The Explanatory Role of Basic Psychological Need Experiences in the Relation

between Dependency, Self-criticism and Psychopathology in Adolescence

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Abstract

Objectives. According to Blatt's theory on personality development, adolescents with high levels of self-criticism and dependency are more vulnerable to diverse types of psychopathology. However, relatively little is known about intervening processes involved in this personality-based vulnerability. The goal of this study is to examine, on the basis of Self-Determination Theory, the explanatory role of the psychological needs for autonomy, competence, and relatedness in associations between self-criticism and dependency on the one hand and adolescents' internalizing and externalizing problems on the other hand. **Method.** In this cross-sectional and multi-informant study, 284 adolescents (58,5% female; mean age = 14.15; *SD* = .93) and their parents reported about the adolescent's internalizing and externalizing problems. Adolescents also completed measures assessing self-criticism, dependency, and psychological needs experiences. Data were analyzed using structural equation modeling. **Results.** Self-criticism and dependency were significantly related to higher levels of both internalizing and externalizing problems, with psychological need frustration fully mediating these associations. No evidence for a mediating role of need satisfaction was found. **Conclusion.** This study suggests that psychological need frustration is an important explanatory mechanism in personality-related vulnerability for adolescent psychopathology. More generally, it provides further evidence for the integration between two major theoretical approaches in the domain of adolescent development and psychopathology.

Keywords: dependency, self-criticism, psychological needs, externalizing problems, internalizing problems

It is well-established that the prevalence of both internalizing and externalizing problems increases in the transition from childhood to adolescence (e.g. Costello, Copeland, & Angold, 2011; Stouthamer-Loeber, Loeber, Wei, Farrington, & Wikström, 2002; Twenge & Nolen-Hoeksema, 2002). Research on vulnerability to psychopathology in adolescence is increasingly conducted from a biopsychosocial approach (Hill, 1980; Williams, Holmbeck, & Greenley, 2002). One influential theory in this regard is Blatt's two-polarities model of personality development (2004, 2008). According to this theory, a complex interplay of biological (e.g., genetic) and environmental influences (e.g., socialization and life stress) can give rise to personality-based vulnerability to psychopathology (Luyten & Blatt, 2013). Specifically, this theory identifies dependency and self-criticism as key personality vulnerabilities involved in depression (Blatt, D'Afflitti, & Quinlan, 1976) and in the development of psychopathology more generally (Blatt & Shichman, 1983).

Although studies have confirmed the role of these two personality dimensions in adolescents' maladjustment (Blatt, Schaffer, Bers, & Quinlan, 1992; Coyne & Whiffen, 1995; Zuroff, Igreja, & Mongrain, 1990; Zuroff & Mongrain, 1987), less is known about the explaining mechanisms involved in these associations. Recently, based on Self-Determination Theory (SDT; Ryan & Deci, 2017; Ryan, Deci, & Vansteenkiste, 2016), there is a growing interest in the role of the basic psychological needs for autonomy, competence, and relatedness in risk for psychopathology. The primary goal of this study is to examine the mediating role of these basic psychological needs in the relation between dependency, self-criticism and psychopathology in adolescence. In doing so, this study aims to contribute to a better understanding of explanatory processes involved in adolescent psychopathology, but also to furthering previous attempts at bringing together two well-established macro-theories on human development and psychopathology.

Blatt's Theory on Personality Development and Risk for Psychopathology

Based on psychodynamic and cognitive developmental theory, Blatt and colleagues (Blatt, 1974; Blatt & Blass, 1996) have proposed that personality development is the result of a complex dialectical interaction between two fundamental and complementary developmental lines (i.e., self-definition and relatedness) (Blatt & Luyten, 2009). The first developmental line, self-definition, refers to the development of an increasingly differentiated, integrated, realistic, and essentially positive identity. The second developmental line, relatedness, entails the gradual establishment of increasingly mature, meaningful, and reciprocal relationships. Both developmental lines are assumed to constantly interact with one another, such that progress in one developmental line facilitates progress in the other and vice versa. Specifically, developing a well-integrated and solid sense of self would facilitate the establishment and maintenance of mutually satisfying relationships, while the development of mature interpersonal relationships would contribute to the development of a stable and realistic sense of self. However, an excessive focus on one developmental line at the expense of the other would be associated with an increased vulnerability to maladjustment and psychopathology (Luyten & Blatt, 2011).

Most individuals are thought to put a slightly greater emphasis on one developmental line, with this relative emphasis determining an individual's personality vulnerability (Blatt, 2008). Self-criticism is seen as a personality dimension that is associated with an exaggerated focus on self-definition, at the expense of interpersonal relationships (Priel & Shahar, 2000). Self-criticism involves a tendency to set unrealistically high and rigid standards and to engage in harsh negative self-evaluation when confronted with failure. Achievement serves as an important source of self-esteem (Blatt, 2004). In contrast, dependency entails an exaggerated focus on interpersonal closeness, resulting in an anxious preoccupation with separation, strong desires to be cared for, and a claiming interpersonal style. Although mild deviations of the balance between issues of self-definition and relatedness are common, severe disruptions

in the dialectical interaction may result in psychopathology (Blatt & Luyten, 2009). According to Blatt's theory, psychopathology thus reflects a failed attempt to maintain a balance between self-definition and relatedness (Luyten & Blatt, 2013).

Empirical studies on Blatt's theory initially focused on the role of dependency and self-criticism in depression (Blatt et al., 1976). More recently, self-criticism and dependency have been conceptualized as transdiagnostic vulnerability factors (Blatt & Luyten, 2009), given that they were found to relate to several types of psychopathology (e.g., depression, anxiety, suicidality, and eating disorders) in both adults (Blatt, 2008) and adolescents (Blatt et al., 1992; Campos, Besser, Morgado, & Blatt, 2014). Research in adolescents has shown that, while self-criticism is related to both internalizing and externalizing problems, dependency is uniquely related to internalizing problems (Leadbeater, Kuperminc, Blatt, & Hertzog, 1999; Kuperminc, Blatt, & Leadbeater, 1997). Possibly, dependent individuals do not engage in outer-directed (i.e., externalizing) forms of psychopathology because they do not want to generate discomfort in others, thereby potentially harming their close interpersonal relationships (Izard, 1999).

Basic Psychological Needs as Viewed in the Self-Determination Theory

SDT, a broad theory focusing on motivation and psychosocial development, identifies three inherent and universal basic psychological needs that are presumed to be essential for individuals' psychological growth and well-being (Deci & Ryan, 2000; Vansteenkiste, Niemic & Soenens, 2010). Satisfaction of the need for autonomy refers to experiences of inner psychological freedom and authenticity (e.g., adolescents choosing an educational track based on their self-endorsed interests, values, and preferences). Satisfaction of the need for relatedness involves the experience of warm and close relationships with others, and satisfaction of the need for competence concerns the experience of mastery and efficacy. Previous research has shown that need satisfaction is associated with more life satisfaction,

more vitality and more positive affect in adolescents (e.g., Vansteenkiste, Lens, Soenens, & Luyckx, 2006) and adults (e.g., Reis, Sheldon, Gable, Roscoe, & Ryan, 2000).

