**TITLE**

Perceived parent and peer alienation and its relations to anxiety sensitivity, pathological worry and generalized anxiety disorder symptoms

**RUNNING HEAD**

Peer alienation and psychopathology

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**ABSTRACT**

**Objective:** Studies have only recently begun to explore the role of interpersonal factors in relation to anxiety sensitivity, a trait that has been hypothesized as a risk factor for the development of anxiety disorders. Therefore, the goal of this research was to further investigate the relations between anxiety sensitivity, worry, generalized anxiety disorder symptoms and parent and peer attachment, more specifically – perceived parent and peer alienation on a clinical sample for the first time. The mediating role of anxiety sensitivity between perceptions of alienation and current worry and generalized anxiety disorder symptoms was also examined. **Methods:** Analyses were conducted on a total sample of 72 psychiatric patients with diagnosed anxiety or depression disorder who completed the *Generalized Anxiety Disorder Questionnaire-IV, Penn State Worry Questionnaire, Inventory of Parent and Peer attachment* and *Anxiety Sensitivity Index.* All patients were Caucasian, and 48.6% of participants were men (Mage=44.2 years) and 51.2% were women (Mage= 41.1 years). **Results:** Participants with higher intensity of worry and generalized anxiety disorder symptoms reported higher perceptions of being alienated only from their peers. Also, anxiety sensitivity mediated the relation between perceptions of alienation from peers and worry and generalized anxiety disorder symptoms. **Conclusion:** Perceptions of peer rather than parent alienation appear to be a salient construct in relation to present levels of anxiety sensitivity, uncontrollable worry and generalized anxiety disorder symptoms in individuals with a diagnosis of mental illness. Implications for cognitive-behavioral therapy practitioners are also shortly discussed.

**Key words:** anxiety sensitivity, attachment, generalized anxiety disorder, peer alienation, worry.

**What is already known on this topic**

1. Lack of secure attachment and deficiencies of social networks present relevant interpersonal variables for development of generalized anxiety disorder (GAD) symptoms and anxiety sensitivity (AS).
2. In GAD diagnosed individuals some facets of AS are significantly elevated compared to individuals with other anxiety diagnoses.
3. In a single research on this subject so far, it’s been reported that even after controlling for worry and GAD symptoms, greater perceptions of alienation from mothers and peers were significantly associated with higher AS symptoms.

**What this paper adds**

1. The relations between AS, worry, GAD and parent and peer alienation

were explored on a clinical sample for the first time.

1. Anxiety sensitivity mediated the relation between perceptions of alienation from peers and worry and GAD symptoms, but perceived parent alienation shared no significant relation to these variables.
2. The study suggests a more salient role of perceived peer, rather than parent alienation in individuals with a diagnosis of mental illness.

**INTRODUCTION**

***The relations between generalized anxiety disorder, anxiety sensitivity, worry and interpersonal variables***

Studies have only recently begun to look at the role of interpersonal factors in relation to anxiety sensitivity (AS), a trait that has been hypothesized as a risk factor for the development of anxiety disorders. This trait is defined as a fear of anxiety-related sensations, arising from the belief that these sensations pose physical, social and/or psychological threat. Strongly related to AS, chronic worry also seems to be pervasive throughout the anxiety disorders (Mennin, Heimberg, & Turk, 2004) and presents a central feature of generalized anxiety disorder (GAD), a common comorbid diagnosis to several other anxiety disorders. AS and worry (in a non-clinical sample) were correlated in a research by Floyd, Garfield, and LaSota (2005) which authors explained by tendency to focus on the uncertainty of future, which is a common factor in AS and worry. Furthermore, in GAD diagnosed individuals some facets of AS were significantly elevated compared to individuals with other anxiety diagnoses (Rector, Szacun-Shimizu, & Leybman, 2007).

