to date has explored the severity of unresolved attachment and identity diffusion in adolescents with and without mental disorders. Recent studies have contributed to broaden the etiological models by exploring the underpinnings of unresolved attachment in adolescent psychiatry (Gander et al., 2020, 2021; Lenhart et al., 2022). However, attachment-related aspects in adolescents with identity diffusion

have not been addressed so far. In this regard, the Adult Attachment Projective Picture System (AAP, (George & West, 2012)) is a viable tool to assess the four attachment groups (secure (F), insecure-dismissing (Ds), insecure-preoccupied (E) and unresolved (U)) in adolescence that can be further classified into a resolved group (F, Ds, E) and an unresolved group (U). This attachment interview allows to reveal traumatic attachment-related material of danger and fear and was used in clinical adolescent patients (Gander et al., 2018, 2020; George & Buchheim, 2014). Since identity diffusion is often discussed in the context of attachment-related trauma, this approach might be useful to deepen our understanding of this phenomenon in the field of adolescent psychopathology.

The following research hypotheses will be addressed in our study: To provide information about the severity of identity diffusion in our two samples, we calculate differences on identity diffusion in patients and controls. (1) Consistent with previous research studies we expect to find a higher rate of identity diffusion in adolescents with mental disorders compared to a non-clinical adolescent sample. Furthermore, studies on identity diffusion in adolescents with a diagnosed PD are still under-represented in the literature. Therefore, we examine whether patients with a PD show higher levels of identity diffusion than patients with no PD. (2) We suppose that adolescent inpatients with PD will score higher on identity diffusion than those with other mental disorders. (3) We assume that more adolescents with identity diffusion will be classified with an unresolved attachment status compared to those with no identity diffusion. In this context, we will focus on the two subgroups and assume that patients with an unresolved attachment status will show higher scores on identity diffusion than those with a resolved attachment pattern (4) as BPD is associated with high levels of identity diffusion and unresolved attachment in adults, we expect that patients with severe identity diffusion show a greater severity of unresolved attachment in their attachment narratives, particularly in scenes depicting interpersonal situations.

Materials and methods

Participants

Our clinical sample initially consisted of 195 inpatients that were recruited at the Department of Child and Adolescent Psychiatry at the Medical University of Innsbruck. The population-based sample of 84 adolescents from different parts of Austria and Germany were recruited by sending e-mails via mailing list and by distributing flyers in front of schools. Recruitment of the clinical and control sample took place between 2016 and 2020. They were all aged between 14 and 18 years. We excluded patients and controls with an intelligence score <85 in the Hamburg Wechsler Intelligence Scale (Petermann, 2008) ($N = 4$), insufficient knowledge of the German language ($N = 5$) and incomplete psychological tests ($N = 6$). Our final sample consisted of 180 adolescent inpatients (144 females, $M_{age} = 15.08$, $SD = 1.38$; 36 males, $M_{age} = 14.92$, $SD = 1.32$) and a control sample of 84 adolescents (44 females, $M_{age} = 16.14$, $SD = 1.21$; 40 males, $M_{age} = 15.98$, $SD = 1.07$). The current study received ethical approval by the ethics committee of the Medical University of Innsbruck (No. 1120/2019). It was carried out according to the declaration of Helsinki. We received written informed consent from all participants and their parents/legal guardians before the participation in the study.

Measures

Mental disorders

Mental disorders were diagnosed using the Structured Clinical Interview for DSM-IV (*SCID I*, (Wittchen et al., 1997) and *SCID II* (Fydrich et al., 1997)), a semi-structured clinical interview that allows assessing the following disorders: psychotic disorders, affective disorders, anxiety disorders, somatoform disorders, eating disorders, personality disorders, adjustment disorders and substance-related disorders. The duration of the interview is between one and two hours depending on the severity of psychopathology of the interviewee. The *SCID* interview was administered successfully in adolescents with mental disorders (Wittchen et al., 1997) and shows satisfying validity and reliability data for all DSM diagnoses with Kappa values above 0.70 (Zanarini et al., 2000). Furthermore, cross-epidemiologic research demonstrated good reliability and validity data in non-English-speaking populations (First et al., 1997). In the present study, trained clinical psychologists conducted the interview at the clinic.

