

Research Article

Attachment, Autonomy-Connectedness, and Internalizing and Externalizing Personality Disorder Symptoms

Bachrach N^{1,2*}, Bekker MHJ² and Croon MA²¹GGZ Oost Brabant, Helmond, The Netherlands²Tilburg University, The Netherlands***Corresponding author:** Nathan Bachrach, GGZ Oost Brabant, 5708HA Helmond, The Netherlands**Received:** July 15, 2022; **Accepted:** August 18, 2022;**Published:** August 25, 2022**Abstract**

The aim of this study was to analyze the higher order factor structure of Personality Disorders Symptoms (PDS), and to investigate sex differences in levels of PDS, attachment styles and autonomy-connectedness. Secondly we aimed to test a mediational path model, based upon attachment theory together with neo-analytical object relation theory, with internalizing and externalizing PDS as dependent variables and sex, attachment styles and autonomy-connectedness as explanatory variables.

Our sample consisted of 202 psychology students. We used self-report questionnaires, independent t-tests, and factor- and regression analyses.

Conform expectations a common two-factor solution of internalizing and externalizing was found for PDS. Men were, compared to women, less sensitive to others, more capable of managing new situation, less anxiously attached, more avoidant attached and more externalizing. Conform expectations attachment styles were related to autonomy in a specific way. The analyses of our path model showed that especially anxious attachment predicted internalizing PDS. When leaving out attachment styles in the regression analyses, the autonomy scales also predicted internalizing PDS, indicating spurious correlation effects. Sex and anxious attachment were significant predictors of externalizing pathology.

Our results confirmed the existence of a two-order structure of internalizing and externalizing, sex-differences in levels of autonomy, attachment styles and internalizing and externalizing PDS. In addition, we think our theoretical model gives a good explanation of the specific relationships between sex, attachment, autonomy and internalizing and externalizing PDS.

Keywords: Attachment styles; Autonomy-connectedness; Personality disorders; Internalizing-externalizing; Factor analysis; Sex-differences; and Higher order factors of DSM-IV personality disorders

Introduction

Various authors such as Young, Fonagy and Westen [4,48,49] suggest a major role of disturbed working models of attachment schemata in the development of Personality Disorders (PD). In line with these theoretical frameworks, adult attachment styles can indeed discriminate patients with avoidant, dependent and schizoid PD from those with other PD [46,47]. Regarding cluster C personality disorders anxious attachment and anxious temperament traits appear to be explanatory variables [42]. Far more studies in this area however have been performed on the relationship between attachment and Borderline Personality Disorder (BPD) [1]. Agrawal and colleagues conclude, in their review, that there is a strong association between BPD and insecure attachment. The attachment styles that are most characteristic of BPD subjects are unresolved, preoccupied, and fearful. We conclude in line with other authors that there is ample evidence that PD in general are strongly related to insecure attachment styles [1,41,46].

The studies performed so far regarding this subject were aimed at investigating the relationship between single PD and the various attachment styles that are mentioned in the literature, such as secure, avoidant, ambivalent, and disorganized attachment style [2,3].

Recently though, interesting findings were obtained regarding the higher order categories of PD and attachment styles. Concerning attachment styles, recent studies revealed that adult attachment styles are best conceptualized as regions in a higher order two-dimensional space, called anxious attachment and avoidant attachment [8,12,18,25,44]. Secondly regarding personality psychopathology, various factor analytical studies also showed a two-factor higher order structure namely: internalizing and externalizing [5,34,36,39,43]. We expected to confirm this structure in the current study.

Furthermore there is evidence that sex differences exist in all variables mentioned. To start with clinical disorders, women compared to men higher rates of mood-, eating-, and anxiety disorders and men had higher rates of substance abuse and antisocial behavior [21,27,30,32]. Regarding personality pathology a male-to-female ratio of 3:1 for the antisocial personality disorder is given, and the DSM-5 states that the borderline personality disorder is “diagnosed predominantly (about 75%) in females” (APA, 2013). Secondly, sex-differences have also been found in levels of the higher order categories of attachment and internalizing-externalizing. In a recent meta-analysis [28], regarding sex differences in attachment style, men were found to have higher levels of avoidant attachment –

congruent with detachment and/or denial of attachment, and women were found to have higher levels of anxious attachment. Moreover, regarding sex differences in internalizing and externalizing women had higher mean levels of internalizing psychopathology and lower mean levels of externalizing psychopathology than men [6,33]. In the present study, we again investigated sex-differences in personality pathology and attachment styles, and, in addition, also the relationships between these various sets of sex differences.

We hypothesized that besides disturbed working models of attachment schemata, autonomy problems might also play a role in internalizing and externalizing Personality Disorder Symptoms (PDS). Bowlby’s theory namely states that early insecure attachment experiences lead to insecure attachment schemata, which generate autonomy problems at later age. Autonomy problems will especially be apparent in developmental periods in which individuals normally engage in autonomous behavior, such as in adolescence and adulthood [16,17]. In other words, attachment schemata can be seen as the underlying base from which individuals develop autonomy. Furthermore personality disorders are usually classified from the age of 18 years, a crucial period in which adolescents separate and individuate, a period in which autonomy plays a crucial role. We therefore presume that autonomy might play a crucial role in the development of personality pathology. Our concept of autonomy refers to self-governance including during social interactions, i.e., to the need and capacity for self-reliance and independence, as well as for intimacy and functioning in close relationships [10]. More specifically, consistent with sex differences in mental representations of the self, poor autonomy, particularly high sensitivity combined with low self-awareness, is associated with internalizing PDS, which are more prevalent in women such as women with dependent PD and borderline PD; whereas low sensitivity to others coinciding with high self-awareness is associated with PDS more prevalent in men, such as antisocial PD [6,12]. In line with aforementioned personality disorders, also internalizing clinical disorders, more prevalent in women, such as eating disorders, anxiety disorders and depression are strongly associated to poor autonomy [10,11]. It is therefore assumed that there is a U-shaped relationship between optimal sensitivity to others and psychological health [14]. For these reasons, we aimed to, in the current study, also investigate the role of autonomy in

personality pathology.