While the role of genetic factors in the development of AS has been heavily emphasized, the role of interpersonal factors seems to be also of large importance. For example, Watt, Stewart, and Cox (1998) reported that, in comparison to controls, young adults with high AS had parents who more frequently reinforced their displays of ill role behavior in response to child anxiety symptoms, more often modeled fear of anxiety symptoms and more frequently displayed uncontrolled behavior. Concerning the role of attachment in the development of AS, previous studies provided evidence that perceptions of negative parental behaviors during childhood, hypothesized to have a role in the development of insecure attachments, are related to AS and anxious symptomatology in adulthood (Bosmans, Braet, & Van Vlierberghe, 2010; Simard, Moss, & Pascuzzo, 2011; Viana & Rabian, 2008). Furthermore, Scher and Stein (2003) found that perceived parental threatening behaviors emerged as the best predictor of overall AS, that AS mediated the relation between perceived parental threatening behaviors as well as both past and current anxious symptoms, and finally, that fear of publicly observable symptoms mediated the relation between perceived parental threatening behaviors and current, not past, anxiety symptoms. Weems, Berman, Silverman, & Rodriguez (2002) also found that insecurely attached individuals, classified as preoccupied and fearful, had significantly higher AS scores than securely attached individuals. Insecure attachment has also been implied as an interpersonal variable that contributes to the development of psychopathology, especially GAD symptoms (Cassidy, Lichtenstein-Phelps, Sibrava, Thomas, & Borkovec, 2009; Roelofs, Lee, Ruijten, & Lobbestael, 2011; Roelofs, Oncles, & Muris, 2013). Therefore, the next section will provide some relevant theoretical discussions and research findings regarding these considerations.

***Possible developmental roots of generalized anxiety disorder, and parent and peer alienation***

Some authors imply that developmental roots of GAD also lie in insecure attachment (Cassidy, Lichtenstein-Phelps, Sibrava, Thomas, & Borkovec, 2009), and according to them there are five sets of reasons why one would derive such conclusion. The first set implies the inherently interpersonal nature of worry, the central feature of GAD, as worry has been found to be most highly related to fears associated with social evaluation and interpersonal relationships, as well as unrelated to most noninterpersonal objects or events (Borkovec, Robinson, Pruzinsky, & DePree, 1983; Roemer, Molina, & Borkovec, 1997). The second set refers to logical cognitive errors that produce unrealistic perceptions of viewing the world as a dangerous place, while underestimating one's own coping resources at the same time. According to Bowlby's attachment theory and current research, insecurely attached children are more likely to have such negative cognitions than are securely attached children (Bretherton, Ridgeway, & Cassidy, 1990). These perceptions may arise from the lack of providing desired comfort by the relevant attachment figure in face of threat (Cassidy et al., 2009). Third set refers to the environmental role in the specific development of GAD, as previous research indicate that GAD occurs within families, but lacks a strong genetic component. The fourth set refers to Bowlby's proposal of the link between insecure attachment and diffuse anxiety observed in GAD (Bowlby, 1973). Namely, Bowlby sees generalized anxiety arising from the individual's lack of confidence that the attachment figure will be available in times of trouble *no matter the source of fear*. The fifthset refers to the emotion dysregulation difficulties observed in individuals with GAD (Mennin, Heimberg, Turk, & Fresco, 2005), where attachment is viewed through the role of „a relational emotion regulation system” (Guttmann-Steinmetz & Crowell, 2006). Namely, securely attached child grows confidence that distressing emotions are tolerable by building representations of others as available and responsive and of the self as capable of eliciting such care. On the other hand, if a child has a lack of confidence in the availability of a responsive attachment figure when needed, two patterns of responding to distressing emotions may occur. One refers to anxious attachment associated with magnifying threats and stressors and ruminating about problems. The other one is especially linked to interpersonal problems and refers to avoidant attachment associated with suppression and denial of stressors and threats, as well as withdrawal from close interpersonal relationships. The development of insecure attachment is of great importance when considering the relation between GAD and parent and peer alienation because some researchers consider that the roots of later interpersonal avoidance and excessive worry patterns in individuals with GAD lie in insecure attachment (Cassidy et al., 2009; Marganska, Gallagher, & Miranda, 2013; Viana & Rabian, 2008). These relations are also important to explore as the incidence of anxiety disorders peaks in humans during the period of transition from childhood to adulthood (Kim and Ganella, 2015). The next paragraph further discusses the importance of peer networks and their deficiencies in the development of psychopathology.