Attachment interview

We used the Adult Attachment Projective Picture System (*AAP*, (George & West, 2012)) to classify the four attachment patterns (secure (F), insecure-dismissing (Ds), insecure-preoccupied (E) and unresolved (U)). This semi-structured interview consists of a set of picture stimuli that represent attachment-related scenes (i.e. death, solitude, separation, illness and fear (Bowlby, 1969). The interviewer asks the following standardized questions for each picture stimuli: *What led up to that scene? What are the characters thinking or feeling? What might happen next* (George & West, 2012)? Secure attachment is characterized by narratives that include mutual enjoyment in relationships and thoughtful self-exploration. Narratives of insecure-dismissing individuals show a lot of authoritarian orientation, deactivation and normalization to emphasize distance in relationships. Stories of insecure-preoccupied individuals contain many insecurities (i.e. different storylines) and negative emotions like anger or guilt. Individuals with an unresolved attachment pattern demonstrate fearful and traumatic elements in their stories (see below) that cannot be resolved by self-protection or seeking/receiving help from a caregiver. The AAP allows a four-group classification (F, Ds, E and U) and a two-group classification (resolved attachment patterns: F, Ds and E vs. unresolved attachment pattern: U). In several international studies, the AAP has demonstrated to be a reliable and valid tool to assess attachment representations in adult and adolescent samples (Gander et al., 2017; George & Buchheim, 2014; George & West, 2012). Furthermore, this instrument shows a high convergent validity with the Adult Attachment Interview (*AAI* (Buchheim et al., 2018; Gander et al., 2022)). A recently developed construct-based coding dimension allows to score the severity of attachment-related traumatic material in the attachment narratives. Based on this new coding procedure, raters count the occurrence of the following segregated system markers according to the AAP manual in the individual narratives (Buchheim et al., 2008; Gander et al., 2021; Gander, Sevecke et al., 2018): (1) isolation/emptiness, (2) danger/failed protection, (3) helplessness/desperation, (4) disturbing content (i.e. creepy content), (5) unlicensed thoughts of fear or threat, (6) constriction (i.e. the interviewee is blocked from completing the story because of overwhelming traumatic experiences). These markers indicate unresolved attachment-related threat or fear. Their occurrence in the individual storyline is added up to a sum score for all picture stimuli (ranging from 0 to 6 for the total interview, 0 to 4 for alone pictures and 0 to 3 for dyadic pictures). This scale is considered a continuum with higher values indicating a higher amount of unresolved attachment-related material in the narratives. In this regard, patients with a resolved attachment classification (F, Ds, E) do not have a score>0. According to the coding procedure of the AAP (George & West, 2011) a case is judged unresolved when one or more stories contain threatening themes that are designated as unresolved. However, if all stories of the AAP show attachment-related threat or fear that is resolved, the narrative cannot be classified as unresolved.

Furthermore, the AAP coding distinguishes between alone pictures that depict themes of loneliness and dyadic pictures that portray characters in relationships (George & West, 2012). This new coding approach has been used in previous clinical studies to explore the underpinnings of unresolved attachment in adult (Bernheim et al., 2022; Buchheim et al., 2008) and adolescent patient samples (Gander et al., 2020, 2021; Gander, Sevecke, et al., 2018). The attachment interviews were audiotaped, transcribed and rated by a certified AAP judge. In line with other narrative-based attachment studies, two independent reliable AAP judges rated a part of our interviews ($N = 120$, 45%). Inter-rater reliability analysis revealed a kappa for the four-group classification of 96%, $\kappa = .943$ with a narrow 95% confidence interval [0.894, 0.992], $p < .001$. Concordance rate demonstrates an agreement in as many as 116 out of $N = 120$ cases. Disagreement between the judges was resolved by conference.

Identity diffusion

We used the Assessment of Identity Development in Adolescence (*AIDA*, (Goth et al., 2012) questionnaire to assess identity on a dimension from identity integration to identity diffusion in adolescent age groups. This 53-item self-report questionnaire consists of the following subscales: (1) Continuity refers to an individual's experience of emotional self-sameness (i.e. a stability of roles, relationships, goals etc.), belonging, affiliation and stability over time, (2) Coherence refers to the level of consistency in self-images, autonomy and ego-strength (Goth et al., 2012). On a 5-point Likert-scale individuals evaluate themselves (0 – no, I strongly disagree to 4 – yes, I strongly agree). Items can be summed for a total score with higher scores indicating a higher level of identity diffusion. The AIDA questionnaire demonstrated good reliability and validity in clinical and non-clinical German- and English-speaking adolescent samples (Goth et al., 2012; Lind et al., 2019; Penner et al., 2019) with good internal consistency (Cronebach's alpha = 0.95) (Lind et al., 2019; Penner et al., 2019), excellent criterion validity (effect sizes *d* ranging from 1.04 to 2.56 standard deviations to discriminate patients from non-clinical adolescents), and satisfactory discriminant and convergent validity with covariations of personality development (Goth et al., 2012).

