University of Milan-Bicocca – Department of Psychology

PhD Program in: "Psychology, Linguistics, and Cognitive Neuroscience"

XXXI Cycle

Curriculum in Experimental Psychology, Linguistics and Cognitive Neuroscience

BRIDGING THE NOMOTHETIC AND IDIOGRAPHIC APPROACHES: EXPLORING REJECTION SENSITIVITY FROM A DYNAMIC PERSPECTIVE

Ph.D. candidate:
Erica Casini

Registration number: 802687

Supervisors:

Dr. Juliette Richetin
Dr. Emanuele Preti

Coordinator:
Prof. Maria Teresa Guasti

ACADEMIC YEAR : 2017-2018

Table of Contents

Tables

Figures

Abstract

The present work proposes a new approach for studying Rejection Sensitivity (RS) and its maladaptive effects on the individual's functioning, among adolescents and young adults. We stress the importance of considering RS not only as a static personality disposition but also as a dynamic process that unfolds within-person over time in interaction with the situations encountered. We thus propose to study it integrating both a nomothetic and an idiographic perspective. The first three chapters are situated within a nomothetic approach. In Chapter 1, we introduced an alternative scoring method for the Children Rejection Sensitivity Questionnaire, which considers the cognitive and the emotional components of RS as separate factors (i.e., rejection Expectation, Anxiety and Anger about rejection, respectively). Then the attention shifts toward two individual's characteristics that may play an important role in strengthening the effects of RS on individuals' psychological functioning. In Chapter 2, we assessed the role of Personality Organization in moderating the association between RS and negative psychological outcomes in early adolescence. In Chapter 3, we examined whether cognitive emotion regulation strategies mediate the effect of RS on prosociality, aggression, and isolation in a young adult sample. The last three chapters are organized around the theoretical importance and practical benefit of studying RS from a dynamic perspective (i.e., idiographic approach). In Chapter 4, we studied the dynamics of the situational characteristics perceptions and the emotional reactions and of their relationships over time in a young adult sample and how these dynamics could be influenced by RS. In Chapter 5, we focused more specifically on the dynamics of rumination, situational Adversity, and two maladaptive behaviors (i.e., aggression and isolation) over time in a sample of adolescents, again investigating the role of RS in these dynamics. Finally, in Chapter 6, we went a step further in studying the dynamics of psychological phenomena over time by considering non-stationary processes with a new approach, the TV-VAR model. Although we did not focus directly on RS, we highlight both the usefulness and the advantages of the TV-VAR for studying RS. Finally, we discussed the advances provided by these new approaches in the study of RS, with a specific focus on the psychometric, methodological, theoretical, and clinical implications for future research.

Keywords: Rejection Sensitivity, nomothetic, idiographic, temporal dependency, dynamic processes.

General Introduction

Human beings are acutely responsive to how other people perceive, evaluate, and feel about them (Richman & Leary, 2009). Not only people care about others' reactions to them, but they also strive in what they do to achieve their approval and acceptance. The goal is to satisfy the basic human need to belong to a group (Baumeister & Leary, 1995). Interpersonal rejection, thus, ranks among the most aversive of human experiences (Nezlek, Kowalsky, Leary, Blevins, & Holgate, 1997). Everyone has experienced rejection in life: A school classmate does not want to sit next to you; one of your friends seems disinterested in what you are saying; your partner leaves you; a potential new partner rejects an invitation. Expressions like "a broken heart" or "a slap in the face" testify of the pain of rejection by other (Rosenbach & Renneberg, 2011). Nonetheless, research demonstrated that people are different concerning their readiness in perceiving and reacting to rejection, and such disposition is defined as Rejection Sensitivity (Downey & Feldman, 1996).

Rejection Sensitivity (RS)

Rejection Sensitivity (RS) can be defined as a personality disposition characterized by oversensitivity to social rejection (Gao, Assink, Cipriani, & Lin, 2017). More specifically, Downey and colleagues defined RS as a cognitive-affective processing disposition to anxiously or angrily expect, readily perceive, and overreact (emotionally or behaviorally) to rejection (Downey & Feldman, 1996; Downey, Freitas, Michaelis, & Khouri, 1998). High RS individuals expect to be rejected by others, perceive rejection even in neutral social interactions, and

tend to exhibit exaggerated response patterns (e.g., social withdrawal, aggressive behavior). RS thus refers to three processes: The expectation of social rejection, the perception of social rejection, and the response to it. According to the model (Downey & Feldman, 1996; Downey et al., 1998), RS develops when people's desires to belong are repeatedly unrealized, resulting in ongoing expectations of rejection. Such expectations are activated in situations where rejection is a possibility, leading individuals to perceive innocuous cues as evidence of rejection. This perception instigates negative emotional responses, such as hurt and anger, as well as an increased likelihood of maladaptive behaviors, such as aggression and social withdrawal. Ironically, overreactive responses can produce a self-fulfilling prophecy in which actual rejection is elicited.

Recent research reveals that individuals with high RS show greater responsivity to social rejection than individuals with low RS, implying that social rejection can be empirically differentiated from a broader sensitivity to threats. For example, Burklund, Eisenberger, and Lieberman (2007) showed that individuals who scored higher on RS exhibited greater dorsal anterior cingulate cortex activity in response to disapproving facial expressions, but not in response to angry or disgusted facial expressions. In other words, individuals high in RS are more sensitive to facial expressions signaling potential rejection, but not threatening facial expressions in general. Similar evidence can also be found in other research (e.g., Olsson, Carmona, Downey, Bolger, & Ochsner, 2013).

RS in adolescence and young adulthood

The study of RS in adolescents and young adults is very relevant. Adolescence is a critical period of individual development, characterized by several changes in personality (Blos, 1968; Erikson, 1968; Steinberg & Sheffield Morris, 2001). Following cognitive changes, self-concepts of healthy adolescents become increasingly more differentiated and organized (Steinberg & Sheffield Morris, 2001), with a greater ability to reflect on one's own cognitive processes (Damon & Hart, 1988; Fonagy & Target, 1997) and an increasing importance of personal qualities relevant for social interactions (Setoh, Qin, Zhang, & Pomerantz, 2015). This maturation of personality parallels a social reorientation characterized by an increased importance of peers, with an expansion of peer networks and close, intimate, and supportive friendships (Furman & Buhrmester, 1992; Steinberg & Sheffield Morris, 2001; La Greca, Davila, & Siegel, 2008), including romantic relationships (Collins & Van Dulmen, 2006; Collins, Welsh, & Furman, 2009). This leads to an increase in the importance of acceptance and rejection by peers and thus of their consequences. Similarly, during young adulthood, one's identity formation represents a crucial task. Young adulthood is the time for exploring the available options for lives in a variety of areas, especially love and work. In the course of these explorations, young adults clarify their sense of what they are and what they want out of life (Arnett, 2016). Furthermore, although they develop increased independence from parents, relationship with them, and other peers, especially romantic partners, are vital for their well-being (Zimmer-Gembeck & Collins, 2003; Aquilino, 2006). Rejection still thus represents a risk factor for

maladaptive outcomes. Because both adolescence and young adulthood represent two elective developmental periods for studying RS, the present dissertation will focus on these two populations.

Assessment of RS

RS has been measured predominantly by the Rejection Sensitivity Questionnaire (RSQ) (Downey & Feldman, 1996). The RSQ was originally coined by Downey and Feldman (1996) who viewed defensive expectations of rejection as the core component of RS. They operationalized RS as either anxious or angry expectations of rejection in situations where being rejected is possible, and Downey and Feldman (1996) developed a questionnaire accordingly. Since RS is learned through experience (Romero-Canyas, Downey, Berenson, Ayduk, & Kang, 2010) and is situation-specific (Levy, Ayduk, & Downey, 2001), researchers have developed different questionnaires for assessing RS for specific populations (e.g., for adults, children, African-American individuals, and for the assessment of gender-based rejection). The two most popular versions are the Children's RSQ (CRSQ; Downey, Lebolt, Rincon, & Freitas, 1998; London, Downey, Bonica, & Paltin, 2007) and the Adult RSQ (ARSQ; Downey, Berenson, & Kang, 2006).

The CRSQ (Downey et al., 1998; London et al., 2007) consists of 12 hypothetical interpersonal situations (six situations involve peers, and 6 involve teachers) with potential positive or negative outcomes. For example, a peer situation is "*Imagine you are the last to leave the classroom for lunch one day. As you're running down the stairs to get to the cafeteria, you hear some kids*

whispering on the stairs below you. You wonder if they are talking about you". A teacher situation is "*Pretend you have moved and you are going to a different school. In this school, the teacher lets the kids in the class take home a video game to play with on the weekend. Every week so far, you have watched someone else take it home. You decide to ask the teacher if you can take home the video game this time. You wonder if she will let you have it*". For each situation, respondents provide three distinct judgments on a 6-point Likert scale, with higher scores indicating a greater concern or anxiety and greater anger about the response to, and a higher expectation of the other person rejecting the request. According to the original scoring method, Anxious expectations and Angry expectations are calculated separately by multiplying the average of the products between the expected likelihood of rejection and the degree of Anxiety and Anger about rejection over its possible occurrence respectively.

The ARSQ (Downey, Berenson, & Kang, 2006) was built with the same underlying structure than the CRSQ. It consists of 9 hypothetical interpersonal situations in which participants have to request something to a significant other. For example: "*You approach a close friend to talk to after doing or saying something that seriously upsets him/her*." "*You ask your parents or another family member for a loan to help you through a difficult financial time*." "*You bring up the issue of sexual protection with your significant other and tell him/her how important you think it is*". Different from the CRSQ, for each situation presented, respondents usually make only two ratings on 6-point scales to assess the

expectations of rejection in the situation and the level of anxiety they would feel. Thus, the ARSQ captures only the Anxious expectations of rejection. However, in the last few years, some authors started to assess also the Angry expectations about rejection (e.g., Richetin, Poggi, Ricciardelli, Fertuck, & Preti, 2018).

Consequences of RS

Among adults and adolescents, RS is correlated with maladaptive interpersonal behaviors regarding family, couple, and peer relationships (e.g., Levy et al., 2001; Richman and Leary, 2009). Literature has individuated three main reactions to perceived rejection from RS individuals: Social withdrawal, that is, the future avoidance of social situations, aggressive (antisocial) behaviors, and extreme efforts to regain acceptance in social situations. Consistent with the possibility of a link between RS and social withdrawal are findings indicating that people tend to distance themselves from others if they feel that the likelihood of rejection is high (Bourgeois & Leary, 2001; MacDonald & Leary, 2005). Further, research has shown that the experience of anxiety in a given situation is a powerful motivator to avoid situations that might trigger anxiety (Wladyslaw, 2002). As aggression is concerned, Cassidy and Stevenson (2005) observed that RS accounted for a significant amount of variance in aggressive behavior among adolescents who had already been subject to disciplinary action because of their violent behavior. Similarly, in a study in which social exclusion was experimentally induced, Ayduk and colleagues (2008) found high RS people to react more aggressively to the person who had excluded them, compared to those who were less rejection-

sensitive. Gupta (2008) also showed that RS was a significant predictor of violence by women in intimate relationships. Focusing on one's effort to regain acceptance in social situations, Downey, Feldman, Khuri, & Friedman (1994) found ingratiation to be likely to become an ingrained response to rejection threats in high RS people. More recently, Purdie and Downey (2000), in the context of women's romantic relationships, showed RS to predict engaging in ingratiating behaviors to prevent rejection. Romero-Canyas and colleagues (2010) discovered in four studies that people high in RS utilized opportunities to ingratiate after harsh rejection in situations that are self-defining (e.g., rejection by peer group, rejection by online dating community; dyadic rejection by a romantic match).

Many studies have also investigated the associations between RS and different mental health problems (i.e., borderline personality disorder, social anxiety, depression, and loneliness). From two reviews summarizing the associations between RS and maladaptive outcomes (Rosenbach & Renneberg, 2011; Gao et al., 2017), we extracted the main results regarding studies on community adolescent and young adult samples.

Adolescence

During adolescence, anxious expectations of rejection predict social anxiety, withdrawal, loneliness, depression, body dysmorphic disorder, and borderline personality disorder (London, Downey, Bonica, & Paltin, 2007; Koster, de Maat, Schreur, & van Aken, 2018; McDonald, Bowker, Rubin, Laursen, & Duchene, 2010; Zimmer-Gembeck & Nesdale, 2013; Zimmer-Gembeck, Nesdale, Webb,

Khatibi & Downey, 2016) whereas angry expectations of rejection predict aggressive behaviors and feelings of victimization (Bondü & Krahé, 2015; London et al., 2007; Zimmer-Gembeck & Nesdale, 2013). However, several variables appear to moderate the association between high RS and psychopathology, such as the degree of parental support (Thomas & Bowker, 2015), relational stressors with parents and friends (Chango, McElhaney, Allen, Schad, & Marston, 2012), the capacity for self-regulation (Ayduk, Mendoza-Denton, Mischel, Downey, Peake, & Rodriguez, 2000), and the presence and quality of best friendships (Bowker, Thomas, Norman, & Spencer, 2011).

Young Adulthood

Overall, results on young adults reflect those obtained on adolescents. More specifically, many studies found RS to be a predictor of borderline personality disorder (Ayduk, Zayas, Downey, Cole, Shoda, & Mischel, 2008; Berenson, Downey, Rafaeli, Coifman, & Paquin, 2011; Bungert, Koppe, Niedtfeld, Vollstädt-Klein, Schmahl, Lis, & Bohus, 2015; De Panfilis, Meehan, Cain, & Clarkin, 2016; Lazarus Southward, & Cheavens 2016; Peters, Smart, & Baer, 2015; Richetin et al., 2018; Zielinski, & Veilleux, 2014). RS is also a risk factor for depression (Innamorati, Balsamo, Fairfield, Fabbricatore, Tamburello, & Saggino, 2014; Kawamoto, Ura, & Hiraki, 2017; Liu, Kraines, Massing-Schaffer, & Alloy, 2014; Massing-Schaffer, Liu, Kraines, Choi, & Alloy, 2015; Romero-Canyas et al., 2010).

RS and emotion regulation

Although there is substantial evidence about maladaptive outcomes associated with RS among adolescents and adults, little is known about the mechanisms that may underlie the potential pathway through which RS is related to the maladjustment mentioned above. According to the RS model (Downey & Feldman, 1996; Downey et al., 1998), for people high in RS, the perception of rejection triggers an affective overreaction, which, in turn, causes a behavioral overreaction. This association has led some authors to hypothesize high RS people to show a significant deficit in emotion regulation (Pearson, Watkins, & Mullan, 2011; Silvers, McRae, Gabrieli, & Gross, 2012). Individuals high in RS, indeed, seem to be overwhelmed by their emotions, showing not to have abilities to regulate them or to be at risk to engage in maladaptive emotion regulation strategies. The general concept of emotion regulation can be understood as "*all the extrinsic and intrinsic processes responsible for monitoring, evaluating and modifying emotional reactions, especially their intensive and temporal features, to accomplish one's goals*" (Thompson, 1994, p. 27).

Through an experimental task, Silvers and colleagues (2012) found adolescents with high RS scores to be less successful at regulating emotional responses (i.e., positive reappraisal) to aversive social stimuli than those with low RS scores. Instead, on adult samples, RS predicts a higher level of rumination (Pearson et al., 2011), while it seems to be related to increased emotion dysregulation (Selby, Ward, & Joiner Jr, 2010; Velotti, Garofalo, & Bizzi, 2015).

Moreover, Gyurak and Ayduk (2008) found the respiratory sinus arrhythmia, a physiological index of emotion regulation, to be associated with RS. Indirect evidence in support of the link between lower emotion regulation and RS also comes from studies investigating the relationship between rejecting experiences and self-regulation. Self-regulation has been used to refer to many constructs, including even emotion regulation. Rejected people have been found to show significant impairments in self-regulation strategies (Baumeister, DeWall, Ciarocco, & Twenge, 2005; King, Mclaughlin, Silk, & Monahan, 2018). In the light of the evidence, studying emotion regulation strategies thus might allow getting a better understanding of the mechanisms underlying the relationship between RS and maladaptive outcomes.

The importance of situation in the study of RS

As mentioned above, RS is a state-dependent personality characteristic because it is activated in situations perceived as potentially rejecting. Situations thus play a decisive role in the understanding of RS and specifically in capturing its role in inducing maladaptive behavioral responses. The relationship between RS and maladaptive outcomes has been widely studied within the Cognitive-Affective Processing Systems (CAPS) framework (Mischel, 1973; Mischel & Shoda, 1995). The CAPS model suggests both situational contexts and personality are important predictors of behavior, arguing how personality processes emerge in specific Person × Situation interactions (Romero-Canyas et al., 2010). In more details, this model stresses the presence of an ‘if -then’ pattern in the association between RS

and behavior (Ayduk & Gyurak, 2008). For example, if situation X occurs, then an individual responds with Anxiety, but if situation Y occurs, then the individual does not respond with Anger. These situation-behavior co-occurrences reflect the presence of a stable network of distinctive personality processing dynamics that is activated. These dynamics link anxious and angry expectations of rejection and affective or behavioral overreactions to perceived rejection (Ayduk & Gyurak, 2008). Within this framework, it has been investigated whether the partner-initiated breakup (if) would predict depression (then) in high RS women (Ayduk, Downey, & Kim, 2001), whether the perception of rejection (if) lead high-RS subjects to engage in aggressive behaviors (then) (Romeno-Canyas et al., 2010), the moderating effect of RS on the relationship between interpersonal and affective perceptions of others (ifs) and interpersonal behavior (then) (Meehan, Cain, Roche, Clarkin, & De Panfilis, 2018), or the role of the quality of object representations in affecting the relationship between interpersonal distress (if) and the level of RS (then) (Meehan, Cain, Clarkin, & De Panfilis, 2018). However, as many authors have pointed out (e.g., Sherman, Nave, & Funder, 2010; Fournier, Moskowitz, & Zuroff, 2008; Fournier, Moskowitz, & Zuroff, 2009), the CAPS model does little to specify what makes one situation different from or similar to another. That is, it does not include a description of the "active ingredients" of situations (Mischel & Shoda, 1995).

Recently, Rauthmann, Sherman, and Funder (2014) provided an essential contribution to the study of situations, proposing a clear definition of them and a

first systematic taxonomy. These authors suggested that both objective and subjective characteristics define situations. The former concerns the incentives they contain, the dangers they afford, the rules enforced within them. Instead, the latter concerns the unique individuals' interpretation of situations, that is, their psychological characteristics that are critical for a better understanding of the role of situations in affecting people's behavioral responses. The authors have also developed a taxonomy of the major dimensions of situation characteristics, the Situational Eight DIAMONDS model (Rauthmann et al., 2014). This taxonomy distinguishes between eight types of situation characteristics, that is, Duty (Does something need to be done?), Intellect (Is deep thinking required or desired?), Adversity (Are there external threats?), Mating (Is the situation sexually and/or romantically charged?), pOsitivity (Is the situation enjoyable?), Negativity (Does the situation elicit unpleasant feelings?), Deception (Is someone being untruthful or dishonest?), and Sociality (Are social interaction and relationship formation possible, required, or desired?). The DIAMONDS dimensions have shown to capture a wide variety of everyday situations and are useful in understanding different person–situation transaction processes (Rauthmann et al., 2014; Funder, 2016). Although no previous studies have used such a taxonomy for studying RS, we firmly believe the DIAMONDS dimensions to represent a useful tool because a clear definition and a unique taxonomy of situations are also essential to understand the RS role in affecting behaviors. This issue becomes even more salient

when designing interventions aimed at breaking the RS consequences, both at the level of the triggering situations and their associated cognitions.

A dynamic approach to the study of RS

Nomothetic versus Idiographic approach

Research on RS has been mostly conducted using a nomothetic approach. According to this perspective, the goal of RS science was to make general predictions about the population by examining between-person variations in RS between and across people. Researchers have focused on studying individual differences in RS (e.g., high RS vs. low RS) and, subsequently, how this personality disposition affects behavior, emotion, and cognition (e.g., high RS predicted more aggression than low RS). Looking at RS from a nomothetic perspective was consistent with that of the traditional personality research whose primary interest was to identify the structure of personality, defining it as a stable relationship between traits and states, and supposedly not varying in the short term (Baumert et al., 2017).

However, in the last few years, this longstanding interest in stable attributes has given way to a more recent focus on dynamic processes. Having recognized that personality traits are at least somewhat malleable during adulthood (Roberts, Walton, & Viechtbauer, 2006), and that changes probably have something to do with what happens to people (Bleidorn, Hopwood, & Lucas, 2018; Caspi, Roberts, & Shiner, 2005), personality psychologists have been increasingly interested in the dynamic processes that might account for those changes (Baumert et al., 2017;

Carpenter, Wycoff, & Trull, 2016; Fleeson & Jayawickreme, 2015; Geukes, van Zalk, & Back, 2018; Hennecke, Bleidorn, Denissen, & Wood, 2014; Hopwood, 2018; Huprich & Nelson, 2015; Mehl, 2017; Rauthmann, 2015; Rauthmann et al., 2014; Rauthmann, Sherman, & Funder, 2015; Roberts, 2018; Wrzus & Roberts, 2017). This progression has led to describe personality also as within-person dynamic processes that arise over time in response to and in interaction with the environment (Fleeson & Noftle, 2012). In other words, rather than being conceived as a fixed feature of the individual, personality now is described as the result of a constant interplay between the individual and his/her environment. Not only individuals are different between each other (between-person difference), but the same individual can change over time and across different situations (within-person difference). Consistently, research has seen the growth of a novel idiographic perspective that emphasizes the centrality of the individual (e.g., Fischer & Bidell, 2006; van Geert & van Dijk, 2002; Molenaar, 2013; Thelen & Smith, 2007). Within this perspective, research moved towards a within-person level of analysis focused on time-dependent differences along a single subject's daily life trajectory. Centering on RS, this means studying how the effect of this disposition on individuals functioning changes over time across different situations over time.

Methodological advances: The Ecological Momentary Assessment

The shift from a nomothetic to an idiographic approach went parallel with the advent of a range of new techniques of data collection, known as Ambulatory Assessment (AA). Enthusiasm for AA is primarily driven by three unique

strengths: The ability to assess individuals in their natural environment (enhanced ecological validity), during or temporally near to specific events (retrospective biases are minimized), and intensively and repeatedly as psychological processes unfold (multiple points along a dynamic process) (Wright & Zimmerman, 2018). Among the different AA methods, the Ecological Momentary Assessment (EMA) represents a technique that could be potentially suitable for studying RS. So far, there is only one research studying RS using the EMA. Meehan and colleagues (2018) assessed the interpersonal perceptions and affects of a young adult sample for 7-day. Using a multilevel approach, the authors found the RS to usually moderate the typical relationship between interpersonal behavior and affect related to self and others. Notably, although the multilevel models are able to jointly capture both the between- and the within-person variability, this study did not account for any dynamic processes. Indeed, the authors focused on the individuals' general tendency (i.e., the mean). In other words, they assessed how the individuals usually perceived, felt and behaved during the seven days of assessment. In doing so, they provided information about the typical interpersonal perceptions, feelings, and behaviors of their sample.

Looking for dynamic patterns

As mentioned above, focusing on the general tendency of perceptions, emotions, and behavior is not enough when we are interested in capturing the dynamics of psychological phenomena. To study such dynamics, we should focus on their patterning (Wright & Zimmerman, 2018), that is, how variables interact.

There are various aspects of these within-person patterning process that one can choose to study to gather insights into psychological dynamics, of which temporal dependency, also known as inertia (Suls, Green, & Hillis, 1998; Jahng, Wood, & Trull, 2008; Kuppens, Allen, & Sheeber, 2010) and variability (Jongerling, Laurenceau, & Hamaker, 2015; Hamaker, Asparouhov, Schmiedek, & Muthén, 2018) are two particularly informative aspects. Inertia concerns the degree to which ones' current observations can be predicted by previous observations (Suls et al., 1998; Jahng et al., 2008; Kuppens et al., 2010; Bringamnn, Hamaker, Vigo, Aubert, Borsboom, & Tuerlinckx, 2017). For example, we could study the degree to which an individual's emotional state at a given time point is predictive of her emotional state at subsequent time points. On the contrary, variability concerns the degree to which one's current observations deviate from his mean. For example, we could be interested in the degree to which an individual's emotional state at a given time point is different from how she usually feels. The multilevel Autoregressive (AR) models are one framework to operationalize both inertia and variability of RS dynamics (Molenaar, 1985; Ram & Gerstorf, 2009; Gilden, 2001; Wang, Hamaker, & Bergeman, 2012). In these models, the autoregressive parameter (ϕ) is interpreted as a measure of inertia, while the innovation (ε) as a measure of variability.

So far, both inertia and variability have been considered and studied mostly as particular characteristics of people's emotional dynamics (Koval, Brose, Pe, Houben, Erbas, Champagne, & Kuppens, 2015; Kuppens et al., 2010; Wang,

Hamaker, & Bergeman, 2012). Furthermore, both indexes have been considered as indicators of poor self-regulation (Koval et al., 2015; Kuppens et al., 2010). Since RS has been found to be associated with deficits in self-regulation (Ayduk, Mendoza-Denton, Mischel, & Downey, 2000), we believe that the study of these two dynamic hallmarks can add to the previous knowledge of RS. Indeed, we can hypothesize that high RS individuals might show inertia of negative emotions or in the perception of situations as adverse. Maybe they can also experience a high variability of negative emotions when they face with a rejecting situation.

A step forward: Beyond the stationarity assumption

Although the multilevel autoregressive (AR) models are the most widely used for studying dynamic processes, they have some important limitations. Among these, one of the most important is the stationarity assumption (Chatfield, 2003). In general terms, stationarity means that the statistical properties of the data under study do not change over time, and thus dynamical features are assumed to be invariant over time (Chatfield, 2003). In other words, this means that individuals are assumed to be equal and to change equally over time. However, this assumption is unrealistic. To deal with this limitation, in the last few years, Bringmann and colleagues (2015) developed a new method for assessing intra-individual processes, the semi-parametric time-varying vector-autoregressive (TV-VAR) model. This method is an extension of the multilevel AR model. It relaxes the stationarity assumption, allowing within-person processes to be time-variant. More simply, the TV-VAR model allows considering that individuals are different from

each other and change differently over time. The TV-VAR model, thus, represents another important step within the research field, which could provide new insights for the study of psychological phenomena, such as RS, and their dynamic over time.

The present dissertation

This dissertation proposes a new perspective for studying RS and its maladaptive effects on the individual's functioning. Chapter 1 reports a paper by Preti, Casini, Richetin, De Panfilis, and Fontana (currently under review after a revision in *Assessment*). It presents an alternative way of investigating the role of RS with the use of the CRSQ. While the standard scoring method provides two composite scores that are the product of Expectation and Anxiety and Expectation and Anger, respectively, our scoring method proposes to consider the three components of RS as separate factors. This chapter demonstrates that studying RS by focusing on its single components and testing how each relates to expressions of self and interpersonal functioning among adolescents can provide new insights into the study of RS. Furthermore, considering RS as the contribution of its three components is theoretically more in line with the original conceptualization of RS itself. In light of its theoretical and practical advantages, such a scoring method was then used in all the chapters of the present dissertation.

Then the attention shifts toward two individual's characteristics that may play an important role in strengthening the RS effects on psychological functioning. Chapter 2 is based on Fontana, De Panfilis, Casini, Preti, Richetin, and Ammanniti (2018), and assesses whether Personality Organization (PO; Kernberg & Caligor,

2005; Yeomans, Clarkin, & Kernberg, 2015; Ammaniti, Fontana, Clarkin, Clarkin, Nicolais, & Kernberg, 2015) moderates the association between RS and negative psychological outcomes in early adolescence. PO represents a critical individual characteristic that is supposed to affect how early adolescents experience and face the various tasks that are typical of this developmental period. While high levels of PO contribute to adolescents' well-being, low levels cause severe impairment in their psychological functioning. We thus hypothesized low levels of PO to exacerbate the negative effect of RS on early adolescents' psychological functioning. The advantage of studying the interaction between PO and RS is twofold. On the one hand, it provides a better understanding of RS as a phenomenon. On the other hand, it might unveil relevant areas of intervention that deserve to be taken into account by clinicians when treating adolescents.

Chapter 3 is based on Glesmer, Casini, Richetin, Premoli, and Preti (in preparation) and examined whether cognitive emotion regulation strategies mediate the effect of RS on three behavioral intentions (i.e., prosociality, aggression, and isolation) in a young adult sample. Theoretical and empirical literature suggests that adaptive emotion regulation strategies are associated with greater well-being and better psychological functioning, while negative ones with many maladaptive outcomes. We thus expected the adaptive emotion regulation strategies to explain a negative relation between RS and cooperative behaviors. Conversely, maladaptive emotion regulation strategies were meant to mediate the relationship between RS and both aggression and isolation. Studying the relationship between

RS and the emotion regulation strategies provided important insights on RS, showing that the way people with RS regulate their emotions may contribute to individual differences in their behavioral tendencies.

The last three chapters are organized around the theoretical importance and practical benefit of studying RS from a dynamic perspective. In Chapter 4, based on Casini, Richetin, Preti, and Zimmermann (in preparation), we studied how the relationship between RS, the perception of situational characteristics, and the emotional reactions changes over time in a young adult sample. More specifically, we analyzed the dynamic pattern of such relationships by focusing on four indicators, that are general tendency (i.e., people's usual state), inertia (i.e., the extent to which one's current state is predictable from one's prior state), variability (i.e., the extent to which one's current state is different from one's usual state), and cross-lagged effect (i.e., the reciprocal process that takes place at the within-person level between different variables across time). This contribution introduced new elements in the study of RS. First, we examined how individuals subjectively perceive the characteristics of rejecting situations. Second, we highlighted the importance of studying RS from a dynamic perspective which allows capturing the RS processes over time, providing a more comprehensive picture.

In Chapter 5, based on Casini, Preti, Richetin, and Zimmerman (in preparation), we investigated the relationship between RS, rumination, situational adversity, and two maladaptive behaviors (i.e., aggression and isolation) over time in a sample of adolescents. More specifically, the aim of the present contribution

was twofold. We first examined whether RS moderated the typical relationship between situational adversity and rumination, situational adversity and behavioral intentions, and rumination and behavioral intentions within the same situation, over time. Then, we tested the existence of cross-lagged effects of rumination at a previous moment in time on the perception of situational adversity and the behavioral intentions at the next moment in time, exploring the role played by RS in qualifying the effects under examination. This work is the first contribution that investigates the relationship between RS and rumination among adolescents, also examining how adolescents subjectively perceive the characteristics of the situations faced in their daily life. Furthermore, the adoption of a dynamic approach highlights that the effect of RS on adolescents' daily life may vary among different situations and across time.

Finally, Chapter 6, based on Casini, Richetin, Preti, and Bringmann (in preparation), introduced another approach for studying the dynamics of psychological phenomena over time, that is the TV-VAR model. This model goes beyond those presented in the previous chapters, where data were analyzed through statistical models based on the stationarity assumption. According to this assumption, individuals are homogeneous and the way they change over time is always the same. The TV-VAR model, instead, relaxes the stationarity assumption, allowing to study non-stationary processes. According to non-stationarity, individuals change differently over time. This chapter presents the only contribution that did not focus directly on RS. Instead, we applied the TV-VAR

model to assess the intra-individual temporal dynamics characterizing person-situation interactions (i.e., the influence of personality on the psychological perception of situations and on the related emotional states over time) of two adolescents with different personality characteristics. Our contribution is unique in that it examines non-stationarity in the situation perception process. This chapter highlights the advantages of the TV-VAR model for personality science. Consistently, it also paves new and interesting ways of studying RS, potentially providing new insights into this disposition.

Each chapter is introduced by an overview containing the theoretical framework, the rationale and the aim behind the work. Given that all these chapters are based on individual manuscripts that are either published, accepted, under review or in preparation, the reader will notice some overlaps in their introductory sections.

Finally, after a summary of the findings presented in the previous chapters, the general discussion elaborates on their implications from both a theoretical and an applied perspective with a particular emphasis on the importance of adopting a dynamic perspective for studying RS. As a final point, the general discussion raises new questions and proposes either focused studies or broader lines of research to test them empirically. The work presented in this dissertation would not have been possible without the help of many people. The studies described in each chapter have been conducted in collaboration with Juliette Richetin, Emanuele Preti, Laura Bringmann, Johannes Zimmerman, and Chiara De Panfilis, and Andrea Fontana.

I would like to express all my deepest gratitude to my supervisors, Juliette Richetin and Emanuele Preti, for their patience in teaching me most of the things I know, for the precious advice they gave me in the last three years and for their help in improving the quality of this dissertation. But above all, I want to thank both of them for believing in me.

I am also deeply grateful to Laura Bringmann, for giving me the opportunity of spending two months working with her at the University of Groningen. I really appreciated her trust in my (little) expertise and her being always supportive.

A huge 'thank you' also goes to Johannes Zimmerman, who gave me the chance of staying for three months at the Psychologische Hochschule Berlin. I really want to thank him for being so kind as a person and so inspiring as an academic supervisor. He passed down to me his knowledge, passion, and enthusiasm in doing research.

I wish to thank all the other persons I had the chance to collaborate with or who helped me in making the chapters of dissertation possible: Andrea Fontana (LUMSA University) and Chiara De Panfilis (University of Parma).

I also want to thank Paolo Riva for his invaluable help in developing my Ph.D. project.

Last but not least, I cannot forget to thank all the students who helped me in collecting the data that I am about to present and discuss in the following pages.

Chapter 1

Cognitive and emotional components of rejection sensitivity: Independent contributions to adolescent self- and interpersonal functioning[1]

[1] This chapter is based on Preti, Casini, Richetin, De Panfilis, & Fontana. Cognitive and emotional components of rejection sensitivity: Independent contributions to adolescent self- and interpersonal functioning. The manuscript is currently under review in *Assessment* after an invitation to revise and resubmit.

Overview

This Chapter proposes a new approach to the assessment of rejection sensitivity (RS) According to the original model (Downey & Feldman, 1996; Feldman & Downey, 1994), RS includes both a cognitive (i.e., rejection expectation) and an emotional component (i.e., anxiety and anger). Nonetheless, research has rarely examined their unique connection with psychological problems. We argue that considering the three components separately would provide additional insights regarding the relationship between RS and psychological problems. With this aim, we first tested the goodness of fit of a three-factor solution and then investigated the validity of the three components separately in predicting self- and interpersonal functioning in adolescents. Seven hundred and twenty adolescents completed the Children's Rejection Sensitivity Questionnaire, self-reports of self- and interpersonal functioning (self-esteem, interpersonal reactivity), and peer ratings of preference and bothersomeness. The three-factor solution showed fit indexes comparable to the two alternative one-factor solutions underlying the traditional approach of the composite scores. More importantly, we found specific contributions of each of the three RS components in predicting different features of self- and interpersonal functioning. Thus, depending on the psychological problems under consideration, the role of the three RS components varies. We discuss the implications of these findings.

Introduction

Rejection Sensitivity (RS) is defined as the tendency to anxiously or angrily expect, readily perceive, and overreact to overt or covert interpersonal rejection (e.g., Downey & Feldman, 1996). According to the Rejection Sensitivity Model based on empirical evidence (Levy, Ayduk, & Downey, 2001), RS develops when people's desires to belong are repeatedly unrealized, resulting in ongoing expectations of rejection. Such expectations are activated in situations where being rejected is a possibility, leading individuals to readily perceive innocuous cues as evidence of rejection. These expectations may also instigate negative emotional responses: anxiety (i.e., Anxious expectations) and anger (i.e., Angry expectations). Such emotional responses increase the likelihood of maladaptive behaviors, which can interfere with the development of competence in adaptive coping and repair of interpersonal problems and produce a self-fulfilling prophecy in which actual rejection is elicited. The RS model (Levy et al., 2001) therefore proposes that RS reflects a processing disposition, comprising both a cognitive component (i.e., expectation of rejection) and an emotional activation (i.e., anxiety and anger). This disposition, thus, accounts for the cognitive bias that leads to perceiving rejection as well as for the accompanying defensive emotions. This assumption is consistent with the literature on social exclusion (e.g., Williams, 2009) that posits a cognitive (i.e., detection of rejection) and an emotional phase (i.e., pain) when facing rejection. Rejection is particularly relevant when studying adolescents. During this period, aversive experiences with peers represent a primary source of adolescents'

maladjustment, yielding an array of negative consequences (e.g., Sandstrom & Zakriski, 2004).

The Children's Rejection Sensitivity Questionnaire (CRSQ) was developed to evaluate anxious and angry expectations of rejection in children and adolescents (Downey, Lebolt, Rincòn, & Freitas, 1998; London, Downey, Bonica, & Paltin2007). The CRSQ consists of hypothetical stressful interpersonal situations with peers and teachers, all of which involve the possibility that one's requests would be accepted or rejected by others. Respondents indicate the extent to which they expect to be either accepted or rejected by others in different situations, as well as their degree of anxiety and anger. Thus, the CRSQ is meant to capture both a cognitive component (i.e., the rejection expectation to a series of interpersonal scenarios) and two types of emotional responses to the possibility of rejection (i.e., anxiety and anger). CRSQ scores are associated with a range of impairments and difficulties that erode the sense of well-being and relationship (e.g., Downey et al., 1998), mirroring those found among adults (e.g., Cain, De Panfilis, Meehan, & Clarkin, 2017). For example, and more central to our concerns, CRSQ scores are related to low self-esteem, withdrawal, loneliness, depressive symptoms, physical and verbal aggression, retribution, victimization, internalization and externalization problems (Downey et al., 1998; Levy et al., 2001; Purdie & Downey, 2000; Romero-Canyas, & Downey, 2005; Zimmer-Gembeck & Vickers, 2007; Zimmer-Gembeck & Wright, 2007; Bondu & Krahè, 2015).

Although the RS model recognizes the importance of both expectation of rejection and the associated emotions, the standard scoring of the CRSQ (and of RS in general) does not fully acknowledge any independence, considering only their interaction, without taking into account the effect of cognitions and emotions separately. The original scoring method produces two composite scores defined as Angry Expectation and Anxious Expectation, calculated by averaging the multiplication of the score of the expected likelihood of rejection by the degree of Anxiety/Anger about rejection over its possible occurrence for each situation considered. Alternative scoring methods have been recently proposed (e.g., Jacob & Harper, 2013; Bondü, Sahyazici-Knaak, Esser, 2017). However, none of these methods has ever considered the three components of RS as separate scores. We argue that considering the emotion and the cognitive components of RS separately might shed new light on the relationship between RS and psychological problems. In a broader perspective, the functions that emotion and cognition serve are distinct (Lemerise & Arsenio, 2000). Izard (1994) argued that the emotions are about motivation (e.g., behavioral reactions to rejection), while the cognition is about knowledge (e.g., rejection perception). These two processes have also been linked to specific brain structures (Phelps, 2006; Pessoa, 2008). Although recent neuropsychological evidence (e.g., Le Doux, 1995; Okon-Singer, Hendler, Pessoa, & Shackman, 2015) suggested that emotional and cognitive processes influence each other, making it difficult to isolate cases of pure cognition from the case of pure emotions, research shows how cognition and emotion make unique

contributions to psychological and behavioral processes. Within this context, it thus seems relevant—both from a theoretical and empirical point of view—to consider the distinct contribution of all components of RS in predicting behavioral outcomes.

To further exemplify the usefulness of examining the role of the emotional and cognitive RS components separately, consider two different persons. Individual 1 scores low on all the Expectation items but high on Anger items, while individual 2 shows high scores in Expectation but low in Anger. Despite this substantial difference in how they feel and how much they expect to be rejected, the traditional composite score would indicate that the two individuals are more similar than they might actually be. When considering the relationship between this score and some psychological problems, the picture might be confusing. Thus, such a scoring method does not account for the unique contribution of either cognition or emotion in determining one's overall RS score. We argue that these unique contributions could help researchers understand to what extent a specific behavioral response enacted in a given situation is the function of either cognition or emotions. We rely on the idea that a novel way to measure RS is important not only from a methodological perspective. Rather, it has the potential to provide a different way to look at RS that would allow researchers to obtain a broader and deeper understanding of RS itself by unveiling the relationships of its specific components and behavioral manifestations.

Although the results obtained in previous research provide support to the predictive, convergent, and discriminant validity of the CRSQ, we rely on the assumption that testing the properties of a measure means testing the validity of the score and not the validity of the measure (Richetin, Costantini, Perugini, & Schönbrodt, 2015). For example, Downey and colleagues (1998) performed two separate factor analyses on the product scores, one for Anxious Expectations and one for Angry Expectations and advocated for a bidimensionality of the questionnaire. An alternative scoring method could lead to a different factorial solution for RS. More importantly, standard scoring could mask information about the potential role of each component. In fact, even though anger and anxiety responses result in distinctive forms of social maladjustment in reactions to rejection in adults (Levy et al., 2001) as well as in adolescents (London et al., 2007), the traditional scoring method treats the two constructs as equivalent with respect to their cognitive component, that is, one's expectation of rejection. Furthermore, although the model of rejection sensitivity (Downey et al., 1998) consists of both anxiety and anger, most studies have focused almost exclusively on the former. Even fewer have examined both simultaneously; one study has considered anxiety and expectations separately (Innamorati, Balsamo, Fairfield, Fabbricatore, Tamburello, & Saggino, 2014), and two studies (Zimmer-Gembeck, Nesdale, Webb, Khatibi, & Downey, 2016; Zimmer-Gembeck & Nesdale, 2013) have examined anxiety, anger, and expectations separately considering an alternative scoring method. For example, Zimmer-Gembeck and Nesdale (2013) showed in a

young adult sample that expectations and anxiety were associated with withdrawal responses, whereas anger was not. Moreover, expectations and anger were significantly associated with reactive aggression, whereas anxiety was not. Even more central to our concerns, a longitudinal study on adolescents using the CRSQ (Zimmer-Gembeck et al., 2016) showed that anxiety was related to increased depressive symptoms, whereas anger as a response to rejection, in combination with peer-blame, was associated with retribution seeking. In a preliminary analysis, using a hierarchical linear regression, the authors also showed that there was no significant interaction between the three RS components. These two studies revealed different patterns of reactions to rejection, providing evidence about the multidimensionality of the RS construct and that anxiety and anger are uniquely linked to different behavioral responses.

Aims of the contribution

The RS model (Downey et al., 1998) underlines the importance of distinguishing between Anger, Anxiety, and Expectation of rejection. Within this perspective, we propose to consider Anxiety, Anger, and Expectation as separate to provide new insights on RS and its relations to psychological problems from an empirical and theoretical point of view, as recent research suggested (e.g., Zimmer-Gembeck & Nesdale, 2013). To support our hypothesis, we first tested a 3-factor structure that considered expectation, anxiety, and anger in the study of RS among adolescents. Second, we visually inspected the correlations between particular impairments and problems in adolescents' self- and interpersonal functioning and

RS, operationalized as either the product between the cognitive and the emotional components or as separate components. This inspection allowed an understanding of whether each RS component played a role in these correlations. Third, we tested the unique role of each component in affecting the adolescents' self and interpersonal functioning with multiple regressions. This alternative way to look at the RS components could reveal that the role played by each separate score might change depending on the outcome variable. As mentioned above, RS is related to many impairments in individual and social functioning, but some of these have remained partly unexplored, especially among adolescents. We focused on the relationships of the three RS components with four indicators of self- and interpersonal functioning: self-esteem, empathy, social preference, and bothersomeness.

High self-esteem is associated with psychological well-being and low self-esteem is related to many psychological problems (Leary, 1995). However, the state of social connectedness underlying this construct (Eisenberger & Lieberman, 2004) might be what contributes to psychological well-being. For example, increasing degrees of rejection seem to be associated with more negative self-feelings and reductions in self-esteem (e.g., Leary, 1995). Being socially excluded during a computerized interactive ball-tossing game (Cyberball) caused reductions in self-esteem (Williams, 2007). Because we assume that self-esteem is related to social exclusion both emotionally and cognitively, we hypothesized that the three RS components are negatively related to self-esteem among adolescents. Empathy

is commonly considered an indicator of interpersonal functioning (e.g., Jeung & Herpertz, 2014). Because social exclusion leads to increased empathy (e.g., Auyeung & Alden, 2016; DeWall & Baumeister, 2006) as well as increased perspective taking (Knowles, 2014), one might hypothesize a link between RS and empathy. To our knowledge, only one unpublished study, cited by Romero-Canyas, Downey, Berenson, Ayduk, and Kang (2010), investigated the various facets of empathy (Davis, 1983) and showed that RS Anxiety correlated only with tendencies to experience others' distress and not with perspective taking or empathic concern. In an exploratory perspective, we hypothesized different relationships of the three RS components with the different facets of empathy. Social preference is defined by the degree to which an adolescent is highly liked (and not disliked) by peers (LaFontana & Cillesen, 2002) and is associated with many indicators of healthy individual and interpersonal functioning (De Bruyn & Van Den Boom, 2005). Socially preferred adolescents display effective social skills (Hartup, 1995) and generally exhibit traits conducive to maintaining close friendships such as warmth and responsiveness (e.g., La Freniere & Charlesworth, 1987). Moreover, popular adolescents regard their social selves in a more favorable light (e.g., Harter, Stocker & Robinson, 1996) and appear to experience fewer hassles from classmates (e.g., Fenzel, 2000). Because social preference and rejection can be considered two extremes of the same continuum (LaFontana & Cillesen, 2002), we expected a negative relationship between the three RS components and social preference. Bothersomeness identifies adolescents who

annoy others and, for this reason, are disliked by peers. This concept can be conceived as the opposite of social preference. Bothersome adolescents are likely to be rejected and unlikely to become the preferred ones (Newcomb, Bukowski & Pattee, 1993). Bothersomeness is also a precursor to antisocial behavior, such as bullying. Some bullies are the most disliked members of a classroom (Batsche & Knoff, 1994; Schwartz, 2000) and are marginalized and rejected by peers (e.g., Rodkin, Espelage, Hanish, 2015). We hypothesized a positive association between RS and bothersomeness, and we expect Anger to be the dominant predictor.