Historically, most attention has been devoted to the growth-promoting role of basic psychological need satisfaction. However, recent work began to address more systematically the presumed "dark side" of the basic needs (Bartholomew, Ntoumanis, Ryan, Bosch, & Thøgersen-Ntoumani, 2011; Boone, Vansteenkiste, Soenens, Van der Kaap-Deeder, & Verstuyf, 2014; Vansteenkiste & Ryan, 2013). Recent theorizing and research suggest that need frustration, more so than the absence of need satisfaction, is particularly relevant to maladjustment. In comparison to low need satisfaction, need frustration represents a stronger and more direct threat of the needs. Need frustration manifests in feelings of pressure and coercion (autonomy frustration), failure and inferiority (competence frustration), and loneliness and interpersonal alienation (relatedness frustration). Furthermore, the frustration of these psychological needs cannot be equated with the absence of need satisfaction (Bartholomew et al., 2011; Vansteenkiste & Ryan, 2013). To illustrate, although an adolescent may experience few connections with his or her peers at school (i.e., relatedness dissatisfaction), it is only when the adolescent feels actively rejected or bullied by his or her peers that he or she feels excluded and/or lonely (i.e., relatedness frustration) (Vansteenkiste & Ryan, 2013). This example shows that need frustration follows from the active thwarting of these needs, rather than from simply receiving a lack of support.

Research increasingly shows that whereas need satisfaction is particularly predictive of adjustment and well-being, need frustration is particularly predictive of maladjustment and psychopathology (Vansteenkiste & Ryan, 2013). Studies dealing with the role of need frustration in adolescent development have mainly focused on internalizing problems as an outcome, thereby showing that need frustration is indeed predictive of global indices of internalizing problems, such as depressive symptoms and anxiety (Bartholomew et al., 2011;

Chen et al., 2015; Costa, Cuzzocrea, Gugliandolo, & Larcan, 2016), as well as more specific indices of internalizing problems, such as symptoms of stress (Campbell et al., 2017) and eating pathology (Campbell, Boone, Vansteenkiste, & Soenens, 2018). Few studies have investigated associations between need frustration and adolescent externalizing problems, which is unfortunate because in adolescence there is increased risk for both internalizing and externalizing problems (Costello et al., 2011). Theoretically, need frustration is assumed to elicit defensive behavior and compensatory attempts to regain control in life, which might manifest in oppositional defiant behavior and in subsequent externalizing problems (Ryan et al., 2016). In one of the few studies addressing this issue, Van Petegem, Soenens, Vansteenkiste, and Beyers (2015) indeed showed that adolescents' need frustration was related to a higher risk of externalizing problems, through an association with oppositional defiance. Along similar lines, the exposure to a need-frustrating condition prior to engaging in a series of problem-solving and arithmetic tasks significantly increased the likelihood of cheating compared to participants placed in a control group (Kanat-Maymon, Benjamin, Stavsky, Shoshani, & Roth, 2015). Given these recent findings, the current study further addressed the effects of both need satisfaction and need frustration in adolescents' internalizing and externalizing problems, expecting that need frustration will yield more pronounced associations compared to need satisfaction. Moreover, the present study aimed to examine whether the basic psychological needs (and psychological need frustration in particular) could explain the associations between adolescents' personality-based vulnerability (i.e., dependency and self-criticism) and both internalizing and externalizing problems.

The Link Between Blatt's Personality Dimensions and SDT's Needs

Several scholars have noted conceptual convergence between Blatt's theory and SDT (Blatt, 2008; Ryan & Deci, 2017) and it has been argued that dependency and self-criticism –

as higher-order personality factors – affect need-based experiences, which represent experiences at a lower level of abstraction (Blatt & Luyten, 2009). While there is convergence between these two sets of constructs, they also differ in two important ways. First, Blatt's (2004) dimensions of dependency and self-criticism represent *preoccupations* with different developmental lines, that is, interpersonal relatedness and self-definition. Because of an exaggerated focus on one these two developmental lines, people may become prone to experience frustration of their basic psychological needs. Thus, while the personality dimensions of dependency and self-criticism refer to the differential emphasis placed by people on interpersonal relatedness and self-definition, the basic psychological needs refer to the actual *experiences* that may follow from an excessive focus on one of the two developmental lines. Second, in addition to this difference in the conceptual status of Blatt's personality dimensions and the psychological needs, these concepts differ in terms of their assumed stability. While dependency and self-criticism are seen as relatively stable personality traits that result from a longer developmental history (Blatt, 1974, 2004), need-based experiences can be conceived as more dynamic and changeable states (Ryan & Deci, 2017; Vansteenkiste & Ryan, 2013) affected by trait characteristics such as self-criticism and dependency (and their interplay with situational events).

Self-criticism is particularly likely to give rise to more feelings of need frustration and to lowered feelings of need satisfaction. As self-critical adolescents set unrealistically high standards and adopt a punitive stance towards themselves after failure (Blatt, 2004; Shahar & Priel, 2013), they are less likely to feel competent and more likely to encounter experiences of competence frustration. Furthermore, because self-critical adolescents tend to hinge their self-worth upon their achievements (Shafran, Cooper, & Fairburn, 2002), they may frequently pressure themselves into action, thereby experiencing elevated autonomy frustration and experiencing few opportunities for need satisfaction (Ryan et al., 2016; Ryan & Deci, 2017).

Further, in an attempt to safeguard their strong desire for independence and to demonstrate their personal accomplishments and self-worth, self-critical individuals have been found to display a distant and avoidant (Zuroff & Fitzpatrick, 1995) or even overtly hostile style in close interpersonal relationships (Fichman, Koestner, & Zuroff, 1994; Zuroff & Duncan, 1999). Such interpersonal behavior is likely to give rise to a lack of relatedness satisfaction and even to feelings of relatedness frustration.

Similarly, dependency is also likely to affect adolescents' need-based experiences. Because dependent individuals' main concern is to maintain close and protective relationships (Blatt, 2004), dependency is likely to affect the need for relatedness. As dependent individuals have strong longings for interpersonal closeness and even excessive fears of abandonment, it is more difficult for them to reach their heightened threshold for relatedness and their need for relatedness is threatened more easily. Further, their claiming interpersonal style and excessive demands for care can have the paradoxical effect of evoking irritation in others and can even elicit rejection, resulting in the realization of their worst fears (Blatt, 2004). Furthermore, to avoid rejection and loneliness, individuals high on dependency may neglect their own personal preferences and interests, thereby experiencing dissatisfaction or even frustration of their need for autonomy (Blatt & Luyten, 2009). Finally, dependent individuals' fear to lose the love of others could also lead to frequent doubts about their capacities to establish satisfying relationships, thus leading to competence frustration.

While there are plausible reasons to predict an association between dependency and need frustration, the association with need satisfaction is less straightforward. As previous research has shown that dependency does not only confer vulnerability for psychopathology, but also contains elements of resilience (Fichman et al., 1994), a mixed pattern of associations may emerge. In addition to dependent individuals' strong fear of abandonment (which is likely to contribute to relational dissatisfaction), some studies found evidence that dependent

individuals elicit more social support (Mongrain, 1998) and have more frequent and more intimate daily interactions (Zuroff, Stotland, Sweetman, Craig, & Koestner, 1995), which could lead to more need satisfaction. Thus, dependent adolescents may experience both psychological need frustration and need satisfaction, particularly when considering the need for relatedness. Because the association between dependency and need satisfaction is not straightforward, this association was addressed in a more exploratory fashion in the current study.