Data analysis

We used IBM SPSS statistical software for Windows to compute our statistical analyses. First, we calculated sociodemographic and attachment group differences for patients and controls using Pearson's Chi-square tests. For comparison of *AIDA* subscale scores independent-samples *t*-test were used to analyze differences between patients and controls on identity diffusion, incoherence and discontinuity. Shapiro-Wilk tests revealed no violation of the normality assumption of the parametric tests (t-tests, ANOVAS) for continuous data. For diagnostic subgroup comparisons, we conducted a one-way analysis of variance. Post hoc comparisons

were performed using the Tukey Honest Significant Differences test (HSD) adjusted for multiple testing to reduce the chance of a type-I error. The HSD test compares the difference between each pair of means with appropriate adjustment for the multiple testing. Next, we calculated differences on *AIDA* subscales using two-way ANOVA Type III with the factors PD group and AAP group for the four-group attachment classifications (F, Ds, E and U) and its interaction term (PD * AAP) controlled by age and gender as covariates assuming normal distribution of data. To account for low sample sizes in the subgroups, bootstrapped confidence intervals for means and standard deviations were calculated with simple sampling using a number of $N = 1000$, and CI level set at 95.0%. The Levene's F tests showed that the homogeneity of variance assumption was not met ($p \leq .001$). To address unequal variances, additional two-way ANOVAs were performed using the rank-transformation of the data values. This rank-transformation procedure can be used to determine whether the ranks differ from group to group (Conover & Iman ([1981](#))). In addition, we conducted one-way ANOVA with attachment pattern groups as factor and the Games-Howell post hoc procedure for unequal variances to determine which attachment groups differed significantly on *AIDA* subscales scores.

Due to the low number of secure individuals in the clinical sample and our particular interest in the unresolved attachment pattern, we continued our analyses using the two-group classification (resolved group: F, Ds, E vs. unresolved group: U). We performed these analyses by using independent sample *t*-tests. Significance levels were set at $\alpha = 0.05$ for our statistical analyses. To allow a better evaluation of our findings, we calculated effect sizes by using Cohen's conventions (small effect $d = .2$, medium effect $d = .5$, large effect $d = .8$).

Results

Characteristics of the study sample

Our patient sample was significantly younger, $t(262) = 5.912$, $p < .001$, $d = 0.81$, and there were significantly more females compared to the non-clinical sample, (patient group: boys/girls, 144/36 vs. control group: boys/girls, 44/40), (χ^2 (1, $n = 264$) = 21.311, $p < .001$, $\Phi = -0.284$. Further sociodemographic characteristics of our sample are presented in Table [1](#).

We assigned our patient sample to ICD-10 diagnoses based on the *SCID-I* and *II* interview: mental and behavioral disorders due to psychoactive substance use (F1, $N = 3$), mood disorders (F3, $N = 45$), anxiety, dissociative, stress-related and somatoform mental disorders (F4, $N = 23$), eating disorders (F5, $N = 44$), personality disorders (F6, $N = 39$) and behavioral and emotional disorders with onset occurring in childhood and adolescence (F 9, $N = 26$).

The majority of our sample with a diagnosed PD fulfilled the criteria for at least one comorbid axis I disorder and only two patients received no comorbid axis I disorder. In patients with a classified PD, 80% ($N = 31$) had one PD and 20% ($N = 8$) fulfilled the criteria for two or more PD. Distributions of PD categories in the total clinical sample ($N = 180$) were as follows: 13.9% ($N = 23$) avoidant, 2.4% obsessive-compulsive ($N = 4$), 1.8% paranoid ($N = 3$), 0.6% histrionic ($N = 1$), 5.4% borderline ($N = 9$) and 3.6% antisocial ($N = 6$).

Identity diffusion among patients and controls

Patients demonstrated significantly higher scores on discontinuity, $t(262) = 10.041$, $p \leq .001$, $d = 1.4$ and incoherence, $t(262) = 7.082$, $p \leq .001$, $d = 0.99$, indicating a more disturbed identity in these

dimensions compared to the control group. Furthermore, patients showed a higher sum score on the identity diffusion scale, $t(262) = 8.795$, $p \leq .001$, $d = 1.23$ (see Table [2](#)).