Method

Participants and Procedure

The sample consisted of 720 adolescents (356 males and 364 females; age range from 11 to 17 years with M_{age} = 13.72, SD = .90) recruited from 5 Italian secondary schools. Their participation was voluntary and anonymous, and signed informed consent was obtained from the parents. The participation rate was excellent, with 100% of the grades involved that participated in the research protocol. During school hours, students completed the CRSQ (Downey et al., 1998). A subsample of 374 participants (183 males, 191 females; M_{age} = 13.94, SD = 1.04) also completed, in the following order, the Multidimensional Self-Concept Scale (Bracken, 1992), the Peer Rating Questionnaire (Tobia, Riva, & Caprin, 2016), and the Interpersonal Reactivity Index (Davis, 1980).

Measures

Children's Rejection Sensitivity Questionnaire (CRSQ, Downey et al., 1998; London et al., 2007). This questionnaire assessed children and adolescents' RS in terms of Anxious or Angry Expectations of rejection. The scale consisted of 12 hypothetical interpersonal situations with potential positive or negative outcomes. Six situations involved peers (e.g., "Imagine you are the last to leave your classroom for lunch one day. As you're running down the stairs to get to the cafeteria, you hear some kids whispering on the stairs below you. You wonder if they are talking about YOU") and six situations involve teachers (e.g., "Imagine that a kid in your class tells the teacher that you were picking on him/her. You say you didn't do it. The teacher tells you to wait in the hallway, and she will speak to you. You wonder if the teacher will believe you"). For each situation, participants indicated whether they would be nervous and angry about the outcome of the situation on a 6-point scale, ranging from 1 ("not nervous/mad") to 6 ("very, very nervous/mad"), and whether they would expect the outcome to be positive for them (e.g., request fulfilled) on a 6-point scale ranging from 1 ("yes!") to 6 ("no!"). Items 2 and 12 were reverse-scored. We used two scoring methods. First, the standard way of scoring CRSQ consists of generating a score for Anxious and Angry Expectations of rejection for each situation by multiplying the expected likelihood of rejection by the degree of anxiety and anger over its occurrence, respectively (reversing responses when needed). An average score for Anxious and Angry Expectations of rejection was then computed. In our study, the CRSQ

multiplicative scores had good psychometric properties (Cronbach's α for Anxious Expectation = .84 and for Angry Expectation = .83), which were similar to those of the original CRSQ version (Cronbach's α for Anxious Expectation = .79 and for Angry Expectation = .82; Downey et al., 1998). Second, responses to items measuring anxiety and anger for and expectation of rejection were averaged into three separate scores, Anxiety, Anger, and Expectation (psychometric properties of the three averaged scores of CRSQ are reported in the Results section). The CRSQ was translated into Italian and administered to a focus group of 15 adolescents to assess the understanding of the items and the suitability of the interpersonal situations presented. Then, the questionnaire was back-translated in English, and discrepancies between the two versions were adjusted by a bilingual translator (see translated items in Electronic Supplements S1).

Multidimensional Self-Concept Scale (MSCS, Bracken, 1992; Italian version edited by Bergamini & Predabissi, 2003). The questionnaire is based on the Multidimensional Self-Concept Model (Bracken, 1992) and assesses the global self-concept and six specific domains (25 items in total): Interpersonal Relationship (e.g. "Most people like me"), Competence (e.g., "I feel that most people respect me", Emotionality (e.g. "Sometimes I feel worthless"), School (e.g., "I learn fairly easily"), Family (e.g., "My parents believe in me"), and Body Image (e.g., "I am physically fit"). Participants responded on 4-point scales from 1 ("strongly agree") to 4 ("strongly disagree"). After reverse scoring when necessary, items were summed in domain scores (Cronbach's α ranging from .84 to .96) and a global score

(α = .76), with higher scores indicating more positive self-concept. The MSCS has been widely used in its Italian version and its psychometric properties were always good, with a Cronbach's alpha ranging from .87 to .97 for the 6 domains and with a Cronbach's alpha equal to .98 for the global score (Perillo, Esposito, Caprioglio, Attanasio, Santini, & Carotenuto, 2014; Bergamini & Petrabissi, 2003).

Interpersonal Reactivity Index (IRI, Davis, 1980; Italian version edited by Albiero, Ingoglia, & Lococo, 2006). The questionnaire is designed to measure both cognitive and emotional components of empathy. It consists of four subscales of 7 items each: The Perspective Taking scale, the Fantasy scale, the Empathic Concern scale, and the Personal Distress scale. Participants responded on a 5-point scale ranging from 1 ("Does not describe me well") to 5 ("Describes me very well"). Each scale score was computed by summing the responses to the items for each subscale (Cronbach α ranging from .62 to .76) with higher scores indicating either greater self-focused empathy (Personal Distress and Fantasy) or other-focused empathy (Perspective Taking and Empathic Concern).

Peer Rating Questionnaire (PRQ, adapted from Tobia, Riva, & Caprin, 2016). This instrument is similar to those used by other studies on social preference (Nangle, Erdley, Newman, Mason, & Carpenter, 2003). Using a class roster, adolescents rated each classmate (target) from 0 ("not at all") to 4 ("very much") regarding two different situations. One situation investigates social preference: "You go to the mountains for the weekend, and you can bring a friend with you. Indicate three classmates you want to bring with you"; The other situation

investigates bothersomeness: “Some children annoy others during lessons and plays, and for this reason, they are not liked by their classmates very much. How much do you think these companions are similar to this description?” For each item and each target, we computed the means of the classmates’ ratings. We calculated a Social Preference Index for each participant and a Bothersomeness Index.

Data Analysis

First, we checked that our data were normally distributed, and we computed the descriptive statistics of all the variables considered (Table 1). To test the factor structure of the CRSQ that considers the emotional and the cognitive components of RS separately, we ran a Confirmatory Factor Analysis on the total study sample using R 3.2.3, the Lavaan package, and the Maximum Likelihood estimation. We tested two different models. In this respect, it should be noted that consistent with the model structure proposed by Downey, Lebolt, Rincòn & Freitas (1998), the first model included two different factor analyses, that is, two separate one-factor models, one for Anger and one for Anxiety about rejection. Testing a one-factor model at a time avoided confounding the interpretation (Pourhoseingholi, Baghestani, & Vahedi; 2012)[2].

[2] In a recent work, Bondü et al. (2017) performed a CFA considering the two composite scores simultaneously in the same model. To deal with the fact that the two scores share a common component, the authors included the correlations between the anger and the anxiety items in the model. We tried to perform a CFA following these guidelines. However, the fit of the model was very poor: χ^2 = 31679.245, *df* = 1092.000, $p < .01$, RMSEA = 0.195, SRMR = 0.273, CFI = 0.147.

Table 1

Means and Standard Deviations of the MSCS, IRI, PQR, and CRSQ scales

	M	*SD*
MSCS		
Interpersonal	73.09	8.50
Competence	72.46	8.11
Emotionality	70.47	9.75
School success	70.76	8.68
Family	85.63	10.90
Body	63.78	9.23
Total	436.18	40.49
IRI		
Empathic concern	22.61	3.41
Personal distress	18.40	4.40
Fantasy	15.47	4.38
Perspective taking	22.48	4.59
PRQ		
Social Preference	1.69	0.51
Bothersomeness	0.53	0.55
CRSQ		
3 separate scores		
Anxiety	3.00	0.93
Anger	2.15	0.76
Expectation	2.83	0.64
Multiplicative scores		
Anxiety	9.04	4.20
Anger	6.53	3.45

The two models are:

1) Two one-factor models suggested by Downey et al. (1998) in which 12 manifest variables are the products of expectation x emotion (anxiety vs. anger) for each situation. Two separate factor analyses were conducted on the 12 Anxiety x Expectations scores and the 12 Anger x Expectations scores. We freed covariances among the items referring to the same situation to account for their dependency.

2) A three-factor model in which manifest variables, which are the responses to the 12 items measuring anxiety for, anger for, and expected likelihood of rejection, load on three separate factors: Anxiety, Anger, and Expectation.

We evaluated the fit of these factor models with the Satorra-Bentler Scaled Chi-Square ($\chi 2$) with nonsignificant values indicating good model fit (Hu & Bentler, 1999). This index is dependent on sample size and tends to be significant with large samples (Bentler & Bonnet, 1980). Thus, we considered the Root Mean Square Error of Approximation (RMSEA) (Browne & Cudeck, 1993; Hu & Bentler, 1999) and the Incremental Comparative Fit Index (CFI) (Hu & Bentler, 1999). The internal consistency of the CRSQ factors were assessed with Cronbach's alpha coefficients.

Furthermore, to explore the predictive validity of the different components of the CRSQ separately or combined, we examined Pearson correlations between the different factors (separately for each model tested) and the interpersonal

functioning criteria (i.e., MSCS, IRI, and PRQ scores). Finally, we performed a series of multiple regression analyses to test the unique contributions of both the emotional (i.e., Anxiety or Anger) and the cognitive (i.e., Expectation) components of RS in predicting the different self and interpersonal functioning indicators. This last set of analyses allowed an assessment of considering the three CRSQ aspects and potential differential roles in predicting the different criteria.

Before conducting the CFA, we selected only adolescents without missing data (N = 701). For the predictive validity of the CRSQ, from the available data (N = 374), we eliminated the data from participants who did not complete all the questionnaires (n = 25) and participants who showed MSCS, IRI, and PRQ scores outside the lower and upper quartiles boundaries (n = 7). The final sample thus consisted of 342 participants (162 males, 180 females; M_{age} = 13.92, SD = 1.06).

Results

Model fit and internal consistency

Considering all indexes (Table 2), the fits of the two one-factor models and the three-factor model were all acceptable. The results thus supported the presence of three different factors: Anxiety (M = 3.17, SD = .97), Anger (M = 2.27, SD = .82), and Expectation (M = 2.89, SD = .64). As expected, the indicators of the three models all showed significant positive factor loadings, with standardized coefficients ranging from.45 to .70 (Anxious expectation model), .34 to .67 (Angry expectation model), and .21 to .73 (three-factor model) (see Tables 3 and 4).

Table 2

Fit statistics for the confirmatory factor analytic models

	2 One-Factor Models		Three-Factor Model
	Anxious Rejection Expectations	Angry Rejection Expectations	Anxiety, Anger, and Expectations
Goodness of fit Indices			
χ^2	239.88	241.54	1332.08
df	54	54	555
p	<.001	<.001	<.001
CFI	.91	.90	.90
RMSEA	.07	.07	.04
SRMR	.05	.05	.05

Table 3

B, Standard Error, and standardized factor loadings for the three-factor model

Latent Factor	Indicator	*B*	*SE*	β
Anxiety	1.	0.63	0.04	0.50***
	2.	0.76	0.05	0.51***
	3.	0.73	0.05	0.41***
	4.	.081	0.05	0.54***
	5.	0.83	0.06	0.51***
	6.	0.87	0.05	0.57***
	7.	0.87	0.05	0.60***
	8.	1.03	0.06	0.65***
	9.	1.93	0.05	0.62***
	10.	1.13	0.05	0.73***
	11.	1.03	0.06	0.63***
	12.	1.03	0.05	0.64***
Anger	1.	0.50	0.05	0.38***
	2.	0.64	0.05	0.43***
	3.	0.51	0.06	0.34***
	4.	0.70	0.05	0.55***
	5.	0.86	0.05	0.63***
	6.	0.65	0.03	0.67***
	7.	0.66	0.03	0.67***
	8.	0.73	0.06	0.45***
	9.	0.87	0.05	0.65***
	10.	0.90	0.05	0.64***
	11.	0.91	0.04	0.69***
	12.	0.88	0.05	0.60***
Expectation	1.	0.54	0.05	0.40***
	2.	-0.29	0.05	**0.21***
	3.	0.53	0.05	0.41***
	4.	0.63	0.05	0.49***
	5.	0.41	0.05	0.32***
	6.	0.58	0.04	0.52***
	7.	0.48	0.05	0.39***
	8.	0.71	0.05	0.51***
	9.	0.66	0.05	0.54***
	10.	0.71	0.05	0.58***
	11.	0.64	0.06	0.45***
	12.	0.41	0.06	0.30***

Note. Factor loadings below .30 are in boldface.

Table 4

B, Standard Error, and standardized factor loadings for the two one-factor models

Latent Factor	Indicator	*B*	*SE*	β
Anxious expectation	1.	1.00	0	0.51***
	2.	1.05	1.11	0.45***
	3.	1.03	1.11	0.47***
	4.	1.13	1.10	0.55***
	5.	1.06	0.11	0.46***
	6.	1.08	0.09	0.59***
	7.	1.07	0.09	0.60***
	8.	1.42	0.12	0.66***
	9.	1.02	0.8	0.59***
	10.	1.49	0.12	0.70***
	11.	1.73	0.14	0.49***
	12.	1.06	0.11	0.47***
Angry expectation	1.	1.00	0.00	0.46***
	2.	0.96	0.13	0.35***
	3.	0.93	0.13	0.34***
	4.	1.06	0.11	0.53***
	5.	1.22	0.12	0.57***
	6.	0.95	0.08	0.66***
	7.	1.21	0.10	0.67***
	8.	1.33	0.14	0.49***
	9.	1.42	0.13	0.67***
	10.	1.48	0.14	0.65***
	11.	1.27	0.12	0.57***
	12.	1.18	0.13	0.48***

All three RS factors were correlated (Anger and Anxiety, $r = .62$, $p < .001$, Expectation and Anxiety: $r = .48$, $p < .001$; Expectation and Anger: $r = .47$, $p < .001$). The two factors Anxious and Angry expectation were highly correlated, $r = .81$, $p < .001$. The Anxiety, Anger, and Expectation indexes showed good internal consistency ($\alpha = .86$, .83, and .71, respectively). The Anxious and Angry Expectation factors also showed good consistency ($\alpha = .84$ and .82, respectively). In sum, considered as separate factors, the three RS components yield an acceptable factorial solution. Therefore, we were able to investigate the uniqueness of these three components in predicting self and interpersonal functioning indicators.

Relations between Rejection Sensitivity, interpersonal reactivity, social preference, and bothersomeness

We first computed Pearson correlations between both RS composite scores and the three RS dimensions and all the criteria variables (see Table 5). By visually comparing the relations between RS and the outcome variables considering the composite scores on the one hand and the three components separately on the other hand, the cognitive and emotional components appeared not to have the same role for some variables. For instance, school success and family were significantly (and negatively) related to the composite scores, but only Expectation correlated significantly when considering the three components separately. Empathic concern was not related to either composite score but showed a significant correlation with Anxiety. For Fantasy, the Anxiety composite score correlated significantly, but only the Anxiety component was significant. These results represent the initial

evidence in support of the fact that the composite scores can sometimes mask the role played by either cognition or emotion on self- and interpersonal functioning.

We then performed a set of multiple linear regressions to evaluate whether considering the CRSQ dimensions as independent could help to disentangle their respective contribution (see Table 6). Most of the Self-esteem scales, except Emotionality and Body, and Social preference were negatively associated with Expectation but not with Anxiety or Anger, suggesting a predominant role of the cognitive dimension of RS. Concerning Empathy, all interpersonal reactivity scales were positively associated with Anxiety, Expectation showed incremental validity only for Personal distress, and Anger was also a significant predictor for Empathic concern and Perspective taking. Finally, Bothersomeness was only predicted by Anger. Taken together, these results suggest specific contributions of the three RS components separately depending on the self- and interpersonal functioning index under consideration.

Table 5

Correlations between the Multidimensional Self–Concept Scale (MSCS), Interpersonal Reactivity Index (IRI), and Peer Rating Questionnaire (PQR) and the components of the CRSQ

	Separate scoring method			Multiplicative scoring method	
	Anxiety	Anger	Expectation	Anxious Expectation	Angry Expectation
MSCS					
Interpersonal	-.25***	-.18***	-.38***	-.37***	-.29***
Competence	-.16***	-.15***	-.31***	-.27***	-.24***
Emotionality	-.23***	-.12*	-.34***	-.32***	-.23***
School success	-.02	-.06	-.21***	-.12***	-12*
Body	-.17***	-.04	-.29***	-.011	-.11*
Family	-.01	-.06	-.16***	-.26***	-.14**
Total	-.19***	-.13**	-.38***	-.32***	.-25***
IRI					
Empathic concern	.16***	-.02	-.04	.09	-.02
Personal distress	.41***	.29***	.31***	.44***	.33***
Fantasy	.24***	.07	-.07	.21***	.08
Perspective taking	-.02	-.18	-.12	-.07	-.19***
PRQ					
Social Preference	-.14***	-.13**	-.19***	-.19***	-.19***
Bothersomeness	.03	.17***	.06	.05	.16***

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

Table 6

Multiple Regression Analyses Predicting Multidimensional Self –Concept Scale (MSCS), Interpersonal Reactivity Index (IRI), and Peer Rating Questionnaire (PRQ) scores

		Expectation		Anxiety		Anger	
	R^2	*B*	*SE*	*B*	*SE*	*B*	*SE*
MSCS							
Interpersonal	.16	-4.73***	0.77	-1.17	0.60	0.75	0.73
Competence	.09	-3.86***	0.76	-0.30	0.60	0.16	0.72
Emotionality	.13	-5.11***	0.90	-1.56*	0.70	1.66	0.85
School success	.05	-3.43*	0.91	0.93	0.66	-0.00	0.80
Family	.03	-3.19**	1.06	1.19	0.83	-0.54	1.01
Body	.11	-4.59***	0.86	-1.54*	0.67	2.50**	0.82
Total	.15	-24.93***	3.72	-2.42	2.90	4.51	3.53
IRI							
Empathic concern	.07	-0.63	0.36	1.46***	0.28	-0.72*	0.34
Personal distress	.19	1.03**	0.40	1.56***	0.31	0.08	0.37
Fantasy	.05	-0.07	0.45	1.38***	0.35	-0.66	0.43
Perspective Taking	.05	-0.66	0.44	0.91**	0.35	-1.57***	0.42
PRQ							
Social Preference	.04	-0.12*	0.05	-0.02	0.04	-0.02	0.05
Bothersomeness	.04	0.02	0.06	-0.08	0.04	0.18***	0.05

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

Discussion

Consistent with previous theoretical and empirical work (e.g., Levy et al., 2001; London et al., 2007), the present paper explored the separate contribution of the cognitive and emotional components of RS to self- and interpersonal functioning in youth samples. Whereas most of the previous research has

investigated RS relying on the cross products of emotions and expectation, we tested the relevance of adopting an alternative method that considers the three RS components, Anxiety, Anger, and Expectation, as independent and separate factors. In line with recent work on the Adult Rejection Sensitivity Questionnaire considering only Anxiety (Innamorati et al., 2014), we aimed to assess the robustness of a three-factor structure. The solution showed an acceptable model fit, providing statistical support to our hypothesis. Correlation analyses provided additional evidence: The "new" separate scores showed correlation patterns with the outcome variables that were masked when considering the RS components as composite scores. For instance, given similar correlations with Anxious expectation, Personal distress showed strong correlations with all three RS components, whereas Fantasy only showed strong correlations with Anxiety. Finally, to assess the unique contribution of the emotional and cognitive RS dimensions in affecting adolescents' self- and interpersonal functioning, we performed a series of multiple linear regression analyses. In our opinion, these analyses provided understanding of the mechanism that explains the link between RS and subsequent self-and interpersonal functioning outcomes among adolescents. The results shed light on the specific contribution of each RS dimension in explaining adolescents' functioning.

First, Expectations of rejection, but neither Anxiety nor Anger, were inversely related to self-esteem, except for the Emotionality and Body scales and preference among peers. While previous studies reported an inverse relationship between self-

esteem and RS among adults (Downey & Feldman, 1996), our results clarify that, at least among adolescents, only the cognitive component of RS (i.e., Expectations of rejection) seemed to determine this association. Individuals who expected to be rejected by others may lack self-confidence in social interactions irrespective of the specific type of anticipatory emotion accompanying their expectations of rejection. Consistent with this idea, previous research showed that the mere act of thinking about rejection might be a sufficient reason for triggering a self-fulfilling prophecy of negative interpersonal outcomes (Romero-Canyas et al., 2010). The fact that only the cognitive component relates to self-esteem seems to be consistent with the idea that self-esteem is important for individual well-being because it implies the feeling of being included and accepted by people. In particular, in their "sociometer theory", Leary et al. (1995) defined self-esteem as an internal sociometer that monitors and interprets the information coming from the social environment. One's expectation of rejection by itself can modify one's self-esteem, regardless of the emotions experienced. This complex pattern might result in a vicious circle whereby high RS leads to perceived rejection negatively affecting one's self-esteem, which can, in turn, increase RS. We could assume that a similar mechanism underlies the relationship between the expectation of rejection and peer-rating preference. In fact, while self-esteem can be considered an internal indicator of social acceptance, peer-rating preference can be considered an external indicator. Indirect support for this hypothesis comes from the strong association between self-

esteem and peer rating preference (Tobia et al., 2016; Thomaes, Reijntjes, Orobio de Castro, Bushman, Poorthuis, & Telch, 2010; Newcomb, 1993).

Second, regarding empathy, the patterns of relations depended on the facets of empathy. The significant relationship between anxiety and all IRI indexes is consistent with the literature showing that anxiety induced by witnessing social exclusion is associated with greater empathy, personal distress, and perspective taking among adolescents and children (Derryberry & Rothbart, 1997; Masten, Eisenberg, Pfeifer, & Dapretto, 2010). Under some circumstances, high RS could thus also be related to positive outcomes in interpersonal functioning (Ayduk, Mendoza-Denton, Mischel, Downey, Peake, & Rodriguez, 2000). However, this is not the case for all empathy facets. The negative relation of Anger with Perspective Taking and Empathic concern and the positive relation between Expectation and Anger and Personal distress emphasize the less positive effects of RS. In sum, whereas anxiety about rejection can lead to both greater self-focused and other-oriented empathic attitudes, both anger and expectations of rejection could foster only self-oriented personal distress, preventing individuals from engaging in other-oriented empathic abilities associated with adaptive prosocial behaviors (Decety & Lamm, 2006).

Third, among the three components that characterized RS, Anger was the only one to be associated with the peer rating bothersomeness. This result is consistent with previous studies on social rejection and sociometric status, showing bothersome children and adolescents not only to be at risk of rejection but also to

usually react aggressively (Newcomb et al.,1993; Bagwell, Schmidt, Newcomb, Bukowski, 2001). Bothersomeness is considered an example of aggressive behavior (Newcomb et al., 1993). The literature on RS has also demonstrated that experiencing angry feelings when facing the possibility of interpersonal rejection predicts aggressive reactions (London et al., 2007; Zimmer-Gembeck, & Nesdale, 2013; Zimmer-Gembeck et al., 2016). According to emotion theory, anger is related to an action tendency toward agonistic behavior aimed at removing an obstacle and asserting control (Price & Dodge, 1989). We can thus hypothesize that perceiving rejection by peers causes these adolescents to adopt a disregard for social conventions and expectations resulting in aggressive behaviors aimed at affirming their control over the situations. Although we did not directly assess bullying, our results also support the hypothesis of marginalized bullies (Cook, Williams, Guerra, Kim, & Sadek, 2010), pointing to a vicious cycle effect, in which anger for rejection would lead to bullying behaviors that imply rejecting others. Moreover, this result has good ecological validity, as it does not rely only on self-report but on independent information from peers within the ecologic context in which the adolescent acts. From an educational and clinical perspective, these findings thus provide empirical elements on the relation between RS dynamics and interpersonal antecedents and consequences. Bullies are characterized by their inability to be empathic with other persons. Our study is significant in that it showed that the tendency to engage in bothering others and a lack of empathy are connected in that they are both affected by one's Anger in reaction to the expectation of being

rejected. Therefore, interventions focused on increasing adolescents' ability to address this anger might have beneficial effects in reducing the chance to engage in maladaptive behavior. Although it is difficult to make a direct comparison between our results and those obtained from previous studies, there is some consistency with them. For example, in line with previous research (e.g., London et al., 2007), we found that Anger evokes fight responses, such as bothering others, while Anxiety was not related to behavioral misconducts directed toward others.

The present study has some limitations. First, even if the three-factor model showed an acceptable fit, four items showed low factor loadings. One possible explanation is that two of these items (Expectation 2 and 12) are reversed. In fact, reverse-scored items have a structure that may be especially problematic for young respondents (Carlson et al., 2011), requiring noticing the altered direction of wording and using the opposite end of the rating scale to produce a response that is consistent with the prior items. It is possible that adolescents have not paid sufficient attention to the reverse structure of these items, leading to lower loadings. Another possible explanation for this problem is that some vignettes of the CRSQ describe very rare situations. For example, scenario number five "Imagine that a famous person is coming to visit your school. Your teacher is going to pick five kids to meet this person. You wonder if she will choose you" illustrates a very improbable situation. Because the situation is somehow unrealistic, it is possible that adolescents did not perceive it as potentially rejecting. It is important to note that all the items showing low factor loadings come from the Expectation scale.

Although masked when considering factor loadings of the composite scores, the two problems mentioned above remain. Some work on the wording of the situations and the choice for more frequent situations might overcome these factor loadings problems. Second, the study was cross-sectional, not allowing conclusions about temporal associations or direction of effects. Third, all measures were self-reported except the peer-rating questionnaire, requiring the respondent to retrospectively integrate information from memory with the risk of introducing error and limiting the usefulness of findings based on these reports (Hufford, 2007). Thus, for generalizability purposes, future research could use this approach considering other samples (including adults) from different nationalities and languages. Furthermore, future research should include both peer-report (i.e., on preference and bothersomeness) and self-report measures (i.e., on self-esteem and empathy), as well as objective behavioral criteria (e.g., observational data), to have a more comprehensive picture of the phenomenon. Moreover, it could be interesting to examine the role of RS components as they occur in their natural environments and from a longitudinal perspective. Finally, because the CRSQ consisted of six vignettes involving peers and six involving teachers, future research could also investigate whether teacher and peer items should be considered separate factors.

In conclusion, this contribution represents an attempt to propose an alternative look at the study of RS by considering the specific contributions of its cognitive and emotional components. In line with theoretical claims, this is the first study that psychometrically demonstrated the usefulness of considering the

cognitive (Expectation) and the two emotional (Anxiety and Anger) dimensions of rejection sensitivity as distinct in a sample of adolescents. Our results supported the psychometric and theoretical validity of our CRSQ three-factor model and allowed a better understanding of the complex interplay between RS and self- and interpersonal functioning and adjustment among adolescents. More specifically, the results strongly suggested that the three RS dimensions are associated with different psychological difficulties in adolescents' functioning. We demonstrated the crucial role played by one's expectation of being rejected. In fact, the mere expectation of rejection affects adolescents' self and interpersonal functioning, regardless of the type of emotion involved. This result seemed to support the idea that cognition and emotion are two different processes with unique characteristics. Whereas cognition refers to knowledge (i.e., perception of rejection), emotions refer to action (i.e., reaction to rejection). Given that impairments beginning in adolescence often persist into young adulthood and are predictive of other adjustment difficulties (e.g., Roza, Hofstra, van der Ende, & Verhulst, 2003), these results further suggested the importance of intervention programs for reducing both the insurgency and the consequences of RS during this developmental period. Moreover, this study had the merit of specifying on which of the RS aspects we should focus to avoid specific maladaptive outcomes (e.g., anger to reduce or prevent bothersomeness/bullying; modify expectation to prevent low self-esteem).

Chapter 2

Rejection sensitivity and psychopathology symptoms in early adolescence: The moderating role of personality organization.[3]

[3] This chapter is based on Fontana, A., De Panfilis, C., Casini, E., Preti, E., Richetin, J., & Ammaniti, M. (2018). Rejection sensitivity and psychopathology symptoms in early adolescence: The moderating role of personality organization. *Journal of adolescence*, *67*, 45-54.

Overview

After having introduced a new approach for the assessment of RS, we studied how the effect of the three RS components on individuals' psychological functioning could be moderated by individual characteristics. We specifically focused on the emerging Personality Organization. This individual characteristic is supposed to have an impact on how early adolescents experience and face the various tasks that are typical of this developmental period. While high levels of PO contribute to adolescents' well-being, low levels cause severe impairment in their psychological functioning. In the present Chapter, thus, we evaluated if Personality Organization moderates the association between high RS and negative psychological outcomes in early adolescence. Three-hundred and eighty-six early adolescents attending public junior high schools in Italy completed measures of Personality Organization, Rejection Sensitivity, and psychological outcomes. Disruption in the emerging Personality Organization was associated with increasing symptom problems in early adolescence. Conversely, the successful development of Personality Organization buffered the relation between Rejection Sensitivity and negative psychological outcomes (i.e., conduct and affective problems). We discussed the results in the light of their implications for the comprehension of RS and its consequences on adolescents' maladaptive outcomes.

Introduction

Early adolescence is a critical period of individual development, characterized by several changes in personality. Following cognitive changes, self-concepts of healthy adolescents become increasingly more differentiated and organized (Steinberg & Sheffield Morris, 2001), with a greater ability to reflect on one's own cognitive processes (Damon & Hart, 1988; Fonagy & Target, 1997) and an increasing importance of personal qualities relevant for social interactions (Setoh, Qin, Zhang, & Pomerantz, 2015). This maturation of personality parallels a progressive detachment from parental figures (Smetana, Campione-Barr, & Metzeger, 2006) and an increased importance of peers, with an expansion of peer networks and close, intimate, and supportive friendships (Furman & Buhrmester, 1992; Steinberg & Sheffield Morris, 2001; La Greca, Davila, & Siegel, 2008), and romantic relationships (Collins & van Dulmen, 2006; Collins, Welsh, & Furman, 2009).

The emerging personality organization can shape how early adolescents experience and face these various developmental tasks. Personality organization is characterized by a complex of emerging dimensions: identity, quality of object relations, moral values, affect regulation, defense mechanisms, and reality testing (Kernberg & Caligor, 2005; Yeomans, Clarkin, & Kernberg, 2015). In adolescence, emerging personality organization undergoes significant changes while maintaining continuity with infantile experiences, moving over time towards progressive stability. Two levels of personality organization can be described in

adolescence, based on how personality dimensions develop within this life period: A healthy-neurotic level and a borderline level (Kernberg, Weiner, & Bardenstein, 2000; Foelsch, Odom, & Kernberg, 2008).

At the healthy-neurotic level, identity is branded by a tendency towards integration: The adolescent begins to accept him/herself and his/her bodily and psychological transformations, developing a deeper, realistic, and complex view of him/herself. Some of these adolescents may experience a period of identity crisis, characterized by a lack of confirmation by significant others of the identity change. However, this sense of confusion is temporary and tends to resolve in the course of development. Healthy-neurotic teenagers also exhibit high-quality object relations: They create significant emotional relationships outside the family and gradually separate from parents, maintaining an affective bond with caregivers, who remain a significant source of support in case of need. More neurotic adolescents could manifest some difficulties in the separation-individuation process (Kernberg, Weiner, & Bardenstein, 2000; Foelsh, Odom, & Kernberg, 2008), while healthy adolescents experience a growing intimacy, reciprocity, and empathy with peers and a tendency to repair inevitable relational conflicts. Finally, healthy adolescents experience a wide range of affects and develop an increasing capacity to modulate and communicate their affective states.

On the contrary, at the borderline level of personality organization, identity development is characterized by the presence of identity diffusion, i.e., an impairment in the ability of self-definition and self-acceptance and the difficulty to

represent significant others in a complex and consistent way (Kernberg, 2006; Normandin, Ensink, Yeomans, & Kernberg, 2014). These adolescents show chaotic and contradictory representations of self and others, with little or no commitment and capacity to differentiate from others, coupled with a sense of incoherence and inconsistency (Kernberg, 1998; Westen, Betan, & DeFife, 2011). Besides, borderline adolescents show a poor quality of object relations, as manifested by extensive difficulties in creating significant relational experiences, with marked difficulty in building reciprocal, intimate and empathic ties with peers. Impairments in mentalizing prevent these adolescents to construct a complex representation of the others' characteristics, while the separation-individuation process from the caregivers can be prematurely concluded or stopped (Kernberg, Weiner, & Bardenstein, 2000). Finally, at the borderline level of personality functioning, there is an overall impairment in affect regulation that causes difficulties in impulse control and frustration tolerance. In the most severe cases, deterioration of moral functioning can further worsen the adolescent psychopathology (Normandin, Ensink, Yeomans, & Kernberg, 2014).

Thus, the emerging level of personality organization may be critical for shaping adolescents' psychological adjustment. However, research in this area is still limited. Identity diffusion and low-quality of object relations are associated with severe personality disorders symptoms and low psychosocial functioning in adolescence (Ammaniti, Fontana, Clarkin, Clarkin, Nicolais, & Kernberg, 2012). Further, treatment-seeking adolescents with personality disorders exhibit higher

levels of identity diffusion than non-referred adolescents, which correlate with difficulties in self-directedness (Goth, Foelsch, Schlüter-Müller, Birkhölzer, Jung, Pick, & Schmeck, 2012). Finally, adolescents with borderline personality organization report lower levels of functioning and greater psychopathology than neurotic and normal adolescents (Biberdzic, Ensink, Normandin, & Clarkin, 2015). These findings highlight the need for a deeper understanding of the association between emerging personality organization and negative psychological outcomes in early adolescence.

A potential mechanism by which personality organization could contribute to adverse psychological outcomes in early adolescence may involve an interaction with other well-established risk factors for psychopathology, such as rejection sensitivity. Rejection sensitivity is the processing disposition to anxiously or angrily expect, readily perceive, and overreact to potential or overt interpersonal rejection (Downey & Feldman, 1996; Chango, McElhaney, Allen, Schad, & Marston, 2012). High-Rejection sensitivity individuals might perceive innocuous cues as evidence of rejection. In turn, the resulting angry or anxious reactions (i.e., aggression or withdrawal) increase the probability of experiencing interpersonal rejection, thus fostering a self-fulfilling prophecy by which excessive anticipation would lead to actual rejection (Downey, Mougios, Ayduk, London, & Shoda, 2004; Ayduk, Gyurak, & Luerssen, 2008).

Concerns about rejection by peers increase in early adolescence; peer rejection is associated with several negative consequences (e.g., anxiety, anger,

loneliness, and depression) (Sandstrom & Zakriski, 2004; Prinstein & Aikins, 2004; Prinstein, Borelli, Cheah, Simon, & Aikins, 2005; Lev-Wiesel, Nuttam-Shwartz, & Sternberg, 2006) and also constitutes a risk factor for increasing rejection sensitivity (McLachlan, Zimmer-Gembeck, & McGregor, 2010). In turn, the defensive affective responses fostered by high rejection sensitivity (i.e., anxiety and anger) can reduce possibilities for receiving support (London, Downey, Bonica, & Paltin, 2007), creating a self-perpetuating cycle between peer rejection, and increasing rejection sensitivity (Downey, Freitas, Michealis, & Khouri, 1998). Consistently, high rejection sensitivity is associated with negative mental health outcomes (Gao, Assink, Cipriani, & Lin, 2017) and represents a well-established risk factor for poor social adjustment and well-being in early adolescence (Thomas & Bowker, 2015). Angry Expectations of rejection predict aggressive behaviors and feelings of victimization (Bondü & Krahé, 2015) while Anxious Expectations of rejection predict social anxiety, withdrawal, loneliness, and depression (London, Downey, Bonica, & Paltin, 2007; McDonald, Bowker, Rubin, Laursen, & Duchene, 2010; Zimmer-Gembeck & Nesdale, 2013; Zimmer-Gembeck, Trevaskis, Nesdale, & Downey, 2014; Zimmer-Gembeck, Nesdale, Webb, Khatibi & Downey, 2016).

However, not all adolescents who are high on rejection sensitivity exhibit negative psychological outcomes. Several variables appear to moderate the association between high rejection sensitivity and psychopathology, such as the degree of parental support (Thomas & Bowker, 2015), relational stressors with parents and friends (Chango, McElhaney, Allen, Shad, & Marston, 2012), the

capacity for self-regulation (Ayduk, Mendoza-Denton, Mischel, Downey, Peake, Rodriguez, et al., 2000), the presence, and quality of best friendships (Bowker, Thomas, Norman, & Spencer, 2011). To our knowledge, however, no study has explored the role of the level of personality organization in moderating the link between rejection sensitivity and psychopathology.

The current study: Aims and hypotheses

This study aims to evaluate the moderating role of emerging personality organization on the association between rejection sensitivity and negative psychological outcomes. Therefore, we hypothesize that, in early adolescence, difficulties in the emerging process of personality organization would be associated with increasing psychopathology symptoms. We further hypothesize that greater rejection sensitivity would also be associated with increasing psychopathology problems, and specifically that angry expectations of rejection would be related with externalizing problems and anxious expectations of rejection with internalizing problems. However, we expect the strength of both these associations to vary as a function of the level of personality organization. Good personality functioning (i.e., healthy, high-level personality organization) would weaken the association between rejection sensitivity (both anxious and angry expectations of rejection) and negative psychological outcomes (respectively, internalizing and externalizing symptoms). Instead, for adolescents with poor personality functioning (i.e., low-level, borderline personality organization), rejection sensitivity would be strongly related to adolescents' psychopathology symptoms.

Method

Participants and Procedure

Participants were 386 adolescents (189 males; age range 12-15 years old; M_{age} = 13.48, SD = 0.64) attending seven public junior high schools in the southern and central areas of Italy. 58.6% of adolescents lived in metropolitan areas, 27.7% of adolescents lived in small cities, while 13.7% came from rural areas. Participants were mainly Italian natives (93.2% of the total sample), with a residual percentage of students born in other areas (3.1% in Eastern Europe, 2.1% in North Africa, 1.6% others) but fluently speaking Italian. Socio-economic status was assessed at a household level, asking adolescents about their parents' employment and to parents about the household income. 2.5% of parents were businessmen or managers, 11.5% high-qualified professionals, 15.3% technical professionals, 20.6% clerks, 15.7% dealers, 26% workers, 4.9% belonged to military forces, while 3.5% of adolescents did not specify their parents' job. Average annual household income as reported by parents was € 25,000, in line with the average Italian salary.

All students participated voluntarily. Their participation was anonymous, since each subject was labeled with a numeric code of recognition, and was conditional to the signed consent from a parent (or guardian). Adolescents completed the paper and pencil version of the Children's Rejection Sensitivity Questionnaire (CRSQ, Downey, Lebolt, Rincon, & Freitas, 1998) and then of the Youth Self Report 11-18 (YSR, Achenbach, 1991) in their classrooms during school hours. Completion required between 30 and 45 min. Then during the same week but in a different

session, adolescents were singularly administered the Interview of Personality Organization Processes in Adolescence (IPOP-A; Ammaniti, Fontana, Kernberg, Clarkin, & Clarkin, 2011) in the counseling service of the school. The interview took about 50 minutes and was audio-recorded. Data were collected by M. A. students attending their degree in clinical psychology, trained to use the IPOP-A reliably and supervised during data collection. Interviewers were unaware of the main study hypotheses and coded the IPOP-A without knowing the results of the CRSQ and YSR. The procedure of the present research complied with APA ethical standards in the treatment of participants and the study was conducted following the Ethical Principles for Medical Research Involving Human Subjects (Declaration of Helsinki).

Measures

The Children's Rejection Sensitivity Questionnaire (CRSQ, Downey et al., 1998; London, Downey, Bonica, & Paltin, 2007). It assesses children's rejection sensitivity in terms of anxious and angry expectations of rejection. The scale consists of 12 hypothetical interpersonal situations (6 situations involve peers, and 6 situations teachers) with potential for positive or negative outcomes. For example, a peer situation is "*Imagine you are the last to leave the classroom for lunch one day. As you're running down the stairs to get to the cafeteria, you hear some kids whispering on the stairs below you. You wonder if they are talking about you*". A teacher situation is "*Pretend you have moved and you are going to a different school. In this school, the teacher lets the kids in the class take home a video game*

to play with on the weekend. Every week so far, you have watched someone else take it home. You decide to ask the teacher if you can take home the video game this time. You wonder if she will let you have it". For each situation, participants indicated whether they would be nervous about the response to their request on a 6-point Likert scale, ranging from 1 ("*not nervous"*) to 6 ("*very, very nervous"*) and whether they would expect the other person to honor the request on a 6-point Likert scale ranging from 1 ("*yes!"*) to 6 ("*no!"*). In addition, different from the adult version of the questionnaire, Downey et al. (1998) added a question about whether the child would be angry (*mad*) about the response to her/his request on a 6-point Likert scale ranging from 1 ("*not mad"*) to 6 ("*very, very mad"*). Thus, the CRSQ includes three subscales. For each of them, a score was calculated for each adolescent by averaging the relevant items: Rejection expectations, Anxiety about rejection, and Anger about rejection (see Zimmer-Gembeck, Nesdale, Webb et al., 2016). The internal consistencies for the CRSQ subscales in the study sample were satisfactory (α=.69, α=.86, and α=.84, respectively).

The Interview of Personality Organization Processes in Adolescence (IPOP-A; Ammaniti, Fontana, Kernberg, Clarkin, & Clarkin, 2011; Ammaniti, Fontana, & Nicolais, 2015). It is a 1-hour, 42-item semi-structured interview for adolescents that evaluates three main processes/domains of personality organization (Identity, Quality of Object Relationships, and Affect Regulation) and eventually the overall level of personality functioning (IPOP-A Total Score). The items are scored along a 0-2 scale, with "0" indicating healthy functioning, "1"

indicating moderate difficulties, and "2" indicating high-risk difficulties. The IPOP-A Total Score qualifies the overall personality functioning across three domains: Identity, quality of object relations and affect regulation. The Identity domain assesses identity consolidation, composed by the capacity of forming deep, mentalized, and complex representation of self and significant others and the capacity to invest in hobbies and studies. The Quality of Object Relations domain assesses the adolescent's interpersonal functioning with peers as well as with romantic partners. The Affect Regulation domain assesses the capacity to be aware of, to experience, and to modulate affects. As expected, the three subscales are related to each other (Appendix A, Table A.1). Thus, high scores on the IPOP-A Total Score indicate the presence of borderline personality organization with its subjective and behavioral correlates, while low scores on the IPOP-A Total Score indicate the presence of healthy/neurotic aspects of personality organization. Inter-Rater Reliability was assessed by 3 independent raters on 6 randomly sampled interviews, using a two-way mixed, consistency, average-measures Intra-Class Correlation (ICC; Hallgren, 2012). The resulting ICC was in the good range, $ICC_{Identity} = 0.83$, $ICC_{Quality\ of\ Object\ Relations} = .81$, $ICC_{\text{Affect Regulation}} = .80$, $ICC_{\text{IPOP-A Total Score}} = .89$, indicating that coders had a satisfactory degree of agreement and that IPOP-A scales were rated similarly across coders. For the aim of the present study, we used only the IPOP-A Total Score, which showed good internal consistency ($\alpha = .87$).

The Youth Self Report 11-18 (YSR/11-18, Achenbach, 1991). It is a self-

report questionnaire that covers behavioral and emotional problems in the past 6 months. It contains 113 problem items scored on a 3-point Likert scale ranging from 0 ("*not true")* to 1 ("*somewhat or sometimes true")* to 2 ("*very or often true"*), which refer to eight syndrome scales and six DSM-Oriented scales. This study employed only the YSR DSM-Oriented scales, which have been found to be very sensitive in measuring specific DSM diagnoses (Ebesutani et al., 2009): Anxiety Problems, Affective Problems, Somatic Problems, Attention Deficit/Hyperactivity Problems, Oppositional Defiant Problems and Conduct Problems. In general, the reliabilities of the YSR/11-18 scales ranged from acceptable to good (Cronbach's α ranging from .64 to .77) except the Oppositional Defiant Problems subscale (.56). The low reliability is partly the consequence of numerous null responses (65% in this case).

Analytic Strategy

To test whether the level of personality organization was associated with psychopathology symptoms, we computed Pearson's correlations between the IPOP-A Total Score and the YSR subscales[4]. Next, we examined whether Rejection expectations, Anxiety about rejection and Anger about rejection correlated with YSR scores. Finally, we investigated whether individual differences in the emerging personality organization would moderate the effect of rejection sensitivity on the adolescent's psychopathological functioning. We thus performed

[4] Pearson's correlations between the three domains of the IPOP-A, CRSQ and YSR subscales were also reported in Appendix A, Table A.2.

a series of moderation analyses following Hayes' (2013) recommendation for generating conditional effects of the moderator (PROCESS) considering the three CRSQ subscales (Anger about rejection, Anxiety about rejection, and Rejection expectations) as separate independent variables, the YSR scales as the dependent variables, and IPOP-A Total Score as the moderator, controlling for age and gender as covariates. Significant interactions were decomposed using simple slope analyses at low (-1*SD*), Medium, and High (+1*SD*) of the moderator. However, to understand better the value of the moderator at which the effect of the predictor was significant or not, we used the Johnson-Neyman technique. We centered variables before the analyses, but we reported raw values for the Johnson-Neyman technique and the figures for easiness of reading results.

