The Relationships among Autonomy, Attachment and Interpersonal Behavior in Adolescents' Anxiety and Depression

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Onderzoek naar autonomie, hechting en interpersoonlijk gedrag bij adolescenten met angst- en stemmingstoornissen

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Abstract

The present study examined the relationship among autonomy-connectedness, attachment style, interpersonal behavior, anxiety and depression among adolescents. Twenty-three primary health care patients, diagnosed with anxiety disorders and depression, and twenty-six high-school and college students were administered five self-report measures; the Attachment Style Questionnaire (ASQ), the Autonomy-Connectedness Scale-30 (ACS-30), the Scale for Interpersonal Behavior (SIB), the Beck Depression Inventory II (BDI-II), and the Symptom Checklist-90 (SCL-90). It was hypothesized that assertive behavior would be related to fewer feelings of anxiousness and depression, and that both low autonomy and insecure attachment have a unique contribution to anxiety and depression. This path model was tested, showing anxious attachment as a strong predictor of adolescents' anxiety and depression. Assertive interpersonal behavior appeared to be a protective factor that contributed to less feelings of anxiety in adolescents, and less self-awareness was related to more sub-assertive interpersonal behavior and therefore more anxiety. The capacity for managing new situations was particularly relevant for depression. Adolescents that were highly sensitive to others and sub-assertive were less capable of managing new situations, and were therefore more depressed. These findings stress the importance of acquiring adequate problem solving skills and behavior modification in adolescence. The results provide support for roles of autonomy-connectedness, attachment style and interpersonal behavior in internalizing problems among adolescents, such as anxiety and depression.

KEY WORDS: Adolescent; Autonomy; Connectedness; Attachment; Interpersonal behavior; Anxiety; Depression

Adolescents´anxiety and depression

According to data from the National Public Health Compass, that provides information about public health, prevention and health care in the Netherlands, in 2007 approximately 642.800 Dutch inhabitants between the ages of 18 and 65 suffered from a mood disorder. When taking demographic development into account the absolute incidence of mood disorders diagnosed by general practitioners will probably increase by four percent between 2005 and 2025. Anxiety disorders are the most common, or frequently occurring, mental disorders. The clinical onset is most common between late adolescence and mid-adult life (Flint, 1994), and are more frequently found among women than men (de Graaf, ten Have & van Dorsselaer, 2010a). The annual incidence rate of diagnosed anxiety disorders is approximately three percent of the adult population. Taking into account that general practitioners have difficulty indentifying symptoms of anxiety disorders, the prevalence of anxiety disorders in the Netherlands is likely to be underestimated, underreported and undertreated (Ormel, Von Korff, Üstün, Pini, Korten & Oldehinkel, 1994). Anxiety and depression often co-occur in primary care settings. However, recognition of comorbidity is still insufficient (Hirschfeld, 2001). That is why more research on the antecedents, risk- and eliciting factors of anxiety disorders and depression is required to improve prevention programs, and thus mental health care. Previous research on factors related to anxiety and depression has shown attachment and autonomy-connectedness to be of great influence.

Attachment theory

Attachment theory, as created by Bolwby (1969), states that in the early years of human development, people are able to form close relationships to others. Children will become emotionally attached to people who are able to provide a safe and healthy environment for development and exploration and will suffer from temporal or definite separation from their caregivers. When people lack a sense of trust, reliability and safety in primary attachment

figures, depression and anxiety are likely to occur (Bolwby, 1980); perceived quality of both parent and peer attachments of adolescents is related to psychological well-being and self-esteem (Armsden & Greenberg, 1987), and attachment insecurity among adolescents is associated with higher depression and anxiety rates on self-report scales than securely attached adolescents (Muris, Meesters, van Melick, & Zwambag, 2001). According to attachment theory, secure attachment experiences result in increased autonomy and insecure attachment causes autonomy problems (Bolwby, 1969), which implies that individuals diagnosed with an anxiety disorder and/or depression, are prone to insecure autonomy. From the day human beings are born, the quest for autonomy begins.

Autonomy-Connectedness

Human infants are in fact pre-maturely born, and are therefore vulnerable and helpless at birth. In order to survive, they need stable caregivers to provide a safe and healthy environment. The interactions between the caregiver and the child will provide an internal working model within the child that functions as a prototype for the thoughts, opinions, expectations, interactions and behavioral patterns in adult life (Rothbard & Shaver, 1994). As children grow older, they will become less dependent on their caregivers. When children reach adulthood, the relationship with primary caregivers will drastically change. In this stage of life adolescents will grow to be more independent and autonomous individuals, and caregivers need to learn to establish a more equivalent relationship with the adolescent (Alexander, 1973; Steinberg & Hill, 1978; Steinberg, 1981; Kobak, Sudler, & Gamble, 1991; Kobak, Cole, Ferenz-Gillies, Fleming, & Gamble, 1993; Kobak, Ferenz-Gillies, Everhart, & Seabrook, 1994; Allen & Hauser, 1996). Bekker (1993) developed the concept of 'Autonomy-Connectedness', derived from attachment theory (Bolwby, 1969), that is defined as "the need and capacity for self-reliance and independence, as well as for intimacy and functioning satisfactorily in intimate relationships" (Bekker & van Assen, 2008). Autonomy-

connectedness consists of three components, namely "Self-awareness" (SA), "Sensitivity to others" (SO) and "Capacity for managing new situations" (CMNS). Bekker and Belt (2006) did research on the effect of autonomy-connectedness on the prevalence of several clinical disorders and found that low SA and high SO are predictors of both anxiety and depression. Research on the prevalence of anxiety disorders has shown that not only the history of anxiety, anxiety sensitivity and increased neuroticism appear to be strong predictors of anxiety, but trend level support has also been found for interpersonal behaviors, such as assertiveness, as a predictor of anxiety onset (Lohndahl, Tverskoy & D'Zurilla, 2005; Calkins, Otto, Cohen, Soares, Vitonis, Hearon & Harlow, 2009).