***Deficiencies of social networks as a vulnerability factor for anxiety and depression disorders***

There is a growing empirical evidence that deficiencies of social networks also present a relevant interpersonal variable for increased vulnerability to both anxiety and depression disorders (Bifulco et al, 2006). Some authors even argue that by adolescence, peers as attachment figures, compared to parents, may be just as influential, as adolescents begin to rely on peers more often than parents as sources of support. Furthermore, Laible, Carlo and Raffaelli (2000) reported that adolescents low on parent but high on peer attachment were better adjusted than those high on parent but low on peer attachment. The authors suggested that peer attachment might be relatively more influential on psychological adjustment in later life than parent attachment. Some authors also imply that perceived peer social support during stressful life events yields positive outcomes in regard to problem solving skills that play an important role in individual’s wellbeing (Eldeleklioglu, 2006). The importance of perceived social support in the development of individual's coping skills with stressful events has been supported by research (Cohen & Hoberman, 1983; Cornwel, 2003; Coyne & Downey, 1991; Sarason, Sarason, & Shearin, 1986; Slater & Depue, 1981) where the lack of social support was significantly related to loneliness, suicide risk and negative outcomes of various physical illnesses, as well as symptoms of anxiety and depression.

***Current research findings on the relations between generalized anxiety disorder, anxiety sensitivity, worry and parent and peer alienation***

To our knowledge, there has been only one research that investigated the relations of AS, GAD, worry and perceived parent and peer attachment (Viana & Rabian, 2008). In this research, the authors reported that even after controlling for worry and GAD symptoms, greater perceptions of alienation from mothers and peers were significantly associated with higher AS symptoms. However, the study was conducted on a non-clinical sample and the authors have noted the necessity of further investigation of these relations in individuals with clinical levels of worry.

***Goals and hypotheses***

Our goal was to further investigate the relations between AS, worry, GAD and parent and peer attachment, more specifically – perceived parent and peer alienation on a clinical sample. Concerning the established relations between these constructs (Viana & Rabian, 2008) and the notion that poor peer attachment may be of greater importance for the development of psychopathology in later life, we hypothesized the following: perceived alienation from peers, rather than parents would show statistically significant relation to worry, GAD and AS on a sample of adult individuals with pathological levels of worry. We also hypothesized that AS would mediate the relation between perceptions of alienation from peers and current worry and GAD symptoms.

**METHOD**

**Sample and Data Collection**

*XX* Institutional Review Board (Ethics Committee) – *removed for peer review* approved this study. During their regular visit to the *XX* institution – *removed for peer review*, patients were informed about the research and asked to participate. Once signed informed consent was obtained, participants were informed that they could leave questions unanswered and/or refrain from participation at any point without adverse consequences. Participants were then given a package containing all the questionnaires. Ten participants refused to participate in the research before they were informed about the research’s goals.

The research was conducted during a one-month period. Our sample consisted of 80 patients of *XX* institution – *removed for peer review*. All participants provided demographic information about age, gender, education, and marital status. Participants were given a direction to enter all the diagnosis codes (ICD-10) from their last psychiatric control paper in the space provided in the questionnaire. Only participants with diagnosed anxiety or depression disorder without comorbidity were taken into consideration for further analysis, therefore 8 participants were excluded from further analysis. Statistical analyses were performed on a total of 72 (90%) patients. Our intended sample was 94 as calculated by *Raosoft* *Sample size calculator* with an accepted margin of error of 5%, and confidence level of 95%.

All participants were Caucasian ethnicity. Thirty-five (48.6%) participants were men (Mage =44.2, SD=13.46; range = 22–75) and 37 (51.2%) were women (Mage= 41.1 years, SD=13.51, range 20 – 84). There was no statistically significant gender difference in age (t= .33, p >.05). Most of the sample had high school degree (65%), 15% had bachelor and 11% had graduate or higher degree, while 8% finished primary school. Diagnoses were from the spectrum of anxiety (70%) and depression (30%) (Table 1).