Results

Correlations between personality organization and psychopathology symptoms

The associations between the level of adolescents' personality organization, as assessed by the IPOP-A Total Scale, and YSR scales are reported in Table 7. A lower level of personality organization was associated with greater affective and conduct problems.

Table 7

Correlations (Pearson r) between the Interview of Personality Organization Processes in Adolescence (IPOP-A) and Children Rejection Sensitivity Questionnaire (CRSQ) and Youth Self Report 11-18 (N = 375)

	CRSQ			
	Anxiety	Anger	Expectations	IPOP-A Total score
YSR DSM-Oriented Scale				
Affective Problems	.27***	.15**	.37***	.14**
Anxiety Problems	.42***	.19***	.25***	.10
Somatic Problems	.24***	.11**	.23***	.07
Attention Deficit/Hyperactivity Problems	.08	.15**	.20***	.08
Oppositional Defiant Problems	.03	.12*	.15**	-.02
Conduct Problems	-.04	.17***	.15**	.11*

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

Correlations between rejection sensitivity and psychopathology symptoms

The associations between the three rejection sensitivity subscales and the YSR scales are reported in Table 7. Overall, the pattern of correlations indicates that while Anger about rejection and Rejection expectations are both associated with higher scores on all the examined psychopathology dimensions, Anxiety about rejection was associated with greater internalizing problems while no correlation emerged with externalizing problems.

Moderation of the rejection sensitivity – psychopathology symptoms association by the level of personality organization

We adopted a moderation model to test whether the IPOP-A Total scale moderated the effect of any rejection sensitivity scales on the YSR scales. Since not all the moderation models examined were significant[5], only significant findings for the moderation analyses are reported.

First, Anger about rejection predicted Conduct Problems severity only at medium and high levels of personality dysfunction (medium and high IPOP-A Total Score), but not at a good level of personality functioning (low IPOP-A Total Score) (Table 8; Figure 1). Specifically, the Johnson-Neyman technique showed that for adolescents with the IPOP-A Total Score lower than .37, Anger about rejection was no longer associated with Conduct Problems. In other words, Anger predicts Conduct Problems only for adolescents who showed on average greater difficulties in the emerging level of organization of personality processes, i.e., identity formation, object relations, and affect regulation.

[5] Except for the Conduct Problems subscale, Anger and Anxiety were not significant predictors of the YSR scales (i.e., Affective Problems, Anxiety Problems, Somatic Problems, Attention Deficit/Hyperactivity Problems, Oppositional Defiant Problems; all *p*s > .05). Moreover, except for the Affective Problems subscale, Rejection expectations did not predict the YSR scales (i.e., Anxiety Problems, Somatic Problems, Attention Deficit/Hyperactivity Problems, Oppositional Defiant Problems, Conduct Problems; all *p*s > .05).

Table 8

Level of Personality Organization (IPOP-A Total Score) moderates the relationship between Anger about rejection and Anxiety about rejection (CRSQ) and conduct problems (YSR)

	B	*SE*	*t*	95% CI
Anger about rejection	0.57	0.22	2.57*	[0.13, 1.00]
IPOP-A score	0.84	0.64	1.31	[-0.42, 2.10]
Anger about rejection x IPOP-A	1.58	0.70	2.24*	[0.20, 2.96]
Regression Model R^2			.05**	
ΔR^2			.013**	
Conditional Effects of Anger about rejection				
Low IPOP-A score (-1*SD* = 0.15)	0.12	0.33	0.35	[-0.53, 0.76]
Medium IPOP-A score (*M* = 0.44)	0.57	0.22	2.57*	[0.13, 1.00]
High IPOP-A score (+1*SD* = 0.73)	1.03	0.27	3.79***	[0.49, 1.56]
Anxiety about rejection	-0.15	0.19	-0.77	[-0.52, 0.22]
IPOP-A score	1.30	0.64	2.03*	[0.04, 2.55]
Anxiety about rejection X IPOP-A	1.51	0.64	2.34*	[0.24, 2.77]
Regression Model R^2			.03*	
ΔR^2			.015**	
Conditional Effects of Anxiety about rejection				
Low IPOP-A score (-1*SD* = 0.15)	-0.58	0.25	-2.27*	[-1.08, 0.79]
Medium IPOP-A score (*M* =0.44)	-0.15	0.19	-0.77	[-0.52, 0.23]
High IPOP-A score (+1*SD* = 0.73)	0.29	0.28	1.04	[-0.25, 0.83]

Note. * $p < .05$. ** $p < .01$. *** $p < .001$. YSR = Youth Self-Report questionnaire; IPOP-A = Interview of Personality Organization Processes in Adolescence; CI = Confidence Interval. Model with Anger about rejection, $F(3,362) = 6.30$; Model with Anxiety about rejection, $F(3,362) = 3.60$. Age as a covariate was not significant in both models. Gender was significant as a covariate in both Anger and Anxiety models, $B = 0.80$, $p = .03$, 95% CI = [0.09, 1.51] and $B = 0.78$, $p = .04$, 95% CI = [0.04, 1.53], respectively.

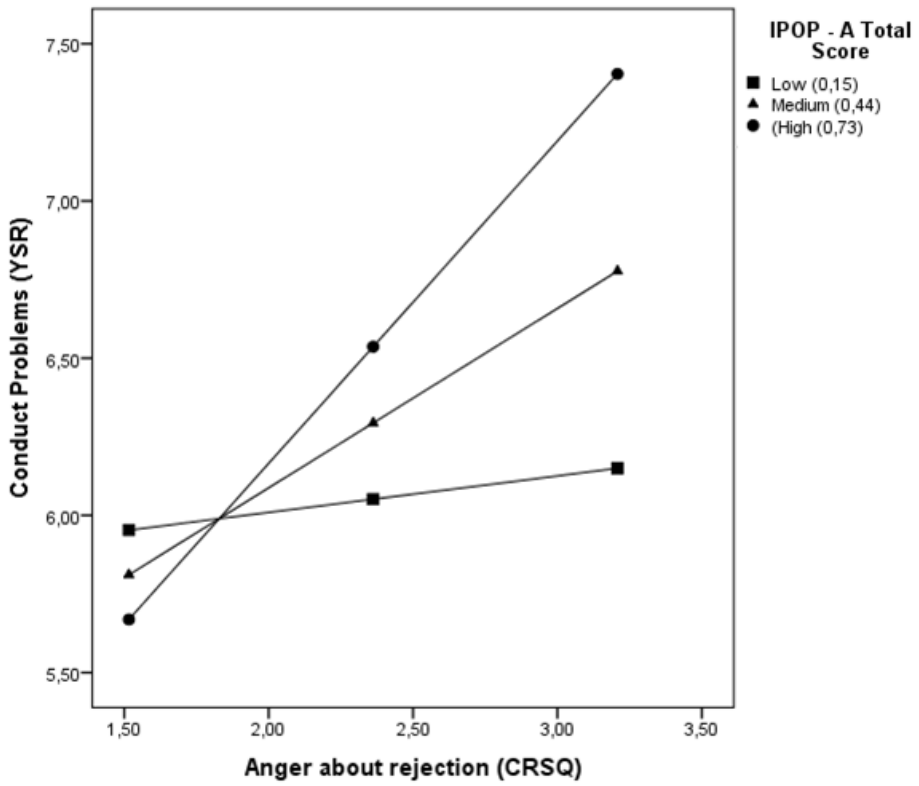

Figure 1. Interaction between Anger (CRSQ) and level of Personality Organization (IPOP-A – Total Score) for predicting Conduct Problems in the Youth Self Report 11-18 (YSR).

Second, Anxiety about rejection was significantly associated with a decreased severity of Conduct Problems only among adolescents with good personality functioning (low IPOP-A Total Score). Conversely, Anxiety about rejection was unrelated with Conduct Problems for adolescents who exhibited greater difficulties in identity formation, object relations and affect regulation (Table 8; Figure 2). The Johnson-Neyman technique clarified that greater Anxiety

about rejection was associated with decreased Conduct Problems only for adolescents with an IPOP-A Total Score below .22.

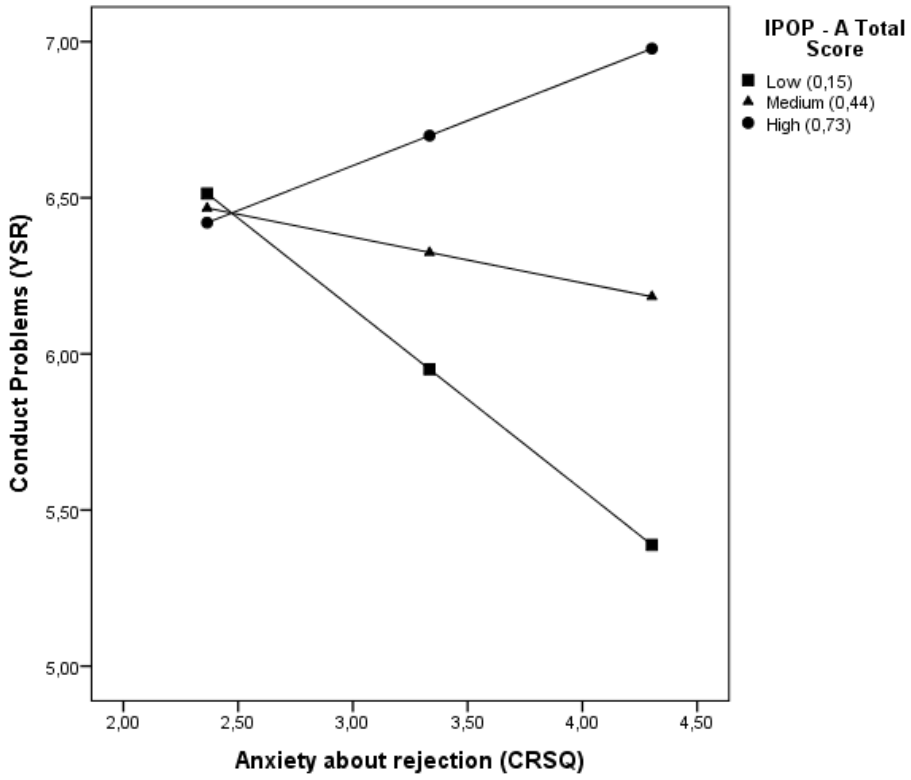

Figure 2. Interaction between Anxiety (CRSQ) and level of Personality Organization (IPOP-A) for predicting Conduct Problems in the Youth Self Report 11-18 (YSR).

Third, Rejection expectations did predict greater Affective Problems, but its impact was the greatest at higher levels of personality dysfunction (higher IPOP-A Total Score); the magnitude of the conditional effect of Rejection Expectation on Affective Problems decreased when moving from high to average to low IPOP-A

Total Scores (Table 9; Figure 3). In particular, the Johnson-Neyman technique showed that greater Rejection expectations levels were associated with greater Affective Problems only at IPOP-A Total Score values above .16. Therefore, high expectations of rejection are associated with greater Affective Problems to a greater extent for adolescents who exhibited difficulties in the emerging level of personality organization.

Briefly, difficulties in the emerging personality organization (IPOP-A Total Score) moderated the association between Anger and Anxiety about rejection and Conduct Problems as well as the association between Rejection expectations and Affective Problems.

Table 9

Level of Personality Organization (IPOP-A Total Score) moderates the relationship between CRSQ rejection expectations (CRSQ) and affective problems (YSR)

	B	*SE*	*t*	95% CI
Rejection Expectations	1.98	0.38	5.18***	[1.23, 2.72]
IPOP-A score	1.02	0.74	1.37	[-0.44, 2.45]
Rejection expectations X IPOP-A	3.30	1.17	2.81**	[0.99, 5.60]
Regression Model R^2			.12***	
ΔR^2			.02**	
Conditional Effects of Rejection Expectations				
Low IPOP-A score (-1*SD* = 0.15)	1.03	0.55	1.87*	[-0.06, 2.10]
Medium IPOP-A score (*M* = 0.44)	1.98	0.38	5.18***	[1.23, 2.72]
High IPOP-A score (+1*SD* = 0.73)	2.92	0.46	6.30***	[2.01, 3.84]

Note. * $p < .05$. ** $p < .01$. *** $p < .001$. $F(3,362) = 16.52$. YSR = Youth Self-Report questionnaire; IPOP-A = Interview of Personality Organization Processes in Adolescence; CI = Confidence Interval. No significant effect of Age as a covariate; Gender was significant as a covariate, $B = -2.20$, $p = < .001$, 95% CI = [-2.99, -1.41].

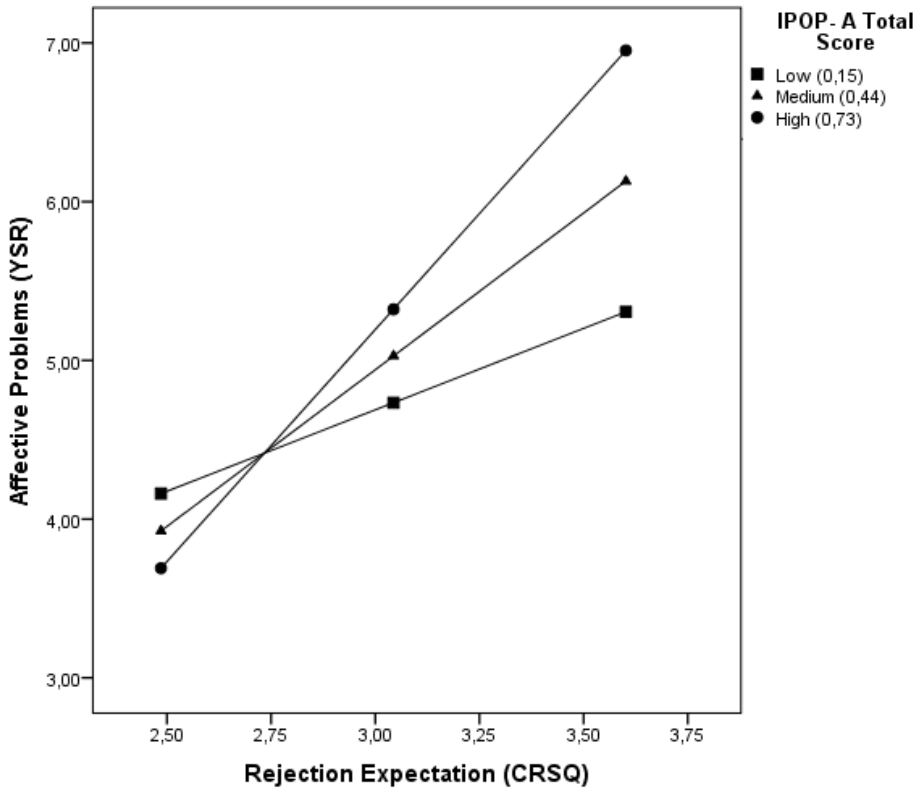

Figure 3. Interaction between Rejection Expectation (CRSQ) and level of Personality Organization (IPOP-A – Total Score) for predicting Affective Problems in the Youth Self Report 11-18 (YSR)[6].

Discussion

This study evaluated whether, in early adolescence, difficulties in the organization of emerging personality, as defined by the successful development of

[6] For Figure 1, 2, and 3, Low IPOP-A Total Scores indicate good personality functioning; greater IPOP-A Total Scores indicate difficulties in emerging Personality Organization (identity formation, quality of object relations, affect regulations).

an integrated identity, good quality object relations, and effective affect regulation, would be associated with psychopathology symptoms. Further, the level of personality organization was evaluated as a potential moderator in the association between the process disposition to anticipate and overreact to interpersonal rejection and psychopathology.

Low-level personality organization was related with symptom problems in early adolescents (e.g., affective and conduct problems), which is consistent with research on adults (Lenzenweger, Clarkin, Kernberg, & Foelsch, 2001; Stern, Caligor, Clarkin, Critchfield, MacCornack, Lenzenweger, & Kernberg, 2010; Preti, Prunas, De Panfilis, Marchesi, Madeddu, & Clarkin, 2015), and confirms the preliminary findings on adolescent samples (Normandin, Ensink, Yeomans & O. Kernberg, 2014; Biberdzic, Ensink, Normandin, & Clarkin, 2015). Specifically, while the direct associations between personality organization and self-reported psychopathology were weak, although significant, the level of personality organization acted as a moderator in the link between rejection sensitivity facets and self-reported conduct and affective problems in early adolescence. Thus, the effect of personality organization on psychological outcomes can specifically be found in its interaction with other risk factors for psychopathology, such as process dispositions like rejection sensitivity. If confirmed, these data suggest a specific mechanism by which emerging personality organization may shape the risk for psychopathology in early adolescence. Difficulties in personality organization may prevent the adolescent to successfully overcome the risk for psychopathology

conveyed by other individual factors, thus fostering negative psychological outcomes. Conversely, a healthy personality organization may act as a central organizing and protective factor that enables the adolescent to successfully cope with his/her other vulnerabilities, thereby buffering the detrimental effects of other potential risk factors for psychopathology.

First, higher Anger about rejection predicted conduct problems such as lying, attacking others, not complying to rules, etc. only for adolescents who exhibit moderate to severe personality organization difficulties, but not for those with high-level personality functioning. This finding suggests that the previously established association between angry responses to rejection and aggressive and disruptive behaviors (London, Downey, Bonica, & Paltin, 2007; Zimmer-Gembeck & Nesdale, 2013; Zimmer-Gembeck, Nesdale, Webb et al., 2016) might be buffered by the presence of integrated, high-functioning personality organization. It thus encourages further longitudinal research on how the development of personality organization over time interacts with rejection sensitivity and symptom problems. Moderate to severe problems in personality organization (i.e., low-level or borderline personality organization) are linked to the emergence of pathological patterns of personality assessed through DSM criteria and to difficulties in psychosocial functioning in adolescents (Ammaniti, Fontana, Clarkin, Clarkin, Nicolais, & Kernberg, 2012) and represent the common ground of a whole range of personality disorders in adults (Yeomans, Clarkin, Kernberg, 2015). These results suggest that it is important to assess and address personality organization

processes in early adolescence. Disruptions in such processes can represent a specific risk factor that fosters the vicious circle between angry responses to rejection, the development of conduct problems, and further peer-rejection (Miller-Johnson, Coie, Maumary-Gremaud, Bierman, & The Conduct Problems Prevention Research Group, 2002; McLachlan, Zimmer-Gembeck, & McGregor, 2010; Romero-Canyas, Downey, Berenson, Ayduk, & Kang, 2010). In particular, the current findings suggest that angry responses to rejection might not be sufficient to bring about conduct disturbances in early adolescence. On the contrary, such relation might be at work only in the presence of an impaired organization of emerging personality processes. Thus, successful identity formation, the development of satisfactory relationships, and good affect regulation allow adolescents with high Anger about rejection to overcome their automatic tendencies to overreact with aggressive and externalizing behaviors when facing the possibility of interpersonal rejection. Although these cross-sectional findings would need to be replicated in longitudinal research, they are in line with previous reports that good-self regulatory skills and high-quality social relations may protect adolescents, and particularly high rejection sensitive adolescents, from engaging in rule-breaking and disruptive behavior (Ayduk et al, 2000; Gilliom, Shaw, Beck, Schonberg & Lukon, 2002; Trentacosta & Shaw, 2009; Bowker et al, 2011; Duncombe, Havighurst, Holland & Frankling, 2013).

Second, the level of personality organization also moderates the inverse association between Anxiety about rejection and conduct problems. Anxious

responses to rejection have been already associated with an increased likelihood to develop internalizing problems over time, such as interpersonal withdrawal, social anxiety, and loneliness (London, Downey, Bonica, & Paltin, 2007). The current results also suggest that high Anxiety about rejection may protect early adolescents from exhibiting externalizing problems, and specifically conduct problems. However, such effect is apparent only in the presence of healthy personality development. Conversely, at moderate to severe levels of personality dysfunction high anxiety about interpersonal rejection does not buffer the risk to engage in conduct problems. In early adolescence, high-level/healthy personality organization is characterized by an emerging ability to represent oneself and significant others in a realistic and adaptable way, to build intimate and profound interpersonal bonds, and to adapt their emotional states in an effective way in relation to the context (Normandin, Ensink, Yeomans & Kernberg, 2014). Thus, the current data suggest that the high-functioning adolescent who is also concerned and anxious about the possibility that the others would be rejecting him/her could effectively refrain from rule-breaking and transgressive behaviors, in an attempt to protect interpersonal relationships and to ensure to be accepted by others. However, for early adolescents with low-level personality organization, increasing Anxiety about rejection is no longer associated with a decreased risk of conduct problems. Thus, these findings raise the hypothesis, to be further tested in future longitudinal studies, that when coherent and mentalized views of self and others, good capacity

of forming intimate pair bonds and efficient affect regulation skills are disrupted, the protective role of Anxiety about rejection against conduct problems gets lost.

Third, personality organization also plays a moderating role in the association between high Rejection expectations and greater affective problems. Increasing expectations of rejection had been associated in adolescent samples with more negative reactions to rejection, and specifically withdrawal and depression (Zimmer-Gembeck et al., 2013; Zimmer-Gembeck et al., 2016). In keeping with these previous findings, the current results support the hypothesis that the tendency to anticipate rejection from others translates into increasing affective problems to a greater extent for adolescents with moderate to severe personality dysfunction; less so for adolescents with high-level personality functioning. Low-level/ borderline personality organization is characterized by instability and oscillations in the representations of self/others. For example, mistrust arises when a subject unrealistically perceives others either as entirely positive, and hence easily disappointing, or as entirely negative (Clarkin, Lenzenweger, Yeomans, Levy, & Kernberg, 2007). Such a social-cognitive pattern is likely to magnify the link between an excessive tendency to anticipate rejection from others and the resulting affective dysregulation. Conversely, the capacity to accurately perceive social cues, as indicated by the presence of stable and integrated self/other representations, may buffer the negative affective reaction of individuals who easily expect rejection from others.

The current study has some limitations. First, psychopathology was evaluated using a self-report measure. Future research should employ clinical interviews assessing psychiatric disturbances, given the importance of a cross-informative, dimensional and clinician-centered assessment during adolescence (Huzdiak, Achenbach, Althoff, & Pine, 2007). Second, as anticipated, the cross-sectional design of the study precludes any inference on causality among the study variables; longitudinal studies could clarify how the development of personality organization from early, to mid, to late adolescence impacts on rejection sensitivity-related psychopathology symptoms. Specifically, longitudinal studies are necessary to rule out other alternatives that might explain the cross-sectional relationships that we found among the current study variables; for instance, symptom problems could foster increasing rejection sensitivity and impair personality organization. Finally, the current results would need to be replicated in clinical samples as well as in larger and socially and ethnically diverse populations of early adolescents (e.g., non-Western samples), since rejection sensitivity attitudes may vary as a function of social status and ethnicity (e.g., Mendoza-Denton, Downey, Purdie, Davis & Pietrzak, 2002).

A major strength of the study is the use of a fine-grained clinical interview assessing personality organization in adolescence, the IPOP-A. While the debate on the validity of an assessment of adolescent personality is still very active (Ensink, 2015; Sharp, 2017), the IPOP-A provides the clinicians with a comprehensive and age-appropriate evaluation of the main dimensions of

personality functioning. Importantly, such an approach is consistent with the DSM-5 alternative model for personality disorders, which emphasizes the need to evaluate the degree of (dys)function in the Self (identity, self-direction) and Interpersonal (empathy, intimacy) domains to assess overall personality functioning, from an healthy, adaptive level of functioning to an extreme impairment (APA, 2013). This study suggests that these domains can be assessed reliably and meaningfully during early adolescence with the IPOP-A. In conclusion, the results of this study indicate that a disruption in the emerging organization of the main personality dimensions such as identity, quality of object relations, and affect regulation ability in early adolescence is associated with increasing psychopathology distress. Conversely, the successful development of these domains seems to protect early adolescents from the negative psychological correlates (i.e., conduct and affective problems) of other individual vulnerabilities, such as rejection sensitivity. These findings encourage evaluating personality organization in adolescence accurately, to carefully take into account difficulties but also strengths in personality organization when treating early adolescents (Normandin, Ensink, Yeomans & Kernberg, 2014).

Chapter 3

The mediating role of cognitive emotion regulation strategies on the relationship between rejection sensitivity and aggressive, prosocial, and withdrawal behavioral tendencies[7]

[7]The chapter is based on Glesmer, C., Casini, E., Richetin, J., Premoli, M., & Preti, E. (manuscript in preparation). The mediating role of cognitive emotion regulation strategies on the relationship between rejection sensitivity and aggressive, prosocial, and withdrawal behavioral tendencies.

Overview

While Chapter 2 investigated how PO moderated the effect of RS on maladaptive psychological functioning in adolescence, in Chapter 3, we shifted our attention towards another individual characteristic that, this time, could mediate the effect of RS on adaptive and maladaptive behavioral intentions. Specifically, we examined whether the effect of RS on three behavioral intentions (i.e., prosociality, aggression, and isolation) in a young adults sample could be explained by cognitive emotion regulation strategies. Theoretical and empirical literature suggests that adaptive emotion regulation strategies are associated with greater well-being and better psychological functioning, while negative ones with many maladaptive outcomes. Young adults (N = 445) were asked to fill in a battery of measures to assess among others, Rejection Sensitivity, cognitive emotion regulation strategies, and behavioral intentions. Results showed each of the three RS components to have unique relations with the three behavioral intentions considered. Moreover, all these patterns are mediated by different emotion regulation strategies. We discussed the results in light of their implications for the comprehension of RS and its role in affecting young adults' psychological functioning.

Introduction

Humans have a fundamental need to belong and are thus motivated to seek and maintain interpersonal relationships and resist the dissolution of existing bonds (Baumeister & Leary, 1995). It is therefore not surprising that the experience of rejection has adverse effects on our emotions and behaviors. In a meta-analysis of 192 studies on social exclusion, Blackhart, Nelson, Knowles, and Baumeister (2009) found a shift towards a more negative emotional state in individuals having just been rejected compared to those that experienced acceptance. In the long term, chronic rejection in the form of peer rejection and ostracism has also been linked to adverse mental health outcomes. For example, childhood peer rejection is a significant predictor of poor adjustment in early adolescence (Coie, Lochman, Terry, & Hyman, 1992) and loneliness and depressed mood in childhood (Boivin, Shelley, & Bukowski, 1995). In the case of adolescents, chronic rejection is associated with an array of self-destructive and antisocial behaviors, including academic difficulties, truancy, high-school dropout, violence and aggression, adolescent delinquency, and substance abuse (Kupersmidt, Coie, & Dodge, 1990; McDougall, Hymel, Vaillancourt, & Mercer, 2001). Further, findings with adults reveal that rejection and exclusion are associated with cognitive disorientation, emotional distress, and depression (Baumeister, Twenge, & Nuss, 2002; Williams, 2007; Williams, Cheung, & Choi, 2000), as well as self-defeating behaviors, such as risk-taking, unhealthy behaviors, and procrastination (Twenge, Catanese, & Baumeister, 2002).

However, people differ in their readiness to perceive and react to rejection. For example, while some individuals register social rejection rarely and tend to react to it calmly, others are quick to perceive rejection even in minor occurrences. To conceptualize these individual differences, Downey and colleagues (Downey & Feldman, 1996; Downey, Lebolt, Rincón, & Freitas, 1998) introduced the notion of Rejection Sensitivity (RS), the cognitive-affective processing disposition to defensively (i.e., angrily or anxiously) expect, readily perceive, and overreact to social rejection. In their model of RS, Downey et al. (1998) proposed that the experience of many rejecting situations, especially by significant others and in early childhood, sensitizes individuals to expect rejection more quickly, thus becoming more rejection sensitive and perceiving cues of rejection in interpersonal situations more readily. This perception instigates negative emotional responses (e.g., hurt and anger), as well as an increased likelihood of maladaptive behaviors (e.g., aggression and social withdrawal). As a result, these over-reactive responses can provoke rejection by others, as a self-fulfilling prophecy, whereby one's basic expectation of being rejected is reinforced.

Rejection Sensitivity and behavioral tendencies

Two different models have tried to account for the relationships between rejection and behavioral outcomes. One the one hand, Richman and Leary's multimotive model (2009) attributes the differences in behavioral response to the individual's construal of the rejection situation. The authors proposed that individuals construe the rejection situation on six dimensions (such as the perceived

cost of the rejection, the value of the relationship or the perceived unfairness), which can activate three different behavioral motives: Prosociality, aggression, or withdrawal. Williams (2007), on the other hand, suggested that the type of behavioral responses depends on the type of need threatened in the rejection situation and the chronicity of this threat. A strong threat to control or to meaningful existence might elicit an aggressive, provocative response, whereas threats to belonging and self-esteem might be more likely to cause prosocial responses. Withdrawal is seen as the response to chronic social exclusion and the consequence of depleted coping resources.

In the framework of rejection sensitivity research, being sensitive to rejection results in defensive angry or anxious affect, which in turn elicits maladaptive behavioral tendencies (Downey et al., 1998). High rejection sensitivity has repeatedly been associated with aggressive behavior (Ayduk, Gyurak, & Luerssen, 2008; Downey, Feldman, & Ayduk, 2000; Romero-Canyas, Downey, Berenson, Ayduk, & Kang, 2010) and social avoidance (Watson & Nesdale, 2012), in both adolescents and adults samples. Further studies looked separately at the perceived likelihood of rejection (rejection expectation) as well as its associated anger and anxiety and how these different aspects of RS might differentially predict aggressive and withdrawal tendencies. For instance, anxious expectation predicts social withdrawal and the combination of angry and anxious expectations is associated with loneliness (London, Downey, Bonica, & Paltin, 2007). Later studies confirmed the predictive role of anxious expectation for social withdrawal

and furthermore linked angry expectations with reactive aggression, such as retribution (Zimmer-Gembeck & Nesdale, 2013; Zimmer-Gembeck, Nesdale, Webb, Khatibi, & Downey, 2016). Concerning the Children Rejection Sensitivity Questionnaire, however, it should be noted that London et al. (2007) measured both anxious and angry expectation as a composite score of the perceived likelihood of the rejection and its accompanying affect, thus inducing an overlap in the anxious and angry expectation score. Zimmer-Gembeck and colleagues (2013; 2016), on the other hand, measured and computed the perceived rejection likelihood (rejection expectation) and the anxious and angry affect associated with the rejection as three conceptually separate scores. Regarding the RS expectation, they found an association with retribution in late adolescent university students (Zimmer-Gembeck & Nesdale, 2013), with depressive symptoms in young adolescents (Zimmer-Gembeck et al., 2016) and with social withdrawal in both studies (Zimmer-Gembeck & Nesdale, 2013; Zimmer-Gembeck et al., 2016). Therefore, studying the unique associations between one's angry and anxious expectations of rejection and behavioral tendencies is relevant to understand better the way in which RS occurs in adult samples.

Rejection Sensitivity and emotion regulation

A potential pathway by which RS could be related to the withdrawal, aggressive, or prosocial tendencies is the maladaptive regulation of emotion, given that the emotional reaction to perceived rejection tends to be particularly strong in high RS individuals. For instance, high RS women have shown greater depressive

symptoms after a partner-initiated breakup (Ayduk, Downey, & Kim, 2001) and high RS predicted a deterioration of symptoms in depressed men after end-of-treatment (De Rubeis, Lugo, Witthöft, Sütterlin, Pawelzik, & Vögele, 2017). Individuals can exert some control over their emotional and cognitive construal of a situation through cognitive emotion regulation strategies (Garnefski, Kraaij, & Spinhoven, 2001). We assume that individuals high in rejection sensitivity are less able to apply such strategies. In support of this, younger individuals with high RS scores have been found to be less successful at regulating emotional responses to aversive social stimuli than those with low RS scores (Silvers, McRae, Gabrieli, Gross, Remy, & Ochsner, 2012). Furthermore, RS is strongly related to rumination among adult individuals (Pearson, Watkins, & Mullan, 2011). There have already been some studies on the emotion regulation strategies and the ensuing behavioral intentions associated with RS. For instance, self-blame has been associated with withdrawal behavior whereas blaming others, and external attributions have been linked with more aggressive reactions in young adolescents (Zimmer-Gembeck & Nesdale, 2013; Zimmer-Gembeck et al., 2016) and third-grade boys (Guerra, Asher, DeRosier 2004). Similarly, rumination has been related to interpersonal avoidance in adolescents high in RS (Zimmer-Gembeck, 2015). DeWall and colleagues (DeWall, Twenge, Gitter, & Baumeister, 2009) further put forward that a general cognitive hostile bias, detected after rejection, is related to subsequent aggression. On the side of positive emotion regulation strategies, after a rejecting experience, more time spent on behavioral distraction is positively linked to

subsequent increases in positive affect in an adolescent sample (Reijntjes, Stegge, Terwogt, Kamphuis, & Telch, 2006).

However, the number of studies on emotion regulation strategies and behavioral responses to rejection is still low, especially on adult samples. Further studies are then needed to test how RS relates to specific emotion regulation strategies and behavioral outcomes. This would allow for an even more precise identification of pathways from rejection to later forms of social, emotional, and behavioral functioning.

Aims of the contribution

In this study, we first aimed at studying the relationships between RS and three different behavioral tendencies (i.e., aggression, prosociality, and withdrawal). It should be noted that we are not interested in the relationship between a rejecting situation and a given behavioral response. Rather, we consider RS as one's personality disposition that might influence behavior. Moreover, we differentiated between the cognitive (expectation) and affective (anxiety, anger) components of rejection sensitivity to investigate further the relationship between rejection sensitivity and behavioral outcomes (Zimmer-Gembeck & Nesdale, 2013; Zimmer-Gembeck et al., 2016) and to replicate the distinct associative patterns between the three components of the children version of the rejection sensitivity questionnaire and interpersonal functioning (see Chapter 1). In other words, we expect that this distinction would result in specific relationships between the three factors of RS and each behavioral tendency in a young adult sample. Second, this

study investigated the mediating role of cognitive emotion regulation strategies on the relationship between rejection sensitivity facets and behavioral tendencies. Whereas previous studies have often mixed cognitive and behavioral facets of emotion-regulation (Garnefski & Kraaij, 2006), this study sets out to disentangle the cognitive and behavioral aspects of emotion-regulation by investigating the mediating role of cognitive emotion regulation on the effect of rejection sensitivity on behavioral tendencies. We hypothesized that a more functional appraisal leads to more favorable, prosocial behavioral intentions (Delahaij, & Van Dam, 2017; Yih, Uusberg, Taxer, & Gross, 2018). However, high RS is expected to influence the ability to regulate one's emotions effectively after a rejection, leading to the behavioral tendencies to be aggressive with the rejecter or to moving away from him or her. The present study attempts to bring together various previous findings by testing the mediating potential of a range of favorable and dysfunctional cognitive emotion regulation strategies on the relationship between rejection sensitivity and behavioral tendencies. Based on previous research, we assumed self-blame to mediate the relationship of Anxiety about rejection with withdrawal behavior, and other-blame the relation of Anger about rejection with aggressive behavior. In a more general framework, functional strategies are expected to mediate prosocial behavior whereas dysfunctional ones should be more related to withdrawal or aggression. A clear mediating role of cognitive emotion regulation strategies would lastly also add to the understanding of the processes underlying the relationship between RS and adaptive and maladaptive behavior.

Method

Participants and Procedure

The sample comprised 445 individuals recruited from a population of young through the internet and social networks in the period between April and May 2017 (age range = 18-35, M_{age} = 23.29; *SD* = 3.38; 327 women, 118 men). After giving an informed consent, every participant responded to the Adult Rejection Sensitivity Questionnaire (ARSQ; Downey & Feldman, 1996; Downey, Berenson & Kang, 2006), the Cognitive Emotion Regulation Questionnaire (CERQ; Garnefski, Kraaij, Spinhoven, 2002), and the Behavioral Tendencies Questionnaire (adapted from Riva, 2015). Finally, every participant reported socio-demographic information such as gender, age, educational and occupational level.

Measures

Adult Rejection Sensitivity Questionnaire (ARSQ; Downey & Feldman, 1996; Downey, Berenson, & Kang, 2006). The ARSQ assesses adults' RS regarding Expectations of Rejection, and Anxiety and Anger about Rejection. This questionnaire presents respondents with 9 situations in which they make a request to a significant other (e.g., "*You approach a close friend to talk to after doing or saying something that seriously upsets him/her*." "*You ask your parents or another family member for a loan to help you through a difficult financial time*." "*You bring up the issue of sexual protection with your significant other and tell him/her how important you think it is*"). For each scenario, participants rate three items on a 6-point Likert scale, with higher scores indicating greater: (i) concern or anxiety

about the response to their request, (ii) anger about the response to their request, and (iii) expectation of the other person rejecting the request. Following the guidelines proposed by Preti et al. (2018), in the present contribution we adopted a different scoring method from the standard one proposed by Downey et al. (1998), which provides three different averaged RS scores: Anger about rejection, Anxiety about rejection, and rejection Expectation.

Cognitive Emotion Regulation Questionnaire **(**CERQ**,** Garnefski, Kraaij, Spinhoven, 2002)**.** The published Italian version was used (Presaghi & Ercolani, 2005). The Trait version of the CERQ assesses what people think at the time of or after the experience of threatening or stressful life events. The CERQ is a 36-item questionnaire consisting of nine conceptually distinct subscales, each consisting of four items and each referring to what someone thinks after the experience of threatening or stressful life events: Self-blame, blaming others, rumination, catastrophizing, putting into perspective, positive refocusing, positive reappraisal, acceptance, and refocusing on planning. Cognitive emotion regulation strategies are measured on a 5-point Likert scale ranging from 1 (almost never) to 5 (almost always).

Behavioral Tendencies Questionnaire (adapted from Riva, 2015). This is a 22 items questionnaire assessing three clusters of behavioral tendencies: Prosocial, Aggressive and Withdrawal. Prosocial and aggressive behavioral tendencies items were adapted from previous literature on behavioral intentions among ostracized subjects (Riva, 2015). Additional items were included to assess specifically

withdrawal behaviors. Participants indicated the frequency with which they perform each of the 22 behaviors (8 for prosociality, 9 for aggression, and 5 for withdrawal), (e.g., *"Be aggressive with the other person (through words and/or actions)*"; "*Be nice to the other person"*; "*Moving away/isolate myself*") on a 7-point scales ranging from 1 (not at all) to 7 (very much).

Results

All analyses were carried out in R (R Core Team, 2017). All measures showed good reliabilities (see Table 10).

Relationship between rejection sensitivity, behavioral tendencies, and cognitive emotion regulation strategies

First, the association between (RS) facets, behavioral tendencies, and cognitive emotion regulation strategies were analyzed in a correlation test, with *p* values corrected for multiple testing (Holm, 1979) (see Table 10). Rejection Expectation is negatively associated with prosocial behavioral tendencies, but neither with aggression nor withdrawal. Anxiety about rejection is significantly correlated with withdrawal, but neither with aggressive nor prosocial tendencies. Anger about rejection is significantly related to aggression and withdrawal, but not to prosocial tendencies.

Table 10

Correlations between Rejection Sensitivity components, Behavioral tendencies, and Emotion Regulation strategies

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. RS Expectation	(.73)														
2. RS Anxiety	-.09	(.81)													
3. RS Anger	-.13	.47***	(.85)												
4. Aggressive Behavior	.01	.12	.28***	(.87)											
5. Prosocial Behavior	-.28***	.03	-.03	.05	(.84)										
6. Withdrawal Behavior	.05	.25***	.25***	.64***	.00	(.78)									
7. ER Self Blame	.20***	.27***	.11	.07	-.16***	.24***	(.71)								
8. ER Acceptance	.00	.03	-.06	.02	.05	.10*	-.04	(.69)							
9. ER Rumination	-.08	.27***	.10	.07	.07	.24***	.35***	.15	(.83)						
10. ER Positive Refocusing	-.21***	.10	.09	.11*	.20***	.03	-.25***	.13	.00	(.88)					
11. ER Refocusing on Planning	-.12	-.11	-.03	-.03	.22***	-.11*	-.16	-.02	-.01	.20***	(.87)				
12. ER Positive Reappraisal	-.21***	-.11	.01	.00	.35***	-.08	-.26***	.15	.02	.38***	.49***	(.85)			
13. ER Putting into Perspective	-.16	-.08	.01	.06	.30***	-.05	-.20***	.14	-.07	.38***	.27***	.56***	(.88)		
14. ER Catastrophizing	.00	.22***	.27***	.28***	-.08	.37***	.28***	.00	.28***	.09	-.16*	-.14	-.06	(.75)	
15. ER Blaming Others	.05	.10	.26***	.24***	-.08	.14**	.16	.02	.08	.19**	-.04	.00	.13	.32***	(.82)

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

There are distinctive correlational patterns for the three rejection facets and behavioral tendencies, each correlated to a different set of regulation strategies. Of particular interest, prosocial behavior is predominantly related to functional strategies, such as positive refocusing and positive reappraisal, whereas aggression and withdrawal are more related to dysfunctional ones such as blaming others, rumination, and catastrophizing (see Table 10).

Mediation analysis of cognitive emotion regulation strategies

In a next step, through single mediation analyses, we tested the mediating role of cognitive emotion regulation strategies on the significant relations between rejection sensitivity facets and behavioral tendencies. Thus, nine single mediations (one for each emotion regulation strategy) were estimated respectively between rejection Expectation and prosocial behavior, between Anxiety about rejection and withdrawal and between Anger about rejection and aggressive as well as withdrawal tendencies. The indirect effect of all mediations was estimated and tested with 5000 bootstrap samples as implemented in the mediation package in R (Tingley, Yamamoto, Hirose, Keele, & Imai, 2014). The detailed results can be seen in Table B.1 in the appendix. To account for interdependencies between variables (such as the high correlation between Anxiety and Anger about rejection), all significant mediators in these analyses were lastly integrated into a full parallel mediation model, estimated with the lavaan package (Rosseel, 2012). The plots have then been created using the qgraph package (Epskamp, Cramer, Waldorp, Schmittmann, & Borsboom, 2012). The full model can be seen in Figure 4.

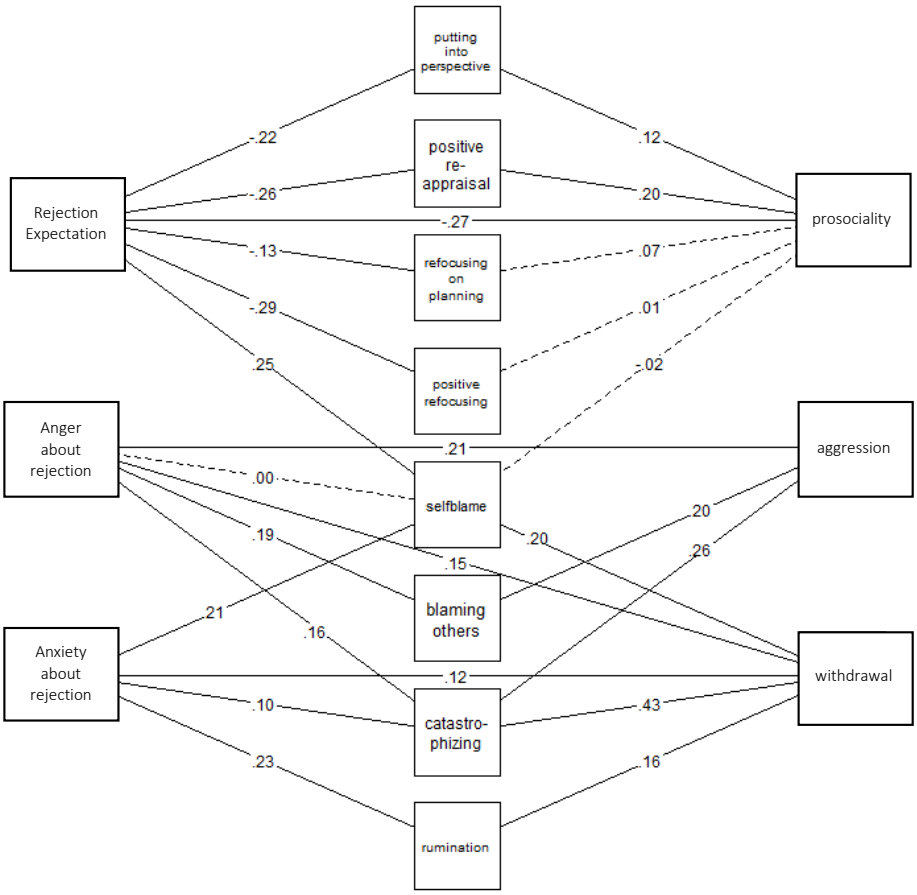

Figure 4. The full estimated model of relations between rejection sensitivity facets (left), cognitive emotion regulation strategies (middle) and prosocial, aggressive, or withdrawal tendencies (right). Non-significant relations ($p > .05$) are displayed as dashed lines.