Interpersonal behavior and psychopathology

With the onset of adolescence, the impact that parents have on their children's behavior tends to decline, while peer-influence increases (Buhrmester, 1996). Adolescents not only experience hormonal changes (Angold & Worthman, 1993), but also competition among their peers. Such competitive interpersonal peer relationships are likely to cause bullying or rejection (Prinstein, Boergers, Spirito, Little, & Grapentine, 2000), which in turn can cause depression (Fleming, Offord, & Boyle, 1989) and anxiety (Kashani & Orvaschel, 1990). Due to these factors, the adolescent might feel more stressed and strained while dealing with daily life (Larson & Ham, 1993), and can make the transition from a dependent child to an independent and assertive adult more difficult. Assertive people appear to be both affectively and cognitively capable of expressing and reacting to positive and negative emotions without undue anxiety or aggression (Gladding, 1988). In contrast, individuals with Social Anxiety Disorder report higher levels of submissive behavior and lower levels of dominant behavior relative to controls (Paterson, Green, Basson & Ross, 2002; Russell, Moskowitz, Zuro, Bleau, Pinard & Young, 2010). People with internalizing disorders, such as Social Anxiety Disorder, not only escape scary or threatening situations by means of 'safety behavior' such as avoiding

eye contact or hiding blushing or avoidance behavior, but also inhibit or avoid assertive behavior (Clark, 2001) in order to relieve anxiety. If anxiety reduces due to avoidance behavior, then social withdrawal or avoidance will be reinforced, and the probability of relapse will in turn increase (Crozier & Alden 2005). These behavioral patterns will prevent healthy psychological adjustment from developing. Emotional abilities, like the ability to discriminate clearly among feelings and the ability to self regulate emotional states, are associated with better psychological adjustment (Fernandez-Berrocal, Alcaide, Extremera & Pizarro, 2006; Rubin, Coplan & Bowker, 2009). In order to develop adequate coping skills one must thus be able to express their feelings to others by means of interpersonal behavior. Ambivalent attachment patterns are associated with internalizing problems, such as anxiety (Bolwby, 1973; Sroufe, 1997; Colonnesi, Draijer, Stams, Van der Bruggen, Bögels & Noom, 2011). In attachment theory much is known about interpersonal behavior.

Attachment theory and interpersonal behavior

Children are able to develop adequate emotion regulation strategies when having available attachment figures that provide a safe environment for children's social development. Because of this interaction the child learns to explore the functionality and use of emotions and how to display them comfortably (Cassidy, 1994). In other words, the child develops adequate coping skills for problem solving and establishing healthy social relationships. When the child grows up being overprotected or neglected by its caregivers, it learns to depend too little or too much on its own problem solving skills. Such inadequate coping skills could cause individuals to be insecure and vulnerable (Lazarus, 1993; Lazarus, 1999). Insecure and vulnerable people are likely to develop an anxiety disorder, which in turn increases the likelihood of anxiety becoming chronically activated in interpersonal behavior. Anxiety and vulnerability activate the attachment system which leads to the dependence of a "stronger and wiser other" (Bowlby, 1969; Bolwby, 1982). Anxious as well as avoidant

attachment are related to less constructive and sensitive patterns of interpersonal communication (Guerrero, 1996) and less effective attempts to resolve conflicts (Scharfe & Bartholomew, 1995) due to person perception bias; Avoidant attached individuals tend to create boundaries between themselves and others because of feelings of being different and better than others. They are also less willing to forgive a hurtful partner, more likely to turn away from the person that hurt them, or to revenge themselves (Mikulincer, Shaver & Slav, 2006). Secure attachment comes with an increased empathic sensitivity and compassion for people who are suffering (Mikulincer, Shaver, Gillath & Nitzberg (2005). Mikulincer (2006) also found that avoidant type individuals are less interested in, and grateful to people who approach them in a positive or friendly manner. In contrast, the anxious attached search for similarities between themselves and others in order to feel part of a whole and to avoid feelings of rejection (Mikulincer, Orbach & Iavnieli, 1998).

Taken all the above into account, there is strong evidence to presume relationships among attachment, autonomy-connectedness (especially sensitivity to others), and interpersonal behavior. Previous research has shown that attachment style is eminently predictive when it comes to psychological wellbeing of adolescents (Armsden & Greenberg, 1987; Lapsley, Rice & Fitzgerald, 1990; McCormick & Kennedy, 1994). Bekker and Belt (2006) demonstrated the predictability of self-awareness and sensitivity to others on anxiety, even after controlling for depression. Research on adult anxiety showed group differences in adult client en non-client populations on anxiety, depression, autonomy-connectedness and attachment style measures (Bekker & Croon, 2010). Insecure attachment and low autonomy have shown to be particularly strong, eminent factors in anxiety disorders (Bekker & Croon, 2010). Nevertheless, these findings raise questions on the generalization of the findings to other populations, like adolescents for instance. Accordingly, in the study to be presented here, adolescents were asked to fill in several questionnaires in order to assess their

attachment style, level of autonomy, vulnerability to stressful situations and mood state. We also sought to examine the relation of interpersonal behavior to anxiety and depression.

Study aims and hypotheses

The aim of this study was to further examine the role of attachment style and autonomy-connectedness in adolescents' anxiety and depression, and the role of interpersonal behavior in the relationship among attachment style and autonomy-connectedness, and adolescent depression and anxiety.

In search of group differences, the first research question was: Do adolescent clients differ from adolescent non-clients on anxiety and/or depression measures, and in terms of autonomy-connectedness, attachment style and interpersonal behavior?

Resulting from the findings of previous research, adolescent patients, diagnosed with anxiety and mood disorders were expected to be more anxious, depressed, sub-assertive, anxiously- and avoidantly attached, and less autonomous and assertive than adolescent controls. In particular, clients were expected to show more sensitivity to others, less capacity to manage new situations and more anxious attachment, consistent with the findings of Bekker and Croon (2010). Concerning attachment style, clients are expected to be more anxiously or avoidantly attached than non-clients, as insecure attachment appears to be a consistent correlate of early separation anxiety and eating pathology (Troisi, Di Lorenzo, Alcini, Croce Nanni, Di Pasquale & Siracusano, 2006; Bekker & Croon, 2010).

The second research question was: What are the relationships among (the subscales of) autonomy-connectedness, attachment style, interpersonal behavior, anxiety and depression?

Consistent with Bekker and Croon (2010), we expected that autonomy-connectedness, especially sensitivity to others and capacity for managing new situations would be strongly related to anxiety. We also expected associations among anxious attachment, sub-assertiveness, anxiety and depression.

The third, and final research question was: To what extent do attachment style, autonomy-connectedness and interpersonal behavior predict adolescents' anxiety and depression?

We hypothesized that assertive behavior would be related to less feelings of anxiousness and depression, and that both low autonomy and anxious attachment would have a unique contribution to anxiety and depression. Specifically, in line with Bekker and Croon (2010), an indirect effect of both self-awareness and capacity for managing new situations via anxious attachment on depression and anxiety was expected. We expected interpersonal behavior to make a strong, and unique contribution to the prediction of anxiety in adolescents (Clark, 2001; Moskowitz, Zuro, Bleau, Pinard & Young, 2010). Finally, assertive interpersonal behavior was expected to partially mediate the relationships among both autonomy-connectedness and depression/anxiety, and attachment style and depression/anxiety, since people with a fearful style of attachment were found to be socially inhibited and lacking in assertiveness skills (Bartholomew & Horowitz, 1991). The hypothesized causal model, shown in Figure 1, specifies the expected relationships among the variables autonomy-connectedness, attachment style, interpersonal behavior, anxiety and depression.