Among the patient sample, analysis of variance demonstrated a main effect of ICD-10 diagnoses on identity diffusion, $F(5, 174) = 7.071$, $p \leq .001$, $\eta_p^2 = .169$. Post hoc analysis using Tukey's HSD test adjusted for multiple testing indicated that patients with PD (F6) demonstrated higher scores on identity diffusion, incoherence and discontinuity than patients with eating disorders (F5, $p \leq .001$). Patients with PD (F6) had also higher scores on identity diffusion and discontinuity than patients with behavioral and emotional disorders with onset occurring in childhood and adolescence (F9, $p \leq .001$), but they did not differ from the other ICD-10 subgroups (F1, F3, F4) (see Table [3](#)).

Unresolved attachment and identity diffusion

Distributions of the four attachment patterns (F, Ds, E and U) differed significantly between controls and patients. As expected, our results demonstrate a lower prevalence of the unresolved attachment pattern in the control group compared to the clinical group, χ^2 (3, $n = 264$) = 76.401, $p \leq .001$, $\Phi = .538$ (Table [4](#)).

Two-way ANOVA with factors PD group and AAP group controlled for age and gender found significantly higher scores on discontinuity, incoherence and identity diffusion between patients and controls (Table [5](#)). We found no significant differences on the AIDA subscales for the four attachment groups and no significant differences for the interaction between PD by attachment pattern groups.

Furthermore, to account for unequal variances parametric two-way ANOVA using rank-transformation of AIDA subscales showed again significantly higher identity diffusion, incoherence and discontinuity scores for patients compared to controls ($p < .001$). Between attachment pattern groups, a trend showed towards significant results for identity diffusion (*p*-value 0.05007), discontinuity (0.06835), and incoherence (0.06093), which might be due to the low statistical power in the small groups. Table [5](#) shows no significant differences in identity diffusion, incoherence and discontinuity scores for the four attachment pattern groups when considered within the clinical group, and when compared within the control group (PD*AAP).

Considering attachment pattern groups only, one-way ANOVA not controlled for age and gender, Games-Howell post hoc analysis revealed significant differences for the three AIDA subscales between secure, insecure and unresolved attachment groups. In particular, the mean score for identity diffusion increased from secure to insecure attachment patterns (Ds: 29.72, 95% CI [13.175, 46.256]; E: 23.14, 95% CI[2.175, 44.102]) and from the two insecure groups to the unresolved group (Ds: 18.83, 95% CI [2.169, 35.496], E: 25.41, 95% CI[4.328, 46.491]). Interestingly, the two insecure groups (Ds, E), did not differ on the AIDA subscales.

Due to the low number of secure individuals in the clinical sample and our particular interest in unresolved attachment, we used the two-group classification (resolved group: F, Ds, E vs. unresolved group: U) for further analyses.

We found a higher prevalence of unresolved attachment patterns in the patient group compared to the control group (48.3%, $N = 87$ vs. 11.9%, $N = 10$), χ^2 (1, $n = 264$) = 32.700, $p \leq .001$, $\Phi = .452$. Our results show that patients with an unresolved attachment reported significantly higher scores on identity diffusion, $t(178) = 2.203$, $p = .029$, $d = .33$, incoherence, $t(178) = 2.179$, $p = .031$, $d = 0.33$, and discontinuity, $t(178) = 1.986$, $p = .049$, $d = 0.30$, than patients

Table 1. Sociodemographic characteristics between controls and patients

| | Personality disorder | | | Φ | |
	Controls ($n = 84$)	Patients ($n = 180$)	χ^2	Cramers Phi	p
Living Situation (%)			3.70	0.119	0.054
Living at home	98.8	93.3			
Living alone/foster care	1.2	6.7			
Place of residence			12.97	0.222	0.005
City	31.0	15.8			
Town	8.3	21.9			
Village	60.7	62.3			
Amount of siblings			4.22	0.127	0.121
Single child	4.8	13.1			
One sibling	46.4	42.6			
Two or more siblings	48.8	44.3			
Marital status of parents			12.73	0.220	0.013
Married/partnership	72.6	50.0			
Single/divorced	26.2	45.0			
Deceased	1.2	5.0			
Occupation			11.28	0.210	0.004
Attending school	96.4	80.9			
Employed/trainee	2.4	12.7			
Unemployed	1.2	6.4			
Gender (%)			21.31	0.284	<0.001
Male	47.6	20.0			
Female	52.4	80.0			

Note. p values refer to group differences based on χ^2 tests; the classification for residence branches into the following three categories: City = population of 100,000–300,000; Town = population of 1,000–20,000, Village = population of <1,000 people; PD = personality disorder.