In spite of these conceptual accounts linking Blatt's personality dimensions to the SDT-based psychological needs, little direct evidence is available for associations between both sets of constructs. As regards self-criticism, Shahar, Henrick, Blatt, Ryan, and Little (2003) showed that adolescents' self-criticism was related to more controlled (pressured) and less autonomous motivation for behavior in different life domains (i.e., academics and social relationships), a pattern of motivation indicating the presence of autonomy need frustration (see Haerens, Aelterman, Vansteenkiste, Soenens, & Van Petegem, 2015). Furthermore, two longitudinal studies also shed indirect light on associations between these theories. Specifically, self-critical perfectionism (a concept akin to self-criticism) was predictive of adolescents' increases in need frustration across time (Boone et al., 2014; Campbell et al., 2018), whereas young adults' self-criticism predicted life stress in the interpersonal and achievement domains, which could be seen as a proxy for relatedness and competence frustration (Shahar, Joiner Jr., Zuroff, & Blatt, 2004). As regards dependency, dependent individuals react with increased distress to interpersonal stressors (Priel & Shahar, 2000; Shahar et al., 2004), which provides indirect evidence that dependent individuals are more vulnerable to relatedness frustration. The role of need satisfaction was not examined in these studies. The current study aimed to provide a more direct test of associations between Blatt's

personality dimensions and adolescents' need-based experiences, thereby attending to both dynamics of need frustration and need satisfaction.

The Present Study

The present study is the first to directly examine the mediating role of basic psychological needs in associations between Blatt's dimensions of personality vulnerability and psychopathology in adolescence. Our first aim was to replicate previous findings showing that highly self-critical adolescents report, on average, more internalizing and externalizing problems (Kuperminc et al., 1997). Regarding dependency, based on previous research (e.g., Blatt, Hart, Quinlan, Leadbeater, & Auerbach, 1993), we hypothesized a significant link with internalizing, but not with externalizing, problems. Our second aim was to examine the associations between the two personality dimensions and the basic psychological needs. Based on Blatt's theory and previous research (Shahar & Priel, 2003; Shahar, 2015), we expected that self-criticism would be related positively to need frustration and negatively to need satisfaction. Given that dependency is a construct with both negative features (e.g., fear of abandonment) and potentially positive features (e.g., the capacity to seek social support), dependent adolescents were hypothesized to experience high levels of psychological need frustration, but not necessarily low (or even high) levels of need satisfaction. The third aim was to examine the mediating role of need satisfaction and need frustration in the relations between personality and psychopathology. We hypothesized that especially need frustration would relate to more externalizing and internalizing problems and that need frustration would play a more pronounced mediating role (compared to low need satisfaction) in the relationship between personality vulnerability and psychopathology.

To provide an overarching test of the general explanatory role of need frustration and need satisfaction and in light of the observation that the three needs are highly interdependent (Ryan & Deci, 2017), the central analyses relied on composite scores for need frustration and

need satisfaction. In an ancillary set of analyses, we also explored the mediating role of each of the three needs separately. Another ancillary aim was to investigate the role of gender in the proposed mediation model. This role of gender could take two different forms. First, because previous research has documented gender differences in psychopathology (with girls scoring higher on internalizing problems and with boys scoring higher on externalizing problems; Nolenhoeksema & Girgus, 1994) and in personality vulnerability (with girls scoring higher on dependency; Leadbeater et al., 1999), gender is an important covariate that needs to be taken into account when estimating the mediation model. Second, gender could also alter (i.e., moderate) associations in the mediation model. One possibility is that the pathway leading from dependency to internalizing problems via need frustration would be more relevant for girls than for boys (Leadbeater et al., 1999), resulting in more pronounced associations among girls than boys and perhaps even a pattern of moderated mediation, where need frustration only plays a mediating role in this pathway for girls (but not for boys). Alternatively, it could be the case that the associations between personality, the needs and psychopathology would be similar for boys and girls. Because there is a lack of previous research examining this issue, the moderating role of gender was addressed in an exploratory fashion.

In all analyses, we adopted a multi-informant approach to the assessment of adolescents' problems, with adolescents and both of their parents reporting on these problems. Such a multi-informant approach allows to capture (through the estimation of latent factors) the variance shared by different reporters. Especially for the assessment of psychopathology in adolescents, a multi-informant approach is recommended as different informants have access to different types of behavior in a variety of contexts, thereby providing a unique and valid perspective on the adolescent's functioning (Achenbach & Rescorla, 2001). Moreover, the reliability of the results increases by aggregating scores across different informants

(Hofstee, 1994). Although this methodological approach still poses risks for response biases such as acquiescence and extreme ratings, other response biases (e.g., faking good) can be reduced.

Method

Participants and Procedure

The data collection was part of a larger research project concerning gene-environment interactions in adolescence (Bleys et al., 2016). The recruitment of all adolescents and their parents was organized in the context of an undergraduate course in developmental psychology, in which trained students got the assignment to invite two families to participate in this study. Because of the larger research project's study aims, only intact families were recruited. The total sample consisted of 284 families (with adolescents and both of their parents participating). The adolescent sample was 58% female and the age ranged from 12 to 16 years old (M age= 14.15; $SD = 0.93$).The majority (70%) was engaged in studies preparing for higher education, whereas the remaining participants were preparing for technical proficiencies. Mothers' age ranged between 32 and 63 years (M= 44.85; SD=4.06) and fathers' age ranged between 34 and 60 years (M=46.27; SD=4.17). As 66.9% of the mothers and 72.7% of the fathers obtained a college or university degree, the parents in this sample are relatively highly educated.

Prior to the assessment, parental informed consent was obtained for all participants. The study procedure was approved by the Ethical Committee of the Faculty of Psychology and Educational Sciences at the host university University.

Measures

Personality-related vulnerability. The Depressive Experiences Questionnaire for adolescents (DEQ-A; Blatt, Schaffer, Bers, & Quinlan, 1992) was used to assess self-criticism and dependency. The DEQ-A is an age-appropriate, 66-item adaptation of the DEQ for adults

(Blatt et al., 1976) for use with adolescents, and consists of three subscales: dependency, self-criticism and efficacy. In this study, only the scales for dependency and self-criticism were used, as these concepts are conceptually central to Blatt's theory. The scale for efficacy was investigated in a more exploratory (rather than theory-driven) fashion. Because of this reason and because the concept of efficacy does not have a central place in Blatt's theory, it is rarely used in empirical research. Items have to be rated on a scale from 1 (*totally disagree*) to 7 (*totally agree*). Much like the original DEQ, the DEQ-A is scored using weighted factor scores (Zuroff, Mongrain, & Santor, 2004). Participants' responses on the 66-items are transformed to z-scores using means and standard deviations from a large sample originally collected by Blatt et al. (1992). These z-scores are then weighted by factor coefficient scores that were also derived from this larger sample and averaged to form scores for dependency and self-criticism. As a consequence of this scoring procedure, mean scores for dependency and self-criticism are typically around 0. As can be seen in Table 1, the scores on both scales in the current samples were slightly below 0, indicating that participants in the current sample scored lower on the two personality dimensions compared to participants in the original samples in which the DEQ-A were validated.

The Dutch version of the questionnaire has comparable psychometric characteristics as the original version (Luyten, Corveleyn, & Blatt, 1997). The factor structure of the DEQ-A has been replicated in several studies with adolescents (Blatt et al., 1992; Fichman et al., 1994). Further, research has demonstrated the test-retest reliability of the scales (Blatt et al., 1992) as well as their convergent validity (e.g., in terms of associations with related personality dimensions; Enns, Cox & Inayatulla, 2003) and predictive validity (e.g., in terms of associations with various indicators of psychopathology; Leadbeater et al., 1999). In the present study, Cronbach's alpha based on the weighted item *z*-scores was .81 for dependency and .66 for self-criticism.