Method

Participants

A total of 23 Dutch adolescents who received primary care for mental health at Vincent van Gogh voor Geestelijke Gezondheid and HSK Eindhoven, participated in the study. Participants met the following inclusion criteria: (1) being between 16 and 24 years of age, (2) receiving either regular (not special) education, or finished a regular education, and (3) being diagnosed with either an anxiety disorder ($N = 1$), a mood disorder ($N = 1$), or both an anxiety disorder and a mood disorder ($N = 21$). Participants had been diagnosed according to DSM-IV

criteria and were preselected by therapists working in health care institutions. Exclusion criteria included the presence of concurrent schizophrenia or other psychotic disorders. All subjects agreed to participate voluntarily. The control group consisted of 26 Dutch adolescent non-clients that matched as closely as possible to the clinical group by preselecting controls by age and gender (Table I). Most participants from the control group were college students from Tilburg University and Radboud University Nijmegen. Non-student participants were recruited by snowball sampling. An independent samples t-test showed that participants in the clinical and control group did not differ with respect to age (t(47)= .56, p= .576), and gender t(42)= -.23, p= .823), but the clinical group differed significantly than did controls with respect to level of education (t(39)= 2.99, p= .005).

Table I Group Characteristics

	Subjects			Age		Level of education			
	N	Male	Female	*M*	*SD*	V(M)BO	HAVO/MBO	VWO/HBO	WO
Clients	23	5	18	19,91	1,68	5	15	2	1
Non-clients	26	4	22	19,77	2,72	8	0	6	12

Procedure

Questionnaires were not only bundled into booklets, but were also slightly modified for digital use, efficient online distribution and scoring. Therapists of anxious and depressed adolescents were addressed by letter to explain the purpose of the present study. They were asked to promote client participation within their caseload. Clients aged eighteen or younger first had to ask their parents or caretakers permission to participate in the study. When clients agreed to participate after reading the outlines of the study and signed the consent form, the researcher attached the questionnaire to an email and sent it to the participant, or presented a hardcopy of the questionnaire booklet. Participants filled in the questionnaires in their mental

health care institution or at home to enable them to complete the questionnaires at any suitable moment. Completion took approximately an hour. Participants sent their hardcopy of the questionnaire back to the researcher by mail, and digital questionnaires back by email. No adolescents were excluded from the client sample due to strict pre-selection. From the sample of 26 non-clients all participants indeed met the inclusion criteria, and all had moderate or low scores on depression and anxiety measures. Consequently, 49 participants were included.

Measures

The *Autonomy-Connectedness Scale-30* (ACS-30; Bekker & van Assen, 2006) has been used in the present study to measure its three subscales 'Self-awareness' (7 items; e.g. "Usually it is very clear to me what I like most", α = .87), 'Sensitivity to others' (17 items; e.g. "I often go deeply into other people's feelings" α = .76), and 'Capacity for managing new situations' (6 items; e.g. "I quickly feel at ease in new situations" α = .84). It is a shortened and updated version of the original 50-item version (Bekker, 1993). Items were rated on a 5-point Likert scale from 1 ('I disagree') to 5 ('I agree').

The *Attachment Style Questionnaire* (ASQ; Feeney, Noller & Hanrahan, 1994) measures secure and insecure attachment styles on five dimensions of adult attachment. In order to make conceptual equivalence across languages more likely, this questionnaire was translated to Dutch by means of back-translation (Bekker, Bachrach & Croon, 2007). The ASQ contains 40 items that measure the subscales 'Confidence' (8 items; α = .77), 'Discomfort with closeness' (10 items; α = .82), 'The need for approval' (7 items; α = .89), 'Preoccupation with relationships' (8 items; α = .76), and 'Relationships as secondary' (7 items; α = .50) on a 6-point Likert-scale from 1 "I totally disagree" to 6 "I totally agree". Due to the Cronbach alpha coefficient of the subscale 'Relationships as secondary' in de current study, this scale cannot be considered reliable with the sample and has been removed. Previous research has shown that the subscales of the ASQ load on two main factors, namely

anxious attachment ("Preoccupation with relationships", "Need for approval" and "Confidence") and avoidant attachment ("Discomfort with closeness", "Relationships as secondary" and "Confidence") (Fossati, Feeney, Donati, Donini, Novella, Bagnato, Acquarini, & Maffei, 2003; Bekker, Bachrach, & Croon, 2007). The remaining 33 items of the ASQ were subjected to principal component analysis (PCA) using PASW Statistics 18. Consistent with Bekker, Bachrach & Croon (2007), two components were derived from the analysis; Confidence (negatively), discomfort with closeness, need for approval and preoccupation with relationships loaded on the first common factor; anxious attachment and confidence (negatively), need for approval (negatively) and preoccupation with relationships (negatively) loaded on the second common factor; avoidant attachment. In the current study Cronbach's alpha for Anxious attachment was .76, and for Avoidant attachment, after removing 10 items from the scale in order to reach a satisfactory degree of reliability, Cronbach's alpha was .82.

Participants also had to complete the *Scale for Interpersonal Behaviour* (SIB; Arrindel, de Groot & Walburg, 1984), a self-measurement scale for adolescents and adults to measure 4 dimensions of social skills. The questionnaire comprises 50 items, which have to be answered twice on a 5 point Likert-scale; first to measure distress associated with self-assertion in a variety of social situations, and second to measure the likelihood of engaging in a specific assertive response. The subscales measure 'Display of negative feelings' (NEG; 15 items, α = .98 for distress and α = .77 for likelihood), 'Expression of insecurity and personal shortcomings' (ONZ; 14 items, α = .96 for distress and α = .67 for likelihood), 'Initiating assertiveness' (KEN; 9 items, α = .97 for distress and α = .72 for likelihood) and 'Praising others and the ability to deal with compliments' (POS; 8 items, α = .97 for distress and α = .86 for likelihood). The four types of people that can be derived from the scores are: "assertive type individuals" (α = .77), "assertive, but anxious type individuals", "sub-assertive

type individuals" (α = .93) and "indifferent type individuals".

In order to measure the severity of depression participants had to fill in the *Beck Depression Inventory II* (BDI-II; Beck et al., 1996; Dutch translation, Van der Does, 2002). The scale consists of 21 items (α = .98), which were measured on a scale ranging from 0 "don't have that feeling" to 3 "can't stand that feeling".

A Dutch shortened version of the *Symptom Checklist-90* (SCL-90; Derogatis, 1977) was used for anxiety measurements. Each of the 10 items of the Anxiety-subscale of the SCL-90 had to be rated on a 5-point Likert-scale from 1 ('not at all') to 5 ('very much'). In the present study, Cronbach's alpha for the Anxiety-subscale was .94.