Table 2. Identity diffusion among the patient and the control sample

| | Total sample | | | | | | |
| | Patient group ($N = 180$) | | Control group ($N = 84$) | | F | df | p |
	M	SD	M	SD			
AIDA							
Discontinuity	50.63	19.42	26.87	14.12	10.988	262	<.001
Incoherence	57.23	25.16	35.65	17.70	17.366	262	<.001
Identity diffusion	107.86	42.42	62.52	30.39	16.009	262	<.001

Note. AIDA = Assessment of Identity in Adolescence, $p \leq .001$.

with a resolved attachment pattern. Interestingly, these differences between the resolved and the unresolved attachment groups could not be found in the control sample. Means and standard deviations for the three AIDA subscales for patients and controls are listed in Table 6.

Concerning the severity of unresolved attachment, patients with severe identity diffusion ($N = 87$, AIDA total score>149) demonstrated a higher amount of traumatizing attachment-related material in their interviews ($M = 1.11$, $SD = 1.41$) compared to those with no identity diffusion ($N = 97$, $M = .67$, $SD = .88$),

$t(178) = 2.422$, $p = .016$, $d = 0.38$. Furthermore, patients with identity diffusion had more traumatic material in their story responses to pictures portraying elements of mutual enjoyment (i.e. adult-adult dyadic pictures) and caregiving relationships (i.e. adult-child dyadic pictures) ($M = .40$, $SD = .75$) compared to the other group ($M = .12$, $SD = .32$), $t(178) = 3.166$, $p = .002$, $d = 0.49$.

Discussion

The overall goal of the present study was to provide first data on the severity of unresolved attachment and identity diffusion in adolescent age groups. Two main findings emerged from the present study. First, adolescents with identity diffusion were more often classified with an unresolved attachment pattern compared to those with no identity diffusion. Second, adolescents with psychiatric disorders and an extreme level of identity diffusion showed a higher severity of unresolved attachment, particularly in relation to interpersonal contexts.

As there are only very few studies on the severity of identity diffusion in adolescent inpatient psychiatric settings, we calculated differences between adolescents with mental disorders and an adolescent control group with no present or history of mental illness. In our analyses we observed a higher prevalence of identity diffusion in the patient group than the control group which is in line with other studies (Goth et al., 2012). Furthermore, studies on

Table 3. Means and standard deviations on AIDA subscales and total scale for the ICD-10 subgroups

	F1		F3		F4		F5		F6		F9		F	df	P
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD			
Discontinuity	54.67	21.78	55.78	20.26	53.16	14.71	41.45	15.74	60.98	18.82	39.03	16.55	8.123	5	≤.001
Incoherence	56.00	41.62	62.69	22.72	63.32	20.44	44.88	21.95	67.32	25.81	48.32	26.03	5.288	5	≤.001
Diffusion	110.67	62.74	118.47	40.60	116.46	33.12	86.35	35.37	128.30	42.90	87.34	39.73	7.071	5	≤.001

Note. AIDA = Assessment of Identity in Adolescence, ICD = International Classification of Mental Disorders, F1 = mental and behavioral disorders due to psychoactive substance use, F3 = mood disorders, F4 = anxiety, dissociative, stress-related and somatoform mental disorders, F5 = eating disorders, F6 = personality disorders, F9 = behavioral and emotional disorders with onset occurring in childhood and adolescence.

Table 4. Distribution of attachment patterns in the clinical and the control group

	Attachment classifications				
	Clinical group (N = 180)	Control group (N = 84)	χ^2	Φ	*p*
Secure	6	35	76.401	.538	≤.001
Insecure-dismissing	55	29			
Insecure-preoccupied	32	10			
Unresolved	87	10			

identity diffusion in adolescents with a diagnosed PD compared to other diagnostic subgroups are still underrepresented in the literature. Concerning ICD-10 diagnostic subgroups, adolescents with PD scored significantly higher on *AIDA* subscales than patients with eating disorders and patients with behavioral and emotional disorders with onset occurring in childhood and adolescence. Unexpectedly however, patients with other ICD-10 diagnoses, particularly those with affective disorders, demonstrated similarly high scores. This result is in line with a recently published study by Achermann et al. (2022) who also found equally high *AIDA* scores in patients with depression and borderline PD. However, in contrast to our results Sharp et al. (2021) found higher *AIDA* subscales scores in patients with borderline PD compared to patients with other mental disorders. Furthermore, Jung et al. (2013) reported the highest *AIDA* scores in patients with PD, the lowest scores in those with externalizing disorders and adolescent patients with internalizing disorders scored in between. These discrepancies might be explained by the heterogeneous composition of the samples in previous studies which included a wide range of psychiatric disorders for their comparison (i.e. emotional disorders, eating disorders and depression in the internalizing group). To draw further conclusions, more research is needed that differentiates between diagnostic subgroups.