Psychological need satisfaction and need frustration. Adolescents' psychological need satisfaction and frustration were assessed through the widely used 24- items Basic Psychological Need Satisfaction and Need Frustration Scale (BPNSNFS; Chen at al., 2015). The BPNSFS has been used successfully in previous research with adolescents (e.g., Campbell et al., 2018) and has been validated in culturally diverse samples across the world (Chen et al., 2015). It has a stable factor structure and it demonstrates high levels of reliability (Chen et al., 2015). Participants rated their degree of satisfaction and frustration of the needs for autonomy (e.g. "I feel a sense of choice and freedom in the things I undertake" and "Most of the things I do feel like I have to"), relatedness (e.g. "I feel that the people I care about also care about me" and "I feel excluded from the group I want to belong to"), and competence (e.g. "I feel capable at what I do" and "I feel disappointed with many of my performance") on a five-point Likert scale ranging from 1 (*Totally disagree*) to 5 (*Totally agree*). Satisfaction and frustration of each need is measured with 4 items. In addition to yielding scores for satisfaction and frustration of each the three separate needs (resulting in six lower-order scores), it is also possible to compute scores for overall need satisfaction and need frustration. Cronbach's alphas for the 6 separate, lower-order scores for satisfaction and frustration of the needs ranged between .65 and .80 (mean alpha = .69). In the current sample, Cronbach's alpha for the overall need satisfaction score was .83 and for the overall need frustration score was .82.

Internalizing and externalizing problems. Mothers and fathers completed the Child Behavior Checklist (CBCL, Achenbach & Rescorla, 2001) to assess their adolescent's internalizing problems (31 items; factors withdrawn/depressed, withdrawn/depressed and somatic complaints) and externalizing problems (41 items; factors aggressive behavior and rule-breaking behavior). Adolescents completed the YSR (Achenbach & Rescorla, 2001), which is the self-report version of the CBCL. Previous research on the psychometric qualities

of the questionnaire demonstrated excellent validity and reliability (Achenbach & Rescorla, 2001). The YSR measures both internalizing (31 items) and externalizing problems (32 items). All items (both CBCL and YSR) were rated on a 3-point scale ranging from 0 (*not at all*) to 2 (*very much*). In the present study, Cronbach's alpha for the YSR is .88 for internalizing problems and .80 for externalizing problems. For the CBCL mother-report is Cronbach's alpha .87 for internalizing problems and .88 for externalizing problems and for the CBCL father-report .86 and .87 respectively.

Results

Correlations and Descriptive Statistics

The correlations among the measures for personality vulnerability, needs experiences, and psychopathology are presented in Table 1. As expected, both dependency and self-criticism relate positively to internalizing problems, a finding that robustly emerged across each of the three informants. Further, while self-criticism related positively to externalizing problems across all informants, dependency related positively only to adolescent-reported externalizing problems. Next, dependency and self-criticism are positively related to the composite score of need frustration as well as to frustration of each of the three separate needs. Next, self-criticism (but not dependency) was negatively related to the composite score of need satisfaction as well as to satisfaction of each of the three separate needs. In turn, need frustration was positively associated with both internalizing and externalizing problems, with these associations being significant for each of the informants. Further, need satisfaction related negatively to both types of psychopathology, with these associations also holding mostly across informants, except for the non-significant association with father-reported externalizing problems.

Because associations between the personality dimensions and needs experiences were significant across each of the needs, in the main analyses we decided to rely on the composite

scores for need satisfaction and need frustration so as to limit the number of parameters to be estimated (see also Boone et al., 2014; Chen et al., 2015). Further, because the associations of both the personality dimensions and the needs experiences with psychopathology were significant across the different informants of the psychopathology, we also computed overall scores for internalizing and externalizing problems by averaging the standardized scores of the three informants. Models with the overall scores represent the data parsimoniously and can reduce the risk of type II errors. This decision was also justified by the significant correlations among the three informants (average $r = .44$ for internalizing problems and average $r = 44.$ for externalizing problems). By averaging the mother, father and adolescent report, using their shared variance, we aim to give a more accurate approach of the adolescents' clinical symptoms.

To examine the effects of the background variables (i.e., adolescent gender, age, school type) on the study variables (i.e., dependency, self-criticism, need satisfaction, need frustration, externalizing, and internalizing), multivariate analyses of variance were conducted. The multivariate effect of gender was significant, Pillai's Trace = .28; $F(30,786) = 2.73$, $p < .001$. In comparison to males, females scored on average higher on dependency (males: $M= -0.60$, $SD=0.71$; females: $M= -0.04$, $SD=0.82$), internalizing problems (males: $M= .20$, $SD=0.12$; females: $M=.27$, $SD=.19$), relatedness satisfaction (males: $M=4.80$, $SD=.88$; females: $M=5.08$, $SD=1.06$) and competence frustration (males: $M=2.21$, $SD=0.79$; females: $M= 2.59$, $SD= 1.10$). Accordingly, we decided to control for gender in the main analyses. There were no significant effects of the other background variables (i.e., adolescent age, school type) on the study variables.

Primary Analyses

To estimate the structural associations between the different study variables, structural equation modeling (SEM) was conducted in Mplus Version 7.0 (Muthén & Muthén, 2012).

We used structural equation modeling because this technique allows us to test a measurement model with latent variables, thereby controlling for measurement error (in contrast to separate regression analyses). Moreover, by conducting SEM, equations are fitted simultaneously as one model which allows us to test multiple predictors, mediators and outcomes at once (Chin, 1998; Rijnhart, Twisk, Chinapaw, de Boer, & Heymans, 2017). First, after examining the quality of the measurement model, we tested the direct effects of personality on psychopathology without inclusion of the psychological needs. Second, we tested a mediating model including psychological needs experiences as intervening variables in the structural relations between the personality dimensions and adolescent psychopathology. The model fit was evaluated on the basis of the Chi-square statistic (χ^2), the Root Mean Square Error of Approximation (RMSEA), the Comparative Fit Index (CFI), and the Standardized Root-Mean-square Residual (SRMR). Combined cut-off values near .90 for CFI, .08 for SRMR and .06 for RMSEA are considered as indicating a good fit (Kline, 2005).

The measurement model consisted of two manifest variables (i.e., the factor scores for dependency and self-criticism) and four latent variables (i.e. need frustration, need satisfaction, internalizing problems and externalizing problems). Similar to previous studies (e.g., Boone et al., 2014), the indicators for need frustration and need satisfaction were represented by the scores for the separate needs (i.e., autonomy, relatedness and competence). Scores on the subscales of the CBCL (Achenbach & Rescorla, 2001) were used as indicators for internalizing problems (i.e., anxious/depressed, withdrawn/depressed and somatic complaints) and externalizing problems (i.e., rule-breaking behavior and aggressive behavior). We used the mean scores across adolescents', fathers', and mothers' reports on these indicators. The measurement model included all correlations between the latent variables. The model yielded a good fit to the data [χ^2(49)= 119.39, RMSEA= .07, CFI= .94, SRMR= .06]. Modification indices suggested to add a correlation between dependency and

one specific indicator of the latent factor representing internalizing problems, that is, anxious-depressed symptoms. This association is theoretically meaningful as dependent individuals indeed are assumed to experience higher levels of anxiety - especially anxiety concerning abandonment or loss of love (e.g., Vliegen & Luyten, 2009). Therefore, we added this correlation, resulting in improved model fit [χ^2(48)=104.84 , RMSEA= .07, CFI= .95, SRMR= .05]. All indicators had significant loadings on the latent factors, ranging from .57 to 1, all ps < .001.