There is a significant overall indirect effect of cognitive emotion regulation strategies on the relationship between the expectation to be rejected and prosocial intentions (B = -.10, SE = .03, p < .001). This relation is indeed partially mediated by putting into perspective (B = -.03, SE = .01, p = .025) and positive reappraisal (B = -.05, SE = .02, p = .002) but not by Refocusing on planning (B = -.01, SE = .01, p = .208), positive refocusing (B = -.01, SE = .01, p = .670), and self-blame (B = -.01, SE = .01, p = .630). In other words, the higher the expectation to be rejected, the lower the functional regulation strategies are put into use, the lower the prosocial intentions are. In this relationship, both putting into perspective and positive reappraisal played a protective role: A higher engagement in such emotion regulation strategies would lead to an increase in prosocial behaviors.

The relation between Anger about rejection and aggressive tendencies is partially mediated by two cognitive emotion regulation strategies: Catastrophizing (B = .04, SE = .02, p = .004) and blaming others (B = .04, SE = .01, p = .002), with an overall significant indirect effect (B = .08, SE = .02, p < .001). Anger about rejection is positively related with catastrophizing and blaming others, which are in turn positively associated with aggressive intentions.

There is also a significant overall indirect effect (B = .07, SE = .02, p = .002) of emotion regulation strategies on the relation between Anger about rejection and withdrawal tendencies. This relation is partially mediated by catastrophizing (B = .07, SE = .02, p = .001) but not by self-blame (B = 0.00, SE = .007, p = .952). Anger

about rejection is thus associated with catastrophizing, which is highly correlated with withdrawal.

Finally, there is a significant overall indirect effect of cognitive emotion regulation strategies on the relation between Anxiety about rejection and withdrawal (B = .12, SE = .03, p < .001). The relation is fully mediated by three emotion regulation strategies: Self-blame (B = .04, SE = .02, p = .009), rumination (B = .04, SE = .02, p = .025), and catastrophizing (B = .04, SE = .02, p = .031). Anxiety about rejection is positively related to these dysfunctional regulation strategies, which in turn are positively associated with withdrawal.

Discussion

This study aimed at investigating the association of three components of rejection sensitivity (RS) (i.e., Anxiety about rejection, Anger about rejection, and rejection Expectation) with withdrawal, aggressive, and prosocial behavioral tendencies and the potential mediating role of cognitive emotion regulation strategies. As expected and previously found (London et al., 2007; Zimmer-Gembeck & Nesdale, 2013; Zimmer-Gembeck et al., 2016), Anger about rejection was linked with aggressive intentions and Anxiety about rejection with withdrawal tendencies. Surprisingly, Anger about rejection was also related to withdrawal tendencies. Different explanations for this finding are plausible. For instance, withdrawal can represent a way through which people reaffirm their control and protect their self-esteem. Alternatively, individuals may wish to withdraw from the social context, when the expression of anger is perceived to be socially

inappropriate, as suggested by the relationship between anger and withdrawal (Zinner, Brodish, Devine, Harmon-Jones, 2008; Rodriguez Mosquera, Fischer, Manstead, & Zaalberg, 2008).

We also found high rejection expectation to be associated with less prosocial behavior. This finding seems to be consistent with RS inducing aggressive behavioral responses (Rosenbach & Renneberg, 2009), considering that aggression represents a dispositional trait that negatively correlates with empathy and any other form of prosocial behavior (e.g., Eron & Huesmann, 1984). Besides, Twenge and collages (2007) have found social exclusion, which is related to rejection sensitivity, to predict less prosocial behavior. Our study goes further in showing that the relation between RS and prosocial behavior might be dispositional, rather than simply elicited by a given situation. Further research is needed to explore better the nature of the relationship between the three facets that characterize RS and behavioral response.

We also intended to uncover the mediating effects of cognitive emotion regulation strategies on the relations between rejection sensitivity facets and behavioral intentions. Results suggest that the relationship between high rejection expectations and reduced prosocial behavior can in part be explained by reduced usage of functional cognitive emotional regulation strategies such as putting into perspective and positive reappraisal. This is in line with previous research pointing towards the lower self-regulatory abilities displayed by high RS individuals and their protective potential (Ayduk, Mendoza-Denton, Mischel, Downey, Peake, &

Rodriguez, 2000, Baumeister, DeWall, Ciarocco, & Twenge, 2005). The relation between Anxiety about rejection and withdrawal behavior was fully mediated by three dysfunctional cognitive emotion regulation strategies: Catastrophizing, rumination, and self-blame confirming previous results regarding the relationships between self-blame and withdrawal tendencies (Richman & Leary, 2009; Zimmer-Gembeck et al., 2016) and between rumination and withdrawal among both adolescents and adults (Zimmer-Gembeck et al., 2016; Epkins and Heckler 2011; Hoglund and Leadbeater 2007; Molden, Lucas, Gardner, Dean, Knowles, 2009). The relation of Anger about rejection and aggressive behaviors was in part mediated by catastrophizing and blaming others. This is in line with the link between blaming others and aggressive reactions to rejections (Guerra et al., 2004; Zimmer-Gembeck et al., 2016). The pathway from Anger about rejection to withdrawal is partially mediated by catastrophizing. Since catastrophizing refers to thoughts of explicitly emphasizing the terror of what people have experienced, our finding is consistent with previous studies showing withdrawal to be related to social helpless and thus to be possible means of self-protection (Richman & Leary, 2009; Wesselmann, Williams, Ren, & Hales, 2014).

In sum, the dysfunctional usage of cognitive emotion regulation strategies by individuals high in RS seems a promising starting point for future research and intervention and prevention attempts equally. First, since this analysis was highly explorative, it is important to replicate the results before drawing conclusions. If the proposed pathways hold, training in functional emotion regulation strategies

after a rejecting situation could be a promising tool to reduce and prevent unfavorable behavioral responses to rejection in high rejection sensitive individuals. Interestingly, catastrophizing emerged as a particularly important mediator, playing a role in all pathways from rejection anxiety to withdrawal and from anger to withdrawal and aggressive behavioral intentions. Focusing on reducing the catastrophizing tendencies could, therefore, be particularly worthwhile.

We provided important insights related to the impact of several emotion-regulation strategies on the relationships between the three RS facets and behavioral outcomes, although we relied exclusively on self-report measures. Self-reported data are prone to distortion by some factors, such as memory biases and social desirability motivations (Schwarz, 1999; Scollon, Kim-Prieto, & Diener, 2003). A challenge for future research will be to investigate the impact of RS on objective measures of both emotion regulation strategies and behaviors. Moreover, we did not take into account the situations and their characteristics the participants mobilized when answering the questionnaires. Studying when and how different behavioral responses and emotion regulation strategies are used is an important avenue for future research.

Although RS has been related to impairments in emotion regulation strategies, this study is among the few to test it empirically in an adult sample. Particularly, we demonstrated that the way people with RS regulate their emotions might contribute to individual differences in their behavioral tendencies. This study

also provides a better understanding of RS considering the distinct roles of its emotional and cognitive components. Ideally, future research will build on the current findings to develop a more comprehensive understanding the relationships between RS, emotion regulation strategies, and behavioral tendencies.

Chapter 4

Feeling rejected in daily life: A dynamic approach to the interplay of Rejection Sensitivity, situational characteristics, and negative emotions[8]

[8] The chapter is based on Casini, E., Richetin, J., Preti, E., & Zimmerman, J. (manuscript in preparation). Feeling rejected in daily life: A dynamic approach to the interplay of Rejection Sensitivity, situational characteristics, and negative emotions.

Overview

In the previous chapters, we have deepened the knowledge of the RS construct, providing a new method for its assessment and showing how its effects on adolescents' and young adults' psychological functioning change when specific individual characteristics are considered. Chapter 4 opens a series of lines of research in which RS is studied in a perspective that considers personality as a dynamic process. By applying this perspective to the study of RS, we assume this personality disposition and its effect on individuals' psychological functioning to change not only between-person but also within-person across situations and over time. More specifically, in the present contribution we studied how the relationship between the RS components, the perception of situational characteristics, and the emotional reactions changes over time on a young adult sample. Specifically we focused on four hallmarks, the general tendency (i.e., people's usually state), the inertia (i.e., the extent to which one's current state is predictable from one's prior state), the variability (i.e., the extent to which one's current state is different from one's general tendency), and the cross-lagged effect (i.e., the reciprocal process that takes place at the within-person level between different variables across time). Young adults (*N*= 245) completed a battery of self-report questionnaires, including an assessment of Rejection Sensitivity. Then they installed an App on their phone and completed a short survey seven times a day for fifteen days. Each time they had to report an interpersonal situation experienced in the last hour, and their negative emotions within it. Results showed the three RS components to predict uniquely the variability

of the relationship between situations and negative emotions, and the cross-lagged effects of negative emotions on situational characteristics, but not the cross-lagged effects of situational characteristics on negative emotions. Furthermore, none of the three RS components was found to be related to the inertia of situational characteristics, while only rejection Expectation predicted the inertia of negative emotions. The discussion is organized around the importance of taking into account a dynamic approach to study RS.

Introduction

Interpersonal rejection ranks among the most aversive of human experiences (Nezlek, Kowalsky, Leary, Blevins, Holgate, 1997). Generally, abandonment, romantic rejection, expulsion from social groups, and even disinterest evoke strong negative emotions. However, research demonstrated that people are different concerning their readiness in perceiving and reacting to rejection. Some perceive social rejection rarely and respond to it calmly, others feel rejected even in minor events. Rejection Sensitivity (RS; Downey & Feldman, 1996) is defined as a cognitive-affective 3-step processing disposition to anxiously and angrily expect, readily perceive, and intensely react to covert or overt interpersonal rejection. Downey and colleagues (1996) assume the dispositional expectations of rejection to be associated with a hypervigilance for stimuli that could signify rejection (distorted perceptions of the interpersonal situation), which in turn instigates negative emotional responses (anxious and angrily expectations), as well as an increased likelihood to maladaptive behavior (responses to it). In turn, these overreacting responses elicit rejection from others, thereby fostering a self-fulfilling prophecy. Empirical research, thus, found a strong relationship of RS with inappropriate behaviors and negative emotional responses (Rosenbach & Renneberg, 2011). For example, RS was found to be related to anxiety, anger, general upset, fear and especially hurt (for a review, see Rosenbach, & Renneberg 2011; Gao, Assink, Cipriani, & Lin, 2017). According to the model (Downey and Feldmann 1996), RS is a state-dependent personality characteristic, and it is meant to be activated only in

situations perceived as potentially rejecting. Situations thus play a decisive role in the understanding of RS and specifically in capturing its role in inducing maladaptive emotional responses.

The relationship between RS and maladaptive emotional responses has been studied within the Cognitive-Affective Processing Systems framework (CAPS, Mischel, 1973; Mischel & Shoda, 1995). At its core, the CAPS model suggests both situational contexts and personality are important predictors of behavior, arguing how personality processes emerge in specific Person × Situation interactions (Romero-Canyas, Downey, Berenson, Ayduk, & Kang, 2010). However, as many authors have pointed out (e.g., Sherman, Nave, & Funder, 2010; Fournier, Moskowitz, & Zuroff, 2008; Fournier, Moskowitz, & Zuroff, 2009), the CAPS model does little to specify what makes one situation different from or similar to another. In fact, it does not provide any description about the "active ingredients" of situations (Mischel & Shoda, 1995).

Recently, Rauthmann, Sherman, and Funder (2015) provided a novel contribution the study of situations. The authors proposed to define situations using a set of psychological characteristics. These psychological characteristics can be described as the personal interpretations that people form about objective situational cues and have been considered as fundamental for a better understanding of the role of situations in affecting people's behavioral and emotional responses. The authors also organized such characteristics in a taxonomy, that is, the Situational Eight DIAMONDS model (Rauthmann et al., 2014). This taxonomy distinguishes between

eight types of situation characteristics, that is, Duty, Intellect, Adversity, Mating, pOsitivity, Negativity, Deception, and Sociality. The DIAMONDS dimensions have shown to capture a wide variety of everyday situations and are useful in understanding different person–situation transaction processes. For instance, they have been found to predict real-time emotion and behavior enacted in situ (Sherman, Rauthmann, Brown, Serfass, & Jones, 2015), to assess the stability and change in situations perception within and between individuals during the lifespan (Brown & Rauthmann, 2016; Rauthmann & Shermann, 2016), and to capture the temporal contiguities among and between personality states and situation characteristics. Given the centrality of distorted perceptions of situations in RS, the DIAMONDS could be an important tool to deepen the understanding of individual differences in emotional responses triggered by RS.

Highlighting the importance of situational characteristics calls for a step forward in the research on RS and emotions. Personality theorists (e.g., Allport, 1937; Leary, 1957; Tellegen, 1981) have argued that our dispositions are contextualized, and that what we define as "disposition" is the way in which individuals interface with their environments (e.g., DeYoung, 2015; Fleeson & Jayawickreme, 2015). In line with this view, the perceptual and emotional vulnerabilities associated with RS are dynamic, as they vary within the same individual across time. In other words, RS should be treated as a dynamic process that unfolds over time. This change in perspective paves the way for studying how individual differences in RS are related to the situational characteristics of the daily-

life context as well as how their interaction impacts the emotional responses over time.

During the last few decades, technological developments (e.g., smartphones, wearable devices) led to new methods of data collection in which individuals are measured on a relatively large number of occasions (e.g., ecological momentary assessment, experience sampling method). Such methods result in intensive longitudinal data. One of the most valuable properties of intensive longitudinal data is that they can be used to characterize intra-individual variations in variables over time (e.g., the changes of one's emotional responses in response to situations perceived as more or less rejecting). There are various aspects of intra-individual processes that one might study to gather insights into psychological dynamics. One such aspect that holds particular promise is inertia (Boker, Molenaar, & Nesselroade, 2009; McArdle, 2009). Inertia concerns the extent to which variables within individuals influence themselves over time and reflects how much they carry over from one moment to the next (Suls, Green, & Hills, 1998; Jongerling, Laurenceau, & Hamaker, 2015). Suppose to have some daily measurements of how rejecting an individual perceives situations. In this case, inertia reflects the extent to which one's perception of the current situation as rejecting is predictable from one's perception of the prior situation as rejecting. Inertia can also be understood as resistance to change. Since well-being is assumed to lie in individuals' capability to quickly and flexibly respond to environmental threats and opportunities, inertia is hypothesized to reflect low well-being (Kuppens, Allen, & Sheeber, 2010). For example,

emotional inertia has been found to be a factor risk for psychological maladjustment, regardless of whether it was of positive or negative emotions (e.g., clinical depression) (Koval, Brose, Pe, Houben, Erbas, Champagne, & Kuppens, 2015; Kuppens et al., 2010; Wang, Hamaker, & Bergeman, 2012).

Inertia should be distinguished from another critical aspect of intra-individual processes, that is, variability (Jangh, Wood, & Trull, 2008). In this respect, it is important to note that dynamic processes are not only influenced by observable and measured factors, but also by unobservable temporal factors, whose impact can be carried over from one moment to the next. Variability, thus, represents the part of the process that cannot be predicted based on previous scores or states. Hence, it can be thought as the result of the collection of all unobserved (or omitted) temporal factors that influence the process under investigation. For example, today's perception of a situation as rejecting not only depends on yesterday's perception of a situation as rejecting, but also on unobserved events such bad sleep the previous night, a recent quarrel with a friend, caffeine or alcohol intake, etcetera. All these unobserved factors may impact the perception of the current situation, resulting in a stronger inclination to perceive it as more rejecting than usual. In other words, variability describes the extent to which one's current state deviates from one's mean level due to additional unmeasured factors.

Autoregressive (AR) models are one framework to operationalize both inertia and variability of RS dynamics (Molenaar, 1985; Ram & Gerstorf, 2009; Gilden, 2001; Wang et al., 2012). These models assess the effect of the variable of

interest (e.g., perception of a situation as rejecting) at the previous measurement occasion on itself at the present occasion, using an autoregressive parameter. What cannot be predicted from the previous observation is referred to as the *innovation,* also known as dynamical error. In these models, the autoregressive parameter (ϕ) is interpreted as a measure of inertia, while the innovation (ε) as a measure of variability. So far, the AR models have been characterized by a random intercept and a random autoregressive (i.e., inertia) parameter, while the innovation variance was restricted to be the same across individuals. Recently, however, Jongerling et al. (2015) have stressed the importance of extending the multilevel AR(1) model with random innovation variances. According to the authors, we may expect individual differences in the variance of innovation, due to two types of differences between individuals. First, there may be individual differences in reactivity and sensitivity to unobserved influences. For instance, people high in RS can be more sensitive to a negative interpersonal experience. Second, people may differ in their exposure to unobserved influences. That is, some people lead more constant lives than others, and this difference in exposure to variability in external factors may also be captured by individual differences in the innovation variance. Thus, focusing on individual differences in the innovation variance reveals individual differences in sensitivity and responsiveness to, as well as individual differences in exposure to these factors.

With that said, adopting a dynamic perspective for studying RS seems to have many advantages. First, it allows elucidating the temporal dynamic of RS in the heterogeneous context of daily life, lightening specific temporal patterns (i.e., inertia

and variability) underlying such dynamic. Second, it adds to the understanding of the relation between RS and emotional responses, showing how individual differences in RS interact with the environments, affecting the perception of situational characteristics and emotional reactions over time.

Aims of the contribution

The present study focuses on RS as a specific dysfunctional disposition from a person-situation perspective, specifically focusing on the conceptualization of situation recently proposed by Rauthmann and colleagues (2014). Previous studies on situations have shown the situational characteristics (assessed through the eight situational DIAMONDS) to correlate with some personality traits. For example, Extraversion was found to be related to situational Sociality, while Emotionality with more situational Negativity and Honesty/Humility with less situational Deception (Sherman et al., 2015). However, no previous research used the DIAMONDS to study RS. Furthermore, most of RS research also relies on a static perspective to the study of the relationships between RS and emotions. Only three studies have focused on the impact of time on RS and applied a longitudinal design. Ayduk et al. (1999) found that greater feelings of rejection predicted conflicts between the couple the following day in high but not low RS women. In a similar design (nightly ratings × 28 days), Downey et al. (1998) found that for partners of high but not low RS women instances of conflict predicted greater dissatisfaction and thoughts of ending the relationship the following day. In turn, high but not low RS women perceived their partners as less accepting and more withdrawn on days following a conflict. More

recently, Meehan et al. (2018) found RS to moderate the relationship between perceptions of others and interpersonal behavior throughout a week. However, all these studies neglected two aspects of dynamic processes, that are inertia and variability (Boker et al., 2009; Ram & Gerstorf, 2009). We thus adopted a dynamic perspective to study how the relationship between RS, situational characteristics perceptions and emotional reactions changed over time. To do so, we first investigate participants' general tendency (i.e., mean), inertia, and variability both in situational characteristics and negative emotional reactions, exploring whether these three temporal dynamic aspects are affected by individual differences in RS. Second, we test the existence of cross-lagged effects of the situational characteristics perceived at a previous moment in time on the participants' emotional reactions at the next moment. Third, we test the existence of a cross-lagged effect of the participants' emotional reactions at a previous moment in time on the perception of situational characteristics at the next moment. Also for the second and the third aims of this study, we look at the role played by individual differences in RS in moderating the effects under examination. Since RS implies a perceptual bias that leads people to perceive situations negatively (e.g., rejecting), we decide to focus on the three DIAMONDS dimensions that are more related to a negative perception of situations: Adversity, Negativity, and Deception as well as on the negative emotions, that are, feeling angry, anxious, sad, hurt, rejected, and ignored.

Method

Participants and Procedure

The initial sample for this study included 303 psychology students (262 women, M_{age} = 19.37 years, SD = 1.76). Seventeen participants were excluded before statistical analysis because they did not provide a sufficient number of responses (> 75%) in the Ecological Momentary Assessment (EMA) phase. The final sample included 286 participants (245 women, M_{age} = 19.41 years, SD = 1.65). The present study consisted of two phases. During the first phase, participants were asked to complete online some personality questionnaires. In the current work, we focused specifically on the Adult Rejection Sensitivity Questionnaire (Downey & Feldman, 1996; Downey, Berenson & Kang 2006)[9]. During a second phase, in a group session, participants installed an App, explicitly programmed for the present study, on their smartphone. Using a fixed-interval measurement schedule, this App prompted participants seven times a day (10:30, 12:30, 14:30, 16:30, 18:30, 20:30, 22:30) for fifteen days. At each assessment, participants had to think about a social situation in which they were in the last hour and describe it using the brief version of the situational eight DIAMONDS (Rauthmann & Shermann, 2016). They also had to indicate their emotional reactions experienced within the described situation. When participants did not complete the survey at the first prompt, two reminders were sent after 10 minutes and 20 minutes respectively, resulting in a 30-min window (e.g.,

[9] The other questionnaire administered during the first session were the SIPP-60 (Verheul, 2006; Italian version translated by Donati & Ubbiali, 2013).

10:30– 11:00) to complete each assessment. After this time, the survey was not available until the next scheduled assessment. All participants gave their informed consent to participate. The study was conducted in accordance with the Declaration of Helsinki, and the protocol was approved by the Ethical Committee of the Department of Psychology at the University of Milano-Bicocca. Participants received partial course credit for participation in the study.

Measures

Adult Rejection Sensitivity Questionnaire (ARSQ; Downey & Feldman, 1996; Downey, Berenson & Kang 2006). This questionnaire presents respondents with nine situations in which they have to request something to a significant other (e.g., "*You approach a close friend to talk to after doing or saying something that seriously upsets him/her*." "*You ask your parents or another family member for a loan to help you through a difficult financial time*." "*You bring up the issue of sexual protection with your significant other and tell him/her how important you think it is*"). For each scenario, participants rate three items on a 6-point Likert scale, with higher scores indicating greater: (i) concern or anxiety about the response to their request, (ii) anger about the response to their request, and (iii) expectation of the other person rejecting the request. Following the guidelines proposed by Preti et al. (2018), we adopted the scoring method that provides a separate score for Anger about rejection, Anxiety about rejection, and rejection Expectation. The internal consistencies for the three ARSQ scales were satisfactory (α = .80, α = .84, and α = .74, respectively).

Ultra-brief Situational Eight DIAMONDS (Rauthmann & Shermann, 2016). This questionnaire assesses eight situational characteristics, through the following dimensions: Duty, Intellect, Adversity, Mating, pOsitivity, Negativity, Deception, and Sociality. Participants indicated, for all measures, on a scale from 1 (not at all) to 7 (completely) how much each item applied to the situation.

Rejected-Related Emotions Scale (adapted from Buckley, Winkel, & Leary, 2004). The scale consists of 7 items assessing seven emotions: Sadness, anger, feeling of being rejected, feeling of being ignored, anxiety, and happiness felt in the reported situation on a 7-point scale (ranging from 1 = not at all to 7 = very much). In the present study, we focus on negative emotions only. Furthermore, since these emotions were correlated at a between-person level (Pearson's *r* ranged from .20 to .58), we computed a single mean score to account for all of them: Negative emotions (α = .71).

Data Analysis

To address our research questions, we used Dynamical Structural Equation Modeling (DSEM; Asparouhov, Hamaker, & Muthén, 2017, 2018). This is a relatively new approach allowing for the simultaneous estimation of multiple time series and has recently been implemented in version 8 of MPLUS software (Muthén & Muthén, 2017). DSEM acknowledges the nested structure of the data by providing a multilevel extension of AR(1) models, in which intra-individual changes over time both in situational characteristics and negative emotions (within-person, level 1) are nested within individuals (between-person, level 2). In addition, DSEM allows for

individual differences (i.e., random variance) in the intercept, the autoregressive parameter, and the innovation parameter of individual time series, as well as the inclusion of level-2 predictors and outcome variables in the model. DSEMs are implemented in a Bayesian framework such that all unknown parameters need to be given a prior distribution. For the fixed effects, the default prior distribution included in Mplus follows a normal distribution $N(0, 10^{10})$, while for the covariance matrices of the random effects, the default diffuse prior is an inverse Wishart with a zero matrix for scaling and degrees of freedom equal to the number of variables minus 1. The inferential conclusions are drawn based on the credible intervals (CIs) of these posterior distributions. We follow Hamaker and colleagues (Hamaker, Asparouhov, Schmiedek, & Muthén, 2018) and Asparouhov and colleagues (2017) to present how we use DSEM.

We estimated twelve DSEMs. Model 1 to Model 3 included the Negative Emotions and one of the three perceived Situational Characteristics measured by the DIAMONDS dimensions (Adversity, Deception, and Negativity). Model 4 to Model 12 included one of the RS scales (i.e., Anger about rejection, Anxiety about rejection, and rejection Expectation), one of the Situation Characteristics, and Negative Emotion. Each model was based on a first-order vector autoregressive (VAR[1]) model with random innovation variances and covariance (Figure 5).

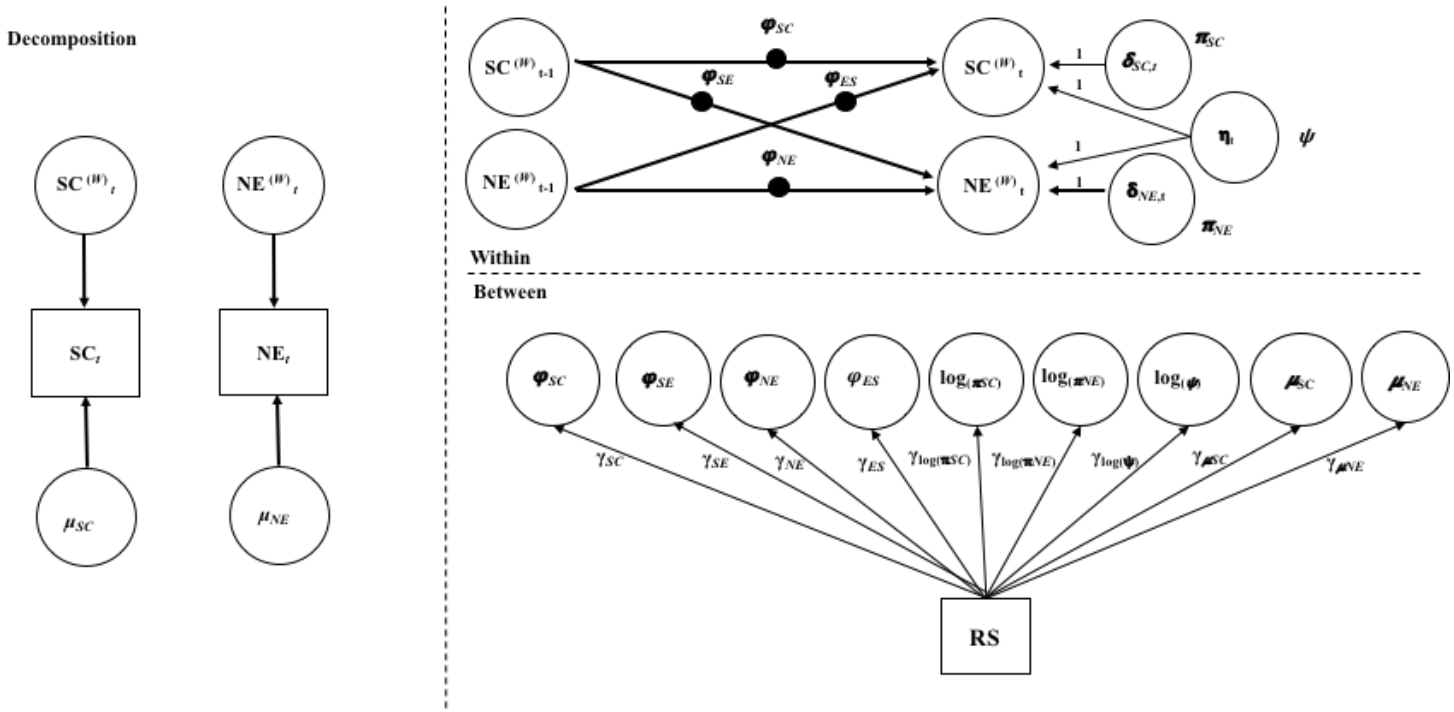

Figure 5. Representation of the multilevel VAR(1) model. The left panel illustrates the decomposition into within-person (time-varying) and between person (time-invariant) components. The top right panel represents the within-person level model, which is a VAR(1) model. The bottom right panel illustrates the between-person level model, which includes the between-person components from the decomposition as well as the random effects of the model, corresponding to the black dots in the within-person level model.

Conceptually, the DSEM decomposes the data, both the perceived Situational Characteristics (SC) and the Negative Emotions (NE) into within-person and between-person components, as shown in Equation 1, where the superscript (W) stands for "within". This decomposition is also shown in the left panel of Figure 5.

$$SC_{it} = \mu_{SC,i} + SC_{it}^{(W)} \quad \text{and} \quad NE_{it} = \mu_{NE,i} + NE_{it}^{(W)} \tag{1}$$

Where $\mu_{SC,i}$ and $\mu_{NE,i}$ are the time-invariant means of the perceived situational characteristics and the negative emotions of person *i*, respectively; $SC_{it}^{(W)}$ and $NE_{it}^{(W)}$ represent the individual (within-person) temporal deviations from μ_i at time t.

Within-person level model

The within-person components $SC_{it}^{(W)}$ and $NE_{it}^{(W)}$ are decomposed as in the following equation:

$$SC_{it}^{(W)} = \phi_{SC,i}\, SC_{it-1}^{(W)} + \phi_{SE,i}\, NE_{it-1}^{(W)} + \zeta_{SC,it}^{(W)}$$

$$NE_{it}^{(W)} = \phi_{NE,i}\, NE_{it-1}^{(W)} + \phi_{ES,i}\, SC_{it-1}^{(W)} + \zeta_{NE,it}^{(W)} \tag{2}$$

Where $\phi_{SC,i}$ and $\phi_{NE,i}$ are the autoregressive parameters for situational characteristics and negative emotions, respectively. $\phi_{SE,i}$ is the cross-lagged regression effect from situational characteristics to negative emotions at the next occasion; and $\phi_{ES,i}$ is the cross-lagged regression coefficient from negative emotions to situational characteristics at the next occasion. $\zeta_{SC,it}$ and $\zeta_{NE,it}$ represent the innovations, that is,

the part of situational characteristics and negative emotions at time t explained by unobserved factors.

Furthermore, following the guidelines proposed by Hamaker et al., (2018), an additional latent variable, η_{it} should be considered in the model. This variable represents what the two innovations (i.e., concerning situational characteristics and negative emotions) have in common, while the unique parts are modeled as residuals. Specifically, the innovations are modeled as

$$\begin{pmatrix} \zeta_{SC,it} \\ \zeta_{NE,it} \end{pmatrix} = \begin{pmatrix} 1 \\ 1 \end{pmatrix} \begin{pmatrix} \eta_{it} \end{pmatrix} + \begin{pmatrix} \delta_{SC,it} \\ \delta_{NE,it} \end{pmatrix} \tag{3}$$

These form the unique parts of the innovations. The variance and the covariance of the innovations for individual *i* are now expressed as functions of the variances of the common factor and the residuals, that is,

$$\text{var}(\zeta_{SC,it}) = \text{var}(\eta_{it}) + \text{var}(\delta_{SC,it}) = \psi_i + \pi_{SC,i} \tag{4}$$

$$\text{var}(\zeta_{NE,it}) = \text{var}(\eta_{it}) + \text{var}(\delta_{SC,\text{it}}) = \psi_1 + \pi_{NE,\text{i}} \tag{5}$$

$$\text{Cov}(\zeta_{SC,it}, \zeta_{NE,it}) = \text{var}(\eta_{it}) = \psi_i \tag{6}$$

The variances of the innovations are the sum of the unique variances and the shared variance, while the covariance between the innovations is determined by the variance of the common factor.

Between-person model

Both the means $\mu_{SC,i}$ and $\mu_{NE,i,}$ the both autoregressive parameter $\phi_{SC,i}$ and $\phi_{NE,i,}$, the cross-lagged effects parameter $\phi_{NE,i}$ and $\phi_{ES,i}$, both the innovations $log\pi_{SC,i}$ and $log\pi_{NE,i}$, and the covariance between the innovations $log\psi_{,i}$ are allowed to vary across persons (hence the subscript *i*). That is, they have random effects, as in

$$\mu_{SC,i} = \gamma_{SC} + \upsilon_{SC,i}$$

$$\mu_{NE,i} = \gamma_{NE} + \upsilon_{NE,i}$$

$$\phi_{SC,i} = \gamma_{SC} + \upsilon_{SC,i}$$

$$\phi_{SE,i} = \gamma_{SE} + \upsilon_{SE,i}$$

$$\phi_{NE,i} = \gamma_{NE} + \upsilon_{NE,i}$$

$$\phi_{ES,i} = \gamma_{ES} + \upsilon_{ES,i}$$

$$\log\pi_{SC,i} = \gamma_{\log(\pi_{SC})} + \upsilon_{\log(\pi_{SC,i})}$$

$$\log\pi_{NE,i} = \gamma_{\log(\pi_{NE})} + \upsilon_{\log(\pi_{NE,i})}$$

$$\log\psi_{,i} = \gamma_{\log(\psi)} + \upsilon_{\log(\psi i)}$$

(7)

where the γ's represent the fixed or averaged effects, and the υ's represent the individual deviations from these means. To allow the variances of the innovations to vary across individuals, such variances are assumed to come from a log normal

distribution (in part to ensure that each individual will get a positive value for the innovation variance (Hamaker et al., 2018). All these individual variations are assumed to come from a multivariate normal distribution.

For Model 4 to Model 12, the three RS scales were regressed on the means ($\mu_{SC,i}$; $\mu_{NE,i}$), the autoregressive parameters ($\phi_{SC,i}$; $\phi_{NE,i}$), the innovations parameters ($\log\pi_{SC,i}$, $\log\pi_{NE,i}$) of both the situational characteristics and negative emotions, on the cross-lagged regression coefficients ($\phi_{SE,i;}$ $\phi_{ES,i}$), and on the covariance between the two innovations ($\log\psi_{,i}$).

Results

We will present the results according to the following aims: (i) investigating participants' general tendency, inertia, and variability both in situational characteristics and negative emotional reactions, also exploring whether these three temporal dynamic aspects are affected by individual differences in RS; (ii) testing the cross-lagged effects of the situational characteristics perceived at a previous moment in time on the participants' emotional reactions at the next moment; (iii) testing the cross-lagged effects of the participants' emotional reactions at a previous moment in time on the perception of situational characteristics at the next moment. For the second and the third aims of this study, we also looked at the role played by individual differences in RS in moderating such relationships. Descriptive statistics are reported in Table 11.

Table 11

Descriptive Statistics of the three DIAMONDS situation characteristics (SC), Negative Emotions, and the three Rejection Sensitivity (RS) scales (N = 245)

Variable	*M*	*SD*	*Min*	*Max*	*Skewness*	*Kurtosis*
SC Adversity	1.26	0.90	1	7	4.20	18.93
SC Negativity	2.19	1.62	1	7	1.39	1.08
SC Deception	1.13	0.68	1	7	6.26	42.93
Negative Emotions	2.14	0.84	1	7	1.52	4.41
Anger about rejection	2.83	0.93	1	5.44	0.41	- 0.31
Anxiety about rejection	3.86	0.87	1.11	6.00	- 0.17	- 0.39
Rejection Expectation	2.39	0.66	1	5	0.75	0.76

General tendency

Situational characteristics. The general tendency levels (μ_{SC}, Table 12) proved to be rather low, showing that, during the 15 days, participants tended to rarely perceive situations as negative, deceptive, and adverse. Anger about rejection (μ_{ANGSC}, Table 13) was associated with the levels of all three situational characteristics, such that the angrier people are in response to rejection, the more they perceived situations as adverse, negative, and especially deceptive. Rejection Expectation ($\mu_{EXPSC,}$ Table 13) was associated with increased Adversity and Deception, and Negativity. Anxiety about rejection ($\mu_{ANXSC,}$ Table 13) predicted Adversity and Negativity.

Table 12

Parameter estimates and 95% confidence intervals for fixed effects and random effects

	Adversity				Deception				Negativity			
	Fixed effects		Random effects		Fixed effects		Random effects		Fixed effects		Random effects	
	Mean	95%CI	Variance	95%CI	Mean	95%CI	Variances	95%CI	Mean	95%CI	Variances	95%CI
$\mu_{SC,i}$	1.21	[1.18, 1.23]	0.03	[0.02, 0.03]	1.07	[1.06, 1.07]	0.003	[0.00, 0.00]	2.18	[2.07, 2.28]	0.80	[0.66, 0.96]
$\mu_{NE,i}$	2.11	2.06, 2.16]	0.16	[0.13, 0.19]	2.11	[2.06, 2.15]	0.16	[0.13, 0.19]	2.13	[2.08, 2.18]	0.19	[0.15, 0.22]
$\varphi_{SC,i}$	0.01	[0.07, 0.12]	0.02	[0.01, 0.02]	0.08	[0.04, 0.10]	0.04	[0.03, 0.05]	0.24	[0.21, 0.26]	0.03	[0.02, 0.04]
$\varphi_{ES,i}$	0.06	[0.04, 0.07]	0.004	[0.00, 0.01]	0.04	[0.03, 0.04]	0.001	[0.00, 0.00]	0.10	[0.06, 0.14]	0.05	[0.03, 0.06]
$\log \pi_{sc,i}$	-1.77	[-2.01, -1.52]	4.28	[3.62, 5.09]	-3.13	[-3.41, -2.86]	5.60	[4.76, 6.66]	-0.01	[-0.21, 0.01]	0.90	[0.75, 1.07]
$\log \pi_{NE,i}$	-1.68	[-1.79, -1.57]	0.65	[0.51, 0.82]	-1.23	[-1.30, -1.14]	0.40	[0.32, 0.48]	-3.00	[-3.19, -2.80]	1.26	[0.88, 1.64]
$\log \psi_{,i}$	-2.48	[-2.70, -2.25]	3.45	[2.90, 4.11]	-3.73	[-3.97, -3.50]	4.24	[3.58, 5.06]	-1.40	[-1.52, -1.25]	1.25	[1.04, 1.53]
$\varphi_{NE,i}$	0.28	[0.26, 0.31]	0.02	[0.02, 0.03]	0.28	[0.25, 0.29]	0.03	[0.02, 0.03]	0.25	[0.22, 0.27]	0.02	[0.01, 0.03]
$\varphi_{SE,i}$	0.002	[-0.03, 0.03]	0.006	[0.00, 0.01]	0.001	[-0.05, 0.04]	0.02	[0.01, 0.02]	0.02	[0.01, 0.03]	0.00	[0.00, 0.00]

Note. SC = Situation Characteristics, NE = Negative Emotions, μ_{SC} or μ_{NE} = Mean parameter, φ_{SC} or φ_{NE} = AR parameter, φ_{ES} = Cross-lagged effect of NE at t_{i-1} on SC at t_i, φ_{SE} = cross-lagged effect of situational characteristics at t_{i-1} on NE at time t_i, $\log(\pi_{SC}$ or $\pi_{NE})$ = innovation variance parameter; $\log \psi$= innovation covariance. Mean fixed effects and random variances are shown in raw metrics.

Table 13

Parameter estimates (posterior means) and 95% credible confidence intervals for fixed effects of Anger about rejection, Anxiety about rejection, and Rejection Expectation (2-level predictors)

	Adversity		Deception		Negativity	
	Mean	95%CI	Mean	95%CI	Mean	95%CI
Predictor: Anger						
μ_{ANGSC}	0.12	[0.03, 0.21]	0.13	[0.04, 0.21]	0.09	[0.01,0.17]
μ_{ANGNE}	0.12	[0.03, 0.20]	0.11	[0.03, 0.19]	0.13	[0.04, 0.21]
φ_{ANGSC}	0.10	[-0.02, 0.21]	0.05	[-0.05, 0.15]	-0.05	[-0.14, 0.05]
φ_{ANGSE}	0.02	[-0.13, 0.17]	0.15	[-0.01, 0.30]	0.00	[-0.13, 0.13]
φ_{ANGNE}	-0.06	[-0.16, 0.04]	-0.08	[-0.17, 0.02]	-0.07	[-0.18, 0.03]
φ_{ANGES}	0.10	[-0.01, 0.21]	0.11	[0.01, 0.20]	-0.05	[-0.17, 0.07]
$\log\pi_{ANGSC}$	0.12	[0.03, 0.19]	0.13	[0.04, 0.21]	0.06	[-0.04, 0.12]
$\log\pi_{ANGNE}$	0.07	[0.01, 0.16]	0.08	[-0.01, 0.16]	-0.02	[-0.13, 0.09]
$\log\psi_{ANG}$	0.13	[0.04, 0.21]	0.13	[0.05, 0.22]	0.11	[0.03, 0.19]
Predictor: Anxiety						
μ_{ANXSC}	0.13	[0.03, 0.21]	0.06	[-0.02, 0.14]	0.16	[0.07, 0.23]
μ_{ANXNE}	0.16	[0.07, 0.24]	0.17	[0.08, 0.24]	0.16	[0.07, 0.23]
φ_{ANXSC}	-0.06	[-0.16, 0.05]	-0.02	[-0.12, 0.07]	-0.09	[-0.19, 0.01]
φ_{ANXSE}	-0.06	[-0.20, 0.09]	0.01	[-0.12, 0.14]	0.03	[-0.09, 0.16]
φ_{ANXNE}	-0.02	[-0.12, 0.08]	-0.03	[-0.12, 0.08]	-0.04	[-0.14, 0.06]
φ_{ANXES}	0.14	[0.04, 0.24]	0.07	[-0.03, 0.16]	0.05	[-0.06, 0.16]
$\log\pi_{ANXSC}$	0.07	[-0.01, 0.15]	0.04	[-0.04, 0.12]	0.15	[0.06, 0.23]
$\log\pi_{ANXNE}$	0.07	[-0.02, 0.15]	0.14	[0.05, 0.22]	0.05	[-0.05, 0.16]
$\log\psi_{ANX}$	0.11	[0.03, 0.19]	0.07	[-0.02, 0.15]	0.14	[0.06, 0.23]
Predictor: Expectation						
μ_{EXPSC}	0.11	[0.01, 0.19]	0.10	[0.02, 0.17]	0.12	[0.03, 0.20]
μ_{EXPNE}	0.03	[-0.05, 0.11]	0.03	[-0.05, 0.12]	0.06	[-0.02, 0.14]
φ_{EXPSC}	0.06	[-0.04, 0.17]	0.09	[-0.02, 0.19]	-0.04	[-0.14, 0.06]
φ_{EXPSE}	0.01	[-0.14, 0.16]	0.01	[-0.12, 0.15]	-0.01	[-0.13, 0.12]
φ_{EXPNE}	0.11	[0.01, 0.21]	0.06	[-0.03, 0.14]	0.08	[-0.03, 0.18]
φ_{EXPES}	0.09	[-0.03, 0.21]	0.14	[0.02, 0.25]	0.05	[-0.07, 0.16]
$\log\pi_{EXPSC}$	0.003	[0.01, 0.17]	0.10	[0.02, 0.17]	0.01	[-0.07, 0.08]
$\log\pi_{EXPNE}$	0.10	[-0.08, 0.09]	0.03	[-0.05, 0.11]	0.07	[-0.03, 0.17]
$\log\psi_{EXP}$	0.07	[-0.01, 0.15]	0.08	[-0.00, 0.16]	0.04	[-0.05, 0.12]

Note. SC = Situation Characteristics, NE = Negative Emotions, μ_{SC} or μ_{NE} = Mean parameter; φ_{SC} or φ_{NE} = AR parameter; φ_{ES} = Cross-lagged effect of NE at t0 on SC at t1; φ_{SE} = cross-lagged effect of situational characteristics at t0 on NE at time 1; $\log(\pi_{SC}$ or $\pi_{NE})$ = innovation variance parameter; $\log\psi$ = innovation covariance. Fixed effects and random variances are shown in standardized metrics.

Emotions. The general tendency levels (μ_{NE}, Table 12) were quite low, showing participants to have experienced only few negative emotions during these 15 days. Both Anger and Anxiety about rejection (μ_{ANGSC}, μ_{ANGSC}, Table 13) were associated with an increase in negative emotions. On the contrary, rejection Expectation (μ_{EXPSC}, Table 13) did not show any significant associations with negative emotions, regardless of which situation perception was statistically controlled.

Inertia

Situational characteristics. The average levels of the autoregressive (AR) parameter ($\boldsymbol{\varphi}_{SC}$, Table 12) were significantly positive for all three situational characteristics. This result indicates the existence of a situational inertia. None of the three RS scales showed significant associations with the inertia of situational characteristics (Table 13). This result means that individual differences in the affective or cognitive components of RS do not influence the way the perception of the situation at time t-1 influenced the way the situation at time 1 is perceived.

Emotions. Significant average levels of the AR parameter ($\boldsymbol{\varphi}_{NE}$, Table 12) showed that negative emotions carry over from situations to situations, especially in those characterized by Adversity. While neither Anger or Anxiety about rejection were related to negative emotions inertia ($\boldsymbol{\varphi}_{ANGNE,}$ $\boldsymbol{\varphi}_{ANXNE}$, Table 13), rejection Expectation displayed a significant relationship with negative emotions, but only in situations perceived as Adverse ($\boldsymbol{\varphi}_{EXPNE}$, Table 13). This means that, when situations

are perceived as Adverse, for people higher in rejection Expectation, increased levels of negative emotions at time t-1 is likely to persist at time 1.