**MEASURES**

*Generalized Anxiety Disorder Questionnaire-IV* (GAD-Q-IV; Newman et al., 2002)

GAD-Q-IV is a self-report measure that consists of 9 items that refer to diagnostic criteria for GAD from Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 1994). On the first four questions participants answer in a yes or no format if they have experienced excessive worry, whether the worry was excessive in intensity, frequency or amount of distress it caused, weather it has been difficult to control and if it extended to worrying about minor things (e.g. minor repairs). Then they are asked to list the most frequent topics about which they worry excessively or uncontrollably. On the next question they answer again with yes/no whether in the last six months they have been bothered by excessive worries more days then not. After that participants mark which one of the 6 DSM-IV (*DSM-IV*, 1994) GAD symptoms they experienced (e.g., being easily fatigued). On the last two items participants reply how much worry and physical symptoms interfere with their life and how much they are bothered by them on a 9-point scale (0=None; 4=Mild; 8=Very Severe). Newman et al. reported that ‘‘analyses such as internal consistency are not appropriate’’ (p. 229) for this measure, because of the response format. Thus, alphas are not reported.

*Anxiety Sensitivity Index* (ASI; Peterson & Reiss, 1992)

The second measure was the ASI, a 16-item self-report measure of AS. It has excellent psychometric properties in both clinical and non-clinical samples (Peterson & Reiss, 1992). A Cronbach’s *α* between .84–.90 suggests good internal consistency(Peterson & Reiss, 1992). The results in our sample (M = 47.67, SD = 12.695) showed normal distribution and Cronbach’s α was .86. Research supports a hierarchical factor structure of the ASI consisting of three lower-order factors measuring physical concerns, mental incapacitation (psychological) concerns, and social concerns (Rodriguez, Bruce, Pagano, Spencer, & Keller, 2004).

*Penn State Worry Questionnaire* (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990)

PSWQ consists of 16 self-report items that measure worry phenomena: generality, excessiveness and uncontrollability dimensions of pathological worry. Participants reply on a 5-point scale (1=Not typical for me; 5=Very typical for me) their agreement with different items, for example: “I know I should not worry about things, but I just cannot help it”; “As soon as I finish one task, I start to worry about everything else I have to do” and “I worry all the time.”. PSWQ has a very good internal consistency α=.94 (Meyer et al., 1990; Viana & Rabian, 2008) which was confirmed in our research (α =.93).

*Inventory of Parent and Peer Attachment* (IPPA; Armsden & Greenberg, 1987)

IPPA consists of 75 items on which participants asses trust, communication, anger and alienation with parents, separately mother, father and peers. On a 5-point scale (1= Almost always or always true; 5=Almost never or never true) participants show their agreement with items about quality of their relationships. Item samples: „When we discuss things, my parents consider my point of view.“, „My parents don't understand what I'm going through these days.“, When I am angry about something, my friends try to be understanding.“ and „It seems as if my friends are irritated with me for no reason.“. Only mother, father and peer alienation subscales were used in this study. Sample alienation items include „My parents expect too much from me.“ and „I feel angry with my parents.“. The Inventory has satisfying psychometric qualities, with three week test-retest reliabilities from .93 for parent attachment to .86 for peer attachment, while Cronbach’s alphas of total scores were for mother *α*=.87; father *α*=.89 and peers *α*=.92 (Armsden & Greenberg, 1987). Our Cronbach’s alphas for alienation subscales were: mother α=.68; father α=.75 and peers α=.61.

**STATISTICAL ANALYSES**

The Statistical Package for the Social Sciences, version 12.0 (SPSS Inc., Chicago, IL, USA) was used for data analyses. The level of statistical significance was set at *p* < 0.05.

**RESULTS**

Demographic and some relevant clinical features of the study sample are presented in Table 1. Means and standard deviations of all measures are presented in Table 2. As can be seen in Table 3 only peer alienation is significantly correlated with AS, GAD and worry symptoms. To test the mediation effect of AS on the relationship of peer alienation with GAD and worry we used Baron & Kenny's (1986) 4-step approach (Table 4). To ensure relative comparability of the obtained results, variables were entered in the same order as it was done by Viana and Rabian (2008) in the research that explored the same relations on a non-clinical sample. In the first step we performed regression analysis with peer alienation as predictor and GAD and worry as criteria, and the results showed that peer alienation is a significant predictor of both (Table 4). Second step has shown peer alienation as a significant predictor of AS, while the third step has shown AS as a significant predictor of both GAD and worry (Table 4).