Results

Group differences

Our main hypothesis was that adolescent patients, diagnosed with anxiety and mood disorders would be expected to be more anxious, depressed, sub-assertive, anxious- and avoidant attached, and less autonomy-connected and assertive than adolescent controls. To examine if the clinical group differed from the control group in terms of the anxiety and depression scores, an independent samples t-test was conducted. As analyses of the means reveal (Table 1), patients with anxiety and mood disorders, in fact, are more anxious and depressed than non-client adolescents ($t(72) = 32.92$, $p < .000$, and $t(74) = 30.92$, $p < .000$, respectively). To determine whether the groups differed in the scores on Self-awareness (SA), Sensitivity to others (SO), Capacity for managing new situations (CMNS), anxious attachment, avoidant attachment, assertive- and sub-assertive interpersonal behavior, an independent t-test was again performed. Clinical patients scored significantly higher than controls on measures of sensitivity to others ($t(87) = 5.17$, $p < .000$), and lower on self-awareness ($t(122) = -9.59$, $p < .000$) and capacity for managing new situations ($t(90) = -11.18$,

$p < .000$). Thus, adolescent patients who suffer from anxiety and mood disorders were less autonomy-connected than adolescent controls. The clinical group scored higher than did controls on anxious and avoidant attachment ($t(115) = 18.09$, $p < .001$), and ($t(109) = 6.99$, $p < .000$, respectively). Groups also differed in assertive and sub-assertive behavior, where patients with anxiety and mood disorders were less assertive and more sub-assertive in interaction with other individuals than non-clients ($t(145) = -26.55$, $p < .000$, and $t(68) = -30.17$, $p < .000$ respectively). Thus, the hypothesis that patients with anxiety- and mood disorders are more anxious and depressed than non-clients, have poor autonomy-connectedness in comparison to controls, are more anxiously and avoidantly attached, and perform more sub-assertive interpersonal behavior than adolescent controls appeared to receive strong support.

In order to examine linear relationships among the variables, intercorrelations were calculated for the clinical (clients) and the control group (non-clients). For an overview of inter-correlations, see Table 2. It was expected that the subscales of autonomy-connectedness (Self-awareness, Sensitivity to others and Capacity for managing new situations, red.) would be related to one another and that low autonomy and insecure attachment are related to anxiety and depression. Surprisingly, more relationships among the variables in the control group relative to the clinical group were found. The subscales of autonomy-connectedness were strongly related to each other in both groups, except for capacity for managing new situations and sensitivity to others in the control group; self-awareness was negatively correlated with sensitivity to others, but positively correlated with the capacity for managing new situations. In the clinical group the capacity for managing new situations appeared to be negatively correlated with sensitivity to others. In the control group, sensitivity to others was positively correlated with both anxious and avoidant attachment, whereas self-awareness was found to be negatively related to both anxious and avoidant attachment.

In the clinical as well as the control group, both anxious and avoidant attachment were intercorrelated. Whereas anxious attachment was positively related to avoidant attachment in the control group, the relation in the clinical group was a negative one.

As expected, assertive interpersonal behavior was negatively related to subassertive interpersonal behavior in the clinical group.

In the control group anxiety correlated negatively with self-awareness and capacity for managing new situations, and was significantly positively related to sensitivity to others, anxious attachment, avoidant attachment and depression. Depression showed a similar pattern of intercorrelations. In the clinical group anxiety was positively correlated with self-awareness, and capacity for managing new situations.

Relationships among Variables

These findings indicate several correlations among the variables used in the present research. Now that we know which variables are intercorrelated, we want to know the coherence among the various variables. Autonomy-connectedness, especially sensitivity to others and capacity for managing new situations, was expected to be strongly related to anxiety. Direct effects of anxious attachment and both sub-assertive and anxious type individuals on both anxiety and depression were expected. So first, multiple regression analysis was used to test if the subscales of autonomy-connectedness, attachment styles and interpersonal behavior significantly predicted anxiety. The results of the regression indicated the model as a whole to explain 81% of the variance in anxiety (Adjusted R^2 = .81, $F(7,139)$ = 89.7, $p < .000$). It was found that self-awareness significantly predicted anxiety (β = .17, p = .01), and also sensitivity to others made a large, and significant contribution to the prediction of anxiety (β = .14, p = .007). Both assertive interpersonal behavior and sub-assertive interpersonal behavior significantly predicted anxiety (β = -.21, $p < .04$, and β = .47, $p < .000$ respectively), as did anxious attachment (β = .31, $p < .000$). But if we control for the possible

effects of autonomy-connectedness and attachment style, is interpersonal behavior still able to predict a significant amount of the variance in perceived anxiety? To address this question a hierarchical multiple regression was performed with Anxiety as the dependent variable, and the subscales of autonomy-connectedness and insecure attachment first, and second assertive- and subassertive interpersonal behavior, as independent variables. A total of 69.0 per cent of the variance in the dependent variable anxiety is explained by the first model; the subscales of autonomy-connectedness and insecure attachment ($\Delta R^2 = .69$, $F(5,141) = 62.69$, $p < .000$). Interpersonal behavior in the second model explained an additional 12.9 per cent of the variance in anxiety ($\Delta R^2 = .13$, $F(2,139) = 49.45$, $p < .000$). This means that interpersonal behavior makes a strong, and unique contribution to the prediction of anxiety in adolescents.

Next, multiple regression analysis was performed to test if the subscales of autonomy-connectedness, attachment styles and interpersonal behavior significantly predicted depression. The results of the regressions indicated the model as a whole to explain 85.7% of the variance in depression (Adjusted $R^2 = .86$, $F(3,139) = 118.81$, $p < .000$). It was found that capacity for managing new situations significantly predicted depression ($\beta = -.20$, $p = .001$), as well as anxious attachment ($\beta = .26$, $p < .000$), and sub-assertive interpersonal behavior ($\beta = .52$, $p < .000$). Again, a hierarchical multiple regression was performed. Interpersonal behavior appeared to explain 10.6 percent of the variance in depression after the effect of autonomy-connectedness, and insecure attachment style was removed ($\Delta R^2 = .11$, $F(2,139) = 51.37$, $p < .000$). Now we know which of the variables explain anxiety and depression, we want to find out whether the effects that were found on anxiety and depression are, or are not established via the inclusion of a third (mediator) variable (MacKinnon, 2008).