Our second main finding was, as expected, that patients with an unresolved attachment status demonstrated higher scores on identity diffusion compared to those with a resolved attachment status (F, Ds, E). Our results might be understood in the context of Otto Kernberg's object-relation model of personality organization that integrates important elements of attachment theory (Kernberg, 2006). According to Kernberg (2006) an individual constructs two parallel segments of experiences during infancy. The first segment of experience consists of a satisfied self that relates to a reliable and soothing significant other. The second segment represents an experience in which an unhappy self relates to a dissatisfactory and irritating other. This early condition is gradually and naturally modified as the individual realizes that the ideal attachment figure can sometimes become a frustrating caregiver and the satisfied self

can sometimes turn into a frustrated self. Normal identity development in this context can be defined as a successful integration of both aspects of the self and the significant other. However, if bad experiences are predominant, this combination of segments cannot be achieved and the individual is in need to keep these segments separated so that they are not contaminated by a persecutory self and a frightening world by using defensive mechanisms. In attachment theory, defensive mechanisms are used to exclude distressing attachment-related experiences and associated affects to preserve the integrity of the internal working model of the self (George & West, 2012). However, a massive and extensive use of defensive mechanisms results in a suppression of direct expression of attachment-related memories, behaviors, thoughts and feelings (George & West, 2011).Nevertheless, our cross-sectional results must be interpreted with caution when discussed in relation to a developmental model of identity diffusion. Yet more research using a longitudinal study design is needed before strong conclusions can be drawn regarding this aspect.

Our data suggests that patients with insecure attachment patterns show higher levels of identity diffusion than secure individuals. Those with a dismissing attachment pattern heavily use deactivating defenses that are characterized by a denial of attachment needs and an endorsement of self-sufficient strength that does not require to seek out attachment figures for comfort and care. Their deactivating strategy effectively turns away attachment-related distress and need. Concerning their identity formation, they evaluate themselves as strong, independent and unaffected by stressors. At the same time, these individuals are incapable to process attachment-related distress consciously and develop an incoherent idealized sense of the self (George & West, 2012). Individuals with an insecure-preoccupied pattern use cognitive disconnection as their predominant defense. They disconnect affect, cause, source and effect of an attachment-related stressor that makes an accurate interpretation of the meaning of attachment relationships difficult (George & West, 2011). Concerning identity diffusion, they oscillate between a good and a bad evaluation of the self (Kernberg, 2006). In our study, both insecure groups scored

Table 5. Two-way ANOVA on AIDA subscales by PD and AAP groups controlled by age and gender

	No PD N = 84								PD N = 180							
	Attachment pattern groups (AAP)								Attachment pattern groups (AAP)							
	Secure (F) N = 35		Dismissing (Ds) N = 29		Preoccupied (E) N = 10		Unresolved (U) N = 10		Secure (F) N = 6		Dismissing (Ds) N = 55		Preoccupied (E) N = 32		Unresolved (U) N = 87	
	M (CI 95%)*	SD (CI 95%)	M (CI 95%)	SD (CI 95%)	M (CI 95%)	SD (CI 95%)	M (CI 95%)	SD (CI 95%)	M (CI 95%)	SD (CI 95%)	M (CI 95%)	SD (CI 95%)	M (CI 95%)	SD (CI 95%)	M (CI 95%)	SD (CI 95%)
Discontinuity	24.9 (21.4–28.6)	17.4 (13.8–20.4)	29.4 (23.0–35.9)	17.4 (13.8–20.4)	21.5 (16.0–26.7)	8.8 (3.4–11.8)	31.7 (22.3–43.1)	17.6 (6.6–24.8)	40.5 (29.5–54.8)	15.2 (2.2–21.0)	50.1 (45.7–54.5)	16.8 (2.2–21.0)	45.5 (39.1–52.5)	19.3 (14.6–23.2)	53.6 (49.3–57.7)	20.8 (18.2–23.3)
Incoherence	32.8 (28.2–37.4)	14.1 (11.2–16.3)	38.7 (30.9–46.0)	20.3 (16.5–22.9)	27.9 (22.6–32.3)	8.0 (3.8–10.7)	44.7 (29.7–61.8)	24.0 (12.2–31.3)	49.7 (26.0–78.5)	30.2 (3.4–42.2)	54.8 (48.4–60.6)	23.6 (19.1–27.1)	51.4 (42.7–60.7)	26.1 (22.4–27.3)	61.4 (56.3–66.6)	25.1 (22.4–27.3)
Identity diffusion	57.7 (51.0–64.9)	22.4 (17.4–26.6)	68.1 (54.6–81.6)	36.6 (29.7–41.5)	49.4 (39.4–58.6)	15.4 (7.0–20.8)	76.4 (53.1–101.6)	40.4 (17.1–54.9)	90.2 (57.2–131.0)	44.9 (8.3–61.7)	104.9 (94.5–114.9)	38.2 (31.2–44.1)	96.9 (81.5–112.8)	42.5 (33.7–49.3)	115.0 (106.3–124.1)	44.0 (38.7–48.8)