In the fourth step we performed hierarchical regression for GAD and worry as dependent variables with peer alienation and AS as predictors. In the first step with GAD as dependent variable, peer alienation was a significant predictor and explained 14% of the variance of GAD. In the second step we added AS, which explained additional 27% of GAD. In this step peer alienation lost its statistical significance as a predictor, with AS being the only significant predictor (Table 4).

Similar results were obtained for worry; in the first step peer alienation was a significant predictor and explained 17% of worry variance. With introduction of AS, explained variance raises by 14% but peer alienation loses predictive significance.

Sobel test was performed to confirm mediation effect of AS on the relationships of peer alienation with GAD and worry. The mediated effect for ASI on GAD was Sobel z=3.36, p<.01, and for ASI on worry was Sobel z=3.12, p<.02, and we can conclude AS mediates the relationships of peer alienation with GAD and worry.

**DISCUSSION**

***Current worry, generalized anxiety disorder, anxiety sensitivity and parent alienation***

The current study examined the relation between perceptions of alienation from parents and peers, AS, and current worry as well as GAD symptoms in a clinical sample. The role of AS as a mediator between perceptions of alienation and current worry and GAD symptoms was also examined. Partially in accordance with the results of Viana and Rabian (2008) on a non-clinical sample, participants with higher symptoms of worry and GAD reported higher perceptions of being alienated only from their peers.

This finding is also inconsistent with the results of Eng & Heimberg (2006), who found that GAD participants reported significantly less secure attachment to their parents, and those of Hale, Engels, & Meeus (2006) who found that greater perceptions of parental alienation were related to higher symptoms of GAD.

The lack of finding significant relations between these variables could not be simply assigned to the problem of having scores within a restricted range (high mean scores on measures of perceived parental alienation in our sample). Namely, when compared to mean IPPA mother and father alienation scores reported by Viana & Rabian (2008) our participants did show a trend of higher perceived mother and father alienation (*M*IPPAmother=15,28 vs. 13,55; *M*IPPAfather=15,75 vs. 14,37). However, even stronger trend was observed for perceived peer alienation, which was higher in our sample, compared to findings of Viana & Rabian (2008) (*M*IPPApeer=18,22 vs. 16,82), with similar standard deviations in all cases. In our opinion, there is a plausible explanation why such different results emerged in our study. All of the before mentioned studies (Eng & Heimberg, 2006; Hale, Engels, & Meeus, 2006; Viana & Rabian, 2008) enrolled mostly adolescents and young adults as participants. Namely, it is possible that the caregivers’ influence in lives of individuals from these populations is still salient enough for the relation between parental attachment style and GAD symptoms to be significant. On the other hand, our study’s sample consisted of individuals from a clinical population with their mean age presenting mature adulthood (Mage=42.5). Possibly, alienation patterns at this age reflect the current consequences of primary caregiver’s behaviors, regarding the possibly developed insecure attachment patterns, but, their influence is less salient in everyday lives of these individuals, while peer networks become a more important interpersonal variable. Namely, it is possible that in later mature adulthood the overlap between parental and peer variables’ influences gradually disappears as the role and importance of social/peer networks becomes more present and more pronounced in individual’s everyday activities. The next two paragraphs discuss this notion more thoroughly through the observed relations between peer alienation, worry, AS and GAD symptoms.

***Current worry, generalized anxiety disorder, anxiety sensitivity and peer alienation***

Our findings from a clinical sample also confirm the notion of Viana & Rabian (2008) that perceptions of alienation appear to be a salient construct in relation to present levels of uncontrollable worry and GAD symptoms. However, they also seem to suggest a more salient role of perceived peer alienation in individuals with a diagnosis of mental illness. The observed correlations between AS and worry also imply that a greater focus on interoceptive cues and somatic symptoms is also characteristic of those who chronically worry (Viana & Rabian, 2008; Leen-Feldner, Feldner, Tull, Roemer, & Zvolensky, 2006; Nay, Thorpe, Roberson-Nay, Hecker, & Sigmon, 2004).