Variability[10].

Situational characteristics. Estimates for the average levels of innovations variances ($\log\boldsymbol{\pi}_{SC}$, Table 12) were positive and significant for both Adversity and Deception, but not for Negativity. People were stable in their perception of Negativity, while showing variability in the other situational characteristics. Anxiety about rejection ($\log\boldsymbol{\pi}_{ANXSC}$, Table 13) showed a significant positive association with the variability of Negativity, while Anger ($\log\boldsymbol{\pi}_{ANGSC}$, Table 13) did so with both variability of Adversity and Deception, and rejection Expectation ($\log\boldsymbol{\pi}_{EXPSC}$, Table 13) was related to the variability in the perception of situations as Adverse and Deceptive.

Emotions. Estimates for the average innovations variances parameters ($\log\boldsymbol{\pi}_{NE}$, Table 12) were positive and significant. Participants showed high fluctuations in their negative emotions levels, especially in situations perceived as Negative. Anger about rejection ($\log\boldsymbol{\pi}_{ANGNE}$, Table 13) was significantly and positively related with variability of negative emotions, but only in situations perceived as Adverse, while Anxiety ($\log\boldsymbol{\pi}_{ANXNE}$, Table 13) only in situations

[10] The innovation variances of both situational characteristics and negative emotions are obtained by taking the exponential of $\text{Log}\boldsymbol{\pi}_{sc,i}$ and $\text{Log}\boldsymbol{\pi}_{NE,i}$, respectively.

perceived as deceptive. Rejection Expectation did not show any significant relationship with the variability of negative emotions ((log$\boldsymbol{\pi}_{EXPNE}$, Table 13).

Cross-lagged effects of negative emotions on situational characteristics

All the averaged effect from negative emotions to the three situational characteristics ($\boldsymbol{\varphi}_{ES,}$ Table 12) were positive and significant, even if very small. Experiencing negative emotions led to perceive the next situations as more Adverse, Deceptive, and Negative. Both Anger about rejection and rejection Expectation ($\boldsymbol{\varphi}_{ANGES,}$ $\boldsymbol{\varphi}_{EXPES}$, Table 13) showed positive significant associations with the cross-lagged effect of negative emotions on the perception of the current situation as Deceptive, while Anxiety on the perception of the current situation as Adverse ($\boldsymbol{\varphi}_{ANXES}$, Table 13). These results mean that for people high in both Anger about rejection and rejection Expectation, the more negative emotions at time t-1, the more perception of situational Deception at t1. Instead, for people high in Anxiety about rejection, the more negative emotions at t-1, the more perception of situational Adversity at t1.

Cross-lagged effects of situational characteristics on negative emotions

Only the averaged cross-lagged effects ($\boldsymbol{\varphi}_{SE,}$ Table 12) from situational Negativity at previous time to the current negative emotions were significant. The experience of situational Negativity was so invalidating that it even affects the level of negative emotions experienced during the next situation. None of the three RS scales showed significant associations with these cross-lagged effects (Table 13), meaning that individual differences in the affective or cognitive components of RS

does not influence the way the perception of the situation at time t-1 influenced the negative emotional experience at t1.

Discussion

The current study examined the relationship between RS and emotional responses from a new theoretical and methodological perspective. This approach aimed to pinpoint the specific pattern of both situational characteristics and emotional dynamics over time associated with RS. In particular, we focused on the general tendency, the variability, and the inertia of both situational characteristics and emotional responses over time as well as the impact of RS on the cross-lagged effects of the previous situational characteristics on the current emotions and the cross-lagged effects of previous emotions on the current situational characteristics. The analyses on the general tendency highlighted some important differences between the three RS scales.

Focusing on situational characteristics, we can observe that both Anger about rejection and rejection Expectation were associated with an increase in the levels of situational Adversity, Deception, and Negativity, while Anxiety about rejection did not show any relationship with Deception. In other words, Anxiety about rejection does not lead to perceiving situations as hostile, untrustworthy, and misleading. According to the emotion theory, social anxiety is considered a dysphoric response to the possibility of conveying undesirable impressions in others, especially when people think they are evaluated (Leary & Kowalski, 1995; Leary, 2010). We can thus hypothesize people high in Anxiety about rejection to be more likely to perceive

situations as potential occasions of frustration and tension (i.e., Negativity) or criticisms and threats (i.e., Adversity) rather than hostility and betrayal (i.e., Deception). Consistent with our results, Adversity and Negativity have been found to be strongly associated with Neuroticism and Low Agreeableness (Rauthmann et al., 2014; Rauthmann, Jones, & Sherman, 2016). Notably, these two personality dispositions were found to be also correlated with Anxiety about rejection (Premkumar, Onwumere, Albert, Kessel, Kumari, Kuipers, & Carretié, 2015; Premkumar, Onwumere, Betts, Kibowski, & Kuipers, 2018; Wang, Hartl, Laursen, & Rubin, 2017).

Regarding the negative emotions, both Anger and Anxiety about rejection were associated with an increase in the levels of negative emotions regardless of the perceived situational characteristics. On the contrary, rejection Expectation did not show any relationship with negative emotional reactions for either situational characteristics, providing support to the RS model (Downey & Feldmann, 1996) that postulates rejection Expectation to represent the cognitive and not emotional component of RS. Results on variability showed Anger about rejection and rejection Expectation to predict higher variability both in the perception of situational Adversity and Deception, while Anxiety predicted higher variability only in the perception of situational Negativity. In other words, the higher the Anger about rejection and the more rejection Expectation, the higher sensitivity and reactivity to situations perceived as threatening, problematic (i.e., Adversity), and hostile (i.e., Deception). Instead, the higher the Anxiety about rejection, the more the reactivity

to situations perceived as unpleasant. Following the same reasoning applied to our findings on the general tendency, since anxiety is linked to the concern and fear about other people's impressions and judgment, the fact that Anxiety about rejection led to greater sensitivity to situations eliciting frustration, tension, and guilt (i.e., Negativity) was not surprising. At the same time, the fact that Anger about rejection led to a greater sensitivity to situations perceived as adverse and deceptive was also expected. According to the emotion theory, anger is associated with an action tendency toward agonistic behavior aimed at fighting obstacles and asserting control (Frijda, 1986). Thus, in situations perceived as threatening and hostile, the person high in Anger about rejection might experience the feeling of losing control. These patterns of associations were not totally confirmed when analyzing variability of negative emotions. Anger about rejection predicted higher fluctuations of negative emotions only in situations perceived as Adverse, while Anxiety predicted higher variability of negative emotions only in situations perceived as Deceptive. Again, rejection Expectation did not show any relation to the variability of negative emotions in neither of the situations considered.

Concerning inertia, none of the three RS scales was related to the inertia of situational characteristics. This result is surprising and partly inconsistent with the literature (e.g., Koval, Sütterlin, & Kuppens, 2016; Kuppens, Sheeber, Yap, Whittle, Simmons, & Allen, 2012; Trull, Lane, Koval, & Ebner-Priemer, 2015). By definition, RS implies a perceptual bias in interpersonal situations, which results in a sort of perceptual rigidity and dissociation from environmental stimuli. The same

mechanism underlies the phenomenon of inertia. Inertia signals one's difficulty in staying tuned with and responding to ongoing events. In spite of their common features, RS and inertia did not show any relationship. We hypothesize that this lack of relationship was due to the fact that the extent to which this common underlying mechanism is reduced at low levels of RS, which was the case for our participants. Future research might explore further this point by also considering participants with higher RS. Our findings also showed that only rejection Expectation predicted inertia of negative emotions in situations perceived as Adverse. Situational Adversity describes situations perceived as characterized by threats, blaming, criticism, and victimization. Thus, in our opinion, it represents the situational characteristics that would best describe rejecting situations. Therefore, it is not surprising that the cognitive component of RS led people to experience inertia of negative emotions in such situations.

Concerning the cross-lagged effect of the previous situational characteristics on the current negative emotions, only the effect of Negativity was significant, and none of the RS components showed significant effect. Not only this result was consistent with the recent literature on the person-situation interaction (Sherman, Nave, & Funder, 2010; Sherman et al., 2015; Jones, Brown, Serfass, & Sherman, 2017; Funder, 2016), but it was also partly expected, since Negativity describes the extent to which a situation elicits any negative feelings.

Finally, previous negative emotions affected the current situational perception. Anger about rejection predicted the cross-lagged effects of emotions for the

perception of Deception, while Anxiety about rejection predicted them for the perception of Adversity. These results provide evidence that considering the interplay between personality disposition, situational characteristics, and emotions represents a suitable strategy to get a comprehensive and exhaustive understanding of psychological phenomena, such as RS. Furthermore, the results are in line with previous research showing Anger and Anxiety about rejection represent two different forms of RS, with different correlates and consequences (i.e., externalizing problems and internalizing problems, respectively) (Downey et al., 1998).

To summarize, this contribution introduced some important elements of novelty in the study of RS. First, we examined how individuals subjectively perceive the characteristics of the situations faced in their daily life. Through this approach, rather than focusing on the observed outcomes of a rejecting situation, we investigated the RS phenomenon by looking at its subjective experience. Second, we introduced a dynamic perspective to the investigation of RS to examine how RS affects individuals in their interaction with the natural environment, day by day. This study highlights the importance of studying psychological phenomena from a novel approach, which focuses on the process, rather than on traits, and relies on the subjectivity of individuals, to provide a more complete picture.

Chapter 5

The impact of Rejection Sensitivity on maladaptive behaviors: The role of situational Adversity and rumination in adolescents' daily life[11]

[11]The chapter is based on Casini, E., Preti, E., Richetin, J., & Zimmerman, J. (manuscript in preparation). The impact of Rejection Sensitivity on maladaptive behaviors: The role of situational Adversity and rumination in adolescents' daily life.

Overview

In Chapter 4, we introduced the theoretical and practical importance of studying RS using a dynamic approach. We examined the relationship between the three RS components, the perception of situational characteristics, and the emotional reactions changes over time. In Chapter 5, we adopted the dynamic approach for studying the relationship between RS, rumination, situational adversity, and two maladaptive behaviors (i.e., aggression and isolation) over time in a sample of adolescents. More specifically, the aim of the study presented in this Chapter was twofold: (i) Examining whether RS moderated the typical relation between situational adversity and rumination, situational adversity and behavioral intentions, and rumination and behavioral intentions within the same situation, over time; (ii) Testing the existence of cross-lagged effects of rumination at a previous moment in time on the perception of situational adversity and the behavioral intentions at the next moment in time, exploring the role played by RS in qualifying the effects under examination. One-hundred-forty-two adolescents filled in a battery of self-report questionnaires to assess, among others Rejection Sensitivity. Then they installed an App on their phone and completed a short survey five times a day for fifteen days in which they were asked to report an interpersonal situation experienced in the last hour, the emotion regulation strategies used, and the maladaptive behaviors within this situation. Results showed that RS moderates only three relationships. In particular, rejection Expectation moderated the relationship between the perception of situational Adversity and isolation. Instead, Anger about rejection moderated the

relationship between rumination and aggression. Anger about rejection moderated also the cross-lagged relationship between rumination and situational Adversity. We discussed the results stressing the importance of a dynamic approach, which allows obtaining a more realistic picture of RS and its effects. Results were also discussed in light of their implications for a better comprehension of adolescence itself.

Introduction

Psychological and social adjustment during adolescence is affected by the extent to which relationships with peers are rejecting, as opposed to inclusive (e.g., Laursen & Collins 2009; Leary 2001; Rubin, Bukowski, Parker, & Bowker, 2008; Twenge & Nolen-Hoeksema, 2002; Williams & Govan, 2005; Zimmer- Gembeck, Waters, & Kindermann, 2010). Peer rejection has been associated with several negative effects in the short and long-term (see reviews by Bierman, 2004; Nesdale, 2008; Rubin, Bukowski, & Parker, 1998; Williams, 2007). For example, chronic rejection is linked to externalizing problems, aggression, and delinquency, and internalizing problems, such as anxiety and depression (Kupersmidt, Coie, & Dodge, 1990; McDougall, Hymel, Vaillancourt, & Mercer, 2001; Sandstrom & Zakriski, 2004; Crick & Grotpeter, 1995; Zimmer-Gembeck, Hunter, & Pronk, 2007). Moreover, prolonged rejection experiences might instigate a disposition toward Rejection Sensitivity (RS). This disposition has been described as a pattern of social information processing that includes a heightened tendency to anxiously and angrily expect, readily perceive, and overreact to implied or overt interpersonal rejection (Downey & Feldman, 1996; Feldman & Downey, 1994).

In their model of RS, Downey and Feldman (1996) assume the dispositional expectations of rejection to be associated with a hypervigilance for stimuli that could signify rejection (distorted perceptions of the interpersonal situation), which in turn instigates negative emotional responses (e.g., anxiety, anger), as well as an increased likelihood to act out maladaptive behaviors (e.g., aggressive responses). In turn,

these overreacting responses elicit rejection from others, thereby fostering a self-fulfilling prophecy. Therefore, it is not surprising that RS is a well-established risk factor for poor social adjustment and well-being in adolescence (Thomas & Bowker, 2015). More specifically, angry expectations of rejection predict aggressive behaviors and feelings of victimization, while anxious expectations of rejection predict social anxiety, withdrawal, and depression (London, Downey, Bonica, & Paltin, 2007; McDonald, Bowker, Rubin, Laursen, & Duchene, 2010; Zimmer-Gembeck & Nesdale, 2013; Zimmer-Gembeck, Nesdale, Webb, Khatibi & Downey, 2016). However, little is known about which mechanism may underlie the potential pathway through which RS could be related to these maladaptive behaviors. Since, according to the RS model (Downey & Feldman, 1996; Downey, Freitas, Michaelis, & Khouri, 1998), the perception of rejection immediately elicits a strong activation of negative emotions, we hypothesized that emotion regulation strategies could be an important mechanism for explaining the relationship between RS and dysfunctional behavioral responses. More specifically, while engaging in adaptive emotion regulation strategies could play a buffering role against maladaptive behaviors, engaging in negative ones could play a risk role.

The general concept of emotion regulation can be understood as "*all the extrinsic and intrinsic processes responsible for monitoring, evaluating and modifying emotional reactions, especially their intensive and temporal features, to accomplish one's goals*" (Thompson, 1994, p. 27). We thus assume that, when facing with perceived rejection, adolescents high in RS might experience such negative

emotions that they are not able to regulate adaptively. More specifically, we hypothesized RS to be related with rumination. Rumination refers to overthinking about the feelings and thoughts associated with a negative event (Garnefski & Kraaij, 2007). It is correlated with a variety of maladaptive cognitive styles, including negative inferential or attributional styles as well as the RS (i.e., rejection expectation). To our knowledge, only one study has investigated the relationship between RS and rumination. In this study, Pearson et al. (2010) found RS to predict a higher level of rumination in an adult sample. Instead, some other research has suggested a potential role of RS in exacerbating rumination. For example, Saffrey and Ehrenberg (2007) found that, following an interpersonal rejection, rumination was elevated in individuals with heightened fears of rejection and abandonment. Furthermore, increased recall and activation of negative material would lead to increased accessibility of negative memories of rejection, which may feed into repetitive and ruminative thought. Quirck, Wier, Martin, Further, & Christian (2015) found parental rejection to predict an increase in rumination in a sample of adolescents. Again, Chu and colleagues (2018) showed victimized and bullied adolescents to be prone to ruminate.

However, most of the studies reviewed share three limitations. First, all of them have been conducted in laboratory settings. Despite researchers' efforts to maximize the external validity of their studies, the conditions created in the laboratory cannot be fully comparable to real-life experiences of rejection. Consequently, the emotion regulation strategies observed do not necessarily reveal what would happen in people

daily life. Second, in all these studies, individuals have to answer a series of self-report questionnaires about how they would respond to a rejecting situation (hypothetical) or how they responded to a rejecting situation that happened in the past (retrospective). Thus, it remains unclear whether their responses regarding emotion regulation strategies adequately reflect what they do in the moment of a real situation. Finally, all these studies rely on cross-sectional designs with a single measurement occasion. These designs assume that the effect of RS is stable over time and do not change across situations, which we argue might not be realistic. In this regard, during the last few years, there have been consistent efforts to go beyond the traditional definitions of personality only as a stable trait. Indeed, an increased number of researchers has suggested the importance of conceptualizing it in dynamic terms. According to this perspective, personality is also a dynamic process emerging from the interactions with the environment and changing in coordination with internal (e.g., emotion regulation) and external (e.g., social behavior) stimuli in everyday life (Hopwood, Zimmermann, Pincus, & Krueger, 2015). Because itis a personality disposition, RS should be also in a dynamic perspective, whose effects on individuals' psychological functioning are likely to change over time. This novel approach has thus led not only to studying between-person differences in RS (e.g., high and low RS) but also how its effects on individuals' psychological functioning change within a single person across situations over time (Cervone, 2005; Mischel & Shoda, 1995; Moskowitz & Zuroff, 2004). From a methodological perspective, a growing body of research started collecting data requiring individuals to complete

assessments on a relatively large number of occasions (e.g., ecological momentary assessment, experience sampling method). Such methods result in intensive longitudinal data.

One of the most valuable properties of these data is that they can capture the temporal dynamic nature of psychological phenomena, accounting for their intraindividual dynamic in daily living. For example, such data allow focusing on how specific individual constructs (e.g., rumination and aggressive behavior) are usually related to each other across time. They can also inform how one construct (e.g., rumination) at time 1 influences another (e.g., aggressive behavior) at time 2. This type of relation, namely cross-lagged relation, is very informative for describing intraindividual temporal dynamics. Cross-lagged relations reflect the underlying reciprocal process that takes place at the within-person level between different variables across time. For example, how and how much the emotion regulation strategies at a previous moment affect the behavioral intentions in a subsequent moment, providing information about the structural relationship between these two constructs and highlighting important driving forces in the individual dynamic system. Studying these relations would add to our knowledge of RS and its influence on adolescents' daily life.

Aims of the contribution

To our knowledge, the relationships between RS and rumination strategies remained partly unexplored, especially in adolescent samples. The present study aimed at testing such a relationship, expecting that higher levels of RS predict a

stronger tendency to ruminate. Besides this, we also aimed at providing a further understanding of this relationship in everyday life contexts. To this end, we studied the relationships between RS and rumination together with two other variables, that are behaviors and situation perceptions. First, we focused on aggression and isolation behaviors because they represent the typical behavioral reactions to rejection (Zimmer-Gembeck et al., 2013). We thus expected that the higher RS, the more aggression and isolation. Likewise, we expected that the higher rumination, the more maladaptive behaviors. Second, for situation characteristics, we decided to focus specifically on Adversity, because it describes a situation perceived as victimizing and blaming and, for this reason, it is very similar to a rejecting situation. Again, we expected that the higher RS, as well as the higher rumination, the more proneness in perceiving situations as adverse. Our choice to focus on situations represents an innovative aspect in RS research. Situations are crucial elements in understanding the human being (Furr & Funder, 2018). More specifically, the person (e.g., an individual with a certain level of RS) and the situation (e.g., social interaction) are two factors that affect each other, and their interaction is essential to examine one's psychological functioning (e.g., behaviors) (Funder, 2016; Rauthmann et al., 2014). Within this framework, Rauthmann and colleagues (2014) have introduced an innovative perspective in the study of situations, which focuses on the psychological characteristics of situations (e.g., how adverse one perceives it), rather than on objective stimuli (e.g., where the situation takes place, how many people are present). These psychological characteristics can be described as the personal interpretations

that people form about objective situational cues and have been considered as fundamental for a better understanding of the role of situations in affecting people's behavioral and emotional responses. The authors have also developed a taxonomy of the major dimensions of situation characteristics, the Situational Eight DIAMONDS model (Rauthmann et al., 2014), distinguishing between eight types of situation characteristics, Duty, Intellect, Adversity, Mating, pOsitivity, Negativity, Deception, and Sociality.

Another important innovative aspect of the present study is the adoption of a dynamic perspective, allowing us to test how RS affects adolescents' daily life. In particular, we focused on whether RS would moderate the typical relation between situational Adversity and rumination, situational Adversity and behavioral intentions, and rumination and behavioral intentions over time. Furthermore, we tested the existence of cross-lagged effects of rumination at a previous moment on the perception of situational Adversity and the behavioral intentions at the next moment, exploring the role played by RS in qualifying the effects. Given that the impact of RS on the cross-lagged relationship between rumination, situational Adversity, and behavioral intentions has never been explored before, our aim was purely explorative, and we did not have any directional hypotheses. Note that we differentiated between the cognitive (expectation) and affective (anxiety and anger) components of RS, hypothesizing that this distinction would provide specific relations between the three factors and situational adversity, rumination and the two

behaviors (Zimmer-Gembeck & Nesdale, 2013; Zimmer-Gembeck et al., 2016; see also Chapter 3).

Method

Participants and procedure.

One-hundred-ninety-three adolescents (110 males and 84 females; M_{age} = 14.82; *SD* = 0.95) were recruited in several high schools in an urban area of Italy. The present study consisted of two phases. During the first phase, participants filled in a battery of online questionnaires which included, among other measures, the Children's Rejection Sensitivity Questionnaire (CRSQ, Downey et al., 1998; London, Downey, Bonica, & Paltin, 2007)[12]. This phase was conducted in a classroom. During the second phase, in a group session, participants installed an App, explicitly programmed for the present study, on their smartphone. Using a fixed-interval measurement schedule, this App prompted participants five times a day (2:00 p.m., 4:00 p.m., 6:00 p.m., 8:00 p.m., 10:00 p.m) for fifteen days. At each assessment, participants had to think about a social situation in which they were in the last hour and describe it using the ultra-brief version of the situational eight DIAMONDS (Rauthmann & Shermann, 2016). Furthermore, they indicated the extent they applied a series of emotion regulation strategies in the reported situation, via a measure adapted from the Cognitive Emotion Regulation Questionnaire

[12] The other questionnaires administered during the first session were the HEXACO-60 (Ashton & Lee, 2009), the Louvain Loneliness Scale for Children and adolescents (LLCA; Marcoen, Goossens & Caes, 1987) and the Cognitive Emotion Regulation Questionnaire (CERQ; Garnefski & Kraaij, 2007).

(Garnefski, Kraaij, & Spinhoven, 2002), and their behavioral intentions following the situation (Riva, 2015). When adolescents did not complete the survey at the specific prompt, two reminders were sent after 10 minutes and 20 minutes respectively. A 30-min window of time was available to complete each assessment. After this time, the diary survey was not available until the next scheduled assessment. The data collection lasted for 15 days, although some participants interrupted their participation earlier and others kept using the app for a few more days. All participants completed both parental consent forms and adolescents assent forms. This research has been approved by the Ethics Committee of the University of Milan-Bicocca.

For the analyses of the present contribution, we decided to retain only participants who complied sufficiently with the instructions and provided a sufficient number of responses (> 75%) during the second phase. The final sample, thus, included one-hundred-forty-two adolescents participants (74 males and 69 females, M_{age} = 14.83; *SD* = 0.91).

Measures

Children's Rejection Sensitivity Questionnaire (CRSQ, Downey et al., 1998; London, Downey, Bonica, & Paltin, 2007). It assesses children's rejection sensitivity regarding anxious and angry about rejection, and expectations of rejection. The scale consists of 12 hypothetical interpersonal situations (6 involving peers, and 6 involving teachers) with potential positive or negative outcomes. For example, a peer situation is "*Imagine you are the last to leave the classroom for lunch one day. As*

you're running down the stairs to get to the cafeteria, you hear some kids whispering on the stairs below you. You wonder if they are talking about you". A teacher situation is "*Pretend you have moved and you are going to a different school. In this school, the teacher lets the kids in the class take home a video game to play with on the weekend. Every week so far, you have watched someone else take it home. You decide to ask the teacher if you can take home the video game this time. You wonder if she will let you have it*". For each situation, participants indicated whether they would be nervous about the response to their request on a 6-point Likert scale, ranging from 1 ("*not nervous"*) to 6 ("*very, very nervous"*) and whether they would expect the other person to honor the request on a 6-point Likert scale ranging from 1 ("*yes!"*) to 6 ("*no!"*). In addition, different from the adult version of the questionnaire, Downey et al. (1998) added a question about whether the child would be angry (*mad*) about the response to her/his request on a 6-point Likert scale ranging from 1 ("*not mad"*) to 6 ("*very, very mad"*). Thus, the CRSQ includes three subscales. For each of them, a score was calculated by averaging the relevant items: Rejection expectations, Anxiety about rejection, and Anger about rejection (see Zimmer-Gembeck, Nesdale, Webb et al., 2016). The internal consistencies for the CRSQ subscales in the study sample were satisfactory (α= .71, α=.85, and α=.85, respectively).

Ultra-Brief Situational Eight DIAMONDS (Rauthmann & Sherman, 2016). It assesses eight situational characteristics, Duty, Intellect, Adversity, Mating, pOsitivity, Negativity, Deception, and Sociality, using a single item for each, on a

scale from 1 (*not at all*) to 7 (*totally*). As already stated, in the present study, we focused on only one DIAMONDS dimensions that is more related to rejection Adversity.

Cognitive Emotion Regulation Questionnaire (CERQ; Garnefski, Kraaij, & Spinhoven, 2002; Italian version published by Presaghi & Ercolani, 2005). It assesses what people think at the time of or after the experience of threatening or stressful life events. From the original 36-item questionnaire consisting of nine subscales, with four items each (Self-blame, blaming others, rumination, catastrophizing, putting into perspective, positive refocusing, positive reappraisal, acceptance, and refocusing on planning), we only assessed rumination, using a single item for each, on a scale ranging from 1 (almost never) to 5 (almost always).

Behavioral Tendencies Questionnaire (adapted from Riva, 2015). It assesses the participants' intention to enact each of three behaviors in the reported situation: aggression ("Being aggressive, through words or through actions, towards the person I am with"), isolation ("Go away, isolate myself"), and cooperation ("Be nice to the other person") on a scale from 1 (*not at all*) to 7 (*very much*). In the present contribution we focused on aggression and isolation.

Data Analysis and Results

The moderating role of RS on the typical relationship between constructs over time

We used a multilevel modeling (MLM) approach to assess whether RS moderate (i) the typical relationship between situational adersity and rumination over

time, and (ii) the typical relation between situational adversity or rumination and maladaptive behaviors (i.e., aggression and isolation) over time. This approach provides a statistically rigorous framework to simultaneously model within-person and between-person associations while accounting for dependencies in the repeated measures data to obtain proper standard errors (Bryk & Raudenbush, 1992; Snijders & Bosker, 1999). In the current study, the EMA ratings of the situational adversity, rumination, and maladaptive behaviors represent the Level-1 (within-person) data, while the three RS components (Anxiety about rejection, Anger about rejection, and rejection Expectation) represents the Level-2 (between-person) data. Our data were thus modeled using a set of two-level models. In Level-1, we introduced separately situational Adversity and rumination as random predictors. In Level-2 we introduced separately the three RS components (i.e., Anxiety about rejection, Anger about rejection, and rejection Expectation) as fixed predictors. To test the moderating role of RS components, we entered cross-level interactions between the Level-1 (i.e., situational Adversity and rumination) and the Level-2 predictors (i.e., the three RS components) considering it as a fixed effect. We investigated interactions by calculating simple intercepts and slopes at ± 1 standard deviation from the sample means. For the analyses, all Level-2 variables were sample-centered to facilitate interpretation of model parameters as representative to the prototypical participant, while all Level-1 variables were person-centered to interpretation parameters as fluctuations from that person's average score. An example of our final model can be

described as in the equation below when including the situational Adversity as Level-1 predictor and aggression as outcome:

Within-person level model (Level-1).

$aggression_{it} = ß_{oi} + ß_{1i}(\text{situational Adversity}_{it}) + \varepsilon_{it}$

Between-person level model (Level-2).

$ß_{oi} = \gamma_{00} + \gamma_{01}(RS_i) + \upsilon_{oi}$

$ß_{1i} = \gamma_{10} + \gamma_{11}(RS_i) + \upsilon_{1i}$

Full model.

$aggression_{it} = \gamma_{00} + \gamma_{10}(Adversity_{\mu i}) + \gamma_{01}(RS_i) + \gamma_{11}(RS_i) + \upsilon_{oi} + \upsilon_{1i}(adversity_{\mu i}) + \varepsilon_{it}$

where aggression represents the level of such maladaptive behavioral intention reported by individual (i) at time (t); γs the sample-level parameters; υ_{0i} the unexplained between-person differences in individuals' prototypical maladaptive behavior; υ_{1i} the unexplained between-person differences in situational Adversity and behavioral intention associations (random slopes); and ε_{it} the unexplained residuals (assumed homoscedastic). RS refers to Rejection Sensitivity for each individual (i). We implemented our analyses with the open-source statistical software R (version 3.1.2; R Core Team, 2014), together with the packages lme4 (version 1.1-7; Bates, Mächler, Bolker, & Walker, 2014) and lmerTest (version 2.0-11; Kuznetsova, Bruun Bockhoff, & Haubo Bojesen Christensen, 2013).

Situational Adversity predicted rumination in all three models (Table 14). All the RS components showed a positive main effect, meaning that RS leads adolescents

ruminate. On the contrary, the relationship between Adversity and rumination was not affected by RS, indicating that the intensity of such a relationship is the same for people with different level of RS.

Table 14

Moderating effect of rejection sensitivity on the prototypical relationship between Adversity and rumination

	Anger about rejection Model		Anxiety about rejection Model		rejection Expectation Model	
Fixed-effects	*β*	*SE*	*β*	*SE*	*β*	*SE*
Within-person associations						
Adversity, γ_{10}	0.18***	0.03	0.19***	0.03	0.18***	0.03
Between-person associations						
Intercept, γ_{00}	3.29***	0.14	3.28***	0.13	3.29***	0.14
RS scale, γ_{01}	0.40*	0.15	0.48***	0.13	0.42*	0.20
RS moderating within-person associations						
Adversity x RS scale, γ_{11}	0.03	0.03	-0.03	0.03	0.05	0.05

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

Adversity also predicted aggression in all three models (Table 15). While both rejection Expectation and Anger about rejection showed a positive main effect, Anxiety about rejection did not. In other words, while adolescents higher in both rejection Expectation and Anger about rejection usually show an increase in

aggressive reactions, anxious about rejection adolescents do not usually engage in such behaviors. Once more, the RS components did not moderate the relation between situational Adversity and aggression, meaning that such a relationship do not change at different levels of RS.

Table 15

Moderating effect of rejection sensitivity on the prototypical relationship between Adversity and aggression

	Anger about rejection Model		Anxiety about rejection Model		rejection Expectation Model	
Fixed-effects	*β*	*SE*	*β*	*SE*	*β*	SE
Within-person associations						
Adversity, γ_{10}	0.27***	0.03	0.28***	0.03	0.27***	0.03
Between-person associations						
Intercept, γ_{00}	1.82***	0.08	1.82***	0.08	1.81***	0.08
RS scale, γ_{01}	0.19*	0.09	0.03	0.08	0.24*	0.11
RS moderating within-person associations						
Adversity x RS scale, γ_{11}	0.04	0.03	-0.00	0.03	0.06	0.04

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

There was a positive relationship between situational Adversity and isolation in all three models (Table 16). While rejection Expectation showed a main significant

effect, both Anger and Anxiety about rejection did not. However, we found an interaction effect between situational Adversity and rejection Expectation. Decomposing the interaction, through a visual inspection, we observed that the effect of situational Adversity on isolation was stronger for adolescents higher in rejection Expectation (Figure 6).

Table 16

Moderating effect of rejection sensitivity on the prototypical relationship between Adversity and isolation

	Anger about rejection Model		Anxiety about rejection Model		rejection Expectation Model	
Fixed-effects	*β*	*SE*	*β*	*SE*	*β*	*SE*
Within-person associations						
Adversity, γ_{10}	0.23***	0.04	0.24***	0.04	0.23***	0.04
Between-person associations						
Intercept, γ_{00}	1.96***	0.10	1.96***	0.10	1.96***	0.09
RS scale, γ_{01}	0.02	0.11	-0.02	0.10	0.34*	0.14
RS moderating within-person associations						
Adversity x RS scale, γ_{11}	0.05	0.04	0.01	0.04	0.10*	0.05

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

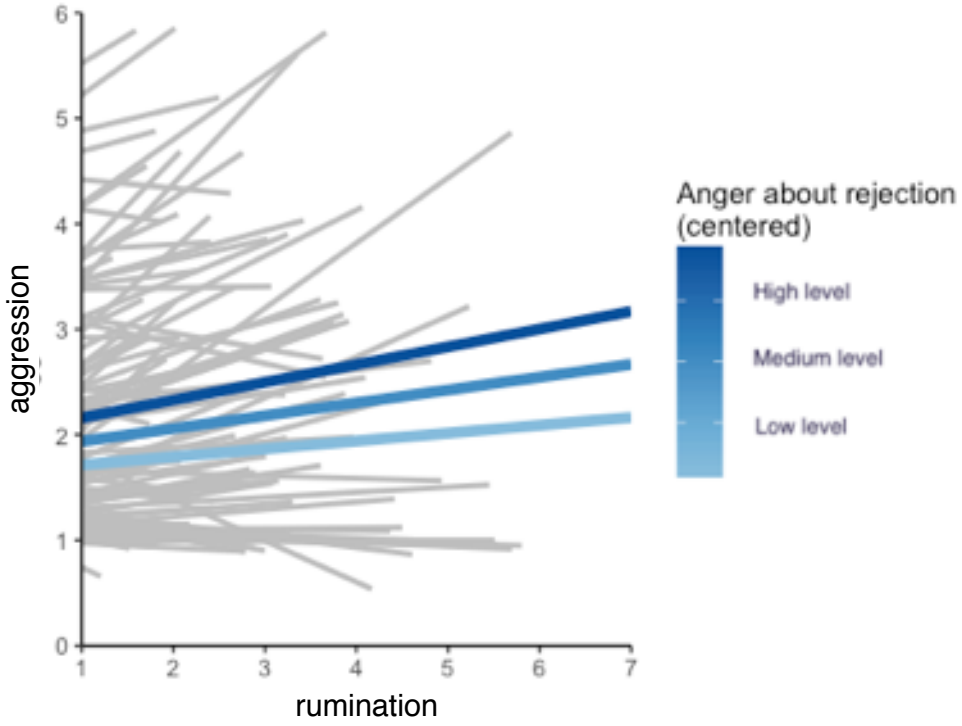

Figure 6. Moderating effect of Anger about rejection on the typical relationship between rumination and aggression

Rumination predicted positively aggression in all three models (Table 17). Both rejection Expectation and Anger about rejection showed a positive main effect on aggression, while Anxiety about rejection did not. We also found an interaction effect between Anger about rejection and rumination. When we inspected this interaction, we observed that adolescents with higher levels of Anger about rejection showed a stronger association between rumination and aggression than adolescents with medium and lower levels (Figure 7).

Table 17

Moderating effect of rejection sensitivity on the prototypical relationship between rumination and aggression

	Anger about rejection Model		Anxiety about rejection Model		rejection Expectation Model	
Fixed-effects	*β*	*SE*	*β*	*SE*	*β*	*SE*
Within-person associations						
Rumination, γ_{10}	0.12***	0.02	0.12***	0.02	0.12***	0.02
Between-person associations						
Intercept, γ_{00}	1.82***	0.08	1.82***	0.81	1.82***	0.08
RS scales, γ_{01}	0.19*	0.09	0.03	.08	0.24*	0.11
RS moderating within-person associations						
Rumination x RS scales, γ_{11}	0.05*	0.22*	-0.01	0.02	0.04	0.03

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

Finally, rumination predicted isolation in all three models (Table 18). While both Anger and Anxiety about rejection did not show any significant main effect, rejection Expectation was positively associated with isolation. No significant interaction effect was found, meaning that the effect of rumination on isolation did not vary at the different level of RS.

Table 18

Moderating effect of rejection sensitivity on the prototypical relationship between rumination and isolation

	Anger about rejection Model		Anxiety about rejection Model		rejection Expectation Model	
Fixed-effects	*β*	*SE*	*β*	*SE*	*β*	*SE*
Within-person associations						
Rumination, γ_{10}	0.11***	0.03	0.11***	0.03	0.11***	0.02
Between-person associations						
Intercept, γ_{00}	1.96***	1.01	1.96***	0.10	1.96***	0.10
RS scales, γ_{01}	0.02	0.11	-0.02	0.09	0.33***	0.14
RS moderating within-person associations						
Rumination x RS scales, γ_{11}	0.01	0.03	-0.02	0.03	0.05	0.04

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

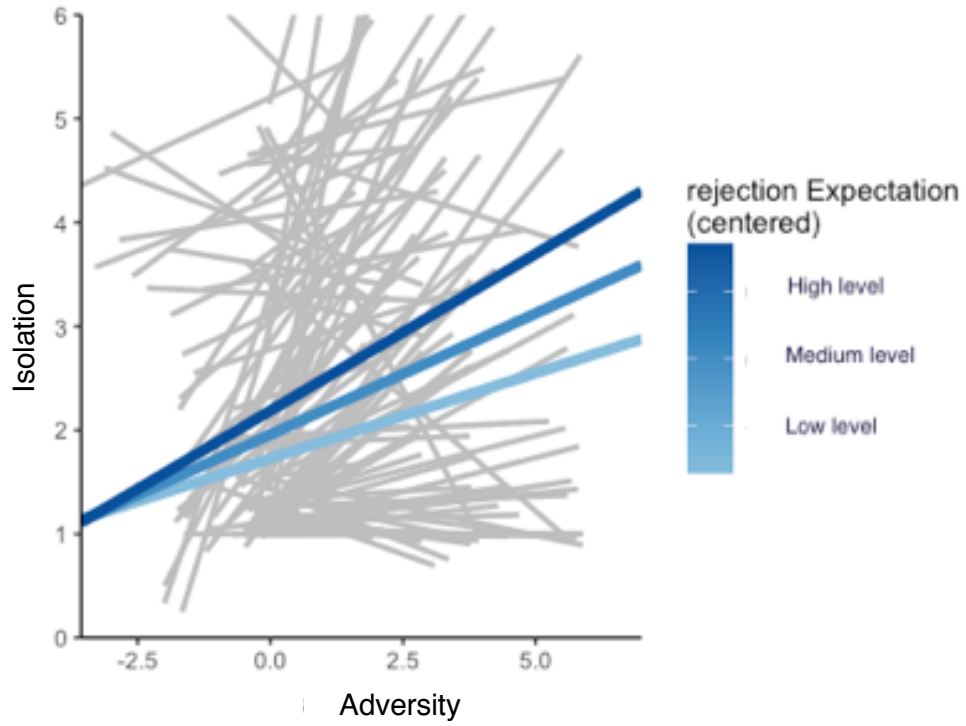

Figure 7. Moderating effect rejection Expectation on the typical relationship between adversity and isolation

The moderating role of RS on cross-lagged relationship between situational adversity, ruminations, and maladaptive behaviors.

We adopted a Dynamic Structural Equation Modeling (DSEM; Asparouhov, Hamaker, & Muthén, 2017; Hamaker, Asparouhov, Brose, Schmiedek, & Muthén, 2018) approach to test whether RS moderates the cross-lagged effects of rumination at one moment on the perception of situational adversity at the next moment. The DSEM represents a new approach allowing for the simultaneous estimation of multiple time series and it has recently been implemented in version 8 of MPLUS software (Muthén & Muthén, 2017). This approach acknowledges the nested

structure of the data by providing a multilevel extension of autoregressive models, in which intra-individual changes over time both in situational characteristics, emotion regulation strategies, and behavioral intentions (within-person, Level 1) are nested within individuals (between-person, level 2), and allows for the inclusion of Level-2 predictors and outcome variables in the model. DSEM also allows for individual differences (i.e., random variance) in the intercept and the autoregressive parameter. These models are implemented in a Bayesian framework such that all unknown parameters need to be given a prior distribution. For the fixed effects, the default prior distribution included in Mplus follows a normal distribution $N(0, 10^{10})$, while for the covariance matrices of the random effects, the defaults diffuse prior is an inverse Wishart with a zero matrix for scaling and degrees of freedom equal to minus the number of variables minus 1. The inferential conclusions are drawn based on the confidence intervals (CIs) of these posterior distributions. We follow Hamaker and colleagues (Hamaker et al., 2018) and Asparouhov and colleagues (Asparaouhov et al., 2017) to present DSEM. We conducted three multilevel models. Model 1 to Model 3 included rumination and adversity as Level-1 data (within-person), while one of the RS components (i.e., Anxiety about rejection, Anger about rejection, and rejection Expectation) as a Level-2 (between-person) predictor. Each model was based on a first-order vector autoregressive (VAR[1]) model.

We will describe all models in details. Conceptually, the DSEM first decomposes data into a within-person and a between-person components, as shown in Equation 1, where the superscript (W) stands for “within”.

$$ADV_{it} = \mu_{ADVi} + ADV_{it}^{(W)} \qquad RUM_{it} = \mu_{RUMi} + ADV_{it}^{(W)}$$

(1)

Where $\mu_{ADV,i}$ is the time-invariant means of situational adversity of person *i*; $ADV_{it}^{(W)}$ represents the individual (within-person) temporal deviations from μ_i at time t.

Within-person level model. The within-person components $ADV^{(W)}$ is decomposed as in the following equation:

$$ADV_{it}^{(W)} = \phi_{AR,i} RUM_{it-1}^{(W)} + \varepsilon_{ADV,it}^{(W)}$$

(2)

Where $\phi_{AR,i}$ is the cross-lagged regression effect from situational adversity to rumination at the next occasion; and $\varepsilon_{ADV,it}$ is the residual representing the variations in adversity at trial t not explained by adversity at trial t-1. This residual is supposed to be normally distributed around zero with constant variance σ_ε^2.

Between-person model. In our models, both the mean μ_{ADV} and the cross-lagged effects $\phi_{AR,i}$ are allowed to vary across persons (hence the subscript *i*). That is, it has random effects, as in

$$\mu_{ADV,\,i} = \gamma_{ADV} + \upsilon_{ADV,\,i}$$

$$\phi_{AR,\,i} = \gamma_{AR} + \upsilon_{AR,\,i}$$

(7)

where the γ represents the fixed or averaged effect, and υ the individual deviation from these means.

For all models, the three RS scales were regressed on the means (μ_{ADV}, μ_{RUM},) and on the cross-lagged regression coefficients ($\phi_{AR,i}$).

Table 19

Moderating effect of rejection sensitivity on the cross-lagged relationship between rumination and isolation

Fixed-effects	Model Anger about rejection		Model Anxiety about rejection		Model rejection Expectation	
	Mean	95%CI	Mean	95%CI	Mean	95%CI
rum_{t-1} ,φ_{AR}	0.13	[-0.06, 0.33]	0.02	[-0.03, 0.08]	0.07	[-0.09, 0.22]
RS, γ_{ADV}	0.11	[-0.02, 0.23]	0.04	[-0.09, 0.17]	0.05	[-0.06, 0.16]
RS, γ_{RUM}	0.14	[0.02, 0.27]	0.50	[0.21, 0.76]	0.02	[0.00, 0.23]
RS, γ_{RA}	0.18	[0.04, 0.03]	-0.00	[-0.06, 0.06]	0.06	[-0.14, 0.27]

Results showed that none of the averaged cross-lagged association between rumination and situational adversity (ϕ_{AR}) was significant (Table 19). Ruminating on a previous situation did not lead perceiving the next situation as more adverse. However, while both Anxiety about rejection and rejection Expectation did not show any significant association with the cross-lagged effect of rumination on situational adversity, Anger about rejection showed a positive relationship (γ_{AR}). For people high in Anger about rejection, the more rumination at time t_{-1}, the more perception of situational adversity at t_1. None of the three RS components showed a significant main effect on situational adversity and t_1 (γ_{ADV}) but all of them predicted higher

levels of rumination (γ_{RUM}), indicating that the higher the level of RS, the stronger propensity to ruminate.

Discussion

Although research has shown RS to be a strong predictor of psychological maladjustment during adolescence (Rubin et al., 2008; Thomas & Bowker, 2015), little is known about its potential interplay with other factors in affecting such maladjustment. The present study adds to the previous literature from both a methodological and a theoretical point of view. Using a dynamic approach, the moderating effect of RS on the relationship between the perceived situational characteristics and both emotion regulation strategies and maladaptive behavioral intentions was tested. More specifically, we investigated whether RS moderates the prototypical relationship between (i) situational adversity and rumination, (ii) situational adversity and maladaptive behavioral intentions (i.e., aggression and isolation), (iii) rumination and maladaptive behavioral intentions (i.e., aggression and isolation), and (iv) the cross-lagged relationship of rumination at t-1 on situational adversity at t1.

Focusing on the within-person level, our results showed that perceiving a situation as adverse increased both rumination and maladaptive behavioral intentions, regardless of the RS components considered as moderator. Similarly, rumination was always associated with both aggression and isolation. Our results are in line with previous studies demonstrating this emotion regulation strategy to be a critical risk factor for behavioral aggression (DeWall, Baumeister, Stillman, &

Gailliot, 2007; Turner & White, 2015). At the same time, this study adds to the previous literature on rumination by revealing its relationship with two variables never considered before, that are, isolation behavior and situational adversity.