Mediation Effects on Anxiety and Depression

By means of the four step approach by Baron and Kenny (1986), the presence of (partial) mediation effects on the dependent variables anxiety and depression were

investigated (Figure 2). The relationships that were found among anxious attachment, self-awareness, sensitivity to others and assertive interpersonal behavior on anxiety, as well as the relationships among sensitivity to others and sub-assertive interpersonal behavior on depression, were explored. Then, concerning possible effects of the independent variables and a third variable, and the effect of that third variable on anxiety and depression were calculated by means of multiple regression. For an overview of the results of the regression analyses, see Table 5. Finally, the Sobel test was used in search for mediation effects (Sobel, 1982; McKinnon, 2008). Indeed, partial mediation effects, as well as full mediation effects, were found. Self-awareness had a moderate indirect effect on anxiety via Sub-assertive interpersonal behavior (Sobel $Z = -2.44$, $p = .015$) and the initial effect of Self-awareness on anxiety ($t = 2.62$, $p = .010$) disappeared after controlling for Sub-assertive interpersonal behavior ($t = .101$, $p = .919$). There was a significant initial relationship between Sensitivity to others and anxiety ($t = 2.74$, $p = .007$) that was non-significant after controlling for the mediator anxious attachment ($t = 1.238$, $p = .218$). The Sobel test confirmed a moderate mediation effect of Sensitivity to others on anxiety via anxious attachment (Sobel $Z = 2.14$, $p = .032$). Anxious attachment partially mediated the effect of Assertive interpersonal behavior on anxiety (Sobel $Z = -2.75$, $p = 0.006$). The direct effect of assertive interpersonal behavior on anxiety remained intact, when the mediator anxious attachment was taken into account ($t = -3.64$, $p = .000$).

Indirect effects were also found on depression. Sensitivity to others had no direct effect on depression when capacity for managing new situations was controlled for ($t = -.68$, $p = .50$), but did have an indirect effect via capacity for managing new situations (Sobel $Z = -3.78$, $p = .000$). Capacity for managing new situations partially mediated the effect of Sub-assertive interpersonal behavior on depression (Sobel $Z = 2.00$, $p = .046$), while the direct effect remained significant ($t = 15.50$, $p = .000$). Anxious attachment had a direct effect on

depression ($t = 6.48$, $p = .000$), and the effect of Assertive interpersonal behavior on depression was partially mediated by Anxious attachment (Sobel Z = 2.21, $p = .027$). In the present study avoidant attachment had no (in)direct effect on both anxiety and depression.

Discussion

The aim of the present study was to examine the relationship among autonomy-connectedness, attachment style, interpersonal behavior, anxiety and depression among adolescents. The findings of the present study suggest that autonomy-connectedness, attachment styles and interpersonal behavior all make a unique contribution to anxiety and to depression in adolescents. First of all, the distinctive pattern of autonomy-connectedness, with high sensitivity to others and low self-awareness, as found in previous research (Bekker & Belt, 2006; Bekker & Croon, 2010) was again found among adolescents diagnosed with anxiety disorders and depression in the present study. By means of a path model, direct and mediational relationships among anxious-, and avoidant attachment style, the subscales of autonomy-connectedness, and (sub)assertive interpersonal behavior on depression and anxiety were explored. The present research builds on previous findings of the study performed by Bekker and Croon (2010) in order to attempt to generalize findings to the adolescent population.

Comparing Groups

In line with the first hypothesis, adolescents diagnosed with anxiety disorders and depression that receive primary mental health care did indeed report higher levels of anxiety and depression than adolescent non-clients. Clients also reported that they had lower self-awareness and higher sensitivity to others than their non-client peers. These findings are consistent with both Bekker and Croon (2010), and Bekker and van Assen (2008) who also found that this specific pattern of autonomy-connectedness is associated with internalizing

problems such as anxiety disorders, which in turn are more common among women than men. Furthermore, unlike the findings of Bekker and Croon (2010) in the present study adolescent clients appear to have less capacity to manage new situations than non-clients. Primary health care patient with anxiety and depression were also less assertive than controls. And, in line with the expectations (Clark, 2001), clients reported more sub-assertive behaviors in interactions with other people than non-clients.

Relationships among Variables

Correlations that were found among the variables indicate that the specific pattern of autonomy-connectedness with high sensitivity to others, low capacity for managing new situations and low self-awareness is, like it is among anxious and depressed adults (Bekker & Croon, 2010), also present among anxious and depressed adolescents. Anxious and avoidant attachment are indeed two different attachment styles in the client sample, since they are negatively correlated. Thus, a distinction can be made between these two forms of insecure attachment. This is relevant because anxiety is associated with internalizing problems and anxious attachment, while avoidant attachment is often associated with insecure avoidant attachment strategies and externalizing difficulties; "avoidant coping interferes with the development of feelings of emotional connectedness" (Finnegan, Hodges & Perry, 1996). Unlike Bekker and Croon, in the present study no relationship between autonomy and attachment was found within the client sample. Which means that autonomy-connectedness and attachment are isolated constructs that are related to anxiety and depression without being interchangeable. In line with the second hypothesis, attachment style, autonomy-connectedness and interpersonal behavior all uniquely contributed to the prediction of both depression and anxiety. When the main constructs were being subdivided into subscales, even stronger relationships were found. Whereas anxious attachment, assertive interpersonal behavior, sensitivity to others and self-awareness were the variables that were mainly related

to anxiety, depression was related to anxious attachment, self-awareness and capacity for managing new situations. It is important to note that anxiety, not depression, is related to sensitivity to others and assertive interpersonal behavior and depression, not anxiety, is related to the capacity for managing new situations. This is relevant, because of the high comorbidity of depressive and anxiety disorders in primary care settings (Kirmayer, Robbins, Dworkind & Yaffe, 1993). These co occurrences have various manifestations and progress in many different ways (Schurman, Kramer, Mitchell, 1993; Wittchen, Kessler, Pfister, Höfler & Lieb, 2000; Hale, Raaijmakers, Muris, Van Hoof & Meeus (2009). It is important to be able to distinguish between variables that are related to either anxiety or depression for the development of effective therapeutic interventions.

Contradictory to the expectations, higher self-awareness was related to more anxiety, and more sub-assertive interpersonal behavior was related to less anxiety, while an increase in self-awareness was associated with lower sub-assertiveness. A possible explanation for this pattern is that primary health care clients are sub-assertive in social situations to avoid anxiety. This strategy appears to be successful, because of an immediate lessening of anxiety. When clients become more self-aware of their own behavioral patterns, clients will become more anxious while they receive therapeutic treatment. Nevertheless, the intensity of the emotional reactions will start to reduce when patients are being exposed to anxious situations for a long enough period of time by means of exposure in vivo. As a result, the feared situations no longer frighten the patient (Mersch, 1995), just like the controls in the present study experience less fear when they are more self-aware. This would explain why an increase in the capacity for managing new situations is related to more anxiety, but less depressiveness. Patients that are actively coping with their own fears feel good about themselves, because a sense of control can affect the adaptational outcomes of stressful encounters (Folkman, 1984).