Hypothesis 1: Associations between personality and psychopathology.

In a first structural model, we tested whether self-criticism and dependency relate to internalizing and externalizing problems. Estimation of the model [χ^2(12) =34.09 , RMSEA = .08, CFI = .96, SRMR = .04] showed that, as hypothesized, self-criticism was significantly related to more internalizing and externalizing problems (β =.41 and β =.27 respectively). Dependency was not only positively related to internalizing problems (β =.27) but also to externalizing problems (β =.17).

Hypotheses 2 & 3: Associations between personality and the basic psychological needs and a test of the mediating role of the needs in the effects of personality

In a second structural model, we examined the associations between personality vulnerability and the needs as well as the mediating role of the needs in the personality vulnerability for psychopathology. Need satisfaction and need frustration were added simultaneously as mediating variables between the personality dimensions and the two types of adolescent psychopathology. Again, an association between dependency and the indicator anxious/depressed was added. The model showed good fit to the data (χ^2(90)=123,30; CFI= .95; RMSEA= .06; SRMR=.06) and is presented in Figure 1. While self-criticism was related positively to need frustration and negatively to need satisfaction, dependency was positively related to need frustration only. In line with expectations, need frustration related positively to

both internalizing and externalizing problems, whereas need satisfaction was not significantly

related to the two types of psychopathology when the variance shared between need

satisfaction and need frustration was controlled for. Adding direct paths from dependency and

self-criticism to psychopathology did not significantly improve model fit and none of these

additional paths were significant. Tests for indirect effects indicated that associations of both

dependency (bootstrapped unstandardized effect = .27, *SE* = .05, *p* < .001, 95% CI: [.18, .35])

and self-criticism (bootstrapped unstandardized effect = .35, *SE* = .06, *p* < .001, 95% CI:

[0.24, 0.45]) with internalizing problems through need frustration were significant. Similarly,

the indirect effects of both dependency (bootstrapped unstandardized effect = .17, *SE* = .05, *p*

< .001, 95% CI: [.09, .24]) and self-criticism (bootstrapped unstandardized effect = .22, *SE* =

.06, *p* < .001, 95% CI: [.22, .33]) on externalizing problems through need frustration were

significant. Overall, the findings indicate full mediation of the effects of personality

vulnerability through psychological need frustration.

Supplementary Analyses

We conducted three sets of ancillary analyses. First, we performed multigroup

analyses to examine whether adolescents' gender plays a moderating role in the final

structural model. A constrained model (in which the modeled pathways were set to be

invariant across boys and girls) was compared with an unconstrained model (in which the

parameters were freely estimated across boys and girls). There were no significant differences

between the constrained and the unconstrained model (ΔCFI < .01; ΔTLI< .02; $\Delta\chi^2$(9)= 9.04;

p>.05), which implies that gender did not moderate associations in the structural model.

Overall, the findings suggest that the structural model displayed in Figure 1 is invariant across

gender.

Second, because the association between dependency and adolescent-reported

externalizing problems was somehow unexpected, we examined the correlations between

dependency and subscales and individual items for externalizing problems in greater detail.
Dependency was only significantly correlated with the subscale aggression and not with rule-breaking behavior. The aggression subscale consists of 17 items and only 4 of them were significantly correlated with dependency, namely 'screams' ($r=.12, p < .05$), 'sudden mood changes' ($r= .40, p < .001$), 'suspicious' ($r=.23, p < .001$), and 'hot tempered' ($r=.14, p < .05$). The correlations between the parent-reported subscales of externalizing behavior and dependency were not significant.

Third, we examined the mediating role of *each of the three specific needs* in the relation between personality and psychopathology (see Figure 2). In doing so, we analyzed three different mediation models with satisfaction and frustration of one specific need (autonomy, relatedness or competence) as mediators. The results were generally similar to the model in which one composite score for need satisfaction and frustration was used. However, we should be cautious to interpret the results given that the reliabilities of the separate need scales were lower. The analyses showed that dependency and self-criticism significantly predicted frustration of the needs for autonomy ($b = .29, p < .001; b = .40, p < .001$ respectively), relatedness ($b = .31, p < .001; b = .42, p < .001$ respectively) and competence ($b = .43, p < .001; b = .56, p < .001$ respectively). Only self-criticism (but not dependency) was related (negatively) to satisfaction of each the three separate needs ($p < .001$ for all three needs). Frustration of the need for autonomy predicted more internalizing problems ($b = .19, p < .01$) and externalizing problems ($b = .17, p < .001$), and this was also the case for competence frustration ($b = .42, p < .001$ for internalizing problems, $b = .24, p < .01$ for externalizing problems). Relatedness frustration was related only to internalizing problems ($b = .37, p < .001$) but not to externalizing problems. Finally, for all three needs, the indirect effects from dependency and self-criticism to internalizing problems through need frustration were significant. Also for autonomy frustration and competence frustration, the indirect

effects from dependency and self-criticism to externalizing problems were significant. Overall, the results for the separate needs were similar to the results for the composite score of the needs, indicating that need frustration mediates the relation between personality and psychopathology. The only exception was that relatedness frustration did not mediate the relation between dependency and self-criticism on the one hand and externalizing problems on the other hand.

Discussion

More than younger children and adults, adolescents are vulnerable for developing internalizing and externalizing problems, with symptoms of depression (e.g., Rushton, Forcier, & Schectman, 2002; Saluja et al., 2004), anxiety (e.g., Patton et al., 1996) and overt physical aggression (e.g., Liu, Lewis, & Evans, 2013) peaking in this period of life. Therefore, the identification of key factors explaining adolescents' risk for psychopathology is of utmost importance. Herein, we draw from two well-established frameworks, that is, Blatt's theory on personality development (Blatt, 1974; Blatt & Luyten, 2009) and Self-Determination Theory (Ryan & Deci, 2017) to identify psychological predictors of adolescent psychopathology. Specifically, this study aimed to examine the explanatory or mediating role of the basic psychological needs in the relationship between dimensions of personality vulnerability and adolescent psychopathology.

Personality and Psychopathology

Blatt (1974) proposed specific hypotheses about the association between dimensions of personality and symptoms of psychopathology. While self-criticism was expected to predict both internalizing and externalizing problems, dependent individuals would be particularly vulnerable to develop internalizing problems, such as depressive symptoms, phobias, anxiety and somatic symptoms. In contrast, the association between dependency and

externalizing problems would be less strong or even absent due to the non-assertive,

accommodating interpersonal style and the excessive concern about losing other people's love

associated with dependency, features that would lead individuals to inhibit aggression or rule-

breaking behavior. While most previous research found dependency to relate primarily with

internalizing problems (Campos et al., 2014; Kuperminc et al., 1997; Leadbeater et al., 1999),

in the present study, dependency related positively to both internalizing and externalizing

problems. Yet, a closer inspection of the associations with the items of the externalizing

subscale revealed that dependency was correlated only with the more affective items (and

with sudden mood changes and paranoia in particular), but not with the items tapping into

actual rule-breaking and delinquent behavior. These affective responses are consistent with

the ambivalence in emotions that characterizes dependent individuals as well as with their

concerns about losing other people's love and closeness (Blatt, 2004). Moreover, it should be

noted that correlations with the different informants of externalizing problems revealed that

dependency correlated with adolescent-reported externalizing problems only, while being

unrelated to parent reports. Thus, overall the association between dependency and

externalizing problems was less robust than the association between self-criticism and

externalizing problems.