Focusing on the between-person level, results highlighted some similarities and differences between the three RS scales. First, the three RS components always showed to be positively associated with rumination, meaning that the higher the level of RS, the higher tendency in engaging in such maladaptive emotion regulation strategy. This result confirms previous findings (Silvers et al., 2012; Pearson et al., 2012; Velotti, Garofalo, & Biffi, 2015), providing further evidence of the relationship between RS and impairments in regulating capacities. Second, both rejection Expectation and Anger about rejection predicted an increase in the levels of aggression. This finding is consistent with previous RS literature stating Angry expectation to be strongly related to aggression (London et al., 2007; Jacobs & Harper, 2013). It is also supported by emotions theory, based on which anger is associated with an action tendency toward agonistic behavior aimed at fighting obstacles and asserting control (Lench, Tibbett, & Bench, 2016; Frijda, 1986). Thus, aggression would represent a concrete expression of such agonistic behavior. Third, Rejection Expectation showed to be positively associated with the intention to isolate oneself. Taken together, these results showed that the mere expectation of rejection led adolescents to engage in both aggressive and withdrawal behaviors. We can hypothesize that higher rejection Expectation leads adolescents to think about themselves as the "disliked" and subsequently to behave maladaptively. Beside any

speculation, this result confirms the central role of being both accepted and liked for the adolescents' well-being (Rubin et al. 2008).

RS was found to moderate only two relationships. First, a significant within-person association between the perception of situational adversity and isolation was found only when rejection Expectation was considered as moderator. For adolescents high in rejection Expectation, perceiving situations as blaming and victimizing leads to a stronger tendency to seek isolation than for adolescents low in rejection Expectation. The interaction between rejection Expectation and adversity could trigger a vicious cycle. The perception of adversity can be partly determined by one's rejection Expectation, and this situational characteristic, in turn, reinforces one's rejection Expectation, leading to a stronger feeling of being disliked and rejected by peers. Second, Anger about rejection, instead, was found to moderate the relationship between rumination and aggression, showing this relationship to be stronger for adolescents high in Anger about rejection. Following the same reasoning applied to our finding on the moderating role of rejection Expectation, we can speculate that Anger about rejection makes adolescents more prone to unintentional dwell on and mentally rehearse their anger experiences. In turn, this rumination reinforces Anger about rejection, making behavioral aggression as more likely. In support to this interpretation is the fact that this RS components also moderate the cross-lagged relationship between rumination at t-1 and situational adversity at t1. Finally, none of the cross-lagged effects of rumination on situational adversity was found to be significant. Overall, it seems encouraging that, even if rumination predicts

maladaptive outcomes within the same situation, it does not carry its effect over from a previous occasion to the next. Furthermore, it is consistent with a recent review on RS (Gao, Assink, Cipriani, & Lin, 2017) showing that cross-sectional associations between RS and negative outcomes tend to be larger than overall associations based on longitudinal associations. On the contrary, as Anger about rejection increased, the cross-lagged relationship between rumination and situational adversity got stronger. When adolescents experience so much Anger about rejection, they might not be able to shift their attention from what happened, making the adverse situation always present.

The present study has many important implications for future research. Because we focus only on rumination and situational adversity, future studies should consider other emotion regulation strategies (e.g., catastrophizing, self-blaming, other-blaming) and other situational characteristics (e.g., situational negativity and deception). In Chapter 1, we found the emerging Personality Organization (PO) to moderate the effect of RS on maladaptive psychological functioning among adolescents. Similarly, future research could examine the role of PO in affecting the relationship between RS, rumination, situational adversity, and maladaptive behaviors. Finally, we hope that subsequent investigations will consider other important hallmark of dynamic, such as inertia and variability of emotion regulation strategies, situational characteristics, and maladaptive behaviors, assessing the role of RS in affecting these dynamics.

To conclude, this contribution introduced some elements of novelty in the study of RS among adolescents. To our knowledge, this is the first contribution investigating the relationship between RS and rumination among adolescents. It is also one of the first studies examining how adolescents subjectively perceive their daily life situations. Through this approach, rather than focusing on the observed outcomes of rejecting situations, we investigated the RS phenomenon by looking at its subjective experience. Relative to laboratory research, in this research, RS was studied in adolescents' "natural habitats" where they are exposed to many environmental and interpersonal factors that typify daily living but which cannot be recreated in the laboratory (Wilhelm & Roth, 1998). Besides conferring ecological, construct, and external validity, assessments involving adolescents in their natural environment provide a deeper evaluation of RS and its consequences during adolescence. The EMA methodology also implies that personality should be considered as a dynamic process, which is likely to change over time across situations. Through all these aspects of novelty, the present study introduced a different perspective for studying and knowing RS during adolescence.

Chapter 6

Using the time-varying vector autoregressive model to study dynamic changes in situation perceptions and emotional reactions[13]

[13] The chapter is based on Casini, Richetin, J., Preti, E., & Bringmann, L.F. (manuscript in preparation). Using the time-varying vector autoregressive model to study dynamic changes in situation perceptions and emotional reactions.

Overview

After having introduced the importance and the usefulness of a dynamic approach for studying RS, in Chapter 6 we go one step further, presenting another method for assessing the within-person dynamic processes, that is, the TV-VAR model. The novelty of this model is that it relaxes the stationarity assumption, allowing finding non-stationary processes. The stationarity assumption states that individuals change equally over time: Not only individuals make the same change, but the way they change over time is assumed to be equal (time-invariant). This is a very unrealistic assumption, especially in the psychological field. The TV-VAR model tries to capture the uniqueness of each individual in his/her change over time. In this chapter, we applied the TV-VAR model to assess the intra-individual temporal dynamics characterizing person-situation interactions (i.e., the influence of personality on the psychological perception of situations and on the related emotional states over time) of two adolescents with different personality characteristics: The first was introverted, shy, and agreeable, whereas the second was sociable, energetic, honest, anxious, and emotional. We found evidence that the perception of situation characteristics and the related emotions varied over time for Participant 1, but not for Participant 2. Although this is the only chapter that does not focus directly on RS, we believe that the TV-VAR model represents a new and attractive way of studying such a construct, potentially providing a more realistic and accurate knowledge of it.

Introduction

Understanding why people do what they do is a central issue in personality psychology. With this aim, personality psychologists have recently looked at person-situation interactions as a novel way to analyze individuals' drivers of behaviors (Funder, 2016, Baumert et al., 2017). The growing interest emerges from the general idea that persons and situations are not independent factors in determining behavior. According to this perspective, a person's behavior in a particular situation arises from processes through which persons and situations shape each other's effects on behavior. The person shapes the way in which situations influence his/her behavior and situations shape how a person's attributes impact behavior (Furr & Funder, 2004). For example, a shy adolescent going to a party may change the situation dramatically for everyone there, such that a fun party can suddenly turn in an unpleasant situation, with the shy boy feeling rejected and, in turn, having an aggressive reaction toward others. Reflecting on the situation, the shy adolescent might think that his attacks were a justified response to being rejected, a version of "the situation made me do it."

Many researchers agree that person-situation interaction represents an essential part of a broader understanding of people and it should be a key foundation for any personality theory (Furr & Funder, 2018). Despite the importance attributed to it, so far research focused mainly on the study of personal dispositions (i.e., personality trait) to the detriment of situations. Only in recent years, situationally-oriented research has evolved systematically, due to a renewed interest in how to describe,

taxonomize, and measure situational information (Rauthmann, Sherman, & Funder, 2015). In particular, Rauthmann and colleagues (Rauthmann et al., 2014) introduced a new perspective in the study of situations, proposing to focus on their psychological characteristics rather than their objective cues. These characteristics consist of the meaning they provide, and the interpretation individuals form about the situation. Rauthmann et al. (2014) proposed to taxonomize these situation characteristics into the Situational Eight DIAMONDS model, which encompasses eight dimensions (i.e., Intellect, Adversity, Mating, pOsitivity, Negativity, Deception, and Sociality). To date, this is the most commonly used taxonomy of situations.

Traditionally research on person-situation interaction has been driven by a nomothetic perspective on personality in which researchers aimed at making general predictions about the population based on variations observed at an inter-individual level of analysis. However, because of its reliance on average effects across subjects, this approach cannot be sufficient to provide information about specific individuals and thus about intra-individual dynamics. In reaction, in the last few decades, personality research has seen the growth of a novel idiographic perspective that emphasizes the centrality of the individual (e.g., Fischer & Bidell, 2006; van Geert & van Dijk, 2002; Molenaar, 2013; Thelen & Smith, 2007). According to this approach, personality reflects an integrated dynamic system of intra-individual processes that arise over time in response to and in interaction with the environment (Fleeson & Noftle, 2012). In other words, rather than being conceived as a fixed feature of the individual, personality is seen as the result of a constant interplay

between the individual and his/her environment over time. Personality is thus concerned also with states and not only with traits. Within this perspective, research on personality moved towards an intra-individual level of analysis focused on time-dependent differences along a single subject's daily life trajectory. This shift also led to the advent of new methods of collecting data, characterized by the intensive assessment of multiple data points per person. These methods allow examining the intra-individual temporal dynamics by analyzing the relationship between variables across time. Note that the more the data points and the more extended the assessment period, the more the intra-individual processes will unfold themselves (Schuurmann, Ferrer, de Boer-Sonnenschein, & Hamaker, 2016). The growth of the idiographic approach came along with the development of recent technological and analytical tools, particularly the emergence of ambulatory assessment or experience sampling (Hofmans, De Clercq, Kuppens, Verbeke, & Widiger, 2017). Ambulatory assessment is specifically designed to collect multiple observations per individual, and the resulting intensive longitudinal data can then be used for hypothesis testing at the level of the single individual (Conner, Tennen, Fleeson, & Barrett, 2009).

For example, Sherman, Rauthmann, Brown, Sefass, & Jones (2015) conducted an ambulatory assessment study on a sample of undergraduate students, founding sizeable intra-individual variation in state expression (i.e., behavior and emotions) across situations and a considerable intra-individual variation in situation perception (DIAMONDS) over time. Similarly, in a recent study on the same data, Rauthmann, Jones, and Shermann (2016) found situations characteristics and personality states to

show only modest stability across time. However, even if these studies aimed at providing information about intra-individual processes, the type of statistical analyses used could not allow going beyond a certain point. In fact, regression (e.g., Brown & Rauthmann, 2016) or multilevel analyses (e.g., Sherman et al., 2015; Rauthmann et al., 2016) focus primarily on the population instead of on the individual. For example, multilevel models are based on the assumption that parameters for the different individuals come from the same probability distribution, that is, from the same population. This assumption implies the model parameters for one individual to be informative for other individuals from the same population. In this sense, people are meant to be to some extent similar to each other and have to obey the same dynamic model.

Another critical drawback of multilevel models, and of the majority of the standard statistical models used in personality research, consists in the assumption of stationarity. This assumption implies that the statistical characteristics of a process (i.e., mean, variance, and covariance) should be constant in time, implying that people change equally and at the same rhythm over time (Chatfield, 2003; Molenaar, 2013). For example, consider two adolescents from the same school who get along each other. Assuming stationarity, we state that they like each other at the same level and that their friendship is going to grow up in the same way and at the same rhythm over time for both of them. Stationarity, however, seems unrealistic for most, if not all, personality processes. The prime example where this assumption is violated is developmental processes, which almost by definition have statistical characteristics

that change over time and at different rhythms for each. Imagine now that the two friends have an argument. The idea the two friends have about each other would be different at the beginning of their friendship than before, during, and after their argument. Such changes in their mutual ideas could occur within short periods of time and not necessarily over years or months. Moreover, these changes might not occur at the same time and at the same pace for the two friends. In fact, intra-individual processes can change over time, due to both internal (e.g., personality) and external (e.g., negative situation) factors. Imagine that just after the quarrel, one of the two friends received bad news. Even if both friends could experience a carry-over effect of the negative emotion over time due to the argument both their differences in personality (e.g., neuroticism) and the negative event (bad news) delivered only to one of them could vary the way the carry-over effect changes over time (i.e., fades or increases slowly or quickly between the two of them. (De Haan-Rietdijk, Gottman, Bergeman, & Hamaker, 2014). To our knowledge, only a few research has dealt statistically with non-stationarity in individual processes (e.g., Beltz, Wright, Sprague, & Molenaar, 2016; Liu & Molenaar, 2014).

In this paper, we present a new method recently developed by Bringmann and colleagues (2016) for assessing intra-individual processes, the semi-parametric time-varying vector-autoregressive (TV-VAR) model. This method is an extension of the vector-autoregressive model and is based on semi-parametric statistical modeling using a readily applicable generalized additive modeling framework (GAM, Hastie & Tibshirani, 1990; McKeown & Sneddon, 2014; Sullivan, Shadish, & Steiner,

2015; Wood, 2006). The TV-VAR model relaxes the stationary assumption by letting the parameters of a VAR model, or more precisely the β coefficients, vary over time. Furthermore, another crucial advantage of this model is that it is data-driven, and thus the shape of change need not be specified beforehand (Dahlhaus, 1997; Giraitis, Kapetanios, & Yates, 2014; Hardle, Lutkepohl, & Chen, 1997; Kitagawa & Gersch, 1985). Even if the TV-VAR model is at an early stage of test, recent work has demonstrated its usefulness for understanding changes over time in emotion dynamics in couples (Bringmann, Ferrer, Hamaker, Borsboom, & Tuerlinckx, 2018) and in individual affective trajectories in people suffering from major depressive disorder (Slofstra et al., 2018). Note that, at the moment TV-VAR model allows analyzing data of one individual at a time. In the present contribution, we applied the TV-VAR model to the study of the psychological dynamics characterizing the personality-situation interactions.

Aims of the contribution

Research on person-situation interaction has been mainly characterized by the stationarity assumption. The present study introduced the TV-VAR model (Bringmann, Ferrer, Hamaker, Borsboom, & Tuerlinckx, 2018) as a statistical model that relaxes the stationarity assumption, allowing to capture both stationary and non-stationary processes. Not assuming stationarity, this model has the advantage to focus on the individual, by studying how his/her intra-individual processes vary over time as a function of the relationship between the person and his/her particular environment. More specifically, in the present contribution, we applied the TV-VAR

model to assess the intra-individual temporal dynamics characterizing person-situation interactions (i.e., the influence of personality on the psychological perception of situations and on the related emotional states over time). We expected TV-VAR to provide a better understanding of person-situation interactions than models based on stationarity. Particularly, we hypothesized the person-situation interaction to be prone to change over time.

Furthermore, in accordance with the specific nature of the TV-VAR, the present study focused on a particular characteristic of temporal dynamic processes, inertia. Inertia can be defined as the resistance to change, formalized as the degree to which a person's current state can be predicted by his or her state at a previous moment (with high predictability reflecting high inertia). High inertia means that a person's state is likely to persist from one moment to the next, which suggests that it may be highly resistant to external influences (e.g., changes in the environment) or internal influences (e.g., regulation efforts). In turn, low inertia means that a person's state is more susceptible to change, which suggests that the current states are more likely to be influenced by environmental or psychological demands and more responsive to regulatory control. So far, inertia has been considered and studied only as a particular dynamical characteristic of people's emotional dynamics (Koval, Brose, Pe, Houben, Erbas, Champagne, & Kuppens, 2015; Kuppens, Allen, & Sheeber, 2010; Wang, Hamaker, & Bergeman, 2012). From an idiographic perspective, personality states emerge constantly from the interactions of the individual with his/her environment, studying inertia in person-situation interactions

is central to yield a more exhaustive comprehension of personality. It allows shedding light on the particular intra-individual processes that guide personality states in interaction with situational cues and affordances over time. In the present study, we specifically focused on data from two adolescents. Previous studies showed that each adolescent's subjective experience and unique perception of the world might shape his/her development of personality, adaptation, and psychopathology (Shiner & Caspi, 2003). However, no extisting studies within the framework of person-situation interaction have focused on adolescents. Since the TV-VAR model is meant to analyze data from one individual at the time, we decided to focus on two adolescents who were significantly different regarding personality traits. Thus, we expect that this difference will predict different temporal dynamics of psychological situation perception and emotional reactions.

Method

Participants and Procedure

Our sample consisted of two adolescents, coming from a larger sample of adolescents (N = 198; age range comprised between 14 and 19 years; M_{age} = 16.05; SD = 1.11) recruited from several high schools. Participant 1 and participant 2 were both males, aged 17 and 18, respectively. They were classmates and attended the fourth year of high school. The study consisted of two sessions. During the first session, participants were asked to fill in measures of personality. In the current work, we focused specifically on the HEXACO-60 (Ashton & Lee, 2009). The second session was conducted using an experience sampling methodology.

Adolescents installed an App explicitly programmed for the present study on their smartphone. Using a fixed-interval measurement schedule, this App prompted participants five times a day (2:00 p.m., 4:00 p.m., 6:00 p.m., 8:00 p.m., 10:00 p.m.) along 19 days. At each assessment, participants had to think about a social situation they were in within the last hour and describe it using the brief version of the situational eight DIAMONDS (Rauthmann et al., 2014). They also had to indicate their emotional and behavioral states experienced within the described situation. When the two adolescents did not complete the survey at the specific prompt , two reminders were sent after 10 minutes and 20 minutes respectively. A 30-min window of time (e.g., 2:00–2:30 p.m.) was available to complete each assessment. After this time, the diary survey was not available until the next scheduled assessment time. The two participants returned completed both parental consent forms and adolescents assent forms. This research has been approved by the Ethics Committee of the University.

Measures

***HEXACO Personality Inventory*.** The HEXACO-60 (Ashton & Lee, 2009) is a 60-item personality inventory which assesses individual differences in six personality dimensions (i.e., Honesty-Humility, Emotionality, Extraversion, Agreeableness, Conscientiousness, and Openness to experience) with 10 items each. Participants respond to self-reflective statements with 5- point Likert scales (where 1 = strongly disagree and 5 = strongly agree). Cronbach's alpha ranged from .65 to .79.

Ultra-brief Situational Eight DIAMONDS (Rauthmann & Shermann, 2016). This questionnaire assesses eight situational characteristics, through the following dimensions: Duty, Intellect, Adversity, Mating, pOsitivity, Negativity, Deception, and Sociality. Participants indicated, for all measures, on a scale from 1 (not at all) to 7 (completely) how much each item applied to the situation.

Rejected-Related Emotions Scale (adapted from Buckley, Winkel, & Leary, 2004). Participants completed 7 items assessing seven clusters of emotions: Rejection, loneliness, anxiety, sadness, hurt, happiness, and shame felt in the reported situation on a 7-point scale (ranging from 1 = not at all to 7 = very much).

Data Analysis and Results

Personality differences between the two adolescents

For each HEXACO dimension, we computed an individual score for each adolescent and then the Standard Error of Difference between them (Levin, 2006). To do this, we first referred to the reliability indexes (Cronbach's alpha) of the HEXACO-60 reported in a recent study conducted on an Italian adolescent sample (N = 750) (Baiocco, Chirumbolo, Bianchi, Ioverno, Morelli, & Nappa, 2017). We decided to refer to this sample, because it was larger than ours, and it would make results much more trustworthy and reliable. Then we computed the Standard Error for each of the six HEXACO-60 dimensions to use for the computation of the SE of Difference (Table C.1, Appendix C). Results showed that the two adolescents were significantly different in their level of Honesty/Humility, Emotionality, Extraversion and Agreeableness (Table 20). More specifically, Participant 2 described himself

principally as emotional and extroverted, while Participant 1 described himself as introverted, reserved, and agreeable. Descriptive statistics for both situation characteristics and emotions of the two adolescents are reported in Table 21.

Table 20

Score and Standard Error of Difference of the HEXACO-60 dimensions of the two participants

	Participant 1	Participant 2	
HEXACO-60 scores	*SE*	*SE*	*SE* diff
Honesty/humility	3.0	4.1	0.52*
Emotionality	2.9	3.5	0.49*
eXtraversion	2.7	3.7	0.46*
Agreeableness	3.9	2.9	0.41*
Conscientiousness	3.9	3.6	0.46
Openness to experience	2.7	2.8	0.51

Note. *SE* = Standard Error; *SE* diff = Standard Error difference; *$p < .05$. ** $p < .01$. *** $p < .001$.

Table 21

Descriptive statistics of the Situational Eight DIAMONDS dimensions and emotions for the two participants

	Participant 1							Participant 2						
Dimension	*n*	*M*	*SD*	*SE*	Median	Skewness	Kurtosis	*n*	*M*	*SD*	*SE*	Median	Skewness	Kurtosis
Duty	94	3.27	0.8	0.11	3.00	0.33	0.69	84	4.08	2.88	0.31	5.00	-0.07	-1.95
Intellect	94	1.82	0.95	0.10	2.00	1.03	0.43	84	3.62	2.55	0.28	3.00	0.14	-1,79
Adversity	94	1.00	0.00	0.00	1.00	-	-	84	1.00	0.00	0.00	1.00	-	-
Mating	94	1.50	0.88	0.09	1.00	1.51	1.43	84	1.24	0.53	0.06	1.00	2.59	8.10
Positivity	94	2.98	1.62	0.17	3.5	- 009	-1.52	84	4.65	1.73	0.19	5.00	- 0.58	- 0.87
Negativity	94	2.37	1.23	0.13	2.00	0.45	-0.90	84	2.93	2.05	0.22	2.00	0.53	- 1.26
Deception	94	1.01	0.10	0.01	1.00	9.39	87.06	84	1.04	0.33	0.04	1.00	8.84	77.07
Sociality	94	1.67	1.13	0.12	1.00	1.37	0.49	84	3.05	2.52	0.27	1.00	0.53	- 1.58
Sad	94	4.36	1.94	0.20	3.00	0.47	-1.56	84	1.00	0.00	0.00	1.00	-	-
Angry	94	4.14	2.18	0.23	3.00	0.36	-1.62	84	1.17	0.82	0.09	1.00	5.41	31.36
Happy	94	3.22	1.67	0.17	4.00	-0.27	-1.43	84	5.14	1.52	0.17	5.00	-0.60	-0.43
Anxious	94	4.17	0.76	0.08	4.00	-0.88	1.63	84	4.79	1.63	0.08	5.00	-0.57	0.18
Hurt	94	2.43	1.96	0.20	1.00	0.66	-1.49	84	1.05	0.44	0.05	1.00	8.84	77.07

Note. *n* = number of data point completed by each participant during the EMA session.

Time-varying vector autoregressive analyses

We carried out analyses using the TV-VAR model to study: (1) Changes over time in mean and (2) inertia of situation characteristics and emotions for each adolescent. The model of interest for our analyses was a model in which all terms are time-varying parameters:

$$\textit{Situation Characteristic}_t = \beta_{0,t} + \beta_{1,t}\, \textit{Situation Characteristic}_{t-1} + \varepsilon_t. \quad (1)$$

Equation 1 shows that Situation Characteristic at a time point (*Situation Characteristic*$_t$) can be estimated based on a function of the intercept $\beta_{0,t}$, the autoregressive parameter ($\beta_{1,t}$; inertia), and the previous time point *Situation Characteristic*$_{t-1}$. The residuals (ε_t) are mutually independent and assumed to come from a normal distribution with constant variance. The mean level of situation characteristic is thus dependent on both the intercept and the autoregressive parameter. Therefore, changes over time, both in the intercept and in the autoregressive parameter, may result in changes in the mean. Using non-parametric smooth functions, both the intercept and the autoregressive parameter are allowed to vary simultaneously over time. The default settings (a number of 10 basis (smooth) functions and the thin plate spline regression basis) and a time-lag of 1 were used. Additional missing data points were imputed at the end of the day so that the first response of a day did not immediately follow the last response of the previous day.

The TV-VAR (Bringmann et al., 2017) detects changes in situation characteristics perception and emotion over time by considering three criteria: (1)

the time-varying intercept (the smooth parameter for the intercept); (2) the time-varying autoregressive function (the smooth parameter for the autoregressive function); and (3) the BIC model fit (Bayesian information criterion; BIC). In a time-variant model, the BIC is assumed to be lower than in a time-invariant model.

A summary of the results of the time-varying autoregressive analyses for the two adolescents on all the variables considered, both the DIAMONDS dimensions and the emotions, can be found in Table 22. About the first criterion, results concerning the DIAMONDS dimensions showed that for Participant 1 both the intercepts of Mating and pOsitivity were time-varying, while for Participant 2 this was the case for the intercepts of Mating and Deception. Results concerning emotions showed the intercepts of all the emotions to be time-varying for Participant 1, while for Participant 2 only those of Anxiety and Hurt were time-varying.

With regard to the second criterion, results concerning the DIAMONDS dimensions indicated time-varying autoregressive functions of Duty, Mating, Negativity, and Sociability for Participant 1, while only one time-varying autoregressive function of Deception for Participant 2. On emotions, results from Participant 1 showed the autoregressive functions of all the emotions to be time-varying, while for Participant 2 only those of Anger, Anxiety, and Hurt were time-varying.

Table 22

Time series BIC, intercept, autoregressive coefficient and inferred mean per participants

Dimension	Model fit		Intercept	Autoregressive coefficient	Mean	Model fit		Intercept	Autoregressive coefficient	Mean
	AR	TV-VAR				AR	TV-VAR			
	Subject 1					*Subject 2*				
DIAMONDS										
Duty	281.85	287.42	0.40	3.52**	3.4 -> 3.1	**428.14**	443.54	0.99	1.88	4.1->4.1
Intellect	268.97	**265.96**	2.10	1.30	2.7->1.9	**407.17**	416.67	2.24	2.40	4.1->4.3
Adversity	n.a.	n.a.	n.a.	n.a.	1.0->1.0	n.a.	n.a.	n.a.	n.a.	1.0->1.0
Mating	250.72	**250.06**	3.27*	6.21**	1.5->1.4	**407.17**	416.67	2.48*	2.69	1.4->2.0
pOsitivity	247.92	**236.63**	5.66***	1.16	4.5->1.0	**342.38**	359.27	1.34	1.61	4.2->5.3
Negativity	315.99	**264.87**	1.06	6.95***	4.8->1.1	**369.75**	374.59	3.06	1.87	2.8->3.0
Deception	**-147.69**	-142.51	0.00	0.02	1.0->1.0	**63.93**	66.85	28.23***	95.79***	1.0->1.0
Sociability	**297.30**	298.28	2.25	6.39**	2.8->1.4	**405.71**	412.95	0.89	0.08	3.5->2.6
Emotions										
Sadness	**224.97**	229.69	1.97*	7.33**	3.0->6.8	n.a.	n.a.	n.a.	n.a.	1.0->1.0
Anger	220.07	**210.24**	1.36	18.74***	1.8->6.8	**186.73**	193.78	0.74	11.08***	1.0->2.0
Anxiety	199.25	**197.12**	7.84**	7.04***	4.0->4.0	**315.50**	323.85	1.86**	3.57***	4.0->2.5
Hurt	197.59	**121.18**	13.82***	13.85***	1.0->5.0	**111.36**	116.01	17.64***	7.94**	1.0->1.0
Happiness	**211.44**	213.78	3.89***	7.25**	4.8->1.6	**250.79**	254.05	4.48***	2.53	4.5->5.5

Note. Observations = number of completed reports; Model fit = did model fit improve when the intercept or the autoregressive parameter were allowed to vary, Intercept = the smooth parameter for the intercept; Autoregressive coefficient = the smooth parameter for the autoregressive parameter; Mean = changes in mean level; n.a. = no applicable. * $p < .05$. ** $p < .01$. *** $p < .001$.

With regard to the third criterion, focusing on the DIAMONDS dimensions, the BIC indices indicated that for Participant 1, the TV-VAR was the best model when Intellect, Mating, pOsitivity, and Negativity were considered; on the contrary, for Participant 2 the standard AR was the best fitting model for all the DIAMONDS dimensions. As emotions were concerned, for Participant 1, the BIC indices showed the TV-VAR to be the best model when Anger, Anxiety and Hurt were considered, whereas, again, the standard AR model was the best fitting model for data from Participant 2.

The TV-VAR also generates plots for every individual time series accompanied by the plotted smooth curves of the intercept and the autoregressive parameter, and the plotted inferred mean (a function of the intercept and autoregressive parameter) (see Figure 8 and 9). These were visually inspected to detect problems with lagged missingness, fluctuations, outliers, and sudden changes. Moreover, the plotted smooth curves of the intercept and the autoregressive parameter, and the plotted inferred mean were visually inspected to describe the direction of change. If the smooth curves or inferred mean exceeded the 95% confidence intervals plotted around them, the plots were described as indicative of change. On this basis, the presence and direction of change and inertia in both situation characteristics and emotions were derived from the model selection as follows:

Varying or stable mean. If the time series were found to vary over time, the plotted inferred mean was inspected to assess the presence and direction of change.

Based on the inferred mean at the beginning and the end of each individuals' time series, the intra-individual change was estimated to describe the time-varying process. Intra-individual changes in mean scores of less than 5 points (≤ 5% of the 0-100 scale) were not considered as relevant changes. If the time series were found to be invariant or if no (relevant) change in the plotted mean was detected, the overall mean of situation characteristics score was used to summarize the invariant processes.

For example, focusing on pOsitivity (DIAMONDS) for participant 1, both the intercept and the BIC were indicative of a time-varying process. Both the time-varying intercept (panel a) and the plotted inferred mean (panel c) showed a gradual decrease in the perception of situations as positive from day 1 to day 19 (Figure 8, upper panels). On the contrary, for Participant 2, all the time series parameters showed a time-invariant process. Both the time-varying intercept and the autoregressive functions did not indicate a time-varying process. The model fit (BIC) did not improve either. Consistently, the plotted inferred mean (panel c) demonstrated no significant change over time (Figure 8, lower panels).

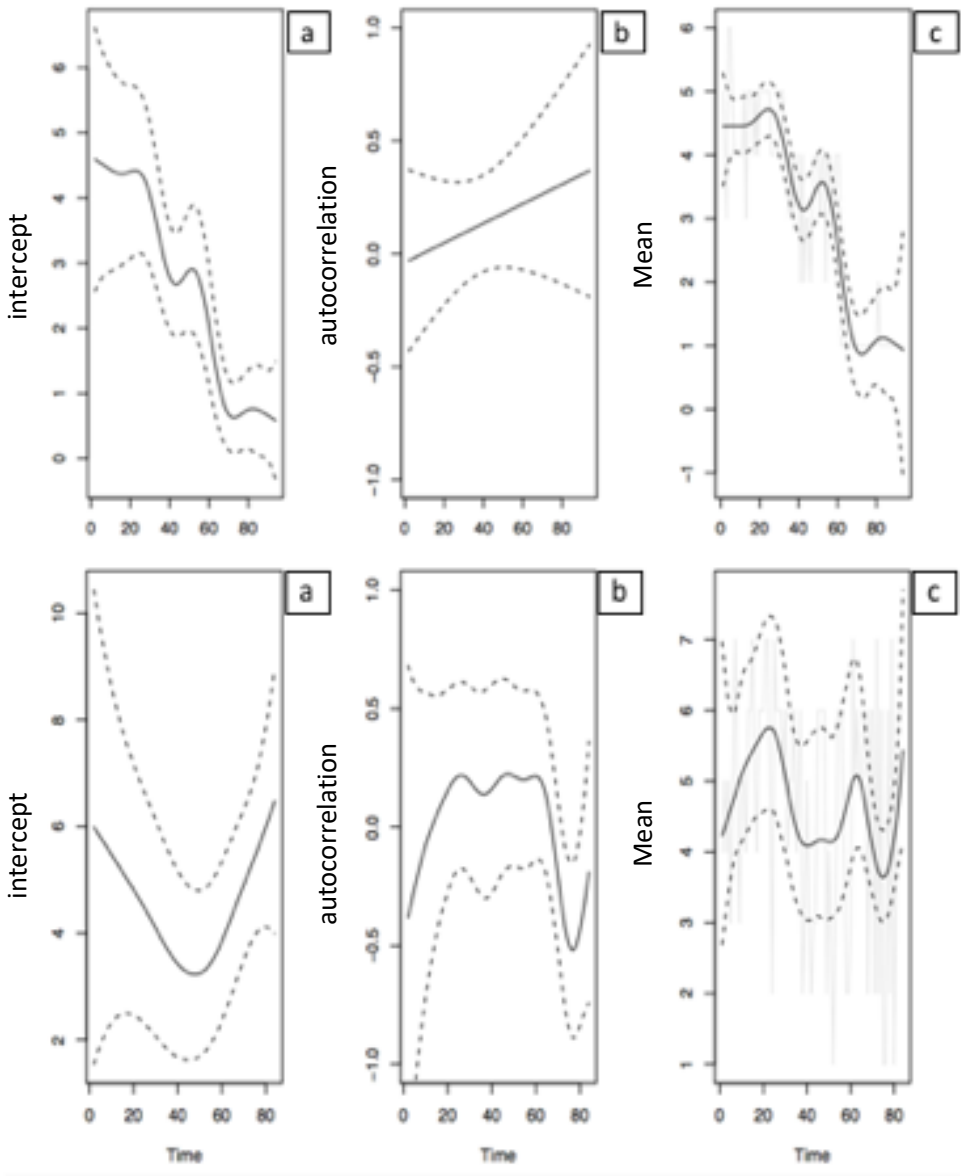

Figure 8. The plotted time series of the perception of the situation in terms of Positivity for Participant 1 (upper panels) and Participant 2 (lower panels), including the plotted smooth curve of the intercept (a), smooth curve of the autoregressive parameter (b), and inferred mean with 95% confidence intervals (c).

Varying or stable inertia. If the autoregressive parameter was found to be time-varying, then the directionality of change was described using the initial value and the end value of the smooth curve of the autoregressive parameter for each individuals' time series. If the autoregressive parameter was found to be invariant, the stable situation characteristics inertia was estimated. For example, focusing on Anxiety, results showed that for Participant 2 (Figure 9, lower panels), only the autoregressive parameter indicated a time-varying process and panel b shows an increase in Anxiety inertia. Instead, for Participant 1, the three time-series parameters were indicative of a time-varying process (Figure 2, upper panels), showing an increase in Anxiety inertia. Finally, the increase in the plotted inferred mean in panel c exceeded its 95% CI's. The plotted inferred mean showed some peaks that may be considered as outliers, but these did not appear to impact the 95% CIs. Interestingly, these time series described a process of simultaneous decrease in Anxiety intercept and increase in Anxiety inertia. These results showed that, even if his level of anxiety decreased over time, participant 1 tended to transfer the Anxiety acquired from past situations to new situations.

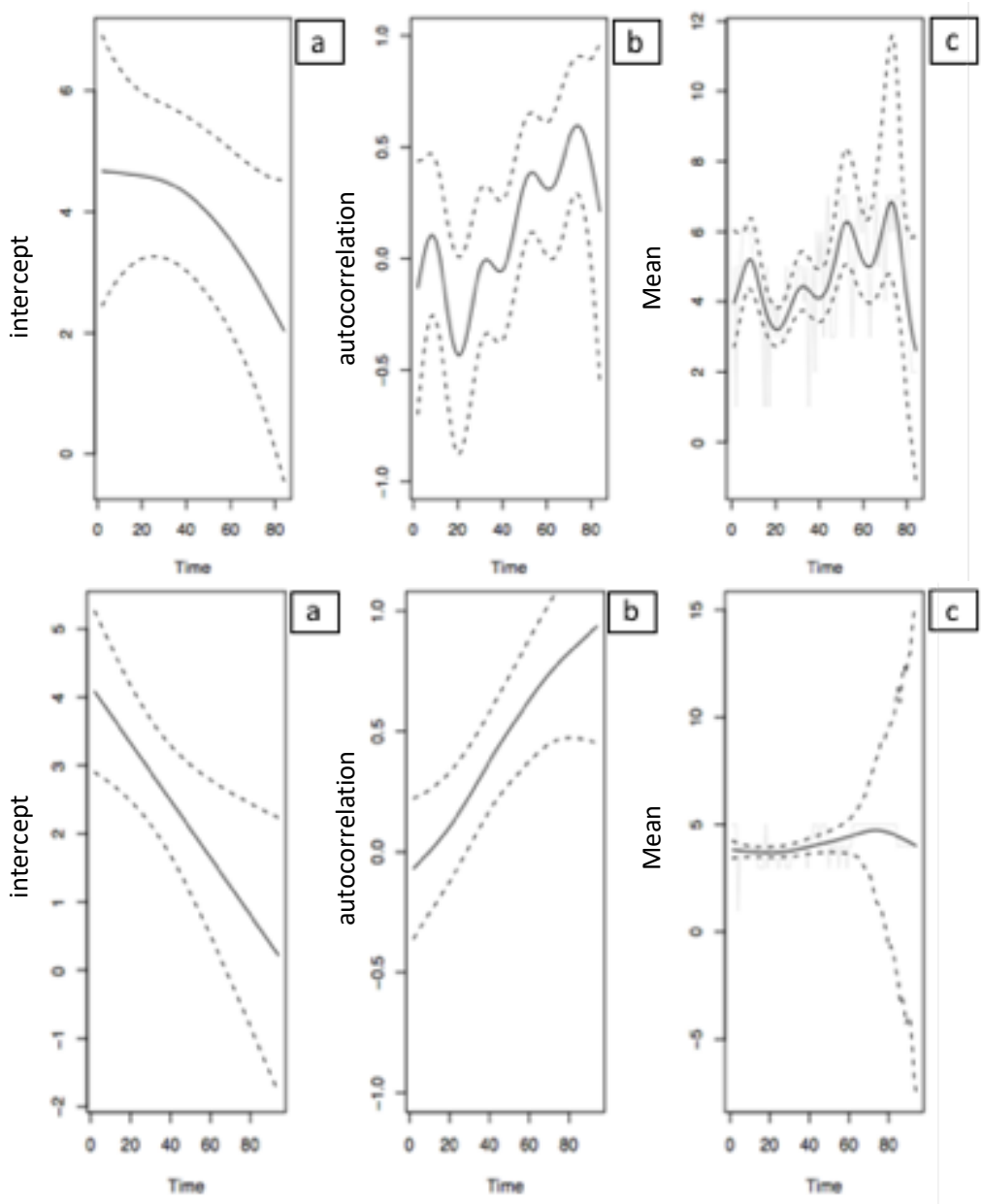

Figure 9. The plotted time series of Anxiety felt for Participant 1 (upper panels) and Participant 2 (lower panels), including the plotted smooth curve of the intercept (a), smooth curve of the autoregressive parameter (b), and inferred mean with 95% confidence intervals (c).

Discussion

Within a recent idiographic perspective of personality, research on person-situation interaction tried to identify the intra-individual processes involved in generating emotions and behaviors in concrete situations over time. However, most of the research use statistical models assuming stationarity according to which people change equally over time which cannot be always true (e.g., Baumert et al., 2017; Molenaar et al., 2013). In this context, we introduced a new statistical model, labeled TV-VAR (Bringmann et al., 2017, 2018), allowing for intra-individual processes to be time-variant (i.e., non-stationarity assumption). More specifically, we demonstrated that, when the dynamics change smoothly over time, the TV-VAR model was superior to the standard time-invariant model for studying intra-individual processes characterizing person-situation interactions over time.

We applied the TV-VAR model to empirical data from two adolescents significantly different regarding their personality traits. The first was introverted, shy and agreeable, whereas the second was sociable, energetic, honest, but also anxious and emotional. We found evidence that the perception of situation characteristics and the related emotions varied over time for Participant 1, but not for Participant 2. More specifically, concerning the psychological characteristics of situations, on Participant 1 we observed a tendency to exhibit inertia in Duty, Negativity, and Sociability. Whereas inertia in Duty and Sociability can be ascribed to external environmental constraints (e.g., homework, activities with friends), inertia in Negativity indicates that Participant 1 constantly attributes a negative valence to the situations he

encounters. This carry-over effect was not evident for positive situations. Although he showed variation in his perception of situations as positive, this did not have any positive impact on the perception of subsequent situations. Inertia also appeared on emotions, leading to an increase in the extent to which the participant experienced Anger, Hurt, and Sadness, as well as a decrease in Happiness. Participant 1 thus seemed to be more prone to experience negative emotions, showing resistance to affective change and less responsiveness to external stimuli. This result might be in line with his being emotional (Emotionality), and very introverted (low Extraversion), which can lead him to experience more negative than positive emotions. These personality dimensions have also been associated with biased perceptual processes consisting of negative perceptions of situations, regardless of their objective quality (McNulty, 2008). Thus, we can hypothesize that Participant 1 was likely to experience more negative situations and emotions because he actively construes his situational experiences more negatively.

On the contrary, Participant 2 did not show significant changes over time, neither in levels of situation characteristics nor their inertia, with the exception of deception. Participant 2 seemed to be prone to perceive situations as deceptive and not to trust others. This tendency is in line with his emotionality (Rauthmann et al., 2016). Nonetheless, results on situation perception showed Participant 2 to be open and responsive towards his daily life situations. This finding might be in line with his liveliness, sociability, and enthusiasm (high extraversion), which made him open to the experiences. Different results could be observed on emotions, especially on

Anger, Anxiety, and Hurt. Participant 2 showed inertia on these negative emotions. As for Participant 1, this could result in a decreased ability to change these emotions over time, regardless the either environmental (e.g., different situations) or internal influences (e.g., emotion regulation). We speculated that Participant 2's emotionality trait could lead him to be sensitive to Anxiety and Hurt (Rauthmann et al., 2016), while his high levels of extraversion might be responsible for his being more prone to feel angry (Neumann, Van Lier, Frijns, Meeus, & Koot, 2011; Singh & Rani, 2014).

Through its specific focus on temporal changes of intra-individual processes, the present contribution allowed to shed light on the psychological functioning of the two adolescents. On the one hand, Participant 1 showed a functioning characterized by lower responsivity to external stimuli and lower emotional flexibility. On the other hand, Participant 2 showed adaptive psychological functioning, especially characterized by a flexible life approach.

Several limitations ought to be taken into account and pointed toward future research. First, the TV-VAR model assumes the change to be gradual so that abrupt changes cannot be identified. However, abrupt changes can be characteristic of specific psychological functioning, such as those characterized by impulsivity and personality disorder, or of reactions to particular situations (e.g., sudden stress), which would be interesting to assess to obtain a deep and exhaustive comprehension of individuals and their interaction with the environment. Another limitation is related to the number of time points (95), which were at the limit of acceptability.

The TV-VAR model needs many time points (around 100) to get reliable estimates (Bringmann et al., 2016; Bringmann et al., 2018). Future ambulatory assessment studies should include more time points per person. Another limitation of the TV-VAR model is its idiographic approach, that is, it considers one individual at the time. Future research should explore new ways to go beyond a single individual and to link individual results to the total sample results (Bringmann et al., 2013; de Haan-Rietdijk et al., 2016; Schuurman, Ferrer, de Boer- Sonnenschein, & Hamaker, 2016). Even if the limitations of the nomothetic approach have been highlighted, an extreme shift towards the idiographic approach runs the risk of being equally limiting. For example, concentrating on the intra-individual level would hinder generalization. In other words, person-specific analyses provide detailed results that do not apply to other individuals or even to the same individual in a different situation. We believe that it is necessary to bring these two approaches together. While the nomothetic approach, focusing on the group level, facilitates generalization of results, the idiographic approach, focusing on the intra-individual level, assess the heterogeneity of the data. This allows reaching a deeper understanding of personality and, more specifically, also a better picture of the dynamical processes involved in the person-situation interaction.

To summarize, we offered a first attempt to study the person-situation interactions through a new model that considers the non-stationary dynamic of intra-individual processes. Our contribution is unique in examining one indicator of non-stationarity, that is, inertia in situation perception. Even if the TV-VAR model is

only at its early stages, it may hold particular promise for personality science. The TV-VAR model allows considering all influences on a person, including the temporal nature of behavior and how it changes regarding the context and in response to others. It can also be used with many different data (e.g., behavioral, emotional, physiological time series data), to create person-specific maps identifying contemporaneous and lagged directed relations of each considered variables. The maps can provide insight into the heterogeneity within each people and time courses underlying their functioning. Thus, the TV-VAR is a promising tool for examining how personality emerges in the constant interplay of the individual with situations over time.

General discussion

During the two developmental periods of adolescence and young adulthood, individuals struggle with the definition of their self-concept especially regarding their relations with others (Sharp & Coatsworth, 2012; Lanz & Tagliabue, 2007). While during adolescence, relationships with peers are the most important (Bagwell, Schmidt, Newcomb, & Bukowski, 2001), for young adults romantic relationships are crucial for a successful transition to adulthood (Rauer, Pettit, Lansford, Bates, & Dodge, 2013). In both phases, however, rejection represents one of the most aversive experiences, with potential implications for one's health and well-being. Since Rejection Sensitivity has been identified as a critical mechanism that links negative interpersonal experiences (e.g., neglecting parents, rejecting peers) to many maladaptive outcomes (for a review see Gao et al., 2017), its understanding is very important.

With the general aim of examining the relationships between RS and psychological functioning of adolescents and young adults, we tried to add to the previous knowledge introducing theoretical and methodological elements rarely considered before. We started from the idea that an optimal method to measure and quantify RS is of crucial importance for both its assessment and understanding. We thus developed a new scoring method that is meant to highlight the distinct role of the unique components of RS. Then, according to the fact that RS is a personality disposition, whose unveiling depends on specific contexts, we focused on the importance of considering one's subjective perception of situations. Finally, in line with the new conceptualization of personality as a dynamic process, we introduced

a dynamic approach to the study of RS. We believe the results highlighted in this thesis have high relevance, leading to interesting considerations from a both a psychometric and a theoretical and clinical perspective.