Mediation Effects on Anxiety and Depression

It will be recalled that it was hypothesized that high autonomy-connectedness would be related to assertive behavior that prevent adolescents from being anxious or depressed, and that both low autonomy and anxious attachment would have a unique contribution to anxiety and depression. Specifically, an indirect effect of both self-awareness and capacity for managing new situations via anxious attachment on depression and anxiety was expected. Assertive interpersonal behavior was expected to partially mediate the relationships between both autonomy-connectedness and depression/anxiety, and attachment style and depression/anxiety. By means of a path model, the relationships among the variables were explored (Figure 1).

Surprisingly, none of the predictions entirely came true. Contradictory to the findings of Bekker and Croon (2010) capacity for managing new situations appeared to be hardly relevant for anxiety. However, the effect of sensitivity to others on anxiety was also found in adolescents; when being highly sensitive to others, being anxious attached causes anxiety to increase. Anxious attachment also predicts the level of assertiveness which, in turn, predicts the amount of anxiety. Thus, anxious attachment is not merely a strong predictor of anxiety in adults (Bekker & Croon, 2010), but also in adolescents. Furthermore, assertive interpersonal behavior appears to be a protective factor that contributes to a reduction of anxiety in adolescents. Not surprisingly, sub-assertive interpersonal behavior explained the relationship among low self-awareness and high anxiety, and less self-awareness was related to more sub-assertive interpersonal behavior and therefore more anxiety. This makes sense, because if an individual is less capable to express, or not even aware of, one's own opinions, wishes and needs (Bekker & Van Assen, 2006), one will therefore have the tendency to avoid or omit to express their opinions, wishes and needs in interaction with others. Consequently, in clinical practice it is relevant to stress the importance to strive for long term goals, and to help patients

contemplating on, formulating, and expressing one's long term goals.

As expected, just like anxiety, depression in adolescents is associated with anxious attachment (Roberts, Gotlib & Kassel, 1996; Muris et al, 2001) and (sub)assertive interpersonal behavior. This is important because anxious attachment and sub-assertiveness seem to be reciprocal and thus reinforce feelings of depression. Therefore, adolescents must be taught adequate coping- and social skills in order to break this cycle, since modifications to ones attachment style are not as easy to be made. In contrast with the previous studies on the effect of avoidant attachment on depressive symptoms among adolescents (Hankin, Kassel & Abela, 2005; Lee, & Hankin, 2009), avoidant attachment did not significantly contribute to the amount of depressive feelings in adolescents in the present study. On the other hand, capacity for managing new situations appeared particularly relevant for depression. These findings are presented in a path model (Figure 3). Adolescents that are highly sensitive to others and sub-assertive are less capable of managing new situations, and are therefore more depressed. These findings stress the importance of acquiring adequate problem solving skills and behavior modification in adolescence.

Limitations and Recommendations

When designing the current study, limitations of the study by Bekker and Croon (2010) were taking into account. First, primary health care patients, diagnosed with anxiety and depression disorders were preselected for the client sample. Bekker and Croon (2010) hypothesized that the lack of contribution of autonomy-connectedness variables to depression in their study was partly due to the use of self-report measures of anxiety and depression, instead of DSM-diagnoses. However, due to this strict pre-selection the sample-size was unsatisfactory to make valid statements of causality; Primary health care organizations are reluctant to expose their patient to scientific studies in general, because of company policy, lengthy procedures, costs, and regarding the welfare of their patients. Future research should

build on the findings of the present research, which clearly shows trends in the relationships among autonomy-connectedness, attachment style and interpersonal behavior. Second, the control group consisted primarily of highly educated college students on the one hand, and V(M)BO students on the other hand, while the clinical group primarily consisted of HAVO or MBO students. Third, a small proportion of men participated in the present study. As a result, no valid statements on gender differences can be made. Comparing male to female adolescents with regard to attachment style, autonomy and assertiveness would be particularly interesting, because in Western societies, adolescents are especially concerned with the independent self-construal that stresses the internal attributes, separateness and uniqueness of the individual, especially the degree to which they see themselves as separate from others or connected to others (Markus & Kitayama, 1991), while they grow into adulthood. Cultural norms, values and beliefs are strong forces in the development of an individual's self-perception (Fiske, Kitayama, Markus & Nisbett, 1998; Oyserman & Lee, 2008), and self-determination. Because of that, there are different expectations of men and women in Western society, which leads to the notion that gender differences in adulthood with respect to autonomy and interpersonal behavior are likely to emerge in this particular stage of life. In the future I would recommend to match the control group to the clinical sample to increase the comparability of the groups, and include more men in both samples.

Given the results of the current study, and despite its limitations, interventions in adolescent primary mental health care should also focus on the exploration of individual needs and preferences. When treating internalizing problems therapists should support their patients to improve one's self-awareness, and to become less sensitive to others, so that adolescents are intrinsically motivated to work towards future goals. This strategy might cause anxiety reduction, will enhance self-determination, and therefore will prevent future relapse. When treating depression therapists should focus on enhancing problem solving

skills, in order to increase autonomy. Group-therapy will be recommended, because it enables patients to practice assertiveness skills in a safe and controlled setting, and they could learn from each other. Prevention programs should be developed for families with one or more children that are at risk for developing an insecure attachment style. I strongly recommend that parents and care-givers are being educated to learn about effective parenting skills, and the relevance of secure attachment. This could take place in infant welfare centers in an early stage of the child's development as part of the basic medical care for young parents.