To our awareness there are hardly any theoretical models that clarify the sex-specific relationship between sex and internalizing and externalizing personality disorder symptoms. We therefore investigated the role of anxious and avoidant attachment and autonomy-connectedness in internalizing-externalizing PDS. We hypothesized that these variables have direct as well as indirect effects on internalizing and externalizing PDS. Our model elaborates on the theoretical model of Dozier, Stovall and Albus (1999) who stated that, as a result of sex specific attachment styles, internalizing psychopathology and anxious attachment styles are more common among women and externalizing psychopathology and avoidant attachment styles are more common among men. In line with this theoretical reasoning, authors such as [7,9-11,19,20] explain these sex specific differences by the fact that the primary attachment person in children’s lives is usually a woman. According to these authors this is crucial for sex differences in attachment schemata and autonomy development (for a full description see: [9,20,45].

In summary, we conclude first, that PDS are strongly related to insecure attachment styles. Secondly a two-factor higher order of internalizing and externalizing exists in personality psychopathology. Thirdly, internalizing psychopathology appears to be more prevalent in women and externalizing psychopathology more prevalent in men. Fourthly a two-factor higher order of anxious and avoidant attachment exists in attachment styles, and women have higher levels of anxious attachment and men have higher levels of avoidant attachment. Finally, poor autonomy, more in particular, high sensitivity to others combined with low self-awareness, is associated with internalizing psychopathology, and low sensitivity to others coinciding with high self-awareness is associated with externalizing psychopathology.

This lead us to formulate the following mediational model (Figure 1). In the model internalizing and externalizing were causally treated as dependent variables. Sex, autonomy (self-awareness, sensitivity to others, and capacity to manage new situations) and attachment (anxious and avoidant) were treated as explanatory variables. Moreover, the attachment styles were seen as more early in a temporal and/or causal chain than the autonomy variables. We expected all

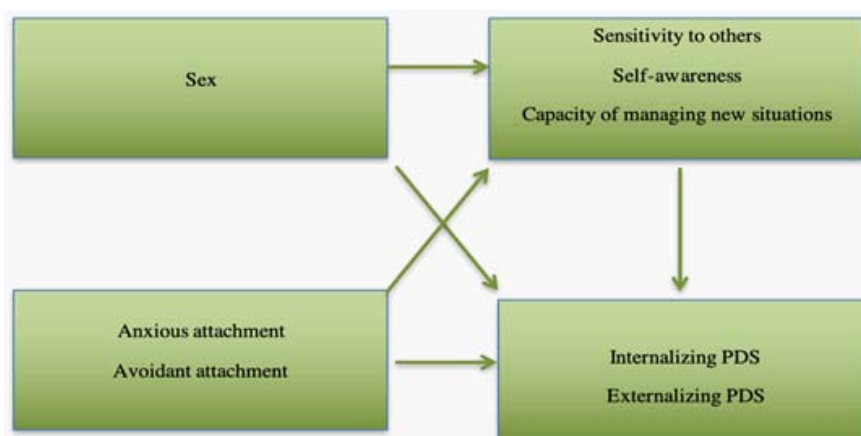


Figure 1: Hypothesized mediational model.

variables to have direct effects as well as indirect mediational effects on internalizing and externalizing PDS.

More specifically we expected to confirm the two-factor higher order categories in personality disorder symptoms (Internalizing- and Externalizing). Secondly we hypothesized sex differences to exist in anxious and avoidant attachment, autonomy, and internalizing and externalizing. Thirdly we expected avoidant attachment to be related to internalizing and externalizing PDS and anxious attachment to internalizing PDS. Fourthly, we expected autonomy-connectedness to be related to PDS in the following specific way: self-awareness and sensitivity to others to be related to internalizing PDS; and self-awareness and capacity of managing new situations to externalizing PDS. Furthermore, we hypothesized anxious attachment to be related to sensitivity to others and self-awareness; and avoidant attachment to be related to self-awareness and capacity of managing new situations. Finally we expected to find the following indirect effects of sex on internalizing and externalizing, through attachment and autonomy: we expected anxious attachment, low self-awareness and high sensitivity to others to mediate the effect of sex on internalizing; and avoidant attachment, self-awareness and sensitivity to others to mediate the effect of sex on externalizing. There are hardly any theoretical models that clarify the relationship between the attachment, autonomy and internalizing-externalizing PDS; this study adds to the current understanding of the relationship between these variables.

Method

Participants and Procedure

The participants in the study were 202, graduate students from the Psychology Department of the Tilburg University, 67 men (33.2 %) and 135 women (66.8 %). The students received credits for participation in the study. The distribution of age was positively skewed ($M = 20.66$, $SD = 4.26$, range from 17 to 50 years, 90 % was younger than 24). Respondents gave permission by an informed consent and were asked to fill out the questionnaires in a plenary session. [24] Found a cumulative percentage of 17 % of positive diagnoses of PDS in a student population using the Questionnaire for Personality Characteristics screener for personality disorders and a prevalence rate of 63 % in a psychiatric population. De Jong et al (1999) report the following prevalence rates of personality disorder, using structured clinical interviews: 13.5 percent in a general population, 60.4 percent in psychiatric patients and 56.5 of addicted patients minimally had 1 personality disorder. In the current population we found a prevalence rate of 16.4. The data of this sample were used in a previous study, in which we investigated the relationship between attachment, autonomy, alexithymia and antisocial behavior [12].

Measures

The *Attachment Style Questionnaire* [25] is a 40-item Likert-type questionnaire, measuring adult attachment styles. It asks about relationships in general rather than romantic or close relationships. The ASQ has five subscales: Confidence, Discomfort with closeness, Relationships as secondary, Need for approval, and Preoccupation with relationships. The items are scored on 6-points scales ranging from (1) "totally agree" to (6) "totally disagree". The ASQ has an adequate reliability, with Cronbach's alpha coefficients ranging from .76 to .84. The 10-week retest reliability coefficients ranged from .67

to .78. [25]. The ASQ showed good construct validity in university- as well as secondary student samples [25]. In the current study we used the Bartlett factor scores for the two-factor solution (anxious and avoidant attachment) that we found in previous studies [12,15]. The correlation between the two factors was .31. The reliability of the Anxious and Avoidant scales were good with Cronbach's alphas of .82 for Anxious as well as for Avoidant.