Further, according to the symptom specificity hypothesis self-criticism is related not

only to depressive symptoms, but also to obsessive-compulsive symptoms and symptoms

centered around aggressive urges (Blatt, 2004). Consistent with this assumption and with

previous research (e.g., Blatt, Hart, Quinlan, Leadbeater, & Auerbach, 1993; Leadbeater et al.,

1999), we found significant associations between self-criticism and both externalizing and

internalizing problems. Unlike dependency, self-criticism was also related to parental reports

of externalizing problems, indicating that the rule-breaking and aggressive behaviors of

adolescents high on self-criticism are not concealed and are quite visible to the family members.

Psychological Needs as an Explanatory Mechanism

Although personality vulnerability for psychopathology has been extensively studied (Blatt, 2004; Leadbeater et al., 1999), relatively little research has investigated potential mediators in this relation. Therefore, in this study, we the role of the basic psychological needs to yield new insights in the mechanisms behind the associations between personality and psychopathology.

Self-criticism and dependency were positively related to experiences of need frustration, a finding consistent with theoretical predictions (Luyten & Blatt, 2016) and with indirect previous evidence (Boone et al., 2014; Shahar et al., 2003). Besides its positive effect on need frustration, self-criticism was also negatively related to need satisfaction. Self-critical adolescents thus experience, on average, both more need frustration and less need satisfaction. These findings are consistent with previous research showing that self-critical individuals lack important psychosocial skills. Indeed, self-criticism is associated with the use of less adaptive coping and emotion regulation strategies (James, Verplanken, & Rimes, 2015; Rudolph, Flett, & Hewitt, 2007; van der Kaap-Deeder et al., 2016) and more negative social interactions (e.g., Mackinnon et al., 2012; Mackinnon et al., 2017). As a consequence, self-criticism seems to confer risk not only for increased ill-being but also for decreased well-being. Future research would do well to include actual measures of well-being and positive adjustment (e.g., life satisfaction, vitality, and social competence), and to examine whether the low levels of need satisfaction associated with self-criticism may account for the fact that adolescents high on self-criticism report lower well-being.

In contrast to self-criticism, dependency was not inversely related to need satisfaction in the present study. This non-significant association between dependency and need

satisfaction is consistent with previous research indicating that dependency is less maladaptive in comparison to self-criticism (Kopala-Sibley, Zuroff, Hankin, & Abela, 2015). Still, the non-significant association between dependency and need satisfaction is difficult to interpret. Some scholars have portrayed dependency as a personality dimension with both negative features (e.g., excessive concerns about losing the love of important others) as well as positive features (e.g., capacity to elicit social support) (Hankin & Abela, 2005). However, if dependency would really involve such positive features, one might expect a positive association with need satisfaction (which was not the case in the current study). Possibly, the association between dependency and need satisfaction varies quite a bit on a daily or even momentary basis, with dependent adolescents being able on some days or in some circumstances to elicit social support (and experience need satisfaction) but not on other days or in other circumstances. The possibility that there is much short-term variability in the (undoubtedly complex) association between dependency and psychological need satisfaction could be addressed in future research adopting a diary design or even using experience sampling methodology.

The key finding in the present study is the mediation effect of need frustration in the relation between personality and psychopathology. Our findings suggest that highly dependent and self-critical individuals experience higher levels of need frustration which, in turn, are associated with higher levels of psychopathology. In line with previous research (e. g., Bartholomew et al., 2011; Boone et al., 2014; Vansteenkiste & Ryan, 2013), only the active obstruction of the needs (i.e., need frustration), rather than the absence of need satisfaction, was related to malfunctioning and ill-being. This finding is consistent with several studies that have concluded that need satisfaction and need frustration should be studied as two distinct pathways (Chen et al., 2015; Haerens et al., 2015; Verstuyf, Vansteenkiste, Soenens, Boone, & Mouratidis, 2013). Need frustration makes people more

vulnerable to develop psychological problems in several ways. First, persistent need frustration leads to feelings of insecurity and this makes individuals prone to the pursuit of extrinsic goals (e.g., appearance or financial success) which are associated with more anxiety, more depression and less self-esteem (Kasser & Ryan, 1996). Second, people tend to respond to need frustration by engaging in compensatory behaviors, like releasing self-control, oppositional defiance and rigid behavioral patterns (Vansteenkiste & Ryan, 2013). These compensatory behaviors are typically associated with externalizing and internalizing problems in youth (Hollenstein, Granic, Stoolmiller, & Snyder, 2004; Krueger, Caspi, Moffitt, White, & Stouthamer-Loeber, 1996; Van Petegem, Soenens, Vansteenkiste, & Beyers, 2015).

Moreover, the supplementary analyses revealed that the results for the separate needs largely mirrored the findings obtained with the composite scores of need satisfaction and need frustration. Most importantly, frustration of the three separate needs appeared to play a similar role as mediator in the relation between personality and psychopathology. There was only one exception to this overall pattern of results, with relatedness frustration not being related to externalizing problems. A possible explanation could be that attachment affects adolescents' reaction to relatedness frustration. Individuals high on attachment anxiety would not display externalizing problems in reaction to relatedness frustration, as they want to ensure others' availability. Avoidant attached individuals, on the other hand, prefer more emotional distance and could be more likely to engage in externalizing problem behavior in order to create such distance. Future research examining the moderating role of attachment is needed to explore this possibility.

A strength of the present study is that we found the differential effects for need satisfaction and need frustration on the basis of a multi-informant approach. This approach allows us to conclude that the differential effects are not solely the result of shared method variance.

Limitations and Directions for Future Research

The main limitation of this study is the cross-sectional nature of the results, which makes it impossible to discern predictive relationships among the explored variables. A longitudinal study design is needed to assert the (bi)directionality of the described relationships. In the present study, we chose to model need frustration as a consequence of personality. However, future longitudinal studies should shed a light on the reciprocal effects between personality and need frustration. Previous studies on the role of parenting in personality vulnerability (Blatt & Homann, 1992; Kopala-Sibley, Zuroff, Hankin, & Abela, 2015; Soenens et al., 2010) provide indirect evidence for the notion that a developmental history of chronical need frustration would contribute to personality vulnerability, for example through the creation of an insecure working model. In turn, these changes in personality vulnerability could affect need frustration again. Future research could also look into the dynamic interplay between the needs and psychopathology, for example by examining the associations on a day-to-day basis. Previous diary studies have already demonstrated that self-critical perfectionism (a concept related to self-criticism; Boone et al., 2012) and need frustration (Verstuyf et al., 2013) fluctuate on a daily basis. However, no research has examined within-person level differences in dependency and the interrelations between these constructs. Further, while we did not use the DEQ scale for efficacy in the current study (to keep the focus on the personality dimensions most central in Blatt's theory), future research could explore associations between this scale, psychological needs experiences, and adolescent adjustment. It seems likely that efficacy will be primarily relevant to the need for competence and, through its association with this need may contribute to resilience and positive adjustment (Shahar et al., 2003).

Another important avenue for future research is to unravel the precise mechanisms in these associations between personality and basic psychological needs and to address the

question exactly why adolescents high on dependency and self-criticism more frequently experience pressure, inferiority, and social alienation (i.e., frustration of the needs for autonomy, competence, and relatedness, respectively). Herein, we propose at least two potential mechanisms that are not mutually exclusive and that can operate in conjunction to produce higher levels of need frustration in adolescents high on personality vulnerability.