Psychometric and methodological considerations

As we mentioned at the beginning of this work, one could adopt a nomothetic or an idiographic approach for studying both personality and psychological phenomena, and these two approaches have a direct impact on data analysis. The nomothetic approach consists of testing a large sample of subjects (the larger the sample, the higher the assumed scientific validity) only once (i.e., experimental and cross-sectional research designs). Data analysis is conducted mainly using methods that focus on between-person variation. Such variation is used to derive statistics (e.g., means, correlations) that characterize states of affairs in the population of subjects, by pooling across subjects. The first three chapters of the present dissertation are an exemplification of such an approach. By doing so, the results obtained allow achieving a more comprehensive knowledge of the RS construct. For example, by introducing an alternative scoring method of the CRSQ, Chapter 1 sheds light on the RS structure in the adolescent population. Again, Chapter 3 provided general laws about how the three RS components, the emotion regulation strategies, and behavioral outcomes specifically relate to each other in a young adult sample. Without removing any merit to this approach, it is, however, incomplete. Using statistical techniques based on averaging across individuals (e.g., regression analysis), and then assuming that what applies in aggregate is informative of each

individual could lead to ignoring the individual level and not considering that the way in which RS unveils might change over time, not only between-person but also within the same person.

Adopting a dynamic approach, instead, leads researchers to use intensive longitudinal methods, that is, the assessment of participants in their natural habitat and multiple times per day. For example, in the last three chapters of this contribution, we adopted the ecological momentary assessment methodology (EMA; Stone & Shiffman, 1994). Assessing the same individual many times, such a methodology allows observing the intricate temporal dependence of and between variables, or how variables within an individual influence each other or themselves over time. Consistently, through this dissertation, we used innovative and promising statistical techniques that have been recently developed to capture the essence of the temporal dynamic of psychological phenomena. For example, in Chapter 5, we introduced the dynamic multilevel modeling approach (Jongerling, Laurenceau, & Hamaker, 2015), while in Chapter 4 we presented the Dynamic Structural Equation Modeling (DSEM; Hamaker, Asparouhov, Brose, Schmiedek, & Muthén, 2018), which is an extension of the previous one. Regardless of the respective differences, both of them use two-level modeling with time on Level 1 and individuals on Level 2. They model intraindividual changes over time and allow the parameters of these processes to vary across individuals using random effects. More specifically, in the present dissertation, we focused on three key random effects: Random means, random autocorrelations, and random innovation. The mean captures the individual

general tendency, that is, how people are used to be. The autocorrelation parameter informs about the inertia, that is, the individual's resistance to change (Suls, Green, & Hillis, 1998), and the innovation tells on variability, defined as the extent to which the individual's current state differs from the individual's general tendency. All these parameters represent critical hallmarks of dynamic processes, permitting to capture how personality and, in general, psychological phenomena take form over time. Furthermore, allowing these parameters to be random, they also give information about how personality varies within the same individual over time. Both of the dynamic multilevel modeling and the DSEM, thus, bring new ways to look at RS, introducing the importance of time and the individual as two significant aspects for a better understanding of this disposition. Within this framework, Chapter 4 and Chapter 5 described the first two attempts to study how RS takes shape over time between and within different subjects.

Despite their numerous advantages, the two models mentioned above are still as somewhere in between idiographic and nomothetic research (Conner Tennen, Fleeson, & Barrett, 2009). Indeed, assuming ergodicity (i.e., individuals from the same population have stable statistical characteristics, and that their trajectories fall under the same dynamical laws), they implicitly resemble some limitations of the nomothetic approach. In Chapter 6, we presented the time-varying vector autoregressive model (TV-VAR) (Bringmann, Ferrer, Hamaker, Borsboom, & Tuerlinckx, 2015), which follows a real idiographic approach. Focusing on one individual at the time, it allows detecting and modeling smooth changes in

individuals' dynamic. In the present dissertation, we applied the TV-VAR model to the study of person-situation interactions of two adolescents with different personality characteristics, assessed through the HEXACO-60 (Ashton & Lee, 2009). Due to the clinical relevance of RS, especially among adolescents and young adults, we believe the TV-VAR to be a useful tool for studying such a construct. Indeed, using this model, we can obtain an individual-centered knowledge of RS, that is, how it takes form, and how it influences the psychological functioning of a specific individual over time. On this basis, similarly to what we did in Chapter 6, future research could study how a distinct RS configuration can give form to specific ways of interaction between an individual and his/her environment over time.

At the same time, precisely because of its clinical relevance, the need for generalizing results about RS is critical. It seems necessary to bridge the gap between the nomothetic and the idiographic approach, taking advantage of the strengths of each approach. In other words, future research should find a statistical way to relate the individual level with that of the population, to allow for some generalization without encountering the typical limits of the nomothetic approach. With this respect, Gates & Molenaar (2012) have recently proposed a new statistical tool, named Group Iterative Multiple Model Estimation (GIMME), which allows examining several lagged and contemporaneous relationships within-person over time. The GIMME refers to a bottom-up approach, where the data are first analyzed per person, and subsequently, similarities between the dynamics of different individuals are sought. This model thus has a stronger idiographic basis and

constitutes an improvement regarding the inclusion of an inter-individual perspective compared to the TV-VAR. However, there is still room for improvement considering that the GIMME has an upper limit of about 25 individuals.

Methodologically, we have started to address the issue of analyzing the external circumstances that may affect the RS process and its consequences on psychological functioning, assessing how participants subjectively perceive situations, through the Situational Eight DIAMONDS (Rauthmann, 2014). This is the first taxonomy of situations, which is based on a clear definition of situation characteristics that has direct (positive) impact on their measurement. Besides this, it captures the subjective perception of situations. However, we also believe that such a taxonomy does not always represent an ideal tool for research on pathological personality. Furthermore, in our works, we used a single item for each dimension, which might not be very representative of the latent dimension. Moreover, the focus of each item is on the situation and not on the subject within that situation. Given the importance of situations for a full comprehension of RS, future research should investigate further their impact on how this disposition unveils. With this regard, considering how situational characteristics interact with individual features in affecting RS seems to be very interesting. For instance, we can expect that the higher the level of PO the higher is the perception of situations as negative in people high in RS.

Another potential direction for future research consists of making a direct comparison between the RS manifestation during adolescence with those during

young adulthood. In doing so, we can assess whether RS unveiling change when different ages come to be considered.

Future research should also use random-measurement designs, in which measurement moment vary randomly across and within individuals. All the studies included in the present dissertation were based on fixed measurement moments (i.e., every three hours), leading participants to anticipate the next measurement moment and to change accordingly.

Theoretical and clinical considerations

In this work, we proposed an alternative approach for studying RS, which consists in considering the unique contribution of its components separately (i.e., Anxiety about rejection, Anger about rejection, and rejection Expectation). This approach contributes adding to the knowledge of this personality disposition, shedding light on the mechanisms underlying it. Although many researchers demonstrated that disentangling cognition from emotion is neither useful nor possible (Pessoa, 2008; Phelps, 2006), our studies show that these two components play different roles in RS. In particular, the specific type of anticipatory affect (i.e., anxiety or anger) would predict the kind of behavioral reaction enacted (i.e., withdrawal or aggression, respectively). Instead, rejection Expectation was found to make people cognitively aware of rejection and seemed to be related to many maladaptive outcomes. For example, in Chapter 3 rejection Expectation showed a negative relationship with prosociality, in Chapter 1 it was negatively related to self-esteem, and in Chapter 4, it predicted a negative perception of situations as well as

negative emotions. Taken together, these results suggest that while the two RS emotional components could have direct consequences on others (i.e., behavior), rejection Expectation could have direct implications for the self. Furthermore, our alternative approach seems to be more consistent with the original model of RS (Downey & Feldman, 1996). According to this model, RS means expectation and perception of rejection and excessive emotional and behavioral reaction to it (Downey and Feldman, 1996). RS, thus, clearly accounts for a cognitive bias that leads to perceiving rejection as well as for accompanying defensive emotions.

Besides improving the assessment of RS, this new approach has many clinical implications. One of the most important consists of highlighting the specific patterns underlying RS and its maladaptive outcomes (e.g., Anxiety about rejection is uniquely related with withdrawal, while Anger about rejection is uniquely related with aggression). In clinical situations, treating cognition and emotion as separate dimensions is crucial to understand the unique contribution of each component in determining a specific maladaptive outcome. For instance, an adolescent high in rejection Expectation could be more sensitive to ambiguous social cues and inclined to interpret them as a manifestation of rejection by others. The clinician could anticipate this by providing adequate support in reading the external social cues. According to the results of Chapter 1, this could also provide indirect help for the adolescent's self-esteem that is negatively affected by the perception of being "the rejected." On the contrary, an adolescent high in Anger about rejection could be supported in dealing with his anger, which could lead him to overreact. For example,

he could engage in antisocial behaviors (such as, bullying or aggression) or in other conducts that may expose him to the risk of further rejection (e.g., bothersomeness; Chapter 1).

To our knowledge, this is the first contribution to assess the relationship between RS and two characteristics that define individuals' functioning, the severity of the emerging Personality Organization (PO) and Emotion Regulation (ER) abilities (Chapter 2, 3, and 5). Studying RS in the context of those features that may modify its structure and its effects allows adopting a more comprehensive view and having a more accurate knowledge of it. More specifically, while studying RS in light of PO informed about the extent of the severity of its manifestation and consequences on individuals' psychological functioning (e.g., the higher the PO severity, the more maladaptive RS consequences), considering emotion regulation strategies provided information about the specific mechanisms underlying RS outcomes (e.g., rumination leads Anxiety about rejection to predict withdrawal). In general, both PO and ER offered information about individuals' characteristics that may either prevent or enhance the risk to develop RS as well as the consequences related to it. One could pursue further this approach by wondering whether other personal characteristics, such as self-esteem or interpersonal status, can either exacerbate or reduce the RS effects among adolescents, expanding thus the theoretical understanding of RS.

Looking more in detail at the concept of PO, as mentioned in Chapter 2, in his structural model, Kernberg identified three levels of PO along a continuum of

severity of personality pathology, from the lower psychotic level, through the borderline level, to the higher neurotic level (Kernberg, 1996; Clarkin, Yeomans, & Kernberg, 2007; Kernberg & Caligor, 2005; Yeomans, Clarkin, & Kernberg, 2015). The concept of PO, thus, appears to be particularly consistent with the current clinical conceptualization of severity. With the introduction of the Alternative Model for the Diagnosis of Personality Disorders (AMPD) in the DSM 5 (American Psychiatric Association, 2013), severity has become a critical aspect for the diagnosis of personality pathology (Hopwood, 2018; Hopwood et al., 2018). More specifically, the Criterion A of the AMPD defines personality pathology in terms of impairments in "self" and "interpersonal" functioning. The higher the severity, the higher the personality pathology. Similarly, the higher the severity, the lower the level of PO. With that said, PO represents an elective "context" for studying RS, also from a perspective. On the one hand, PO represents a sort of container for RS, a higher order factor that can affect how RS unveils. On the other hand, it shows that differences in the RS consequences do not exclusively depend on differences in one's level of RS, as it has been assumed so far (Rosenbach & Renneberg, 2011; Gao et al., 2017), but also on the level of the general impairments in adolescents' personality functioning.

The present thesis underlined the importance of considering RS from a dynamic perspective where the situation also plays a role. Although the understanding of psychological processes benefits from a nomothetic perspective that assumes personality to be a static trait, one should not be concerned only with finding general laws that apply to every individual in the population, or even to a

majority of the individuals in a population (Hamaker, 2012; Molenaar & Campbell, 2009). One should also adopt an idiographic approach according to which, personality is also conceptualized as a process that unfolds within the individual across situations over time. Thus, one should consider RS as more than a static personality disposition, but also as a process that may vary over time across different situations within the same individual. By adopting this approach, the last three chapters adds to our knowledge of RS, highlighting many novel and interesting aspects. For example, it appears that situational characteristics moderate RS effects on behavior, worsening or lessening them (e.g., in adverse situations). This means that RS cannot be considered as the only cause of maladaptive outcomes, because it is strongly influenced by external situations. In clinical work, this stresses the importance of the context and the need for setting interventions aiming at supporting or changing the environment in which patients live (e.g., intervention with parents or teachers).

Through the dynamic approach, we have also given prominence to the fact that over time RS could give form to stable processes with negative consequences on individuals' well-being. For example, in Chapter 4, we showed rejection Expectation to predict inertia of negative emotions, while the three RS components to predict variability in both situation perception and negative emotions. While inertia leads individuals to experience negative emotions regardless of the environmental stimuli, variability leads individuals to perceive a situation as more negative and to feel more negative emotions than they are used to do. Both research and clinical literature

showed inertia and variability to be linked with reduced well-being (Houben, Van Den Noortgate, & Kuppens, 2015). Inertia and variability have been considered two indicators of regulatory impairments (Koval, Sütterlin, & Kuppens, 2016; Koval & Kuppens, 2012; Koval, Pe, Meers, & Kuppens, 2013), which can be triggered by social stressed and then results in psychopathological outcomes (Koval, Kuppens, Allen, & Sheeber, 2012; Koval et al.,2013). To our knowledge, no previous study has focused on how RS could affect the individuals' psychological functioning during their daily life. Knowing RS to predict both inertia and variability could provide guidelines to work on with patients. It is important to find an efficient way to interrupt such dysfunctional dynamic patterns, also to prevent the rise of psychopathology. Importantly, these results also highlight the need for more research into the exact mechanisms that make RS to trigger inertia and variability

Since RS complicates day-to-day interpersonal situations as well as relationships over time, developing a clearer understanding of the interpersonal mechanisms of RS dynamic could be very enriching. With this aim, further research should focus on the study of such a dynamic within an interpersonal framework (Dawood, Dowgwillo, Wu, Pincus, 2017; Pincus, 2018). According to this framework, the important psychological characteristics of interpersonal situations are the perceptions of agentic (dominant-submissive) and communal (warm-cold) behaviors of self and other both within and across social interactions. The interpersonal theory might provide new insights into RS and the mechanisms underlying its relationship with maladaptive outcomes. Furthermore, since RS

manifests within interpersonal relationships, this approach seems to be very suitable to study this construct. Notably, Meehan and colleagues (2018) published the first article in which the interpersonal approach was applied to the study of the everyday interpersonal behaviors among individuals with RS. The authors showed that the perceptions of the feelings and behaviors of others impacted on high RS individuals' interpersonal actions and emotions (e.g., high RS individuals exhibited cold behavior in response to their interaction partner's negative and subdued affect). In general, we believe that combining an approach that considers the personality structure (i.e., nomothetic approach) and one that considers its dynamic, would lead to a more complete conceptualization of RS.

In the different studies of this dissertation, RS has been studied and considered by mainly referring to one's experienced or perceived rejection in standard (vis-à-vis) relationships. One could extend it to virtual relationships. In recent years, many transformations have characterized adolescents' growth. Such changes have been triggered by the advent of the Internet and new technologies (i.e., smartphones, social networks). Adolescents grow up in a "connected" environment (Lancini & Turuani, 2009), where they can potentially establish many virtual relationships. Being involved in a relationship, thus, is not only vital for adolescents' well-being, but it also assumes new and different forms. Adolescents desire to succeed and to be popular (e.g., having many followers on social networks) both in real and in virtual life. As the occasions of interpersonal connections have expanded and evolved, so

have how adolescents might feel rejected. The study of RS among adolescents should thus take into account these socio-cultural changes.

Conclusion

Throughout the present dissertation, we focused on the study of RS during adolescence and young adulthood, specifically aiming at introducing a new approach to think about it. In a research context that has been traditionally interested in studying RS as a stable personality disposition, we proposed to investigate also the dynamic processes underlying such a disposition. We relied on the assumption that RS manifestations, as well as their consequences, are likely to vary within the same individual across different situations, but also within the same situation over time. We supported the idea of approaching RS from both a nomothetic and an idiographic perspective. On the one hand, through the nomothetic approach we deepened our knowledge on the RS structure, by describing the unique contribution carried by its cognitive and emotional components. Besides, such an approach allowed us to identify important characteristics of the individual (i.e. personality organization and emotion regulation abilities) that can modify the way in which RS manifests itself. On the other hand, through the idiographic approach, we showed how the impact of RS on individuals' psychological functioning change over time. Such an integrated approach adds to the previous knowledge of RS, helping researchers and clinical practitioners in getting a more comprehensive and accurate picture of this personality disposition. Based on this evidence, we encourage research to adopt this approach

for studying psychological phenomena, to improve their knowledge on them and of the human being in general.

References

Achenbach, T. M. (1991). *Manual for the child behavior checklist and 1991 profile*. Burlington, VT: Department of Psychiatry, University of Vermont.

Albiero, P., Ingoglia, S., & Lo Coco, A. (2006). Contributo all'adattamento italiano dell'Interpersonal Reactivity Index. *Testing-Psicometria-Metodologia, 13*(2), 107-125.

Allport, G. W. (1937). *Personality: A psychological interpretation.* New York: Holt.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5®)*. American Psychiatric Pub.

Ammaniti, M., Fontana, A., & Nicolais, G. (2015). Borderline personality disorder in adolescence through the lens of the interview of personality organization processes in adolescence (IPOP-A): clinical use and implications. *Journal of Infant, Child, and Adolescent Psychotherapy, 14(1),* 82-97.

Ammaniti, M., Fontana, A., Kernberg, O.F., Clarkin, A.J., & Clarkin, J.F. (2011). *Interview of Personality Organization Processes in Adolescence (IPOP-A).* Unpublished Manuscript.

Ammaniti, M., Fontana, A., Clarkin, A., Clarkin, J. F., Nicolais, G., & Kernberg, O. F. (2012). Assessment of adolescent personality disorders through the interview of personality organization processes in adolescence (IPOP-A): clinical and theoretical implications. *Adolescent Psychiatry, 2(1), 36–45*.

Aquilino, W. S. (2006). Family Relationships and Support Systems in Emerging Adulthood. In J. J. Arnett & J. L. Tanner (Eds.), *Emerging adults in*

America: Coming of age in the 21st century (pp. 193-217). Washington, DC, US: American Psychological Association.

Arnett, J. J. (2016). College students as emerging adults: The developmental implications of the college context. *Emerging Adulthood*, *4*(3), 219-222.

Ashton, M. C., & Lee, K. (2009). The HEXACO–60: A short measure of the major dimensions of personality. *Journal of personality assessment*, *91*(4), 340-345.

Asparouhov, T., Hamaker, E. L., & Muthén, B. (2017). Dynamic latent class analysis. *Structural Equation Modeling: A Multidisciplinary Journal*, *24*(2), 257-269.

Auyeung, K. W., & Alden, L. E. (2016). Social anxiety and empathy for social pain. *Cognitive Therapy and Research*, *40*(1), 38-45.

Ayduk, O., Downey, G., & Kim, M. (2001). Rejection sensitivity and depressive symptoms in women. *Personality and Social Psychology Bulletin*, *27*(7), 868-877.

Ayduk, O., Downey, G., Testa, A., Yen, Y., & Shoda, Y. (1999). Does rejection elicit hostility in rejection sensitive women?. *Social Cognition*, *17*(2), 245-271.

Ayduk, Ö., & Gyurak, A. (2008). Applying the cognitive-affective processing systems approach to conceptualizing rejection sensitivity. *Social and personality psychology compass*, *2*(5), 2016-2033.

Ayduk, Ö., Gyurak, A., & Luerssen, A. (2008). Individual differences in the rejection–aggression link in the hot sauce paradigm: The case of rejection sensitivity. *Journal of experimental social psychology*, *44*(3), 775-782.

Ayduk, O., Mendoza-Denton, R., Mischel, W., Downey, G., Peake, P. K., & Rodriguez, M. (2000). Regulating the interpersonal self: strategic self-regulation for coping with rejection sensitivity. *Journal of personality and social psychology*, *79*(5), 776-792.

Ayduk, Ö., Zayas, V., Downey, G., Cole, A. B., Shoda, Y., & Mischel, W. (2008). Rejection sensitivity and executive control: Joint predictors of borderline personality features. *Journal of Research in Personality*, *42*(1), 151-168.

Bagwell, C. L., Schmidt, M. E., Newcomb, A. F., & Bukowski, W. M. (2001). Friendship and peer rejection as predictors of adult adjustment. *New directions for child and adolescent development*, *2001*(91), 25-50.

Baiocco, R., Chirumbolo, A., Bianchi, D., Ioverno, S., Morelli, M., & Nappa, M. R. (2017). How HEXACO Personality Traits Predict Different Selfie-Posting Behaviors among Adolescents and Young Adults. *Frontiers in psychology*, *7*, 2080-2089.

Bates, D., Maechler, M., Bolker, B., and Walker, S. (2014). *lme4: Linear Mixed-effects Models Using Eigen and S4*. R package version 1.1-7. Available online at: http://cran.r-project.org/package=lme4.

Batsche, G. M., & Knoff, H. M. (1994). Bullies and their victims: Understanding a pervasive problem in the schools. *School psychology review*, *23*, 165-165.

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachment as a fundamental human motivation *Psychological Bullettin*, *117,* 497-529.

Baumeister, R. F., DeWall, C. N., Ciarocco, N. J., & Twenge, J. M. (2005). Social exclusion impairs self-regulation. *Journal of personality and social psychology*, *88*(4), 589-604.

Baumeister, R. F., Twenge, J. M., & Nuss, C. K. (2002). Effects of social exclusion on cognitive processes: anticipated aloneness reduces intelligent thought. *Journal of personality and social psychology*, *83*(4), 817-827.

Baumert, A., Schmitt, M., Perugini, M., Johnson, W., Blum, G., Borkenau, P., ... & Jayawickreme, E. (2017). Integrating personality structure, personality process, and personality development. *European Journal of Personality*, *31*(5), 503-528.

Beltz, A. M., Wright, A. G., Sprague, B. N., & Molenaar, P. C. (2016). Bridging the nomothetic and idiographic approaches to the analysis of clinical data. *Assessment*, *23*(4), 447-458.

Bender, D. S., Morey, L. C., & Skodol, A. E. (2011). Toward a model for assessing level of personality functioning in DSM–5, part I: A review of theory and methods. *Journal of Personality Assessment*, *93*(4), 332-346.

Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, *88*(3), 588-606.

Berenson, K. R., Gyurak, A., Ayduk, Ö., Downey, G., Garner, M. J., Mogg, K., ... & Pine, D. S. (2009). Rejection sensitivity and disruption of attention by social threat cues. *Journal of research in personality*, *43*(6), 1064-1072.

Berenson, K. R., Downey, G., Rafaeli, E., Coifman, K. G., & Paquin, N. L. (2011). The rejection–rage contingency in borderline personality disorder. *Journal of Abnormal Psychology, 120*(3), 681-690.

Bergamini, L., & Pedrabissi, L. (2003). *Validazione e taratura italiana del TMA—Test di valutazione multidimensionale dell'autostima (Bracken, B. A)*. Trento: Erickson.

Bierman, K. L. (2004). *Peer rejection: Developmental processes and intervention strategies*. Guilford Press.

Bierman, K. L., Smoot, D. L., & Aumiller, K. (1993). Characteristics of aggressive-rejected, aggressive (nonrejected), and rejected (nonaggressive) boys. *Child development, 64(1)*, 139-151.

Blackhart, G. C., Nelson, B. C., Knowles, M. L., & Baumeister, R. F. (2009). Rejection elicits emotional reactions but neither causes immediate distress nor lowers self-esteem: A meta-analytic review of 192 studies on social exclusion. *Personality and Social Psychology Review*, *13*(4), 269-309.

Bleidorn, W., Hopwood, C. J., & Lucas, R. E. (2018). Life events and personality trait change. *Journal of Personality*, *86*(1), 83-96.

Blos, P. (1968). Character formation in adolescence. *The Psychoanalytic Study of the Child*, *23*(1), 245-263.

Boivin, M., Hymel, S., & Bukowski, W. M. (1995). The roles of social withdrawal, peer rejection, and victimization by peers in predicting loneliness and depressed mood in childhood. *Development and Psychopathology*, *7*(4), 765-785.

Bondü, R., & Krahé, B. (2015). Links of justice and rejection sensitivity with aggression in childhood and adolescence. *Aggressive behavior*, *41*(4), 353-368.

Bondü, R., Sahyazici-Knaak, F., & Esser, G. (2017). Long-term associations of justice sensitivity, rejection sensitivity, and depressive symptoms in children and adolescents. *Frontiers in psychology, 8*, 1446-1460.

Bourgeois, K. S., & Leary, M. R. (2001). Coping with rejection: Derogating those who choose us last. *Motivation and Emotion*, *25*(2), 101-111.

Boker, S. M., Molenaar, P. C. M., & Nesselroade, J. R. (2009). Issues in intraindividual variability: Individual differences in equilibria and dynamics over multiple time scales. *Psychology and Aging, 24(4)*, 858-862.

Bourgeois, K. S., & Leary, M. R. (2001). Coping with rejection: Derogating those who choose us last. *Motivation and Emotion*, *25*(2), 101-111.

Bowker, J. C., Thomas, K. K., Norman, K. E., & Spencer, S. V. (2011). Mutual best friendship involvement, best friends' rejection sensitivity, and psychological maladaptation. *Journal of youth and adolescence*, *40*(5), 545-555.

Bracken, B. A. (1992). *Multidimensional self concept scale*. Austin, TX: PRO-ED.

Bringmann, L., Ferrer, E., Hamaker, E., Borsboom, D., & Tuerlinckx, F. (2015). Modeling Nonstationary Emotion Dynamics in Dyads Using a Semiparametric Time-Varying Vector Autoregressive Model. *Multivariate behavioral research*, *50*(6), 730-731.

Bringmann, L. F., Ferrer, E., Hamaker, E. L., Borsboom, D., & Tuerlinckx, F. (2018). Modeling Nonstationary Emotion Dynamics in Dyads using a Time-Varying Vector-Autoregressive Model. *Multivariate behavioral research*, *53*(3), 293-314.

Bringmann, L. F., Hamaker, E. L., Vigo, D. E., Aubert, A., Borsboom, D., & Tuerlinckx, F. (2017). Changing dynamics: Time-varying autoregressive models using generalized additive modeling. *Psychological methods*, *22*(3), 409-425.

Bringmann, L. F., Pe, M. L., Vissers, N., Ceulemans, E., Borsboom, D., Vanpaemel, W., ... & Kuppens, P. (2016). Assessing temporal emotion dynamics using networks. *Assessment*, *23*(4), 425-435.

Brown, N. A., & Rauthmann, J. F. (2016). Situation characteristics are age graded: Mean-level patterns of the situational eight DIAMONDS across the life span. *Social Psychological and Personality Science*, *7*(7), 667-679.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. *Sage Focus Editions*, *154*, 136-136.

Bryk, A. S., & Raudenbush, S. W. (1992). *Hierarchical linear models for social and behavioral research: Applica- tion and data analysis methods.* Newbury Park, CA: Sage.

Buckley, K. E., Winkel, R. E., & Leary, M. R. (2004). Emotional and behavioral responses to interpersonal rejection: Anger, sadness, hurt, and aggression. *Journal of Experimental Social Psychology*, *40*(1), 14-28.

Bungert M, Koppe G, Niedtfeld I, Vollstädt-Klein S, Schmahl C, Lis S, et al. (2015) Pain Processing after Social Exclusion and Its Relation to Rejection Sensitivity in Borderline Personality Disorder. PLoS ONE 10(8): e0133693.

Burklund, L. J., Eisenberger, N. I., & Lieberman, M. D. (2007). The face of rejection: Rejection sensitivity moderates dorsal anterior cingulate activity to disapproving facial expressions. *Social neuroscience*, *2*(3-4), 238-253.

Cain, N. M., De Panfilis, C., Meehan, K. B., & Clarkin, J. F. (2017). A multisurface interpersonal circumplex assessment of Rejection Sensitivity. *Journal of Personality Assessment*, *99*, 35-45.

Carlson, M., Wilcox, R., Chou, C. P., Chang, M., Yang, F., Blanchard, J., ... & Clark, F. (2011). Psychometric properties of reverse-scored items on the CES-D in a sample of ethnically diverse older adults. *Psychological assessment*, *23*(2), 558.

Carpenter, R. W., Wycoff, A. M., & Trull, T. J. (2016). Ambulatory assessment: New adventures in characterizing dynamic processes. *Assessment*, *23*(4), 414-424.

Caspi, A., Roberts, B. W., & Shiner, R. L. (2005). Personality development: Stability and change. *Annual Review of Psychology.*, *56*, 453-484.

Cassidy, E. F., & Stevenson Jr, H. C. (2005). They wear the mask: Hypervulnerability and hypermasculine aggression among African American males

in an urban remedial disciplinary school. *Journal of Aggression, Maltreatment & Trauma*, *11*(4), 53-74.

Cervone, D. (2005). Personality architecture: Within-person structures and processes. *Annual Review of Psychology*, *56*, 423-452.

Chango, J. M., McElhaney, K. B., Allen, J. P., Schad, M. M., & Marston, E. (2012). Relational stressors and depressive symptoms in late adolescence: Rejection sensitivity as a vulnerability. *Journal of abnormal child psychology*, *40*(3), 369-379.

Chatfield, C. (2003). *The analysis of time series: An introduction* (5th ed.). Boca Raton, FL: Chapman and Hall/CRC.

Chu, X. W., Fan, C. Y., Liu, Q. Q., & Zhou, Z. K. (2018). Stability and change of bullying roles in the traditional and virtual contexts: a three-wave longitudinal study in Chinese early adolescents. *Journal of youth and adolescence*, 1-17.

Clarkin, J. F., Lenzenweger, M. F., Yeomans, F., Levy, K. N., & Kernberg, O. F. (2007). An object relations model of borderline pathology. *Journal of Personality Disorders, 21(5)*, 474-499. doi: 10.1521/pedi.2007.21.5.474

Clarkin, J. F., Yeomans, F. E., & Kernberg, O. F. (2007). *Psychotherapy for borderline personality: Focusing on object relations*. American Psychiatric Pub.

Coie, J. D., Lochman, J. E., Terry, R., & Hyman, C. (1992). Predicting early adolescent disorder from childhood aggression and peer rejection. *Journal of consulting and clinical psychology*, *60*(5), 783-792.

Collins, A., & van Dulmen, M. (2006). Friendships and Romance in Emerging Adulthood: Assessing Distinctiveness in Close Relationships. In A.C. Crouter & A.

Booth (Eds.), *Romance and sex in adolescence and emerging adulthood: risks and opportunities* (pp. 63–86).

Collins, W. A., Welsh, D. P., & Furman, W. (2009). Adolescent romantic relationships. *Annual review of psychology*, *60*, 631-652.

Conner, T. S., Tennen, H., Fleeson, W., & Barrett, L. F. (2009). Experience sampling methods: A modern idiographic approach to personality research. *Social and personality psychology compass*, *3*(3), 292-313.

Cook, C. R., Williams, K. R., Guerra, N. G., Kim, T. E., & Sadek, S. (2010). Predictors of bullying and victimization in childhood and adolescence: A meta-analytic investigation. *School Psychology Quarterly, 25,* 65– 83.

Crick, N. R., & Grotpeter, J. K. (1995). Relational aggression, gender, and social-psychological adjustment. *Child development*, 710-722.

Dahlhaus, R. (1997). Fitting time series models to nonstationary processes. *The annals of Statistics*, *25*(1), 1-37.

Damon, W., & Hart, D. (1988). Cambridge studies in social and emotional development. *Self-understanding in childhood and adolescence. New York, NY, US: Cambridge University Press*.

Davis, M. H. (1980). A multidimensional approach to individual differences in empathy. *JSAS Catalog of Selected Documents in Psychology*, *10*, 1-19.

Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology, 44*(1), 113-126.

Dawood, S., Dowgwillo, E. A., Wu, L. Z., & Pincus, A. L. (2017). Contemporary integrative interpersonal theory of personality. *The SAGE handbook of personality and individual differences. New York: Guilford*.

De Bruyn, E. H., & Van Den Boom, D. C. (2005). Interpersonal behavior, peer popularity, and self-esteem in early adolescence. *Social development, 14(4)*, 555-573.

de Haan-Rietdijk, S., Kuppens, P., & Hamaker, E. L. (2016). What's in a day? A guide to decomposing the variance in intensive longitudinal data. *Frontiers in psychology*, *7*, 891-907.

De Panfilis, C., Meehan, K. B., Cain, N. M., & Clarkin, J. F. (2016). Effortful control, rejection sensitivity, and borderline personality disorder features in adulthood. *Journal of personality disorders*, *30*(5), 595-612.

De Rubeis, J., Lugo, R. G., Witthöft, M., Sütterlin, S., Pawelzik, M. R., & Vögele, C. (2017). Rejection sensitivity as a vulnerability marker for depressive symptom deterioration in men. *PloS one*, *12*(10), e0185802.

Decety, J., & Lamm, C. (2006). Human empathy through the lens of social neuroscience. *The Scientific World Journal*, *6*, 1146-1163.

Delahaij, R., & Van Dam, K. (2017). Coping with acute stress in the military: The influence of coping style, coping self-efficacy and appraisal emotions. *Personality and Individual Differences*, *119*, 13-18.

Derryberry, D., & Rothbart, M. K. (1997). Reactive and effortful processes in the organization of temperament. *Development and Psychopathology*, *9*(4), 633-652.

DeWall, C. N., & Baumeister, R. F. (2006). Alone but feeling no pain: Effects of social exclusion on physical pain tolerance and pain threshold, affective forecasting, and interpersonal empathy. *Journal of personality and social psychology*, 91(1), 1-15.

DeWall, C. N., Baumeister, R. F., Stillman, T. F., & Gailliot, M. T. (2007). Violence restrained: Effects of self-regulation and its depletion on aggression. *Journal of Experimental social psychology*, *43*(1), 62-76.

DeWall, C. N., Twenge, J. M., Gitter, S. A., & Baumeister, R. F. (2009). It's the thought that counts: The role of hostile cognition in shaping aggressive responses to social exclusion. *Journal of Personality and Social Psychology, 96*(1), 45-59.

DeYoung, C. G. (2015). Cybernetic big five theory. *Journal of Research in Personality*, *56*, 33-58.

Downey, G., Berenson, K. R., & Kang, J. (2006). The adult rejection sensitivity questionnaire (ASRQ). *Columbia University*.

Downey, G., & Feldman, S. I. (1996). Implications of rejection sensitivity for intimate relationships. *Journal of personality and social psychology*, *70*(6), 1327-1343.

Downey, G., Feldman, S., & Ayduk, O. (2000). Rejection sensitivity and male violence in romantic relationships. *Personal Relationships*, *7*(1), 45-61.

Downey, G., Feldman, S., Khuri, J., & Friedman, S. (1994). Maltreatment and childhood depression. In *Handbook of depression in children and adolescents* (pp. 481-508). Springer, Boston, MA.

Downey, G., Freitas, A. L., Michaelis, B., & Khouri, H. (1998). The self-fulfilling prophecy in close relationships: Rejection sensitivity and rejection by romantic partners. *Journal of Personality and Social Psychology, 75*(2), 545-560.

Downey, G., Lebolt, A., Rincón, C., & Freitas, A. L. (1998). Rejection sensitivity and children's interpersonal difficulties. *Child development*, *69*(4), 1074-1091.

Downey, G., Mougios,V.,Ayduk, O., London, B., & Shoda, Y. (2004). Rejection sensitivity and the defensive motivational system: Insights from the startle response to rejection cues. *Psychological Science, 15*(10), 668–673.

Duncombe, M., Havighurst, S. S., Holland, K. A., & Frankling, E. J. (2013). Relations of emotional competence and effortful control to child disruptive behavior problems. *Early Education & Development, 24*(5), 599-615.

Ebesutani, C., Bernstein, A., Nakamura, B. J., Chorpita, B. F., Higa-McMillan, C. K., Weisz, J. R., & The Research Network on Youth Mental Health. (2010). Concurrent Validity of the Child Behavior Checklist DSM-Oriented Scales: Correspondence with DSM Diagnoses and Comparison to Syndrome Scales. *Journal of Psychopathology and Behavioral Assessment, 32(3)*, 373–384.

Eisenberger, N. I., & Lieberman, M. D. (2004). Why rejection hurts: a common neural alarm system for physical and social pain. *Trends in cognitive sciences*, *8*(7), 294-300.

Ensink, K. (2015). Introduction to special issue: advances in understanding and treating borderline personality disorder in adolescents. *Journal of Infant, Child, and Adolescent Psychotherapy, 14(1)*, 1-2.

Ensink, K., Biberdzic, M., Normandin, L., & Clarkin, J.F. (2015). A developmental psychopathology model of borderline personality disorder in adolescence. *Journal of Infant, Child, and Adolescent Psychotherapy, 14(1)*, 46-69.

Epkins, C. C., & Heckler, D. R. (2011). Integrating etiological models of social anxiety and depression in youth: Evidence for a cumulative interpersonal risk model. *Clinical Child and Family Psychology Review*, *14*(4), 329-376.

Epskamp, S., Cramer, A. O., Waldorp, L. J., Schmittmann, V. D., & Borsboom, D. (2012). qgraph: Network visualizations of relationships in psychometric data. *Journal of Statistical Software*, *48*(4), 1-18.

Erikson, E. H. (1968). Life cycle. *International encyclopedia of the social sciences*, *9*, 286-292.

Eron, L. D., & Huesmann, L. R. (1984). The relation of prosocial behavior to the development of aggression and psychopathology. *Aggressive Behavior*, *10*(3), 201-211.

Fenzel, L. M. (2000). Prospective study of changes in global self-worth and strain during the transition to middle school. *The Journal of Early Adolescence*, *20*(1), 93-116.

Fischer, K. W., & Bidell, T. R. (2006). Theoretical Models of Human Development, Handbook of Child Psychology, volume 1, chapter Dynamic Development of Action, Thought, and Emotion.

Fleeson, W., & Noftle, E. E. (2012). Personality research. *Handbook of research methods for studying daily life*, 525-538.

Fleeson, W., & Jayawickreme, E. (2015). Whole trait theory. *Journal of Research in Personality*, *56*, 82-92.

Foelsch, P. A., Odom, A. E., & Kernberg, O.F. (2008). Treatment of adolescents with identity diffusion: a modification of transference focused psychotherapy. *Santé mentale au Québec, 33(1)*, 37-60.

Fonagy, P., & Target, M. (1997). Attachment and reflective function: Their role in self-organization. *Development and psychopathology*, *9*(4), 679-700.

Fournier, M. A., Moskowitz, D. S., & Zuroff, D. C. (2008). Integrating dispositions, signatures, and the interpersonal domain. *Journal of Personality and Social Psychology, 94*(3), 531-545.

Fournier, M. A., Moskowitz, D. S., & Zuroff, D. C. (2009). The interpersonal signature. *Journal of Research in Personality*, *43*(2), 155-162.

Frijda, N. H. (1986). *The emotions*. Cambridge University Press.

Funder, D. C. (2016). Taking situations seriously: the situation construal model and the riverside situational Q-sort. *Current Directions in Psychological Science*, *25*(3), 203-208.

Furman, W., & Buhrmester, D. (1992). Age and sex differences in perceptions of networks of personal relationships. *Child Development, 63*(1), 103 –115.

Furr, R. M., & Funder, D. C. (2004). Situational similarity and behavioral consistency: Subjective, objective, variable-centered, and person-centered approaches. *Journal of Research in Personality*, *38*(5), 421-447.

Furr, R. M., & Funder, D. C. Persons, Situations, and Person-Situation Interactions. In John, O.P., & Robins, R.W. (in press). *Handbook of personality: Theory and research (4th Edition).* New York: Guilford.

Gao, S., Assink, M., Cipriani, A., & Lin, K. (2017). Associations between rejection sensitivity and mental health outcomes: A meta-analytic review. *Clinical psychology review*, *57*, 59-74.

Garnefski, N., & Kraaij, V. (2006). Cognitive emotion regulation questionnaire–development of a short 18-item version (CERQ-short). *Personality and individual differences*, *41*(6), 1045-1053.

Garnefski, N., & Kraaij, V. (2007). The cognitive emotion regulation questionnaire. *European Journal of Psychological Assessment*, *23*(3), 141-149.

Garnefski, N., Kraaij, V., & Spinhoven, P. (2001). Negative life events, cognitive emotion regulation and emotional problems. *Personality and Individual differences*, *30*(8), 1311-1327.

Garnefski, N., Kraaij, V., & Spinhoven, P. (2002). Manual for the use of the Cognitive Emotion Regulation Questionnaire. *Leiderdorp, The Netherlands: DATEC*.

Gates, K. M., & Molenaar, P. C. (2012). Group search algorithm recovers effective connectivity maps for individuals in homogeneous and heterogeneous samples. *NeuroImage*, *63*(1), 310-319.

Gazelle, H., & Ladd, G. W. (2003). Anxious solitude and peer exclusion: A diathesis–stress model of internalizing trajectories in childhood. *Child development, 74(1)*, 257-278.

Geukes, K., van Zalk, M., & Back, M. D. (2018). Understanding personality development: An integrative state process model. *International Journal of Behavioral Development*, *42*(1), 43-51.

Gilden, D. L. (2001). Cognitive emissions of 1/f noise. *Psychological review*, *108*(1), 33-56. Gilliom, M., Shaw, D. S., Beck, J. E., Schonberg, M. A., & Lukon, J. L. (2002). Anger regulation in disadvantaged preschool boys: Strategies, antecedents, and the development of self-control. *Developmental psychology, 38*(2), 222-235.

Giraitis, L., Kapetanios, G., & Yates, T. (2014). Inference on stochastic time-varying coefficient models. *Journal of Econometrics*, *179*(1), 46-65.

Goth, K., Foelsch, P., Schlüter-Müller, S., Birkhölzer, M., Jung, E., Pick, O., & Schmeck, K. (2012). Assessment of identity development and identity diffusion in adolescence - theoretical basis and psychometric properties of the self-report questionnaire AIDA. *Child and Adolescent Psychiatry and Mental Health, 6*(1), 27-43.

Guerra, V. S., Asher, S. R., & DeRosier, M. E. (2004). Effect of children's perceived rejection on physical aggression. *Journal of abnormal child psychology*, *32*(5), 551-563.

Gupta, M. (2008). Functional links between intimate partner violence and animal abuse: Personality features and representations of aggression. *Society & animals*, *16*(3), 223-242.

Gyurak, A., & Ayduk, Ö. (2008). Resting respiratory sinus arrhythmia buffers against rejection sensitivity via emotion control. *Emotion*, *8*(4), 458.

Hallgren, K. A. (2012). Computing Inter-Rater Reliability for Observational Data: An Overview and Tutorial. Tutorials in Quantitative Methods for Psychology, 8(1), 23–34. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3402032/#!po=71.3333

Hamaker, E. L. (2012). Why researchers should think "within-person": A paradigmatic rationale. *Handbook of research methods for studying daily life*, 43-61.

Hamaker, E. L., Asparouhov, T., Brose, A., Schmiedek, F., & Muthén, B. (2018). At the frontiers of modeling intensive longitudinal data: Dynamic structural equation models for the affective measurements from the COGITO study. *Multivariate behavioral research*, 1-22.

Härdle, W., Lütkepohl, H., & Chen, R. (1997). A review of nonparametric time series analysis. *International Statistical Review*, *65*(1), 49-72.

Harter, S., Stocker, C., & Robinson, N. S. (1996). The perceived directionality of the link between approval and self-worth: The liabilities of a looking gladd self-

orientation among young adolescents. *Journal of Research on Adolescence, 6*(3), 285-308.

Hartup, W. W. (1995). The three faces of friendship. *Journal of Social and personal Relationships, 12(4)*, 569-574.

Hastie, T., & Tibshirani, R. (1990). Exploring the nature of covariate effects in the proportional hazards model. *Biometrics*, 1005-1016.

Hennecke, M., Bleidorn, W., Denissen, J. J., & Wood, D. (2014). A three-part framework for self-regulated personality development across adulthood. *European Journal of Personality*, *28*(3), 289-299.

Hofmans, J., De Clercq, B., Kuppens, P., Verbeke, L., & Widiger, T. A. Testing the structure and process of personality using ambulatory assessment data: An overview of within-person and person-specific techniques. *Psychological Assessment*, 3002, 1-39.

Hoglund, W. L., & Leadbeater, B. J. (2007). Managing threat: Do social-cognitive processes mediate the link between peer victimization and adjustment problems in early adolescence? *Journal of Research on Adolescence*, *17*(3), 525-540.

Holm, S. (1979). A simple sequentially rejective multiple test procedure. *Scandinavian journal of statistics*, 65-70.

Hopwood, C. J. (2018). Interpersonal dynamics in personality and personality disorders. *European Journal of Personality, 32*, 499-524.

Hopwood, C. J., Kotov, R., Krueger, R. F., Watson, D., Widiger, T. A., Althoff, R. R., ... & Bornovalova, M. A. (2018). The time has come for dimensional personality disorder diagnosis. *Personality and mental health*, *12*(1), 82-86.

Hopwood, C. J., Zimmermann, J., Pincus, A. L., & Krueger, R. F. (2015). Connecting personality structure and dynamics: Towards a more evidence-based and clinically useful diagnostic scheme. *Journal of Personality Disorders*, *29*(4), 431-448.