Questionnaire for Personality Characteristics [Vragenlijst voor Kenmerken van de Persoonlijkheid] [24] measures personality disorders. The 197 questions of the VKP are based on the criteria of the 9 personality disorders from the ICD-10 and criteria from the 13 personality disorders of the DSM-5 (APA, 2013). The VKP has 22 subscales. The questions are stated positively, and scored on 3-point scales ranging from (2) "true", (1) "I do not know", to (0) "false". The questions concern the past 5 years. The reliability of the subscales (Cronbach's alpha) varies from .59 to .78, with an average of .66, and for the ICD-10 subscales from .44 to .75, with an average of .64 [24]. The temporal stability varies for the DSM subscales from .41 and .86, with an average test-retest-correlation from .62, and for the ICD-10 subscales between .29 and .64, with an average test-retest-correlation from .56. [24]. In the current study the reliability of the factors Internalizing and Externalizing were very good with Cronbach's alphas of .91 for Internalizing and .84 for Externalizing.

The *Autonomy-Connectedness Scale* (ACS-30; [10,11] is a 30-item Likert type questionnaire measuring individual differences in autonomy-connectedness. The scale has three subscales: Self-awareness, Sensitivity to others, and Capacity for managing new situations. Items are scored on a 5-point scale, ranging from "disagree" to "agree". The ACS-30 has good psychometric properties. The reliability has repeatedly been proven to be good as measured by reliability measure Cronbach's alpha .81 for Self-awareness, .82 for Capacity of managing new situations and .83 for Sensitivity to others [11]. The ACS-30 also has good construct validity and a robust factor structure. Exploratory and confirmatory factor analysis repeatedly confirmed its 3-factor structure [10,11].

Statistical Analyses

In order to test our hypothesized model, we first performed factor analyses on the VKP subscales, since we aimed to use the higher order factors of these scales. Bartlett factor scores were created. In order to analyze sex differences in levels of attachment, internalizing and externalizing and autonomy-connectedness, we performed independent t-test. Thereafter we performed multiple regression analyses in order to test our hypothesized model (Figure 1), direct and indirect-meditational effects were analyzed. Two separate regression analyses were performed, in the first analysis the entire model was tested, in the second analyses the attachment scales (anxious and avoidant) were left out of the analysis. This was done in order to investigate if the effect of autonomy on internalizing-externalizing PDS changed when adding the, possibly more fundamental attachment scales to the equation.

Results

Preliminary Analyses

Descriptives: For descriptive purposes, bivariate correlations for all subscales under study were examined and reliability was measured

Table 1: Correlations and Alpha's of all Scales.

	α	1	2	3	4	5	6	7
1 Self-Awareness	.74	1						
2 Sensitivity to Others	.84	-.36***	1					
3 Capacity of Managing New Situations	.77	.28***	-.37***	1				
4 Anxious attachment	.82	-.50***	.51***	-.54***	1			
5 Avoidant attachment	.82	-.03	-.39***	.03	.17*	1		
6 Internalizing	.91	-.36***	.43***	-.43***	.78***	.20**	1	
7 Externalizing	.84	.08	-.18**	.05	.10	.33***	.30***	1

(Correlations based on pair wise deletion of missing cases)

Note* $p < .05$; ** $p < .01$; *** $p < .001$

Table 2: Factor Loadings for all VKP Scales on Two Factors and Factor Correlations among Rotated Factors.

Scale	Factor 1 Internalizing	Factor 2 Externalizing
Paranoid	.47	.31
Schizoid	.28	.25
Schizotypal	.37	.32
Antisocial part A irresponsible behaviour	-.10	.47
Antisocial part A antisocial behaviour	-.01	.56
Antisocial part C Conduct disorder before age 15	-.08	.56
Borderline	.49	.49
Theatrical excessive attention seeking behaviour	.04	.45
Theatrical excessive emotionality	.51	.04
Narcissistic	.17	.70
Avoidant	.81	-.18
Dependent	.76	-.12
Obsessive Compulsive	.46	.17
Passive Aggressive	.35	.55
Depressive	.82	-.02
Correlations		
Factor 1 Internalizing	1	
Factor 2 Externalizing	.30	1

by calculating Cronbach's alphas (Table 1).

Factor Analysis

Factor analysis of the single VKP subscales: In order to perform a higher order factor analysis on all VKP subscales, all subscales were first subjected to an item analysis, in order to create homogenous scales. Thereafter we created mean scores for all participants on these new homogenous scales. On these mean scores we subsequently performed a higher order factor analysis. Both factor analyses were based on the correlation matrix. Since all items had three ordered response categories, categorical Exploratory Factor Analysis (EFA) was carried out with the software program Mplus [40]. In this approach each ordinal variable is treated as a categorization of an underlying normally distributed continuous variable. We report the results of the analyses based on the indices of probability of close fit RMSEA > .05. In order to control for Type 1 errors, the significance level was set at $\alpha = .01$ (EST/ S.E > 2.326), since we expected positive and large factor loadings. Detailed information about the VKP item

Table 3: Means of Men and Women on all Scales.

Scale	Men (N = 67)	Women (N = 135)	t-test	d
ACS-30				
Self-Awareness	3.85 (.62)	3.72 (.65)	1.32	.2
Sensitivity to Others	3.42 (.58)	3.83 (.50)	-5.23**	-.76
Capacity of Managing new Situations	3.26	2.87 (.82)	3.22**	.49
Factors				
Anxious attachment	-.34 (1.16)	.17 (1.13)	-3.02**	-.45
Avoidant attachment	.43 (1.46)	-.21 (1.17)	3.39**	.49
Internalizing	-.14 (1.19)	.67 (-.99)	-1.28	-.19
Externalizing	.78 (1.25)	-.39 (.81)	7.98**	1.14

Note: * $p < .05$; * $p < .01$; Standard Deviations appear in parentheses below means.

selection procedure can be obtained at the first author.