As mentioned before, partially in accordance with the findings of Viana & Rabian (2008), participants in this study did report greater perceptions of alienation from peers. This finding is also consistent with the notion of Sroufe, Duggal, Weinfield, and Carlson (2002) that perceived alienation from a greater number of support systems, beyond the caregiver environment, may be related to higher symptoms of psychopathology. This may also be especially true for individuals with clinical levels of worry and GAD symptoms, as was observed in our study.To our knowledge, this is the first study that has specifically examined perceptions of alienation from parents and peers and their relation to AS, worry and GAD symptoms in a clinical sample of participants. In accordance with previous findings on non-clinical samples (Viana & Rabian, 2008; Floyd, Garfield, & LaSota, 2005; Taylor, 1999), AS was significantly related to current worry and GAD symptoms. This suggests that beyond its major role in the development of panic disorder, AS may also have an important role in exacerbation of pathological worry and the development of GAD that will be discussed in more detail in the next section.

***Anxiety sensitivity as a mediator between peer alienation, current worry and generalized anxiety disorder symptoms***

Greater perceptions of alienation and withdrawal from peers only, independent of current worry and GAD symptoms, were significantly related with fears of anxiety-related sensations as measured by the ASI. These findings accentuate that in later life, poorer attachment to friends, and feelings of alienation specifically, may be implicated in exacerbation of AS, possibly due to the more salient role that social support networks have in later life of an individual, beyond the role of primary caregiver. This study is also first in examining the mediating role of AS between perceptions of alienation from peers and current worry as well as GAD symptoms on a clinical sample of participants. In accordance with the findings of Viana & Rabian (2008) in their sample of undergraduate students, the relation between perceptions of alienation from peers and symptoms of worry and GAD was fully mediated by current AS symptoms. As noted by Weems et al. (2002), the quality of attachments may be particularly important in the development of beliefs regarding the social consequences of anxiety sensations. These findings suggest that stronger feelings of estrangement from the social support network are associated not only with present levels of worry and GAD symptoms but that this association is mediated by the way individuals come to appraise their own anxiety-related sensations.

In order for the results of this study to be understood in a more complete way, the next paragraph elaborates more thoroughly the possible role of insecure attachment and AS in GAD individuals’ social functioning and the exacerbation of worry symptoms.

***The possible role of insecure attachment and anxiety sensitivity in generalized anxiety disorder individuals’ social functioning***

In a more general framework, these findings may be related to the hypothesis of Cassidy et. al. (2009) that developmental roots of GAD lie in insecure attachment, where later is seen as „a relational emotion regulation system“. According to this hypothesis, a child grows confidence that distressing emotions are tolerable through the representations of others as available and responsive, and of the self as capable of eliciting such care. In this way, a child grows a tendency to seek soothing during distressing moments and gains the capacity for self-soothing over time. This pattern describes how secure attachment is formed. However, insecure attachment is viewed as a result of a lack of availability of a child's caregiver during moments of distress and anxiety. Namely, according to Cassidy et al., (2009), a child may incorporate into his/her working models of the world and others that his/her feelings of anxiety are to be managed without the support of the caregiver. This can lead to the formation of one of two major patterns of responding to distressing emotions: avoidant (suppression and denial of stressors and withdrawal from relationships) or anxious (magnifying stressors and ruminating about problems) attachment. These repeated transactions may cause the individual to continue fearing and catastrophizing the discomfort associated with anxiety sensations in adulthood, in anticipation that no one will provide help and/or support when those feelings are experienced.

Also, the perception of peer unavailability in association with experiences of anxiety, that are perceived as threatening, that are intensified by high levels of AS (Watt, McWilliams & Campbell (2005) may be the cause of a clinical rise of symptoms of worry. Furthermore, the pattern of seeing others as unavailable in the experience of distress may also lead to further alienation and withdrawal from peers and maintenance of worry and GAD symptoms. Previous research has also shown that individuals with insecure attachment, specifically those classified as preoccupied fearful, had significantly higher AS scores than securely attached individuals in both high school and college samples (Weems, Bergman, Silverman, & Rodriguez, 2002). In further exploration of these findings, Watt et al. (2005) found that insecurely attached individuals reported significantly higher AS levels than those with secure and dismissing attachment styles. The authors of this research also reported a significant relation between AS and attachment styles, even after controlling for anxiety symptoms.

All of these findings strongly suggest the need for further research of the relationship between interpersonal variables and psychopathology because of their potentially significant implications in improving the quality of life and treatment of people with anxiety problems. The following section describes the potential implications of the findings within this research.