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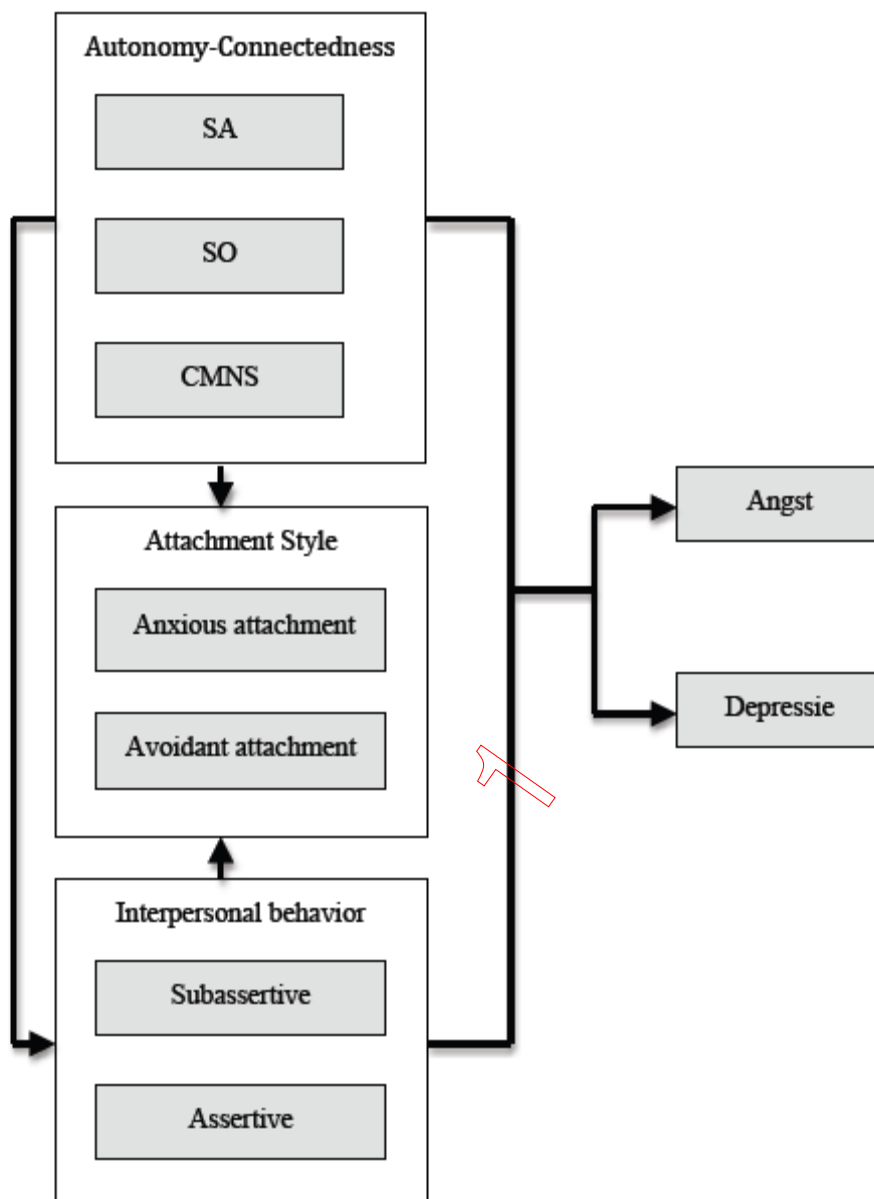
Figure 1

Table 1

Mean scores and standard deviations for clients (N=23) and non-clients (N=26), t-values and effects size for all variables.

	Clients	Non- Clients	*t*	η^2
SA	20.26 (6.35)	29.12 (4.59)	-9.59**	.286
SO	59.57 (12.01)	51.58 (4.80)	5.17**	.177
CMNS	15.78 (5.76)	24.15 (2.49)	-11.18**	.318
Anx	58.22 (15.27)	19.12 (10.04)	18.09**	.430
Avoid	29.30 (3.64)	22.08 (8.27)	6.99**	.226
Ass ipb	.35 (.56)	3.04 (.65)	-26.55**	.525
Subass ipb	3.17 (.87)	.00 (.00)	30.17**	.557
Anxiety	29.52 (4.73)	10.50 (.85)	32.92**	.578
Depression	35.13 (8.59)	2.50 (1.86)	30.92**	.563

Note: * Significant at the 0.05 level (2-tailed); ** Significant at the 0.01 level (2-tailed); SA = self-awareness, SO = sensitivity to others, CMNS = capacity for managing new situations, Anx. = anxious attachment, Avoid. = avoidant attachment, Ass ipb = assertive interpersonal behavior, and Subass ipb = sub-assertive interpersonal behavior.

Table 2

Intercorrelations within the client sample (horizontal, N = 23), and the non-client sample (vertical, N = 26).

	α	1	2	3	4	5	6	7	8	9
1. SA		-	-.47**	.61**	-.10	.09	.02	-.34**	.25*	-.22
2. SO		-.56**	-	-.56**	.12	.07	.23	-.16	.11	.16
3. CMNS		.69**	-.17	-	-.06	.09	-.11	-.08	.24*	-.27*
4. Anx.		-.43**	.68**	-.16	-	-.74**	-.13	-.13	.07	.09
5. Avoid.		-.32**	.56**	-.06	.79**	-	.12	-.10	-.07	-.23
6. Ass ipb		.01	.06	-.08	.09	-.12	-	-.75**	.15	.01
7. Subass ipb		.^{a}	.^{a}	.^{a}	.^{a}	.^{a}	.^{a}	-	-.25*	.11
8. Anxiety		-.62**	.61**	-.46**	.57**	.41**	.04	.^{a}	-	.40**
9. Depression		-.52**	.34**	-.45**	.60**	.29**	.11	.^{a}	.61**	-

Note: * Correlation is significant at the 0.05 level (2-tailed); ** Correlation is significant at the 0.01 level (2-tailed); SA = self-awareness, SO = sensitivity to others, CMNS = capacity for managing new situations, Anx. = anxious attachment, Avoid. = avoidant attachment, Ass ipb = assertive interpersonal behavior, and Subass ipb = sub-assertive interpersonal behavior. ^{a} = The scores cannot be computed due to the homogeneity of the group.

Table 3

Results of Regression Analyses using sensitivity to others (SO), self-awareness (SA), capacity for managing new situations (CMNS), anxious attachment (ANX.ATT), avoidant attachment (AVOID.ATT), assertive interpersonal behavior (ASS.IPB) and sub-assertive interpersonal behavior SUBASS.IPB) as independent variables, and Anxiety and Depression as Dependent Variables.

	B	SE (B)	*t*	*p*
SO	.14	.05	2.74**	.007
SA	.24	.09	2.62**	.010
CMNS	-.05	.11	-.41	.686
ANX.ATT	.13	.03	4.88**	.000
AVOID.ATT	.03	.06	.53	.595
ASS.IPB	-1.40	.67	-2.09*	.039
SUBASS.IPB	2.78	.62	4.47**	.000

Note: Dependent Variable: Anxiety; * Relationship is significant at the 0.05 level (2-tailed); **Relationship is significant at the 0.01 level (2-tailed)

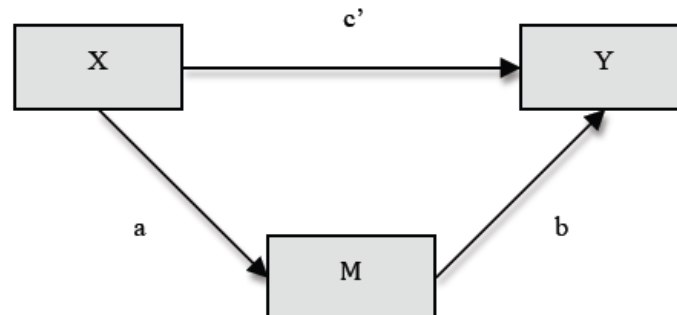|	B	SE (B)	*t*	*p*
SO	.02	.01	3.01**	.003
SA	.00	.00	.27	.787
CMNS	-.05	.01	-6.42**	.000
ANX.ATT	.01	.00	5.68**	.000
AVOID.ATT	-.00	.00	-.69	.493
ASS.IPB	-.07	.05	-1.48	.140
SUBASS.IPB	.25	.05	5.39**	.000