Higher order factor analysis of all VKP subscales: (Table 2) shows factor loadings of the VKP scales, and the correlations between the two obliquely rotated factors. A moderate but significant (5 % level) correlation of .30 was found between the two factors. The higher order principal axis factoring analyses showed that a two-factor solution provided a good explanation of the correlation between the subscales. The model fit indices were: Chi-square test = 141.52 (df = 64, $p = 0.00$), TLI = .90, and RMSEA = .01. In the obliquely rotated two-factor solution, the following subscales loaded high on the first factor (Internalizing): borderline, theatrical excessive emotionality, avoidant, and dependent, obsessive compulsive and depressive. On the second factor (Externalizing) the following subscales loaded high: antisocial part A: irresponsible behavior, antisocial part: B antisocial behavior, antisocial part C: conduct disorder before age 15, borderline, theatrical excessive attention seeking behavior, narcissistic and passive-aggressive. The cluster-A personality disorders, paranoid, schizoid and schizotypal, loaded relatively moderate on both factors and borderline loaded high on both factors.

Sex-Differences

To investigate whether sex-differences were present independent *t*-test were calculated for all variables. (Table 3) contains the means and standard deviations of women and men on these scales as well as the results of the independent *t*-tests. Significant differences at the 1% level were found for Sensitivity to Others, Capacity of Managing New Situations, Anxious attachment, Avoidant attachment and

Externalizing. Men were, compared to women, less sensitive to others ($t = -5.23, p < .001$), more capable of managing new situation ($t = 3.22, p < .001$), less anxiously attached ($t = 3.02, p < .001$), more avoidantly attached ($t = 3.39, p < 0.001$) and more externalizing ($t = 7.98, p < .001$).

Regression Analyses

Regression analyses of the entire model: The regression analyses were performed with the software program Mplus [40]. Direct as well as indirect mediation effects were estimated and tested on significance. We will report the regression analyses of the dependent variables, Internalizing and Externalizing, on the independent variables Sex, the three autonomy scales (Self-Awareness, Sensitivity to Others, and Capacity to Manage New Situations) and Anxious and Avoidant attachment. Secondly we will also report the separate regression analyses of the dependent variables, Internalizing and Externalizing, on the independent variables sex and the three autonomy scales (Self-Awareness, Sensitivity to Others, and Capacity to Manage New Situations). A 5% significance level was maintained. In these regression analyses we controlled for the effects of gender, by adding sex as a dummy variable to the regression analyses.

Direct Regression Effects

Sex and attachment: In order to test the direct effects of our hypothesized model we firstly regressed Anxious attachment and Avoidant attachment on sex. (Table 4) contains the unstandardized estimates of the direct effects of all regression analyses performed. Both explanatory variables had significant regression coefficients, Anxious attachment ($B = .51, SE = .17, t = 3.03$); Avoidant attachment ($B = -.64, SE = .19, t = -3.41$), these results were in line with the results of the independent t-tests.

Autonomy, sex and attachment: Next, following our model, the three autonomy scales (Self awareness, Sensitivity to others and Capacity of managing new situations) were regressed on sex, Anxious attachment and Avoidant attachment. In the regression analysis for Self-awareness, only Anxious attachment had a significant regression coefficient ($B = -.25, SE = .04, t = -7.01$). For Sensitivity to Others all explanatory variables had significant regression coefficients, sex ($B = .15, SE = .06, t = 2.36$), Anxious attachment ($B = .27, SE = .03, t = 10.63$), Avoidant attachment ($B = -.19, SE = .02, t = -8.55$). Subsequently concerning Capacity of Managing New Situations, only Anxious attachment ($B = -.38, SE = .04, t = -8.79$) had a significant regression coefficient.

Regression analyses of the Complete Model

Internalizing: Furthermore the dependent variable Internalizing was regressed on sex, Anxious attachment, Avoidant attachment, Self-Awareness, Sensitivity to Others and Capacity of Managing New Situations. Anxious attachment ($B = .61, SE = .06, t = 10.05$), Avoidant attachment ($B = .13, SE = .05, t = 2.84$) had significant regression coefficients. Sensitivity to Others almost reached significance ($B = .21, SE = .12, t = 1.70$). The regression coefficient of Anxious attachment was significantly larger compared to that of Avoidant attachment ($B = .48, SE = .09, t = 5.38$). When controlling for all other variables under study, Anxious attachment was highly associated with Internalizing.

Externalizing: Following our hypothesized model, Externalizing was regressed on sex, Anxious attachment, Avoidant attachment,

Table 4: Results of the Direct Effects of the Regression Analyses.

		Anxious attachment				
		B	SE	b	t	p
Sex		.51	.17	.21	3.03	.00
		R ² = .04, F (1,200) = 9.21 p = .00				
		Avoidant attachment				
		B	SE	b	t	P
Sex		-.64	.19	-.23	-3.41	.00
		R ² = .05, F (1,200) = 11.42 p = .00				
		Self-Awareness				
		B	SE	b	t	p
Sex		.02	.09	.02	.26	.80
Anxious attachment		-.25	.04	-.46	-7.01	.00
Avoidant attachment		.03	.03	.06	.86	.38
		R ² = .205, F (3,198) = 17.02 p = .00				
		Sensitivity to Others				
		B	SE	b	t	P
Sex		.15	.06	.13	2.36	.02
Anxious attachment		.27	.03	.56	1.63	.00
Avoidant attachment		-.19	.02	-.45	-8.55	.00
		R ² = .50, F (3,198) = 66.00 p = .00				
		Capacity of Managing new Situations				
		B	SE	b	t	p
Sex		-.15	.11	-.09	-1.38	.17
Anxious attachment		-.38	.04	-.54	-8.79	.00
Avoidant attachment		.06	.04	.10	1.64	.10
		R ² = .31, F (3,198) = 29.65 p = .00				
		Internalizing				
		B	SE	b	t	p
Sex		-.15	.11	-.07	-1.34	.18
Anxious attachment		.61	.06	.67	10.05	.00
Avoidant attachment		.13	.05	.16	2.84	.00
Self-awareness		.06	.08	.04	.75	.45
Sensitivity to others		.21	.12	.11	1.7	.08
Capacity of managing new situations		-.11	.07	-.08	-1.55	.12
		R ² = .60, F (6,196) = 49.62 p = .00				
		Externalizing				
		B	SE	b	t	p
Sex		-1.12	.15	-.47	-7.34	.00
Anxious attachment		.19	.09	.21	2.35	.02
Avoidant attachment		.10	.06	.12	1.56	.12
Self-awareness		.16	.12	.09	1.32	.19
Sensitivity to others		-.04	.17	-.02	-.24	.81
Capacity of managing new situations		.13	.10	.10	1.34	.18
		R ² = .29, F (6,196) = 13.34 p = .00				

Table 5: Results of the Direct Effects of the Regression Analyses of the Autonomy Scales on Internalizing and Externalizing PDS.