Houben, M., Van Den Noortgate, W., & Kuppens, P. (2015). The relation between short-term emotion dynamics and psychological well-being: A meta-analysis. *Psychological bulletin*, *141*(4), 901-930.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*(1), 1-55.

Hudziak, J. J., Achenbach, T. M., Althoff, R. R., & Pine, D. S. (2007). A dimensional approach to developmental psychopathology. *International Journal of Methods in Psychiatric Research*, *16*(1), S16–S23.

Hufford, M. R. (2007). Special methodological challenges and opportunities in ecological momentary assessment. In A. A. Stone, S. Shiffman, A. A. Atienza, & L. Nebeling L. (Eds). *The science of real-time data capture: Self-reports in health research*. pp. 54–75.

Huprich, S. K., & Nelson, S. M. (2015). The cognitive-affective processing system model of personality pathology: Ready-made for theoretical integration. *Personality disorders: Assessment, diagnosis, research*, 395-412.

Innamorati, M., Balsamo, M., Fairfield, B., Fabbricatore, M., Tamburello, A., & Saggino, A. (2014). Construct validity and reliability of the Adult Rejection Sensitivity Questionnaire: A comparison of three factor models. *Depression research and treatment*, 1-10.

Izard, C. E. (1994). Innate and universal facial expressions: Evidence from developmental and cross-cultural research. *Psychological Bulletin, 115(2)*, 288-299.

Jacobs, N., & Harper, B. (2013). The effects of rejection sensitivity on reactive and proactive aggression. *Aggressive behavior*, *39*(1), 3-12.

Jahng, S., Wood, P. K., & Trull, T. J. (2008). Analysis of affective instability in ecological momentary assessment: Indices using successive difference and group comparison via multilevel modeling. *Psychological methods*, *13*(4), 354-275.

Jeung, H., & Herpertz, S. C. (2014). Impairments of interpersonal functioning: empathy and intimacy in borderline personality disorder. *Psychopathology*, *47*(4), 220-234.

Jones, A. B., Brown, N. A., Serfass, D. G., & Sherman, R. A. (2017). Personality and density distributions of behavior, emotions, and situations. *Journal of Research in Personality*, *69*, 225-236.

Jongerling, J., Laurenceau, J. P., & Hamaker, E. L. (2015). A multilevel AR (1) model: Allowing for inter-individual differences in trait-scores, inertia, and innovation variance. *Multivariate behavioral research*, *50*(3), 334-349.

Kemberg, O. F. (1996). A psychoanalytic theory of personality disorders. In J. F. Clarkin, & M. F. Lenzenweger (Eds.). Major theories of personality disorder (pp. 106– 140). New York: Guilford Press.

Kernberg, O. F. (1998). The diagnosis of narcissistic and antisocial pathology in adolescence. In A. H. Esman (Ed.), *Adolescent psychiatry: vol. 22. Developmental and clinical studies* (pp. 169–186). Hillsdale, NJ: Analytic Press.

Kernberg, O.F. (2006). Identity: recent findings and clinical implications. *The Psychoanalytic Quarterly, 75*(4), 969-1004.

Kernberg, P., Weiner, A., & Bardenstein, K. (2000). *Personality disorders in children and adolescence*. New York: Basic Books.

Kernberg, O.F., & Caligor, E. (2005). A psychoanalytic theory of personality disorders. In J. F. Clarkin & M. F. Lenzenweger (Eds.), Major theories of personality disorder (2nd ed., pp. 114–156). New York: Guilford.

Kawamoto, T., Ura, M., & Hiraki, K. (2017). Curious people are less affected by social rejection. *Personality and Individual Differences*, *105*, 264-267.

King, K. M., McLaughlin, K. A., Silk, J., & Monahan, K. C. (2018). Peer effects on self-regulation in adolescence depend on the nature and quality of the peer interaction. *Development and psychopathology*, *30*(4), 1389-1401.

Kitagawa, G., & Gersch, W. (1985). A smoothness priors time-varying AR coefficient modeling of nonstationary covariance time series. *IEEE Transactions on Automatic Control*, *30*(1), 48-56.

Knowles, M. L. (2014). Social rejection increases perspective taking. *Journal of Experimental Social Psychology*, *55*, 126-132.

Koster, N., de Maat, D. A., Schreur, M., & van Aken, M. A. (2018). How borderline personality characteristics affect adolescents' life satisfaction: The role of rejection sensitivity and social relations. *European Journal of Developmental Psychology*, *15*(5), 594-607.

Koval, P., Brose, A., Pe, M. L., Houben, M., Erbas, Y., Champagne, D., & Kuppens, P. (2015). Emotional inertia and external events: The roles of exposure, reactivity, and recovery. *Emotion, 15*(5), 625-636.

Koval, P., & Kuppens, P. (2012). Changing emotion dynamics: Individual differences in the effect of anticipatory social stress on emotional inertia. *Emotion, 12*(2), 256-267.

Koval, P., Kuppens, P., Allen, N. B., & Sheeber, L. (2012). Getting stuck in depression: The roles of rumination and emotional inertia. *Cognition & emotion*, *26*(8), 1412-1427.

Koval, P., Pe, M. L., Meers, K., & Kuppens, P. (2013). Affect dynamics in relation to depressive symptoms: Variable, unstable or inert? *Emotion, 13*(6), 1132-1141.

Koval, P., Sütterlin, S., & Kuppens, P. (2016). Emotional inertia is associated with lower well-being when controlling for differences in emotional context. *Frontiers in psychology*, *6*, 1997-2008.

Krueger, R. F., Derringer, J., Markon, K. E., Watson, D., & Skodol, A. E. (2012). Initial construction of a maladaptive personality trait model and inventory for DSM-5. *Psychological medicine*, *42*(9), 1879-1890.

Kuppens, P., Allen, N. B., & Sheeber, L. B. (2010). Emotional inertia and psychological maladjustment. *Psychological Science*, *21*(7), 984-991.

Kuppens, P., Sheeber, L. B., Yap, M. B. H., Whittle, S., Simmons, J. G., & Allen, N. B. (2012). Emotional inertia prospectively predicts the onset of depressive disorder in adolescence. *Emotion, 12*(2), 283-289.

Kupersmidt, J.B., Coie, J.D., & Dodge, K.A. (1990). The role of poor peer relationships in the development of disorder. In S.R. Asher & J.D. Coie (Eds.), *Peer Rejection in Childhood*. Cambridge: Cambridge University Press.

Kuznetsova, A., Bruun Bockhoff, P., and Haubo Bojesen Christensen, R. (2013). *lmerTest: Tests for Random and Fixed Effects for Linear Mixed Effect Models (lmer objects of lme4 package)*. Available online at: https://cran.r-project.org/web/packages/lmerTest/index.html.

LaFontana, K. M., & Cillessen, A. H. (2002). Children's perceptions of popular and unpopular peers: A multimethod assessment. *Developmental psychology*, *38*(5), 635.

La Freniere, P. J., & Charlesworth, W. R. (1987). Effects of friendship and dominance status on preschooler's resource utilization in a cooperative/competitive situation. *International Journal of Behavioral Development*, *10*(3), 345-358.

La Greca, A. M., Davila, J., & Siegel, R. (2008). Peer relations, friendships, and romantic relationships: Implications for the development and maintenance of depression in adolescents. In *Adolescent emotional development and the emergence of depressive disorders*. Cambridge University Press.

Lancini, M., & Turuani, L. (2009). Sempre in contatto. *Relazioni virtuali in adolescenza*.

Lanz, M., & Tagliabue, S. (2007). Do I really need someone in order to become an adult? Romantic relationships during emerging adulthood in Italy. *Journal of Adolescent Research*, *22*(5), 531-549.

Laursen, B., & Collins, W. A. (2009). *Parent-child relationships during adolescence* (pp. 3-42). New York, NY: Wiley.

Lazarus, S. A., Southward, M. W., & Cheavens, J. S. (2016). Do borderline personality disorder features and rejection sensitivity predict social network outcomes over time? *Personality and Individual Differences*, *100*, 62-67.

Leary, M. R. (1995). *Self-presentation: Impression management and interpersonal behavior*. Brown & Benchmark Publishers.

Leary, M. R. (2010). Affiliation, acceptance, and belonging. *Handbook of social psychology*, *2*, 864-897.

Leary, T. (1957). Interpersonal diagnosis of personality. New York: Ronald Press.

Leary, M. R., & Kowalski, R. M. (1995). The self-presentation model of social phobia. *Social phobia: Diagnosis, assessment, and treatment*, 94-112.

Leary, M. R., Tambor, E. S., Terdal, S. K., & Downs, D. L. (1995). Self-esteem as an interpersonal monitor: The sociometer hypothesis. *Journal of personality and social psychology*, *68*(3), 518-530.

Leary, M. R., & Springer, C. A. (2001). Hurt feelings: The neglected emotion. In R. M. Kowalski (Ed.), *Behaving badly: Aversive behaviors in interpersonal relationships* (pp. 151-175). Washington, DC, US: American Psychological Association.

LeDoux, J. E. (1995). Emotion: Clues from the brain. *Annual review of psychology*, *46*(1), 209-235.

Lemerise, E. A., & Arsenio, W. F. (2000). An integrated model of emotion processes and cognition in social information processing. *Child development*, *71*(1), 107-118.

Lench, H. C., Tibbett, T. P., & Bench, S. W. (2016). Exploring the toolkit of emotion: What do sadness and anger do for us?. *Social and Personality Psychology Compass*, *10*(1), 11-25.

Lenzenweger, M. F., Clarkin, J. F., Yeomans, F. E., Kernberg, O. F., & Levy, K. N. (2008). Refining the borderline personality disorder phenotype through finite

mixture modeling: Implications for classification. *Journal of Personality Disorders*, *22*(4), 313-331.

Lev-Wiesel, R., Nuttman-Shwartz, O., & Sternberg, R. (2006). Peer rejection during adolescence: psychological long-term effects—A brief report. *Journal of Loss and Trauma, 11*(2), 131-142.

Levin, J. (2006). *Elementary statistics in social research*. Pearson Education India.

Levy, S. R., Ayduk, O., & Downey, G. (2001). The role of rejection sensitivity in people's relationships with significant others and valued social groups. In M. R. Leary (Ed.), *Interpersonal Rejection* (pp. 251-289). New York: Oxford University Press.

Liu, R. T., Kraines, M. A., Massing-Schaffer, M., & Alloy, L. B. (2014). Rejection sensitivity and depression: Mediation by stress generation. *Psychiatry: Interpersonal and Biological Processes*, *77*(1), 86-97.

Liu, S., & Molenaar, P. C. (2014). iVAR: A program for imputing missing data in multivariate time series using vector autoregressive models. *Behavior research methods*, *46*(4), 1138-1148.

London, B., Downey, G., Bonica, C., & Paltin, I. (2007). Social causes and consequences of rejection sensitivity. *Journal of Research on Adolescence*, *17*(3), 481-506.

MacDonald, G., & Leary, M. R. (2005). Why Does Social Exclusion Hurt? The Relationship Between Social and Physical Pain. *Psychological Bulletin, 131*(2), 202-223.

Massing-Schaffer, M., Liu, R. T., Kraines, M. A., Choi, J. Y., & Alloy, L. B. (2015). Elucidating the relation between childhood emotional abuse and depressive symptoms in adulthood: The mediating role of maladaptive interpersonal processes. *Personality and individual differences*, *74*, 106-111.

Masten, C. L., Eisenberger, N. I., Pfeifer, J. H., & Dapretto, M. (2010). Witnessing peer rejection during early adolescence: Neural correlates of empathy for experiences of social exclusion. *Social Neuroscience*, *5*(5-6), 496-507.

McArdle, J. J. (2009). Latent variable modeling of differences and changes with longitudinal data. *Annual review of psychology*, *60*, 577-605.

McDonald, K. L., Bowker, J. C., Rubin, K. H., Laursen, B., & Duchene, M. S. (2010). Interactions between rejection sensitivity and supportive relationships in the prediction of adolescents' internalizing difficulties. *Journal of youth and adolescence*, *39*(5), 563-574.

McDougall, P., Hymel, S., Vaillancourt, T., & Mercer, L. (2001). The consequences of childhood peer rejection. *Interpersonal rejection*, 213-247.

McKeown, G. J., & Sneddon, I. (2014). Modeling continuous self-report measures of perceived emotion using generalized additive mixed models. *Psychological methods*, *19*(1), 155-174.

McLachlan, J., Zimmer-Gembeck, M. J., & McGregor, L. (2010). Rejection sensitivity in childhood and early adolescence: peer rejection and protective effects of parents and friends. *Journal of Relationships Research, 1*(1), 31–40.

McNulty, J. K. (2008). Neuroticism and interpersonal negativity: The independent contributions of perceptions and behaviors. *Personality and Social Psychology Bulletin*, *34*(11), 1439-1450.

Meehan, K. B., Cain, N. M., Roche, M. J., Clarkin, J. F., & De Panfilis, C. (2018). Rejection sensitivity and interpersonal behavior in daily life. *Personality and Individual Differences*, *126*, 109-115.

Meehan, K. B., Clarkin, J. F., Cain, N. M., & Chiara De Panfilis, M. D. (2018). Attachment, Object Representations, and Object Relations. *Psychoanalytic Psychology*, *35*(2), 254-259.

Mehl, M. R. (2017). The electronically activated recorder (EAR) a method for the naturalistic observation of daily social behavior. *Current directions in psychological science*, *26*(2), 184-190.

Mendoza-Denton, R., Downey, G., Purdie, V., Davis, A., & Pietrzak. J. (2002). Sensitivity to status-based rejection: Implications for African American students' college experience. *Journal of Personality & Social Psychology*, *83*(4), 896-918.

Miller-Johnson, S., Coie, J. D., Maumary-Gremaud, A., & Bierman, K. (2002). Peer rejection and aggression and early starter models of conduct disorder. *Journal of Abnormal Child Psychology, 30*(3), 217–230.

Mischel, W. (1973). Toward a cognitive social learning reconceptualization of personality. *Psychological Review, 80*(4), 252-283.

Mischel, W., & Shoda, Y. (1995). A cognitive-affective system theory of personality: reconceptualizing situations, dispositions, dynamics, and invariance in personality structure. *Psychological review*, *102*(2), 246-268.

Molden, D. C., Lucas, G. M., Gardner, W. L., Dean, K., & Knowles, M. L. (2009). Motivations for prevention or promotion following social exclusion: Being rejected versus being ignored. *Journal of personality and social psychology*, *96*(2), 415-431.

Molenaar, P. C. (1985). A dynamic factor model for the analysis of multivariate time series. *Psychometrika*, *50*(2), 181-202.

Molenaar, P. C. (2013). On the necessity to use person-specific data analysis approaches in psychology. *European Journal of Developmental Psychology*, *10*(1), 29-39.

Molenaar, P. C., & Campbell, C. G. (2009). The new person-specific paradigm in psychology. *Current directions in psychological science*, *18*(2), 112-117.

Moskowitz, D. S., & Zuroff, D. C. (2004). Flux, Pulse, and Spin: Dynamic Additions to the Personality Lexicon. *Journal of Personality and Social Psychology, 86*(6), 880-893.

Muthén, L. K., & Muthen, B. O. (2017). Mplus. Los Angeles: Muthen & Muthen.

Nangle, D. W., Erdley, C. A., Newman, J. E., Mason, C. A., & Carpenter, E. M. (2003). Popularity, friendship quantity, and friendship quality: Interactive influences on children's loneliness and depression. *Journal of Clinical Child and Adolescent Psychology, 32*(4), 546-555.

Nesdale, D. (2008). Peer group rejection and children's intergroup prejudice. *Intergroup attitudes and relations in childhood through adulthood*, 32-46.

Neumann, A., Van Lier, P. A., Frijns, T., Meeus, W., & Koot, H. M. (2011). Emotional dynamics in the development of early adolescent psychopathology: A one-year longitudinal study. *Journal of abnormal child psychology*, *39*(5), 657-669.

Newcomb, A. F., Bukowski, W. M., & Pattee, L. (1993). Children's peer relations: a meta-analytic review of popular, rejected, neglected, controversial, and average sociometric status. *Psychological bulletin*, *113*(1), 99-128.

Nezlek, J. B., Kowalski, R. M., Leary, M. R., Blevins, T., & Holgate, S. (1997). Personality moderators of reactions to interpersonal rejection: Depression and trait self-esteem. *Personality and Social Psychology Bulletin*, *23*(12), 1235-1244.

Normandin, L., Ensink, K., Yeomans, F.E. & Kernberg, O.F. (2014). Transference-focused psychotherapy for personality disorders in adolescence. In C. Sharp & J. L. Tackett (Eds.), *Handbook of borderline personality disorder in children and adolescents* (pp. 333–359). New York: Springer.

Okon-Singer, H., Hendler, T., Pessoa, L., & Shackman, A. J. (2015). The neurobiology of emotion–cognition interactions: fundamental questions and strategies for future research. *Frontiers in Human Neuroscience*, *9*, 58-72.

Olsson, A., Carmona, S., Downey, G., Bolger, N., & Ochsner, K. N. (2013). Learning biases underlying individual differences in sensitivity to social rejection. *Emotion, 13*(4), 616-621.

Pearson, K. A., Watkins, E. R., & Mullan, E. G. (2011). Rejection sensitivity prospectively predicts increased rumination. *Behaviour Research and Therapy*, *49*(10), 597-605.

Perillo, L., Esposito, M., Caprioglio, A., Attanasio, S., Santini, A. C., & Carotenuto, M. (2014). Orthodontic treatment need for adolescents in the Campania region: the malocclusion impact on self-concept. *Patient preference and adherence, 8*, 353-359.

Pessoa, L. (2008). On the relationship between emotion and cognition. *Nature reviews neuroscience*, *9*(2), 148-158.

Peters, J. R., Smart, L. M., & Baer, R. A. (2015). Dysfunctional responses to emotion mediate the cross-sectional relationship between rejection sensitivity and borderline personality features. *Journal of Personality Disorders*, *29*(2), 231-240.

Phelps, E. A. (2006). Emotion and cognition: insights from studies of the human amygdala. *Annual Review Psychology*, *57*, 27-53.

Pincus, A. L. (2018). An interpersonal perspective on Criterion A of the DSM-5 Alternative Model for Personality Disorders. *Current opinion in psychology*, *21*, 11-17.

Pourhoseingholi, M. A., Baghestani, A. R., & Vahedi, M. (2012). How to control confounding effects by statistical analysis. *Gastroenterology and Hepatology from bed to bench*, *5*(2), 79-83.

Premkumar, P., Onwumere, J., Albert, J., Kessel, D., Kumari, V., Kuipers, E., & Carretié, L. (2015). The relation between schizotypy and early attention to rejecting interactions: the influence of neuroticism. *The World Journal of Biological Psychiatry*, *16*(8), 587-601.

Premkumar, P., Onwumere, J., Betts, L., Kibowski, F., & Kuipers, E. (2018). Schizotypal traits and their relation to rejection sensitivity in the general population: the mediation by quality of life, agreeableness and neuroticism. *Psychiatry research*, 201-209.

Presaghi, F., & Ercolani, A. P. (2005). Exploratory and confirmatory factor structure of Italian version of CERQ. *Unpublished Manuscript). University of Roma "La Sapienza*.

Preti, E., Prunas, A., De Panfilis, C., Marchesi, C., Madeddu, F., & Clarkin, J. F. (2015). Facets of identity: personality pathology assessment through the Inventory of Personality Organization. *Personality Disorders: Theory, Research, and Treatment*, *6*(2), 129-140.

Price, J. M., & Dodge, K. A. (1989). Reactive and proactive aggression in childhood: Relations to peer status and social context dimensions. *Journal of Abnormal Child Psychology*, *17*(4), 455-471.

Prinstein, M. J., & Aikins, J. (2004). Cognitive moderators of the longitudinal association between peer rejection and adolescent depressive symptoms. *Journal of abnormal child psychology*, *32*(2), 147-158.

Prinstein, M. J., Borelli, J. L., Cheah, C. S., Simon, V. A., & Aikins, J. W. (2005). Adolescent girls' interpersonal vulnerability to depressive symptoms: a longitudinal examination of reassurance-seeking and peer relationships. *Journal of Abnormal Psychology, 114*(4), 676-688.

Purdie, V., & Downey, G. (2000). Rejection sensitivity and adolescent girls' vulnerability to relationship-centered difficulties. *Child Maltreatment*, *5*(4), 338-349.

Quirk, S. W., Wier, D., Martin, S. M., & Christian, A. (2015). The influence of parental rejection on the development of maladaptive schemas, rumination, and motivations for self-injury. *Journal of Psychopathology and Behavioral Assessment*, *37*(2), 283-295.

Ram, N., & Gerstorf, D. (2009). Time-structured and net intraindividual variability: Tools for examining the development of dynamic characteristics and processes. *Psychology and aging*, *24*(4), 778-791.

Rauer, A. J., Pettit, G. S., Lansford, J. E., Bates, J. E., & Dodge, K. A. (2013). Romantic relationship patterns in young adulthood and their developmental antecedents. *Developmental psychology*, *49*(11), 2159-2171.

Rauthmann, J. F. (2015). Structuring situational information: A road map of the multiple pathways to different situational taxonomies. European Psychologist, 20, 176-189.

Rauthmann, J. F., Gallardo-Pujol, D., Guillaume, E. M., Todd, E., Nave, C. S., Sherman, R. A., ... & Funder, D. C. (2014). The Situational Eight DIAMONDS: A taxonomy of major dimensions of situation characteristics. *Journal of Personality and Social Psychology*, *107*(4), 677-718.

Rauthmann, J. F., Jones, A. B., & Sherman, R. A. (2016). Directionality of person–situation transactions: Are there spillovers among and between situation experiences and personality states? *Personality and Social Psychology Bulletin*, *42*(7), 893-909.

Rauthmann, J. F., & Sherman, R. A. (2016). Ultra-brief measures for the situational eight DIAMONDS domains. *European Journal of Psychological Assessment*, *32*, 165-174.

Rauthmann, J. F., Sherman, R. A., & Funder, D. C. (2015). Principles of situation research: Towards a better understanding of psychological situations. *European Journal of Personality*, *29*(3), 363-381.

Reijntjes, A., Stegge, H., Terwogt, M. M., Kamphuis, J. H., & Telch, M. J. (2006). Children's coping with in vivo peer rejection: An experimental investigation. Journal of Abnormal Child Psychology, 34(6), 873-885.

Richetin, J., Costantini, G., Perugini, M., & Schönbrodt, F. (2015). Should we stop looking for a better scoring algorithm for handling Implicit Association Test

data? Test of the role of errors, extreme latencies treatment, scoring formula, and practice trials on reliability and validity. *Plos One*, *10*(6), e0129601.

Richetin, J., Poggi, A., Ricciardelli, P., Fertuck, E. A., & Preti, E. (2018). The emotional components of rejection sensitivity as a mediator between borderline personality disorder and biased appraisal of trust in faces. *Clinical Neuropsychiatry*, *15*(4), 200-205.

Richman, L., S. & Leary, M. R. (2009). Reactions to discrimination, stigmatization, ostracism, and other forms of interpersonal rejection: a multimotive model. *Psychological review*, *116*(2), 365-383.

Riva, P. (2015). *Behavioral Intentions scale*. Unpublished Manuscript.

Roberts, B. W. (2018). A revised sociogenomic model of personality traits. *Journal of personality*, *86*(1), 23-35.

Roberts, B. W., Walton, K. E., & Viechtbauer, W. (2006). Patterns of mean-level change in personality traits across the life course: a meta-analysis of longitudinal studies. *Psychological bulletin*, *132*(1), 1-25.

Rodkin, P. C., Espelage, D. L., & Hanish, L. D. (2015). A relational framework for understanding bullying: Developmental antecedents and outcomes. *American Psychologist, 70*(4), 311-321.

Rodriguez Mosquera, P. M., Fischer, A. H., Manstead, A. S., & Zaalberg, R. (2008). Attack, disapproval, or withdrawal? The role of honour in anger and shame responses to being insulted. *Cognition and Emotion*, *22*(8), 1471-1498.

Romero-Canyas, R., & Downey, G. (2005). Rejection sensitivity as a predictor of affective and behavioral responses to interpersonal stress. *The social outcast: Ostracism, social exclusion, rejection, and bullying*, 131-154.

Romero-Canyas, R., Downey, G., Berenson, K., Ayduk, O., & Kang, N. J. (2010). Rejection sensitivity and the rejection–hostility link in romantic relationships. *Journal of personality*, *78*(1), 119-148.

Romero-Canyas, R., Downey, G., Reddy, K. S., Rodriguez, S., Cavanaugh, T. J., & Pelayo, R. (2010). Paying to belong: When does rejection trigger ingratiation? *Journal of personality and social psychology*, *99*(5), 802-823.

Rosenbach, C., & Renneberg, B. (2011). Rejected, excluded, ignored: The perception of social rejection and mental disorders—A review [in German]. Verhaltenstherapie, 21, 87–97.

Rosseel, Y. (2012). Lavaan: An R package for structural equation modeling and more. Version 0.5–12 (BETA). *Journal of statistical software*, *48*(2), 1-36.

Roza, S. J., Hofstra, M. B., van der Ende, J., Verhulst, F. C. (2003). Stable prediction of mood and anxiety disorders based on behavioural and emotional probles in childhood: A 14-uear follow-up during childhood, adolescence, and young adulthood. *American Journal of Psychiatry, 160*(2), 2116-2121.

Rubin, K. H., Bukowski, W. M., and Parker, J. G. "Peer Interactions, Relationships, and Groups." In W. Damon (series ed.) and N. Eisenberg (vol. ed.), *Handbook of Child Psy- chology,* Vol. 3: *Social, Emotional, and Personality Development* (5th ed.). New York: Wiley, 1998.

Rubin, K. H., Bukowski, W. M., Parker, J. G., & Bowker, J. C. (2008). Peer interactions, relationships, and groups. *Child and adolescent development: An advanced course*, 141-180.

Saffrey, C., & Ehrenberg, M. (2007). When thinking hurts: Attachment, rumination, and postrelationship adjustment. *Personal Relationships*, *14*(3), 351-368.

Sandstrom, M. J., & Zakriski, A. L. (2004). Understanding the experience of peer rejection. *Children's peer relations: From development to intervention*, 101-118.

Schuurman, N. K., Ferrer, E., de Boer-Sonnenschein, M., & Hamaker, E. L. (2016). How to compare cross-lagged associations in a multilevel autoregressive model. *Psychological methods*, *21*(2), 206 - 221.

Schwarz, N. (1999). Self-reports: how the questions shape the answers. *American psychologist*, *54*(2), 93-105.

Schwartz, D. (2000). Subtypes of victims and aggressors in children's peer groups. *Journal of abnormal child psychology*, *28*(2), 181-192.

Scollon, C. N., Prieto, C. K., & Diener, E. (2009). Experience sampling: promises and pitfalls, strength and weaknesses. In *Assessing well-being* (pp. 157-180). Springer, Dordrecht.

Selby, E. A., Ward, A. C., & Joiner Jr, T. E. (2010). Dysregulated eating behaviors in borderline personality disorder: Are rejection sensitivity and emotion

dysregulation linking mechanisms? *International Journal of Eating Disorders*, *43*(7), 667-670.

Setoh, P., Qin, L., Zhang, X., & Pomerantz, E. M. (2015). The social self in early adolescence: Two longitudinal investigations in the United States and China. *Developmental psychology*, *51*(7), 949-961.

Sharp, C. (2017). Bridging the gap: the assessment and treatment of adolescent personality disorder in routine clinical care. *Archives of Disease in Childhood, 102*(1), 103–108.

Sharp, E. H., & Coatsworth, J. D. (2012). Adolescent future orientation: the role of identity discovery in self-defining activities and context in two rural samples. *Identity*, *12*(2), 129-156.

Sherman, R. A., Nave, C. S., & Funder, D. C. (2010). Situational similarity and personality predict behavioral consistency. *Journal of personality and social psychology*, *99*(2), 330-343.

Sherman, R. A., Rauthmann, J. F., Brown, N. A., Serfass, D. G., & Jones, A. B. (2015). The independent effects of personality and situations on real-time expressions of behavior and emotion. *Journal of Personality and Social Psychology*, *109*(5), 872-931.

Shiner, R., & Caspi, A. (2003). Personality differences in childhood and adolescence: Measurement, development, and consequences. *Journal of Child Psychology and Psychiatry*, *44*(1), 2-32.

Silvers, J. A., McRae, K., Gabrieli, J. D., Gross, J. J., Remy, K. A., & Ochsner, K. N. (2012). Age-related differences in emotional reactivity, regulation, and rejection sensitivity in adolescence. *Emotion*, *12*(6), 1235-1247.

Singh, U., & Rani, K. (2014). Gender-Specific Personality Differentials of Suicide Ideation among Adolescents. SIS *Journal of Projective Psychology & Mental Health*, 21(2), 81-89.

Slofstra, C., Nauta, M. H., Bringmann, L. F., Klein, N. S., Albers, C. J., Batalas, N., ... & Bockting, C. L. (2018). Individual Negative Affective Trajectories Can Be Detected during Different Depressive Relapse Prevention Strategies. *Psychotherapy and psychosomatics*, 1-3.

Smetana, J. G., Campione-Barr, N., & Metzger, A. (2006). Adolescent development in interpersonal and societal contexts. *Annual Review of Psychology, 57*(1), 255–284.

Snijders, T., & Bosker, R. (1999). *Multilevel analysis: An introduction to basic and multilevel analysis*. London: Sage.

Steinberg, L., & Morris, A. S. (2001). Adolescent development. *Annual review of psychology*, *52*(1), 83-110.

Stern, B., Caligor, E., Clarkin, J., Critchfield, K., Horz, S., MacCornack, V., Lenzenweger, M., & Kernberg, O.F. (2010). Structured interview of personality organization (STIPO): preliminary psychometrics in a clinical sample. *Journal of Personality Assessment, 92*(1), 35–44.

Stone, A. A., & Shiffman, S. (1994). Ecological momentary assessment (EMA) in behavorial medicine. *Annals of Behavioral Medicine*.

Sullivan, K. J., Shadish, W. R., & Steiner, P. M. (2015). An introduction to modeling longitudinal data with generalized additive models: Applications to single-case designs. *Psychological methods*, *20*(1), 26-35.

Suls, J., Green, P., & Hillis, S. (1998). Emotional reactivity to everyday problems, affective inertia, and neuroticism. *Personality and Social Psychology Bulletin*, *24*(2), 127-136.

Tellegen, A. (1981). Practicing the two disciplines for relaxation and enlightenment: Comment on "Role of the feedback signal in electromyograph biofeedback: The relevance of attention" by Qualls and Sheehan. *Journal of Experimental Psychology: General, 110*(2), 217-226.

Thelen, E. and Smith, L. B. (2007). Dynamic Systems Theories. In Handbook of Child Psychology (eds W. Damon, R. M. Lerner and R. M. Lerner).

Thomaes, S., Reijntjes, A., Orobio de Castro, B., Bushman, B. J., Poorthuis, A., & Telch, M. J. (2010). I like me if you like me: On the interpersonal modulation and regulation of preadolescents' state self-esteem. *Child development*, *81*(3), 811-825.

Thomas, K. K., & Bowker, J. C. (2015). Rejection sensitivity and adjustment during adolescence: Do friendship self-silencing and parent support matter? *Journal of Child and Family Studies*, *24*(3), 608-616.

Thompson, R. A. (1994). Emotion regulation: A theme in search of definition. *Monographs of the society for research in child development*, *59*(2-3), 25-52.

Tingley, D., Yamamoto, T., Hirose, K., Keele, L., & Imai, K. (2014). Mediation: R package for causal mediation analysis.

Tobia, V., Riva, P., & Caprin, C. (2016). Who are the children most vulnerable to social exclusion? The moderating role of self-esteem, popularity, and nonverbal intelligence on cognitive performance following social exclusion. *Journal of Abnormal Child Psychology*, *45*(4), 789-801.

Trentacosta, C. J., & Shaw, D. S. (2009). Emotional self-regulation, peer rejection, and antisocial behavior: Developmental associations from early childhood to early adolescence. *Journal of Applied Developmental Psychology, 30*(3), 356-365.

Turner, K. A., & White, B. A. (2015). Contingent on contingencies: Connections between anger rumination, self-esteem, and aggression. *Personality and Individual Differences*, *82*, 199-202.

Trull, T. J., Lane, S. P., Koval, P., & Ebner-Priemer, U. W. (2015). Affective dynamics in psychopathology. Emot. Rev. 7, 355–361.

Twenge, J. M., Baumeister, R. F., DeWall, C. N., Ciarocco, N. J., & Bartels, J. M. (2007). Social exclusion decreases prosocial behavior. *Journal of personality and social psychology*, *92*(1), 56.

Twenge, J. M., Catanese, K. R., & Baumeister, R. F. (2002). Social exclusion causes self-defeating behavior. *Journal of personality and social psychology*, *83*(3), 606-615.

Twenge, J. M., & Nolen-Hoeksema, S. (2002). Age, gender, race, socioeconomic status, and birth cohort difference on the children's depression inventory: A meta-analysis. *Journal of Abnormal Psychology, 111*(4), 578-588.

Van Geert, P., & Van Dijk, M. (2002). Focus on variability: New tools to study intra-individual variability in developmental data. *Infant Behavior and Development*, *25*(4), 340-374.

Velotti, P., Garofalo, C., & Bizzi, F. (2015). Emotion dysregulation mediates the relation between mindfulness and rejection sensitivity. *Psychiatria Danubina*, *27*(3), 0-272.

Wang, J. M., Hartl, A. C., Laursen, B., & Rubin, K. H. (2017). The high costs of low agreeableness: Low agreeableness exacerbates interpersonal consequences of rejection sensitivity in US and Chinese adolescents. *Journal of Research in Personality*, *67*, 36-43.

Wang, L. P., Hamaker, E., & Bergeman, C. S. (2012). Investigating inter-individual differences in short-term intra-individual variability. *Psychological Methods*, *17*(4), 567-581.

Watson, J., & Nesdale, D. (2012). Rejection sensitivity, social withdrawal, and loneliness in young adults. *Journal of Applied Social Psychology*, *42*(8), 1984-2005.

Wesselmann, E. D., Williams, K. D., Ren, D., & Hales, A. (2014). Ostracism and solitude. *A handbook of solitude: Psychological perspectives on social isolation, social withdrawal, and being alone*, 224-241.

Westen, D., Betan, E., & DeFife, J.A. (2011). Identity disturbance in adolescence: associations with borderline personality disorder. *Development and Psychopathology, 23*(1), 305–313.

Wilhelm, F. H., & Roth, W. T. (1998). Taking the laboratory to the skies: Ambulatory assessment of self-report, autonomic, and respiratory responses in flying phobia. *Psychophysiology*, *35*(5), 596-606.

Wilkinson-Ryan, T., & Westen, D. (2000). Identity disturbance in borderline personality disorder: an empirical investigation. *American Journal of Psychiatry, 157*(4), 528–541.

Williams, K. D. (2007). Ostracism. Annual review of psychology, *58,* 425-452.

Williams, K. D. (2009). Ostracism: A temporal need-threat model. *Advances in Experimental Social Psychology*, *41*, 275-314.

Williams, K. D., Cheung, C. K., & Choi, W. (2000). Cyberostracism: effects of being ignored over the Internet. *Journal of personality and social psychology*, *79*(5), 748-762.

Williams, K. D., & Govan, C. L. (2005). Reacting to ostracism: Retaliation or reconciliation. *The social psychology of inclusion and exclusion*, 47-62.

Wladyslaw, J. (2002). Trait anxiety and coping in anxiety-relevant situations. *Ansiedad y Estres*, *8*, 1–12.

Wood, S. N. (2006). *Generalized additive models: an introduction with R*. Chapman and Hall/CRC.

Wright, A. G., & Zimmermann, J. (2018). Applied ambulatory assessment: Integrating idiographic and nomothetic principles of measurement (in press).

Wrzus, C., & Roberts, B. W. (2017). Processes of personality development in adulthood: The TESSERA framework. *Personality and Social Psychology Review*, *21*(3), 253-277.

Yeomans, F.E., Clarkin, J.F., & Kernberg, O.F. (2015). *Transference-Focused Psychotherapy for Borderline Personality Disorder: A Clinical Guide*. Arlington, VA: American Psychiatric Publishing.

Yih, J., Uusberg, A., Taxer, J. L., & Gross, J. J. (2018). Better together: a unified perspective on appraisal and emotion regulation. *Cognition and Emotion*, 1-7.

Zielinski, M. J., & Veilleux, J. C. (2014). Examining the relation between borderline personality features and social support: The mediating role of rejection sensitivity. *Personality and Individual Differences*, *70*, 235-238.

Zimmer-Gembeck, M. J. (2015). Emotional sensitivity before and after coping with rejection: A longitudinal study. *Journal of Applied Developmental Psychology*, *41*, 28-37.

Zimmer-Gembeck, M. J., Collins, W. A., & Adams, G. (2003). Blackwell handbook of adolescence.

Zimmer–Gembeck, M. J., Hunter, T. A., & Pronk, R. (2007). A model of behaviors, peer relations and depression: Perceived social acceptance as a mediator and the divergence of perceptions. *Journal of Social and Clinical Psychology*, *26*(3), 273-302.

Zimmer-Gembeck, M. J., & Nesdale, D. (2013). Anxious and angry rejection sensitivity, social withdrawal, and retribution in high and low ambiguous situations. *Journal of Personality*, *81*(1), 29-38.

Zimmer-Gembeck, M. J., Nesdale, D., Webb, H. J., Khatibi, M., & Downey, G. (2016). A longitudinal rejection sensitivity model of depression and aggression: Unique roles of anxiety, anger, blame, withdrawal and retribution. *Journal of abnormal child psychology*, *44*(7), 1291-1307.

Zimmer-Gembeck, M.J., Trevaskis, S., Nesdale, D., & Downey, G.A. (2014). Relational victimization, loneliness and depressive symptoms: indirect associations via self and peer reports of rejection sensitivity. *Journal of Youth and Adolescence, 43*, 568-582.

Zimmer-Gembeck, M. J., & Vickers, C. (2007). Romantic experiences and depressive symptoms: Testing the intensifying roles of rejection sensitivity and relationship commitment. In *Generations of Relationships and Relationships across Generations: Conference Proceedings; the Combined 7th Annual Conference of the Australian Psychological Society's Psychology of Relationships Interest Group and*

International Association for Relationship Research Mini-conference (p. 112). Australian Psychological Society.

Zimmer-Gembeck, M. J., Waters, A. M., & Kindermann, T. (2010). A social relations analysis of liking for and by peers: Associations with gender, depression, peer perception, and worry. *Journal of Adolescence*, *33*(1), 69-81.

Zimmer-Gembeck, M. J., & Wright, J. L. (2007). Rejection sensitivity and romantic attachment orientation are associated with parental psychological control. *Adolescent behavior research studies*, 121-139.

Zinner, L. R., Brodish, A. B., Devine, P. G., & Harmon-Jones, E. (2008). Anger and asymmetrical frontal cortical activity: Evidence for an anger–withdrawal relationship. *Cognition and Emotion*, *22*(6), 1081-1093.

Appendix

Supplementary Material Chapter 2

Appendix A

Table A.1

Correlations (Pearson's r) between the three domains of the Interview of Personality Organization Processes in Adolescence (IPOP-A) (N = 375)

	1	2	3
1. Identity	1	.43**	.42**
2. Affective Regulation	.43**	1	.43**
3. Quality of Object Relationships	.42**	.43**	1

Table A.2

Correlation (Pearson's r) between the three domains of the Interview of Personality Organization Processes in Adolescence (IPOP-A), the three scales of the Children Rejection Sensitivity Questionnaire (CRSQ) and Youth Self Report 11-18 symptom problems (N = 375)

	CRSQ			YSR symptom problems					
	Anxiety	Anger	Expectations	Affective	Anxiety	Somatic	Attention deficit/hyperactivity	Oppositional/defiant	Conduct
IPOP-A									
Identity	0.09	0.01	0.01	-0.04	-0.07	-0.09	-0.03	-0.09	0.01
Affective Regulation	.12*	-0.00	0.05	0.01	-0.01	-0.01	0.06	-0.07	.13*
Quality of Object Relationships	.16**	.12*	.18**	.20**	.21**	.13*	.15**	0.07	0.08

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

Supplementary Material Chapter 3

Appendix B

Table B.1

Single bootstrap mediation analyses to assess the indirect effect of the cognitive emotion regulation strategies measured by the CERQ on the relation of Rejection Expectation and behavioural tendencies. All significant mediations are printed in bold

	Prosocial Intentions	Aggressive Intentions	Withdrawal Intentions
Self-Blame	**M = -.03 [-.06; -.002], p = .034**		
Acceptance	M = .0002 [-.01; .01], p = .978		
Rumination	M = -.005 [-.02; .01], p = .376		
Positive Refocusing	**M = -.04 [-.08; -.01], p < .001**		
Refocusing on Planning	**M = -.03 [-.07; -.004], p = .014**		
Positive Reappraisal	**M = -.08 [-.14; -.04], p = <.001**		
Putting into Perspective	**M = -.05 [-.09; -.02], p = .002**		
Catastrophizing	M = -.0004 [-.01; .02], p = .983		
Blaming Others	M = -.005 [-.02; -.01], p = .401		

Table B.2

Single bootstrap mediation analyses to assess the indirect effect of the cognitive emotion regulation strategies measured by the CERQ on the relation between Anxiety RS and behavioural tendencies. All significant mediations are printed in bold

Emotion Regulation Strategies	Prosocial	Aggressive	Withdrawal
Self-Blame			$M = .07$ [.03; .11], $p < .001$
Acceptance			$M = .003$ [-.01; .02], $p = .616$
Rumination			**$M = .07$ [.03; .11], $p < .001$**
Positive Refocusing			$M = .001$ [-.01; .02], $p = .935$
Refocusing on Planning			$M = .01$ [-.002; .03], $p = .104$
Positive Reappraisal			$M = .01$ [-.01; .03], $p = .260$
Putting into Perspective			$M = .003$ [-.01; .02], $p = .569$
Catastrophizing			**$M = .09$ [.05; .15], $p = < .001$**
Blaming Others			$M = .01$ [-.0004; .04], $p = .056$

Table B.3

Single bootstrap mediation analyses to assess the indirect effect of the cognitive emotion regulation strategies measured by the CERQ on the relation of Anger RS and behavioural tendencies. All significant mediations are printed in bold

Emotion Regulation Strategies	Prosocial	Aggressive	Withdrawal
Self-Blame		M = .004 [-.01; .02], p = .396	**M = .03 [.005; .06], p = .015**
Acceptance		M = -.002 [-.01; .01], p = .637	M = -.01 [-.03; .005], p = .274
Rumination		M = .004 [-.01; .02], p = .446	M = .03 [-.001; .05], p = .056
Positive Refocusing		M = .01 [-.002; .03], p = .141	M = .001 [-.01; .01], p = .910
Refocusing on Planning		M = .001 [-.01; .01], p = .939	M = .004 [-.01; .02], p = .518
Positive Reappraisal		M = -.0001 [-.01; .01], p = .986	M = -.001 [-.01; .01], p = .797
Putting into Perspective		M = .0005 [-.01; .01], p = .862	M = -.001 [-.01; .01], p = .908
Catastrophizing		**M = .07 [.03; .11], p = < .001**	**M = .11 [.06; .16], p = < .001**
Blaming Others		**M = .05 [.02; .09], p = .001**	M = .02 [-.01; .06], p = .120

Supplementary Material Chapter 6

Appendix C

Table C.1

Mean and Standard Deviation and Cronbach's alpha of the HEXACO-60 from Baiocco et al. (2017)

HEXACO-60 scores	*M*	*SD*	Cronbach's alpha
Honesty/humility	3.48	0.68	.71
Emotionality	3.31	0.65	.72
eXtraversion	3.25	0.67	.76
Agreeableness	2.92	0.57	.74
Conscientiousness	3.51	0.61	.71
Openness to experience	3.31	0.66	.70

Acknowledgments

These words are dedicated to all the people who had walked me and, especially, had put up with my complaints, during my Ph.D. years.

I want to start by thanking my parents for being constantly by my side and for helping me in taking my road. This thank you clearly goes also to my brother and his wife.

This Ph.D. was a lot of working and a lot of fun. For the fun part, I am about to mention you guys in a random order.

I wish to thank all my office mates, both the old and the new ones, but especially Ilaria, Marco, Annalisa, Anita, and Emanuela.

Outside my office, I want to say “thank you” to Viola for being a constant presence in my working experiences. Thank you for having been an example, a guide, and now a friend.

A very huge thank goes to Mattia Premoli, the founding-partner of the #maiunagioia club. You made the six months spent together fun and joyful, and now you are one of the most important friends I have.

I also would like to thank Prof. Borgatti and Dr. Montirosso, who first addressed me to research and to whom I owe a lot of who I am today.

I wish to thank my patient M., an adolescent very high in RS, who teaches me the importance and the clinical relevance of studying this personality disposition. Thank you.

A big thank goes also to two Florentine friends, Luisa and Andrea, who have always supported me since I’ve known them.

Life has taught me that work is not everything. This last thank goes to the most important “thing” that this Ph.D. gave me unexpectedly: The person who is my best friend, my favorite reviewer, and love of my life.