Two-way ANOVA Type III

Factors

| | PD | | AAP | | PD * AAP | | Model |
	F	p	F	p	F	p	R²#
Discontinuity	34.5	<.001	2.3	0.081	0.4	0.786	0.33
Incoherence	16.8	<.001	2.3	0.078	0.4	0.792	0.23
Identity diffusion	26.4	<.001	2.5	0.060	0.4	0.789	0.29

Abbreviations: AIDA = Assessment of Identity Development in Adolescence; AAP = Attachment pattern groups; *CI 95% = Bootstrapped Confidence Intervals based on N = 1000.
#R² = Explained variance by the model.

Table 6. Attachment trauma and AIDA subscale scores for the patient and the control group

	Attachment trauma						
	Yes		No				
	N = 93		N = 87				
Patient group	M	SD	M	SD	F	df	p
Discontinuity	53.58	20.82	47.88	17.68	2.998	178	.049
Incoherence	61.41	25.11	53.32	24.70	0.138	178	.031
Identity diffusion	114.98	44.00	101.20	39.98	1.436	178	.029
	N = 10		N = 74				
Control group	M	SD	M	SD			
Discontinuity	31.70	17.56	26.21	13.60	0.562	82	.251
Incoherence	44.70	23.99	34.43	16.51	2.762	82	.085
Identity diffusion	76.40	40.40	60.65	28.62	1.302	82	.125

Note. AIDA = Assessment of Identity Development in Adolescence.

similarly high on the *AIDA* subscales suggesting that the predominance of one defensive mechanism does not impact the levels of identity diffusion.

However, our data shows that those with an unresolved attachment pattern have higher levels identity diffusion than the secure and both insecure groups. Unlike individuals with a dismissing and a preoccupied attachment pattern, unresolved individuals completely block attachment-related information and affect from entering the consciousness as a result of extremely frightening and trauma-related memories that are intolerable (George et al., 1999). These experiences cannot be integrated into their sense of self, their behavior and thought. Instead, they are kept separate, inaccessible and exist in parallel with models that have access to the consciousness. However, under conditions of severe stress, particularly when the attachment system is intensely activated (i.e. when confronted with loss or threat), these attachment-related fears break through and cause attachment-related dysregulation – a state characterized by emotional flooding or disorganized thought and behavior. The dissociated systems that operate in these individuals (i.e. the contradictory incompatible working models of attachment) puts them at an increased risk for a lack of integration of the concept of the self and of significant others (Kernberg, 2006). This might also explain why we found a higher severity of unresolved attachment and extreme forms of identity diffusion, particularly in interpersonal contexts. Further support for this theoretical framework stems from various studies that demonstrated a high prevalence of severe maltreatment in adolescents with borderline PD (Ibrahim et al., 2018). Furthermore, a chronic parental unpredictability or abandonment as well as severe chaos in the family system increase negative experiences in the past that cannot be integrated and contribute to severe identity diffusion (Zanarini et al., 2020).

Yet interestingly, we did not find this association in the control group who did not suffer from mental illness. Furthermore, our study did not reveal significant differences for the four-group classification when distinguishing between patients and controls. The results might not be significant due to the small sample size of individuals with an unresolved attachment pattern in the control group and secure individuals in the patient sample which seems to be common in community and clinical samples (Bakermans-Kranenburg & van IJzendoorn, 2009; Gander et al., 2017).

Furthermore there are other factors like temperamental and genetic predispositions or psychosocial circumstances that may influence the development of identity diffusion (Leichsenring et al., 2023). Recently published studies suggest an interaction of genetic factors and childhood maltreatment influences on an individual's brain development through altered neuropeptides and hormones and puts these individuals at an increased risk for severe PD (Anderson, 2020; Cattane et al., 2017). For example, a genetically determined amygdala hyperreactivity (Sicorello & Schmahl, 2021) – a very consistent research finding in borderline patients – might contribute to negative affect activation particularly when facing stressful life events. These genetic dispositions towards activating negative emotions combined with a temperamentally given predominance of the negative segments of childhood experiences and an unresolved attachment status might represent main predisposing factors to the development of identity diffusion.