***Implications for practice***

Understanding the role of interpersonal variables such as alienation from peers in reinforcing the symptoms of anxiety sensitivity, excessive worry and GAD can contribute to the development of different therapeutic treatments and techniques. The findings of this study also indicate the potential benefits of attachment style screening via different questionnaires in different phases of the treatment in order to adequately deal with possible social problems of the client. This knowledge could contribute to the development and improvement of various techniques aimed at social skills training in these individuals. For a practicing clinician in CBT for example, these results may imply a need for a more elaborate work on changing dysfunctional believes regarding the availability and benefits of social support in individuals with GAD together with the work on reducing anxiety sensitivity symptoms. Also, appropriate psychoeducation that integrates the relation between these constructs could contribute to greater success in treatment, improve the receptivity of the client and help overcome possible resistance to the treatment. Understanding the client’s attachment style and it’s possible relation to his current problems can also help the therapist in creating a better therapeutic relationship with the client in order to achieve more success in the set treatment goals. As noted by Viana and Rabian (2008), greater attention to the peer domain in investigations of AS is warranted, in order to gain better understanding of the role that peer alienation may have in the development of these fears. Moreover, these are only preliminary results and implications that should be examined by further research that would investigate the role of interpersonal factors in the development of AS.

***Limitations***

This study has also several limitations. One of them refers to the cross-sectional nature of this investigation where any causal inferences that could be made about the pattern of relations found are precluded. A replication of these findings in a study with a larger sample size and a control group of non-clinical participants is needed to further elucidate the role of alienation and its relation to AS, worry and GAD. Also, further studies should include longitudinal designs and other measures of attachment and alienation, besides IPPA, that measures only the individual's perception of these constructs.

Finally, longitudinal studies are needed to examine the role of attachment to caregivers and its influence on peer attachment in adulthood and the development of the fear of anxiety related sensations. Such studies are also needed to investigate the role of attachment patterns in development of AS and processes that lead to exacerbation of pathological worry in individuals diagnosed with mental illness.

In conclusion, AS mediated the relation between perceptions of alienation from peers and worry and GAD symptoms, but perceived parent alienation shared no significant relation to these variables. These results imply that perceptions of alienation appear to be a salient construct in relation to present levels of uncontrollable worry and GAD symptoms. However, they also seem to suggest a more salient role of perceived peer, rather than parent alienation in individuals with a diagnosis of mental illness.

Beyond the noted limitations, this study contributes to the growing knowledge regarding the origins of AS and its implied role in the development of pathological worry and GAD symptoms.

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Table1

Demographic and relevant clinical features of the study sample (*N* = 72)

|  |  |  |
| --- | --- | --- |
| Age | *M* (*SD*) | *N* (%) |
|  |  |  |
| Men | 44.2 (13.46) | 35 (48.6) |
| Women | 41.1 (13.51) | 37 (51.2) |
| Complete sample | 42.5 (13.48) | 72 (100) |
|  |  |  |
| Education | Frequency | % |
|  |  |  |
| Primary school | 6 | 8.3 |
| High school degree | 47 | 65.3 |
| Bachelor’s degree | 11 | 15.3 |
| Graduate or higher degree | 8 | 11.3 |
|  |  |  |
| Primary diagnosis | Frequency | % |
| GAD | 14 | 19.4 |
| Another anxiety disorder | 36 | 50 |
|  |  |  |
| Acute stress reaction or PTSD | 19 | 26.4 |
| Panic disorder | 8 | 11.1 |
| Anxiety mixed with depression | 6 | 8.3 |
| Other | 3 | 4.2 |
|  |  |  |
| Depression | 22 | 30.6 |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

Table 2

Means and standard deviations of all measures (*N*=72)

|  |  |  |
| --- | --- | --- |
| Variable | *M* | *SD* |
| GAD-Q-IV[[1]](#footnote-1) | 6.19 | 2.694 |
| PSWQ[[2]](#footnote-2) | 59.77 | 12.126 |
| ASI[[3]](#footnote-3) | 47.67 | 12.695 |
| IPPA - MA[[4]](#footnote-4)ψ | 15.28 | 4.951 |
| IPPA - FA[[5]](#footnote-5)ζ | 15.75 | 5.230 |
| IPPA - PA[[6]](#footnote-6)∂ | 18.22 | 4.242 |