First, adolescents high on personality vulnerability may *actively* generate events that give rise to more experiences of need frustration. Consistent with this mechanism, research has shown that self-criticism in particular (and dependency to a lesser extent) is related to the generation of more negative life events and to failure to generate positive events (Shahar & Priel, 2003). For example, self-critical individuals are perhaps more likely to choose demanding tasks and to select competitive environments, with such environments creating higher risks for failure and psychological need frustration. On the other hand, dependent adolescents may more often seek the company of peers or romantic partners who engage in passive or relational aggression, with such relationships eliciting doubts about social competence and concerns about the degree of care and love provided by relationship partners. While these examples refer to proactive mechanisms, adolescents high on personality vulnerability may also contribute to their own need frustration through evocative mechanisms, that is, by eliciting need thwarting responses from the environment. For example, self-critical adolescents' excessive focus on personal achievement at the expense of close interpersonal relationships might lead to social rejection. Indeed, previous research confirmed that self-critical perfectionists evoke more hostile behaviors from their partners, which inhibits their capacity for well-being (Mackinnon, Kehayes, Leonard, Fraser, & Stewart, 2017). Dependent adolescents' lack of assertiveness in close relationships might elicit a tendency in relationship partners to not take into account these adolescents' preferences and interests, thereby increasing risk for autonomy and competence frustration.

Second, in addition to the active generation of need frustrating events, personality vulnerability may also lead adolescents to perceive and interpret events in such a way that experiences of need frustration become more likely. Confronted with one and the same event (e.g., a mild failure on a test or an encounter with a partner who was somewhat less friendly than usual), adolescents low or high on personality vulnerability may be less or more likely to interpret the event as a threat to their needs. Experimental research is needed to disentangle these mechanisms. The effects of dependency could be explored through the experimental induction of social stress (e.g., cyberball paradigm; Williams & Jarvis, 2006), while the effects of self-criticism can be better understood by inducing achievement-related stress (e.g., Trier social test; Kirschbaum, Pirke, & Hellhammer, 1993), such as the provision of negative feedback (van der Kaap-Deeder et al., 2016).

Next, the assessment of personality and psychological needs experiences in this study was based solely on self-report surveys. Clearly, there is a need to complement survey-based methods with alternative methodologies, such as biological stress measures (e.g., Kempke, Luyten, Mayes, Van Houdenhove, & Claes, 2016; Shoal, Giancola, & Kirillova, 2003; Wester, Lamberts, & van Rossum, 2014), to overcome the problems inherent to self-report assessment (e.g., reporter bias and social desirability). Empirical case based research (e.g., Stiles, 2009) is recommended too, as it would allow researchers to gain insight into more concrete manifestations of need frustration in relation to different personality dimensions.

A final important avenue for further research is to explore moderators of the association between Blatt's personality traits, psychological needs, psychopathology, and in particular moderators that attenuate the maladaptive effects of personality vulnerability and need frustration. Research on resilience processes in otherwise vulnerable individuals could provide more insight in psychological processes that might buffer against the effects of vulnerable personality and need frustration. Emotion regulation could be such a source of

resilience. Studies showed that individuals high on dependency and self-criticism typically show impairments in reflective functioning and inadequate coping strategies (Blatt & Luyten, 2009). As such, these individuals might benefit the most from more constructive and adaptive ways of regulating emotions and dealing with problems and challenges in life.

Prevention and Treatment Implications

Despite the limitations of the current study, we believe that our findings have a number of potential clinical implications. First, it is important for health care professionals to take personality characteristics into account in the therapeutic process, because self-criticism and dependency are risk factors for psychopathology. It might be worthwhile to tailor treatment and clinical interventions to adolescents' personality dimensions, as these individuals with different personality profiles respond differentially to different forms of psychotherapy (Blatt, Zuroff, Hawley, & Auerbach, 2010; Luyten & Blatt, 2011). Second, clinicians can work with their patients to increase awareness of their need frustrating experiences and of their ways of coping with such experiences (Boone et al., 2014). A training in emotion regulation skills, could then help them to deal with need frustrating experiences. Finally, especially for self-critical individuals who report on average more need frustration and less need satisfaction, it would be worthwhile to explore how they can engage more in need satisfying activities. Up to now, little research has examined the effects of interventions aiming to promote need-satisfying experiences. However, in a recent study, Weinstein et al. (2016) found evidence that a short intervention aimed at enhancing the three psychological needs can reduce symptoms of generalized stress and depression in people living in high stress conditions. Also behavior activation therapy could be a promising intervention to increase opportunities to engage in need-satisfying experiences (Lejuez, Hopko, Acierno, Daughters, & Pagoto, 2011). These types of interventions could also benefit adolescents with elevated scores on dependency and self-criticism.

Conclusion

Adolescents scoring higher on dependency and self-criticism displayed higher levels of internalizing and externalizing problems, with the association with externalizing problems being particularly pronounced for adolescents high on self-criticism. Experiences of psychological need frustration played a central mediating role in these associations. The two dimensions of personality vulnerability were associated with experiences of social alienation, pressure, and personal inadequacy, with these experiences, in turn, relating positively to adolescent engagement in psychopathology. In addition to yielding more insight in the mechanisms involved in associations between personality vulnerability and adolescent psychopathology, this study contributed further to the integration between the theory of Blatt and Self-Determination Theory, two macro-theories on personality development in social context that take an increasingly prominent role in research on adolescent psychopathology.

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Table 1

Means, Standard Deviations and Correlations between the Study Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Dependency	1	-.04	.22**	.30**	.45**	.42**	-.07	.06	-.10	-.04	.47**	.18**	.21**	.19**	.08	.04
2. Self-criticism		1	.41**	.45**	.55**	.60**	-.41**	-.49**	-.46**	-.54**	.37**	.21**	.13*	.38**	.15*	.14*
3. Autonomy frustration			1	.33**	.44**	.76**	-.31**	-.18**	-.31**	-.31**	.22**	.15**	.09	.29**	.14*	.15*
4. Relatedness frustration				1	.51**	.74**	-.25**	-.40**	-.32**	-.39**	.48**	.24**	.19**	.29**	.04	.07
5. Competence frustration					1	.85**	-.25**	-.22**	-.48**	-.37**	.50**	.33**	.32**	.32**	.15*	.18**
6. Total need frustration						1	-.34**	-.35**	-.48**	-.45**	.51**	.32**	.26**	.38**	.14*	.17**
7. Autonomy satisfaction							1	.59**	.58**	.85**	-.23**	-.25**	-.11	-.25**	-.19**	-.14*
8. Relatedness satisfaction								1	.52**	.85**	-.22**	-.23**	-.06	-.19**	-.07	.04
9. Competence satisfaction									1	.83**	-.33**	-.24**	-.15*	-.29**	-.12*	-.07
10. Total need satisfaction										1	-.31**	-.28**	-.12*	-.29**	-.15*	-.06
11. Int. problems A											1	.34**	.37**	.50**	.13*	.13*
12. Int. problems M												1	.61**	.17**	.58**	.37**
13. Int. problems F													1	.08	.37**	.56**
14. Ext. problems A														1	.36**	.30**
15. Ext. problems M															1	.67**
16. Ext. problems F																1
Mean	-.28	-.37	2.46	1.81	2.42	2.23	4.15	4.96	4.33	4.48	.38	.18	.17	.28	.13	.14
SD	.82	.83	.90	.76	1.0	.70	.91	1.0	.92	.79	.27	.19	.19	.17	.16	.16
Minimum	-3.10	-2.37	1.00	1.00	1.000	1.00	1.50	2.25	1.75	2.17	.00	.00	.00	.00	.00	.00
Maximum	1.73	2.01	5.25	6.00	6.25	5.00	7.000	7.00	7.00	7.00	1.33	1.31	1;33	.93	.93	.88