	Internalizing PDS				
	B	SE	β	<i>t</i>	<i>p</i>
Sex	-.18	.14	-.08	-1.22	.22
Self-awareness	-.25	.11	-.15	-2.30	.02
Sensitivity to others	.43	.13	.23	3.20	.00
Capacity of managing new situations	-.45	.09	-.34	-5.24	.00
R ² = .28, F (4, 198) = p = .00					
	Externalizing PDS				
	B	SE	β	<i>t</i>	<i>p</i>
Sex	-1.15	.16	-.48	-7.36	.00
Self-awareness	.03	.12	.02	.29	.77
Sensitivity to others	-.03	.14	-.01	-.18	.86
Capacity of managing new situations	.01	.09	.00	.10	.92
R ² = .24, F (4, 198) = p = .00					

Table 6: Results of the Indirect Effects of the Regression Analyses.

	Internalizing				
	B	SE	β	<i>t</i>	<i>p</i>
Sex through Anxious attachment	.32	.11	0.14	2.91	.00
	Externalizing				
	B	SE	β	<i>t</i>	<i>p</i>
Sex through Anxious attachment	.05	.03	.12	2.05	.04
Sex through Avoidant attachment	-.04	.02	-0.10	-2.07	.04

Self-Awareness, Sensitivity to Others and Capacity of Managing New Situations. Sex ($B = -.117, SE = .15, t = -7.34$) and Anxious attachment ($B = .20, SE = .09, t = 2.35$) had significant regression coefficients. Sex had a negative effect on Externalizing, indicating that men were significantly more at risk for externalizing pathology than women. The regression coefficient of sex was not significantly larger compared to that of Anxious attachment ($B = .10, SE = .13, t = .81$).

Regression Analyses of the Partial Model

Internalizing, sex and autonomy: Subsequently separate regression analyses were performed to analyze the role of the three ACS-30 scales on Internalizing and Externalizing, when leaving out the attachment scales. Table 5 contains the unstandardized estimates of the direct effects of all regression analyses performed. The dependent variable Internalizing was regressed on sex, Self-Awareness, Sensitivity to Others and Capacity of Managing New Situations. In this regression analyses, Self-Awareness ($B = -.15, SE = .11, t = -2.30$), Sensitivity to Others ($B = .23, SE = .13, t = 3.20$), and Capacity of Managing New Situations ($B = -.34, SE = .09, t = -5.24$) all had significant regression coefficients. Self-Awareness and Capacity to Managing New Situations contributed negatively to Internalizing, and Sensitivity to Others, positively. Apparently when leaving out Anxious and Avoidant attachment in the regression analyses all ACS-30 scales significantly predict Internalizing pathology. This indicates spurious correlation effects, because compared to the previous results of regression analyses here above in which Anxious and Avoidant attachment were taken into account and which the three ACS-30

scales did not have significant regression coefficients, the three ACS-30 scales now did have significant regression coefficients.

Externalizing, sex and autonomy: Next the dependent variable Externalizing was regressed on sex, Self-Awareness, Sensitivity to Others and Capacity of Managing New Situations. Only sex ($B = -.48, SE = .16, t = -7.36$), had significant regression coefficients.

Indirect Regression Effects in the Complete Model

Furthermore, we performed regression analyses in which all the possible indirect effects of Sex on Internalizing and Externalizing in our complete model were tested. Here we only report the significant indirect effects. Table 6 gives the unstandardized estimates of the indirect effects of all significant regression analyses found in the regression analyses performed.

Sex had a significant positive total indirect effect on Internalizing ($B = .35, SE = .13, t = 2.70$). The direct effect of Sex on Internalizing however was negative ($B = -.14, SE = .11, t = -1.34$) whereby the positive total effect was annihilated ($B = .20, SE = .16, t = 1.29$). Significant indirect effects of sex to Internalizing were found through Anxious attachment ($B = .32, SE = .11, t = 2.90$) as well as through Avoidant attachment ($B = -.08, SE = .04, t = -2.18$).

The total negative indirect and negative direct effects of Sex on Externalizing both did not reach significance. The total effect of sex on Externalizing however did reach significance ($B = -1.16, SE = .15, t = -8.03$). No significant indirect effects were found for Externalizing, although the effect of sex through Anxious attachment on Externalizing ($B = .10, SE = .05, t = 1.86$) almost reached significance.

Discussion

The present study was aimed at examining if the higher order factor structure of internalizing and externalizing in PDS would exist in our sample as well. Secondly we wanted to investigate sex differences in levels of internalizing and externalizing PDS, anxious and avoidant attachment, and levels of autonomy-connectedness. Thirdly we aimed to test a mediational model in which internalizing and externalizing PDS were dependent variables, and sex, attachment styles and autonomy-connectedness explanatory variables. We expected all variables to have direct effects as well as indirect mediational effects on internalizing and externalizing PDS.