Note: Dependent Variable: Depression; * Relationship is significant at the 0.05 level (2-tailed); **Relationship is significant at the 0.01 level (2-tailed)

Table 4

Results of Hierarchical Regression Analysis using sensitivity to others (SO), self-awareness (SA), capacity for managing new situations (CMNS), anxious attachment (ANX.ATT), avoidant attachment (AVOID.ATT) in the first model, and assertive interpersonal behavior (ASS.IPB) and sub-assertive interpersonal behavior SUBASS.IPB) in the second model as independent variables, and Anxiety and Depression as Dependent Variables.

model		Anxiety			Depression		
		B	SE	t	B	SE	t
1	SA	.05	5.73	.66	-.04	.19	-.59
	SO	-.03	.12	-.42	-.11	.10	-1.97*
	CMNS	-.23	.06	-2.84**	-.38	.21	-5.26**
	ANX.ATT	.67	.14	10.12**	.57	.04	9.69**
	AVOID.ATT	.09	.03	1.68	.06	.18	1.19
2	SA		.08	-.19**	.08	.14	1.31
	SO	.17	5.48	2.62**	.04	.08	.90
	CMNS	.14	.09	2.74	-.20	.17	-3.36**
	ANX.ATT	-.03	.05	-.41**	.26	.04	4.61**
	AVOID.ATT	.31	.11	4.88	.00	.09	.00
	ASS.IPB	.02	.03	.53*	-.08	1.03	-.92
	SUBASS.IPB	-.21	.06	-2.09**	.52	.96	5.61**

Figure 2

Conceptual Path Model for Path Analysis

Table 5

Results of Path Analysis that equates Corresponding Regression Coefficients across the Groups of Clients and Non-Clients
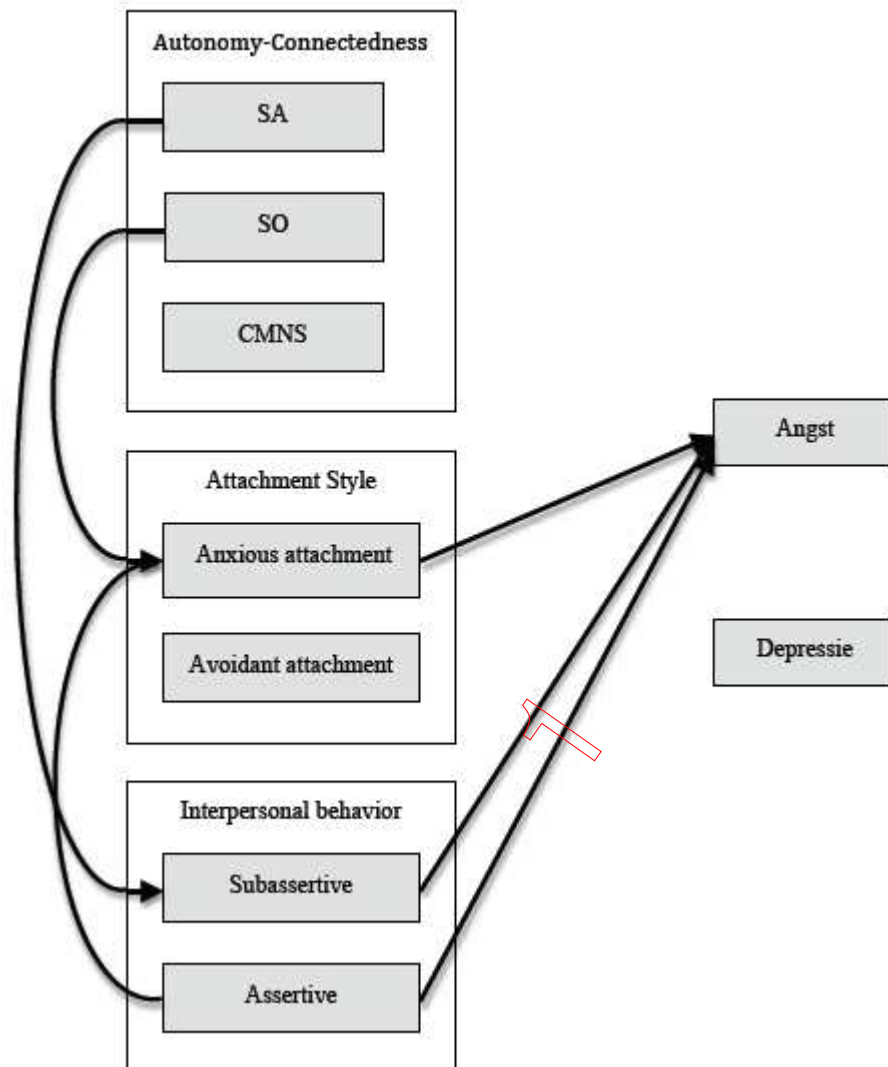
			Anxiety				
Mediator			B	SE (B)	*t*	Sobel	*p*
Anxious att.	b	Anx att → Anxiety	.147	.027	5.38**	2,14*	.032
	a	SO → Anx att	.370	.159	2.33*		
	c'	SO → Anxiety	.192	.055	3.48**		
	b	Anx att → Anxiety	.148	.027	5.54**	-2,75**	.006
	a	Ass → Anx att	-6.38	2.006	-3.18**		
	c'	Ass → Anxiety	-2.25	.70	-3.22**		
Subass ipb	b	Subass → Anxiety	2.360	.614	3.84**	-2,44*	.015
	a	SA → Subass ipb	-.038	.012	-3.17**		
	c'	SA → Anxiety	.134	.095	1.42		

			Depression				
Mediator			B	SE (B)	*t*	Sobel	*p*
CMNS	b	CMNS → Depression	-.053	.008	-7.00**	-3,78**	.000
	a	SO → CMNS	-.170	.037	-4.45**		
	c'	SO → Depression	.010	.004	2.43*		
	b	CMNS → Depression	-.060	.009	-6.82**	2,00*	.046
	a	Subass ipb → CMNS	-.984	.470	-2.10*		
	c'	Subass → Depression	.299	.051	5.82**		
Anxious att	b	Anx att → Depression	.012	.002	6.26**	-2,811**	.005
	a	Ass ipb → Anx att	-6.382	2.006	-3.18**		
	c'	Ass ipb → Depression	-.147	.053	-2.77**		

Note: * Relationship is significant at the 0.05 level (2-tailed); **Relationship is significant at the 0.01 level (2-tailed); SA = Self-awareness; SO = Sensitivity to others; CMNS = Capacity for managing new situations; Anx att = Anxious attachment; Ass ipb = Assertive interpersonal behavior; Subass (ipb) = Sub-assertive interpersonal behavior.

Figure 3

Path Models of Relationships among Variables

Effects on Anxiety

Effects on Depression

Anxiety
Depression