Note. Int. problems = internalizing problems, ext. problems = externalizing problems, A= adolescent report, M = mother report, F = father report , * = $p < .05$. ** $p = < .01$.
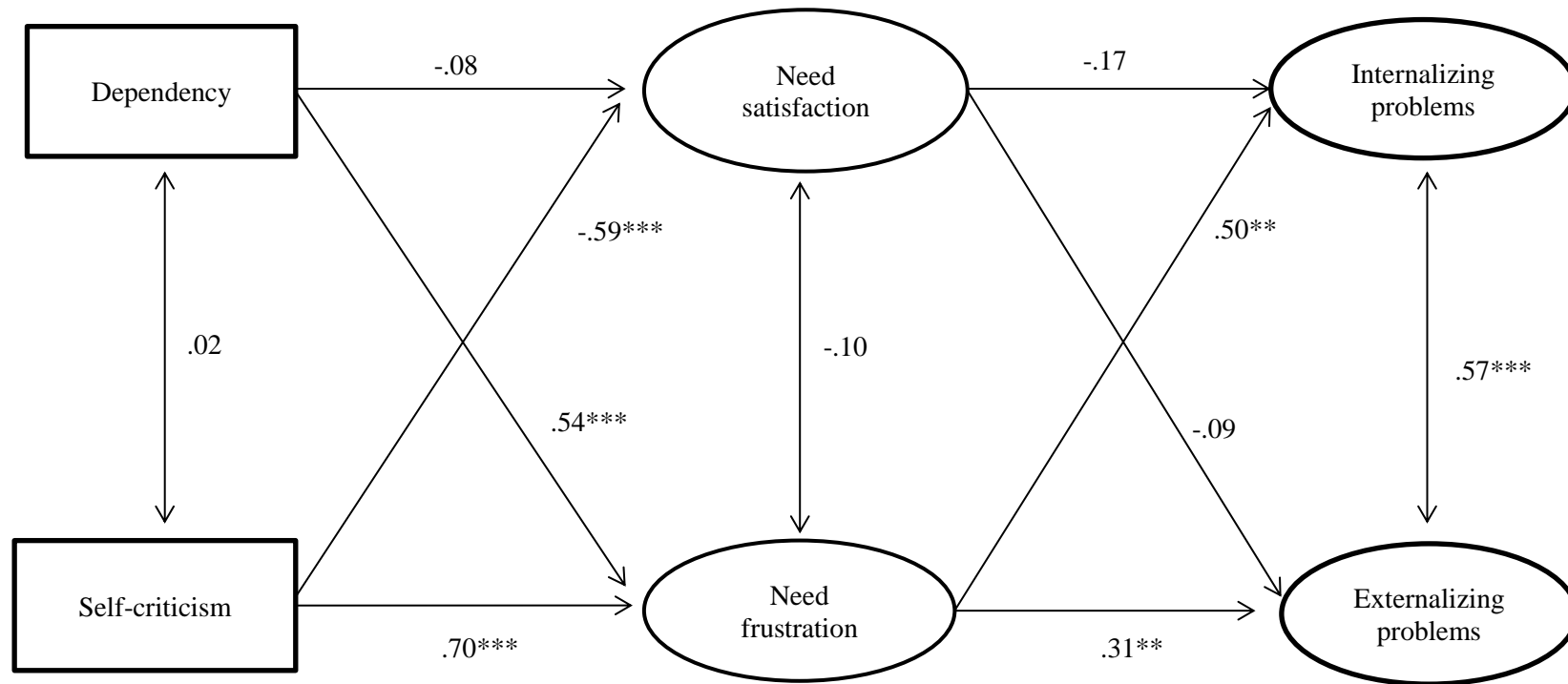
Figure 1. Structural model of the relations between personality, total need satisfaction and frustration, and psychopathology.

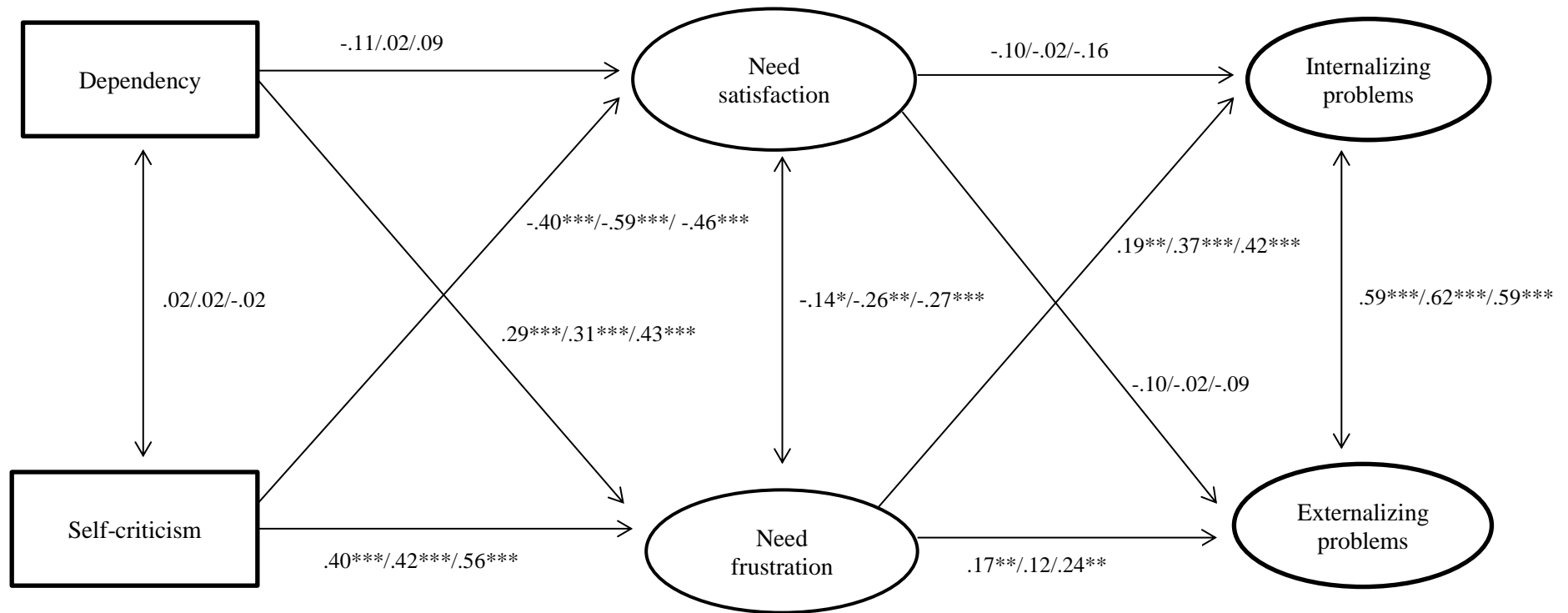* = *p* < .05, ** = *p* < .01, *** = *p* < .01.

Figure 2. Structural model of the relations between personality, satisfaction and frustration of the three separate needs, and psychopathology.

The first value refers to the need for autonomy, the second value to the need for relatedness and the third value to the need for competence.

 * = *p* < .05, ** = *p* < .01, *** = *p* < .01.