Our factor analysis of personality disorders revealed a two-factor higher order solution, of Internalizing and Externalizing. This finding is in line with previous findings of [6,29,34-36,39]. We think that these higher order categories should be used more often in empirical research and clinical practice, because this will enhance the insight into underlying explanatory variables of common mental disorders among practitioners and researchers. The higher order categories give a good overall indication of the behavioral, emotional and cognitive functioning of individuals to clinicians and secondly the higher order categories are repeatedly found to give a valid structural model of psychopathology, which could be used in our scientific knowledge about psychopathology and the DSM system [29]. Moreover these higher order factors explain comorbidity patterns in common personality psychopathology [29]. The internalizing and externalizing factors were moderately but significantly correlated (.30). By using the factors comorbidity can be reduced, because

a correlation coefficient of .30 is much lower compared to the correlation coefficients, which are found between single personality disorders, which rose up to .65 for passive aggressive and borderline in this study. However a correlation of .30 indicates that internalizing and externalizing PDS can co-occur; and future research is needed to investigate the underlying mechanisms involved in the co-occurrence of internalizing and externalizing PDS. Future DSM task forces might take these findings into account in their search of a structural model of psychopathology and maladaptive personality [29,36,37].

We noticed that borderline PD loaded high on both factors. We therefore conclude that borderline PD includes both internalizing as well as externalizing aspects, which is in line with previous findings of various other studies (see for an overview [5]. Contrary to the findings of [29,39], we did not find evidence for a third higher order category, characterized by thought disorders. The personality disorders paranoid, schizoid and schizotypal namely showed factor loadings around .30 on both factors. Because of the differences between the results of various studies more research with various populations and measures is needed to investigate the higher order structure of single personality disorders and all personality disorders together.

Regarding sex differences in levels of the variables under study, we indeed found, in accordance with our hypothesis, sex differences in levels of autonomy, attachment styles and internalizing and externalizing personality pathology. Men compared to women were less sensitive to others, more capable of managing new situation, less anxiously and more avoidantly attached, and had higher levels of externalizing PDS. The sex differences in levels of autonomy are in line with previous studies [10,11]. In particular, the sex difference in sensitivity to others appears to be a very robust as well as large sex difference. The findings regarding the sex differences in attachment and personality give support to our theoretical introduction based on the theory of [19,20] and the model of Dozier, [23]. Anxious attachment and internalizing PDS were namely indeed more common among women, and avoidant attachment and externalizing PDS more common among men. This might indicate that the sex differences in attachment styles and PDS indeed results from sex-specific attachment experiences in childhood: girls primarily with a same-sex attachment figure, and boys primarily with a cross-sex one, in both cases the mother. Simultaneously, other factors might have contributed to this sex difference as well, such as sex role stereotypes and biological factors [11].

Regarding the relationship between attachment and autonomy, the current findings agree with Bowlby's initial theory [16,17], which states that secure attachment leads to healthy autonomy. We found specific relations between autonomy-connectedness and attachment. We namely found that anxious attachment was negatively related to self-awareness and capacity of managing new situations, meaning, more specifically, that being anxiously attached contributes to a low awareness of one's own opinions, wishes, and needs, and the capacity to express these in social interactions; and to low flexibility and inclination to exploration. Secondly, anxious attachment leads to a high sensitivity to others and avoidant attachment contributes to a lower sensitivity to others. Anxiously attached individuals are, contrary to avoidantly attached individuals, more sensitive to the opinions, wishes, and needs of other people; and have a higher capacity and need for intimacy. These findings although cross-

sectional in nature, add to our insight in how specific insecure attachment schemata may contribute and lead to specific autonomy problems. By taking these specific relations into account in therapies, more targeted and thereby efficient interventions can be given to patients with attachment and autonomy problems.

In the current study our hypothesis regarding the role of autonomy and attachment in internalizing PDS was confirmed. When controlling for sex and the three autonomy scales, we found that anxious and avoidant attachment significantly contributed to internalizing PDS, the other variables in our model did not have significant regression coefficients. Moreover the effect of anxious attachment was significantly larger than that of avoidant attachment, indicating that especially anxiously attached individuals are prone to the development of internalizing PDS. Moreover, when leaving out the attachment scales (anxious and avoidant attachment) from the regression analyses, we found the three autonomy scales did significantly predict internalizing PDS: self-awareness and capacity of managing new situations negatively and sensitivity to others positively. This indicates that being low self-aware, having a low capacity for managing new situations and being highly sensitive to others, make individuals vulnerable to developing internalizing PDS. The results of these analyses however suggest that spurious regression effects were present, since in the first analysis when all variables of our model were taken into account, the autonomy sales did not significantly predict internalizing PDS. In other words the effect of autonomy on internalizing PDS disappeared, when controlling for attachment styles. We conclude that, in line with our theoretical model, the three autonomy components and internalizing PDS all appear to have anxious-and avoidant attachment as a common predictor (maybe even "cause"); and, secondly, that the effect of autonomy on internalizing PDS can be explained by the effects of the more fundamental factors of anxious and avoidant attachment on internalizing PDS. Especially anxious attachment played a significant and large role in internalizing PDS. Treatment of internalizing PDS should therefore not only be targeted at internalizing PDS, but also on underlying anxious attachment schemata. Targeting the underlying sex-specific variables that lead to internalizing PDS might enhance the effect of attachment based psychotherapies such as Attachment Based Therapy [22], Schema Focused Therapy [49] and Mentalization Based Therapy [4] that are aimed at reduction of internalizing PDS. Secondly, targeting autonomy problems in therapy might also be (cost) effective since autonomy also is strongly related to internalizing PDS in a unique way. Autonomy problems might be relatively easier to treat as compared to changing more fundamental insecure attachment schemas through treatment. Autonomy groups are an efficient way to treat autonomy problems. A recent RCT showed that autonomy groups are a cost effective alternative for CBT for anxiety disorders [38]. It might therefore also be a viable transdiagnostic treatment strategy for other internalizing disorders. More research on the effectiveness of autonomy groups for internalizing PDS is needed to investigate if this is indeed the case.

Regarding externalizing psychopathology we found that sex and anxious attachment were significant predictors of externalizing PDS. In line with our theoretical model, men appear to be more prone to externalizing pathology. Contrary to our expectations anxious attachment predicted externalizing pathology. None of the autonomy-

connectedness scales contributed directly to externalizing personality pathology, neither when leaving out the two attachment style scales from the regression analysis. We conclude that, in the current population, we did not find evidence for our hypothesis concerning the role of avoidant attachment and autonomy in externalizing pathology. These results might be due to the characteristics of our population, which might be more characterized by internalizing than by externalizing characteristics. Further research is needed in a truly externalizing population, to further investigate our theoretical model.