This study has several limitations. First, we conducted the data in an adolescent inpatient and control sample that consisted largely of German-speaking middle-class adolescents with a limited cultural diversity. Although attachment patterns were not associated with sociodemographic variables in previous studies (Gander et al., 2017), replications with a more diverse sample of adolescents are needed. Second, we did not assess an adolescent outpatient sample that might show less severe psychopathology. Third, we had a high proportion of females which is quite common in inpatient psychiatric research samples due to the gender gap observed in health care seeking behavior (Pattyn et al., 2015). Furthermore, our control group was significantly older than the clinical group. In this regard, differences in girls' and boys' development and the differing levels of development within the age range of 14 to 18 years could affect our statistical analyses and interpretation of results.

Fourth, although distributions of attachment patterns in our community and clinical sample are similar to those reported in other adolescent samples (Bakermans-Kranenburg & van IJzendoorn, 2009; Gander et al., 2017), future studies should include a higher number of unresolved individuals with no mental illness and secure individuals in the clinical group to draw further conclusions on the association between identity diffusion and the four attachment patterns. Fifth, we used the *AIDA* self-report questionnaire to assess the level of identity diffusion. Although this measurement shows good psychometric properties (Goth et al., 2012; Sharp et al., 2021) there is a likelihood of method bias. Future studies that evaluate identity functioning using a valid interview procedure (i.e. STiP, (Hutsebaut et al., 2017) might provide a more comprehensive picture of links between unresolved attachment and identity diffusion in young people. In this regard, we discussed our results in the context of the categorical and the dimensional approach to diagnose PD. Although the categorical assessment is still important and necessary, it is different from dimensional concepts of PD. Differentiating between the previous conceptions of PD in the ICD-10 and DSM-IV and the current classifications in the ICD-11 and DSM 5 section III might be important to draw further conclusions.

Notwithstanding these limitations, the present study is the first to explore unresolved attachment patterns and maladaptive identity development in a larger clinical and non-clinical adolescent sample using an attachment interview. Our results extend previous research findings on subjectively reported childhood maltreatment experiences as we investigated unresolved attachment which is related to experiences of a caregiver's failure to sooth hyperarousal or provide protection in response to a traumatic stressor. We adopted a recently developed approach (Buchheim et al., 2008; Gander et al., 2021; Gander, Sevecke, et al., 2018) to analyze the severity and content of unresolved attachment in patients with and without identity diffusion. This approach provides a more comprehensive picture of traumatic attachment-related aspects underlying maladaptive identity development in adolescence. In sum, our findings provide evidence for severe unresolved attachment in patients with extreme forms of identity diffusion.

PD research has increasingly emphasized the importance of differentiating normal identity from identity disturbances in severe personality disorders. The syndrome of identity diffusion which is observed in all severe PD and represents a main criterion of the ICD-11 dimensional construct of PD became increasingly important in clinical assessment and planning therapeutic interventions in psychiatric settings. Our findings postulate that adolescents with severe identity diffusion demonstrate higher levels of unresolved attachment trauma. Assessing and integrating attachment-related information particularly regarding unresolved attachment into treatment might be very helpful for patients to understand how their childhood maltreatment experiences impact their personality functioning particularly in regard to their identity formation. For example, the attachment-based family therapy (ABFT, Ewing et al., 2015) might support these patients to develop more adaptive emotion regulation strategies in the parent-teen relationship as they foster parental sensitivity and dyadic affect regulation. In addition, the Transference-Focused Psychotherapy for adolescents (TFP-A, Normandin et al., 2014) is a manualized psychodynamic treatment that is based on object-relation theory and used in borderline patients.

Furthermore, the results of the present study might also represent a good foundation to develop targeted psychotherapeutic intervention techniques that focus on attachment-related traumatic dysregulation in patients with high levels of identity diffusion. A single case presentation demonstrated how attachment-related information derived from the AAP assessment could support a 16-year old female adolescent patient with BPD and a high level of identity diffusion to understand her emotional reactions of helplessness in response to attachment-related stressors in a Mentalization-Based Treatment setting (MBT, (Gander & Sevecke, 2015). Psychotherapeutic approaches that rely heavily on attachment theory (Buchheim & Diamond, 2018; Keefe et al., 2022; Levy et al., 2006, 2015) might represent highly relevant treatment options for patients with severe identity diffusion.

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