Table 3

Pearson’s correlation coefficients among the measures

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | PSWQ | ASI | IPPA - MA | IPPA - FA | IPPA – PA[[7]](#footnote-7)∂ |
| GAD-Q-IV[[8]](#footnote-8) | **.74\*\*** | **.65\*\*** | .15 | .06 | **.41\*\*** |
| PSWQ[[9]](#footnote-9) |  | **.57\*\*** | -.04 | .17 | **.42\*\*** |
| ASI[[10]](#footnote-10) |  |  | .04 | .14 | **.43\*\*** |
| IPPA - MA[[11]](#footnote-11)ζ |  |  |  | .19 | **.32\*\*** |
| IPPA - FA[[12]](#footnote-12)∂ |  |  |  |  | .26 |

Table 4

Mediator regression analyses testing the mediating effect of anxiety sensitivity on relations between peer alienation and current worry and generalized anxiety disorder symptoms (*N* = 72)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Step | Predictor(s) | Criteria | β | R | Rc² | F |
| 1 | IPPA -PA[[13]](#footnote-13) | GAD-Q-IV[[14]](#footnote-14) | **.41\*\*** | **.41\*\*** | **.15\*\*** | **13.12\*\*** |
|  | PSWQ[[15]](#footnote-15)∂ | **.42\*\*** | **.42\*\*** | **.17\*\*** | **14.02\*\*** |
| 2 | IPPA -PA | ASI | **.43\*\*** | **.43\*\*** | **.18\*\*** | **14.99\*\*** |
| 3 | ASI[[16]](#footnote-16) | GAD-Q-IV | **.65\*\*** | **.65\*\*** | **.42\*\*** | **49.86\*\*** |
|  | PSWQ | **.57\*\*** | **.57\*\*** | **.31\*\*** | **32.16\*\*** |
| 4 a) | IPPA -PA | GAD-Q-IV | **.39\*\*** | **.39\*\*** | **.14\*\*** | **11.48\*\*** |
|  | IPPA –PA  ASI | .13  **.59\*\*** | **.67\*\*** | **.41\*\*** | **24.15\*\*** |
| 4 b) | IPPA -PA | PSWQ | **.42\*\*** | **.42\*\*** | **.17\*\*** | **13.86\*\*** |
|  | IPPA –PA  ASI | .22  **.46\*\*** | **.59\*\*** | **.33\*\*** | **17.16\*\*** |

1. Generalized Anxiety Disorder Questionnaire-IV [↑](#footnote-ref-1)
2. Penn State Worry Questionnaire [↑](#footnote-ref-2)
3. Anxiety Sensitivity Index total score [↑](#footnote-ref-3)
4. ψ Inventory of Parent and Peer Attachment - mother alienation [↑](#footnote-ref-4)
5. ζ Inventory of Parent and Peer Attachment - father alienation [↑](#footnote-ref-5)
6. ∂ Inventory of Parent and Peer Attachment - peer alienation [↑](#footnote-ref-6)
7. ∂ Inventory of Parent and Peer Attachment - peer alienation [↑](#footnote-ref-7)
8. Generalized Anxiety Disorder Questionnaire-IV [↑](#footnote-ref-8)
9. Penn State Worry Questionnaire [↑](#footnote-ref-9)
10. Anxiety Sensitivity Index total score [↑](#footnote-ref-10)
11. ζ Inventory of Parent and Peer Attachment - mother alienation [↑](#footnote-ref-11)
12. ∂ Inventory of Parent and Peer Attachment - father alienation

    ∂ Inventory of Parent and Peer Attachment - peer alienation

    \*\* p< 0.01 [↑](#footnote-ref-12)
13. Inventory of Parent and Peer Attachment - peer alienation [↑](#footnote-ref-13)
14. Generalized Anxiety Disorder Questionnaire-IV [↑](#footnote-ref-14)
15. ∂ Penn State Worry Questionnaire [↑](#footnote-ref-15)
16. Anxiety Sensitivity Index total score

    \*\* *p* < .01 [↑](#footnote-ref-16)