Moreover the effect of sex on internalizing appeared to be mediated by anxious attachment in a positive way and avoidant attachment in a negative way. This might indicate, in line with our theoretical introduction, that women are more prone to internalizing pathology since they are more anxiously attached than men, and that men are less prone to internalizing pathology since they are more avoidantly attached. We did not find any indirect effects for externalizing.

Notwithstanding these positive results, a few limitations must be mentioned. In the current study we solely used self-report measures, which might influence the result by inaccuracies, such as social desirability biases. Future research on this subject might profit from using multiple methods, such as simultaneous use of clinical structured interviews and self-report measures or experimental activation of attachment schemata. Secondly, these results might also be due to third variables not included in the current study. Future experimental and/or longitudinal research in internalizing and externalizing clinical populations will add to our understanding of the relationships between attachment, autonomy and internalizing and externalizing PDS.

Despite these limitations, the results of the present study provide further support for the existence of the two-factor higher structure of internalizing and externalizing in PDS. We therefore advise future researchers to use the higher order categories of internalizing and externalizing as well as anxious and avoidant attachment, in order to enlarge the insight into underlying explanatory variables of common mental disorders among practitioners and researchers, they give a good overall indication of the psychological functioning of patients and they give a valid structural model of psychopathology which could be used in new classification systems, thirdly by using these higher order categories one reduces the high correlations between disorders that show high comorbidity figures in the clinical practice, lastly it promotes the search for the common grounds of disorders that show very high comorbidity patterns. Secondly, the results support our hypotheses about the existence of sex differences in autonomy-connectedness, attachment styles, and internalizing and externalizing PDS. In line with our hypotheses sex-specific attachment experiences in childhood might indeed lead to sex differences in attachment styles and personality psychopathology. Further research using multi measurement methods, or experimental research is needed to further clarify these relationships. We however advise researchers and practitioners to be alert on these common sex differences in autonomy, attachment and PDS, because taking these sex-specific variations into account in treatment interventions might enhance treatment effectiveness. Furthermore, sex-specific treatment interventions targeting these specific sex-related variables should be further developed, like in autonomy-groups, because in the clinical

practice there is a lack of such specific treatment interventions. We think that attachment based therapies, such as Schema Focused Therapy, Mentalization Based Therapy, should be further developed and investigated by taking these findings into account. Moreover, sex specific differences in attachment should also be taken into account, since women are more prone to internalizing pathology while they are more anxiously attached and less avoidant attached than men.

References

1. Hans R Agrawal, John Gunderson, Bjarne M Holmes, Karlen Lyons-Ruth. Attachment studies with borderline patients: a review. *Harvard review of psychiatry*. 2004; 12: 94-104.
2. Ainsworth MD. The Development of Infant Mother Attachment. In B. M. Caldwell & H. N. Ricciuti (Eds). *Review of Child Development Research*. 1973.
3. Ainsworth M D S, Blehar M C, Waters E, Wall S. *Patterns of attachment: A psychological study of the strange situation*. Hillsdale, NJ: Erlbaum. 1978.
4. Allen J G, Fonagy P, Bateman A W. *Mentalizing in clinical practice*. Arlington, VA: American Psychiatric Publishing. 2008.
5. Bachrach N, Croon M A, Bekker M H J. Factor Structure of Self-Reported Clinical Disorders and Personality Disorders: A Review of the Existing Literature and a Factor Analytical Study. *Journal of Clinical Psychology*. 2012a; 68: 645-660.
6. Bachrach N, Croon M A, Bekker M H J. Autonomy-Connectedness and Internalizing-Externalizing Psychopathology, among Outpatients. *Journal of Clinical Psychology* (accepted). 2012b.
7. Bakker-Miller J, Jordan J V, Kaplan A G, Striver I P, Surrey J L. *Women's growth in connection*. New York/London: Guilford Press. 1991.
8. Bartholomew K, Horowitz L M. Attachment Styles Among Young Adults: A Test of a Four-Category Model. *Journal of Personality and Social Psychology*. 1991; 61: 226-244.
9. Bekker M H J. The Development of an autonomy scale based on recent insights into gender identity. *European Journal of Personality*. 1993; 7: 177-194.
10. Bekker M H J, van Assen M A L M. A short form of the autonomy scale: Properties of the autonomy-connectedness scale (ACS-30). *Journal of Personality Assessment*. 2006; 86: 51-60.
11. Bekker M H J, Van Assen M A L M. Autonomy-connectedness and gender. *Sex Roles*. 2008; 59: 532-544.
12. Bekker M H J, Bachrach N, Croon MA. The relationships of antisocial behavior with attachment styles, autonomy-connectedness, and alexithymia. *Journal of Clinical Psychology*. 2007; 63: 507-527.
13. Bekker M H J, Belt U. The role of autonomy-connectedness in anxiety and depression. *Depression and Anxiety*. 2006; 23: 274-280.
14. Bekker M H J, Croon. The roles of autonomy-connectedness and attachment styles in depression and anxiety. *Journal of Social and Personal Relationships*. 2010; 27: 908-923.
15. Bekker M H J, Croon M A, van Belkom E G A, Vermeë J B G. Predicting individual differences in autonomy-connectedness: The role of body-awareness, alexithymia, and assertiveness. *Journal of Clinical Psychology*. 2008; 64: 747-765.
16. Bowlby J. *Attachment and loss: vol 1. Attachment*. New York: Basic Books. 1969.
17. Bowlby J. *Attachment and loss: vol 2 Separation*. New York: Basic Books. 1973.
18. Brennan K A, Clark C L, Shaver P R. *Self-report measurement of adult attachment: An integrative overview*. New York, NY, US: Guilford Press. 1998.
19. Chodorow N. *The reproduction of mothering*, University of California Press, Berkeley, CA. 1978.

20. Chodorow N. *Feminism and psychoanalytic theory*, Polity Press, Cambridge. 1989.
21. Compton W M, Conway K P, Stinson F S, Colliver J D, Grant B F. Prevalence, correlates, and comorbidity of DSM-IV antisocial personality syndromes and alcohol and specific drug use disorders in the United States: results from the national epidemiologic survey on alcohol and related conditions. *Journal of Clinical Psychiatry*. 1995; 66: 667-685.
22. Diamond G, Siqueuland L, Diamond GM. Attachment Based Family Therapy for Depressed Adolescents. *Clinical Child and Family Psychology Review*. 2003; 6: 107-127.
23. Dozier M, Stovall K C, Albus K. Attachment and psychopathology in adulthood. In J. Cassidy & P. Shaver (Eds.), *Handbook of attachment* (pp. 497–519). NY: Guilford Press. 1999.
24. Duijsens I, Eurlings-Bontekoe E H M, Diekstra R F W. The VKP a self-report instrument for DSM-III-R and ICD-10 personality disorders: construction and psychometric properties. *Personality and Individual Differences*. 1996; 20: 171-182.
25. Feeney J A, Noller P, Hanrahan M. Assessing adult attachment. In M. B. Sperling, & W. H. Berman (Eds.), *Attachment in Adults: Clinical and developmental perspectives* (pp.128-152). New York: Guilford Press. 1994.
26. Fossati A, Feeney J A, Donati D, Donini M, Novella L, Bagnato M, et al. On the dimensionality of the Attachment Style Questionnaire in Italian clinical and nonclinical participants. *Journal of Social and Personal Relationships*. 2003; 20: 55-79.
27. Grant B F, Hasin D S, Chou S P, Stinson F S, Dawson DA. Nicotine dependence and psychiatric disorders in the United States: results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Archives of General Psychiatry*. 2004; 61: 1107-1115.
28. del Giudice M. Sex Differences in Romantic Attachment: a Meta-Analysis. *Personality and Social Psychology Bulletin*. 2011; 37: 193-214.
29. Van der Heijden P T, Egger J I M, Rossi G M P, Derksen J L. Integrating Psychopathology and Personality Disorders Conceptualized by the MMPI-2-RF and the MCMI-III: a structural Validity Study. *Journal of Personality Assessment*. 2012; 94: 345-357.
30. Jenkins R, Lewis G, Bebbington P, Brugha T, Farrell M, Gill B. et al. The national psychiatric morbidity surveys of Great Britain: initial findings from the Household Survey. *International Review of Psychiatry*. 2003; 15: 29-42.
31. Jong A de, van den Brink W, Ormel J. *Handboek Psychiatrische Epidemiologie [Handbook of Psychiatric Epidemiology]*. Maarssen: Elsevier/De Tijdstroom. 1999.
32. Klose M, Jacobi F. Can gender differences in the prevalence of mental disorders be explained by social demographic factors? *Archives of Women's Mental Health*. 2004; 7: 133-148.
33. Kramer MD, Krueger R F, Hicks B M. The role of internalizing and externalizing liability factors in accounting for gender differences in the prevalence of common psychopathological syndromes. *Psychological Medicine*. 2008; 38: 51–61.
34. Krueger R F. The Structure of Common Mental Disorders. *Archives of General Psychiatry*. 1999; 56: 921-926.
35. Krueger R F, Eaton N R. Personality traits and the classification of mental disorders: Toward a more complete integration in DSM–5 and an empirical model of psychopathology. *Personality Disorders: Theory, Research, and Treatment*. 2010; 1: 97–118.
36. Krueger R F, McGue M, Iacono W G. The higher-order structure of common DSM mental disorders: internalization, externalization, and their connections to personality. *Personality and Individual Differences*. 2001; 30: 1245-1259.
37. Krueger R F, Tackett J L. Personality and psychopathology: Working toward the bigger picture. *Journal of Personality Disorders*. 2003; 17: 109–128.
38. Kunst L E, Maas J, van Balkom A, van Assen M, Kouwenhoven B, Bekker M. Group autonomy enhancing treatment versus cognitive behavioral therapy for anxiety disorders: A cluster-randomized clinical trial. *Depression and anxiety*. 2022; 39: 134–146.
39. Markon K E. Modeling psychopathology structure: A symptom-level analysis of Axis I and Axis II disorders. *Psychological Medicine*. 2010; 40: 273–288.
40. Muthén L K, Muthén B O. *Mplus user's guide*. Los Angeles: Author. 2008.
41. Nakash-Eisikovits O, Dutra L, Westen D. Relationship Between Attachment Patterns and Personality Pathology in Adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry*. 2002; 41: 1111-112.
42. Paris J. A bio-psychosocial model of psychopathy. In T. Millon, E. Simonsen, M. Birket Smith and R.D. Davis (Eds), *Psychopathy antisocial, criminal and violent behaviour* (pp 277-287). New York, NY: Guilford Press. 1998.
43. Røysamb E, Kendler K S, Tambs K, Orstavik R E, Neale M C, Aggen S H, et al. The joint structure of DSM-IV Axis I and Axis II disorders. *Journal of Abnormal Psychology*. 2011; 120: 198-209.
44. Shaver P R, Mikulincer M. Attachment-related psychodynamics. *Attachment & Human Development*. 2002; 4: 133-161.
45. Taylor S E, Klein L C, Lewis B P, Gruenewald T L, Gurung RAR, Updegraff J A. Bio-Behavioral responses to stress in females: Tend-and-befriend, not fight-or-flight. *Psychological Review*. 2000; 107: 411–429.
46. West M, Rose S M, Sheldon-Keller A. Assessment of Patterns of Insecure Attachment in Adults and Application to Dependent and Schizoid Personality Disorders. *Journal of Personality Disorders*. 1994; 8: 249-256.
47. West M, Rose S M, Sheldon-Keller A. Interpersonal disorders in schizoid and avoidant personality disorders: An attachment perspective. *Canadian Journal of Psychiatry*. 1995; 40: 411–414.
48. Westen D. Cognitive-behavioral interventions in the psychodynamic psychotherapy of borderline personality disorders. *Clinical Psychology Review*. 1991; 11: 211-230.
49. Young JE, Klosko JS, Weishaar M. *Schema Therapy: A practitioner's guide*. Guilford Publications: New York. 2003.