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CICLO XXV°

"As soon as you trust yourself, you will know how to live" (Goethe)

PROTECTIVE AND MEDIATOR FACTORS FOR INTERNALIZING DISORDERS IN EARLY AND MID-ADOLESCENCE

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Summary

Adolescence is often considered as a period of changes and challenges, during which youth are at particular risk for developing psychological disorders (Lee & Bukowski, 2012; Verona, Javdani, & Sprague, 2011). Anxiety and depression are two very common disorders in adolescence (Angold & Costello, 2008; Vierhaus, Lohaus, & Shah, 2010). Several authors have focused on the study of the possible risk factors that might interfere or enlarge the chance to develop such maladaptive behaviors. Some empirical studies have reported good quality of attachment relationships and positive evaluation of self as two of the most crucial protective factors for the psychological well-being in adolescence (Lee & Hankin, 2009; Tambelli, Laghi, Odorisio, & Notari, 2012; Wilkinson, 2004). Other studies, have focused on how different trends of psychological disorders and attachment relationships are detachable within the whole adolescence. Thus the central purpose of this study is to examine the relationships of attachment, in particular to mother, father, and peer, and self-esteem to depressive and anxiety symptoms, in early and mid-adolescence respectively. A community based sample of Italian early (*n*=1078) and mid-adolescents (*n*=1138) completed self-report measures of attachment (Inventory of Parent and Peer Attachment, IPPA, Armsden & Greenberg, 1987, 1989; Greenberg, Siegel, & Leitch, 1983) self-esteem (Rosenberg Self-Esteem Scale, RSES, Rosenberg, 1965) as well as anxiety (Spence Children's Anxiety Scale, SCAS, Spence 1997) and depressive symptoms (Children's Depression Inventory, CDI, Kovacs, 1992). After the evaluation of the psychometric properties (internal consistency and structural validity) of each selected measure, age and gender-related differences are evaluated. Correlations between the total scores of the measure are reported. Through structural equation modeling it is assessed the direct influence of both maternal and paternal attachment on psychological health, self-esteem and peer attachment. Moreover, the influence of peer attachment on psychological health is totally mediated by self-esteem. Anxiety and depressive symptoms are considered and evaluated separately. The multi-group approach is used to evaluate gender differences in the model. To avoid the artifacts of sampling and to strengthen the obtained results, the cross-validation procedure is adopted. Results indicate good psychometric characteristics for each measure. Additionally, the comparison between the two age-groups show early adolescence report higher levels of attachment (to mother, father and peer), and self-esteem, whereas mid-adolescents report higher levels of depressive symptoms. Furthermore, in general girls score higher on levels of attachment relationships to peer and on anxiety symptoms, while boys report higher levels of self-esteem and paternal attachment. The major finding from the model concerns the crucial role of self-esteem. Maternal, paternal and peer attachment have only a weak effect on anxiety and depressive symptoms respectively, whereas the self-esteem shows a greater effect on both. The only one exception regards the strong direct role of peer attachment on depressive symptoms showed by the mid-adolescents sample. However, the primary effect of the considered attachment relationships is on self-esteem. Symptom and age-related differences are discussed. To conclude, this study suggests that it is the evaluation of the self rather than the quality of attachment relationships that may influence the levels of psychological symptoms reported by early and mid-adolescents. Limits of the study and implications for research are presented.

Summary

L’adolescenza è stata spesso considerate come un periodo di cambiamenti e sfide, durante il quale il rischio di sviluppare dei disturbi psicologici è amplificato (Lee & Bukowski, 2012; Verona, Javdani, & Sprague, 2011). Ansia e depressione sono due tra i più comuni disordini presenti in adolescenza (Angold & Costello, 2008; Vierhaus, Lohaus, & Shah, 2010). Molteplici autori si sono occupati dei possibili fattori di rischio che possono aumentare le possibilità o interferire nello sviluppo di tali disordini. Alcuni studi empirici riportano come una buona qualità nelle relazioni di attaccamento e una positiva stima di sé, siano fattori cruciali per la promozione del benessere psicologico in questa fase di vita (Lee & Hankin, 2009; Tambelli, Laghi, Odorisio, & Notari, 2012; Wilkinson, 2004). Altri studi si focalizzano sui diversi trend che il disagio psicologico, così come le relazioni di attaccamento, possono assumere durante l’intera adolescenza. L’obiettivo principale di questo studio consiste nell’esaminare i rapporti esistenti, in preadolescenza e adolescenza, tra la qualità dell’attaccamento (materno, paterno e ai pari), l’autostima, e i sintomi ansiosi e depressivi. Un campione non-clinico di preadolescenti (*n*=1078) e adolescenti (*n*=1138) italiani ha partecipato al presente progetto, compilando questionari self-report relativi alla qualità d’attaccamento (Inventory of Parent and Peer Attachment, IPPA, Armsden & Greenberg, 1987, 1989; Greenberg, Siegel, & Leitch, 1983), al livello d’autostima (Rosenberg Self-Esteem Scale, RSES, Rosenberg, 1965) e ai possibili sintomi ansiosi (Spence Children’s Anxiety Scale, SCAS, Spence 1997) e depressivi (Children’s Depression Inventory, CDI, Kovacs, 1992) esperiti. Dopo aver analizzato le caratteristiche psicometriche (consistenza interna e validità strutturale) di ogni strumento, sono state esaminate le principali differenze relate all’età e al genere dei soggetti considerati. Sono inoltre riportate le correlazioni tra le scale totali degli strumenti utilizzati. Sono stati proposti e valutati modelli di equazioni strutturali (SEM) in cui le relazioni d’attaccamento materno e paterno influenzano il benessere psicologico, l’autostima e le relazioni d’attaccamento verso i pari. Inoltre è stato previsto che l’influenza delle relazioni d’attaccamento verso i pari sul benessere psicologico, sia totalmente mediata dall’autostima. Ansia e depressione sono state considerate separatamente, così come preadolescenti ed adolescenti. L’approccio multi-gruppo è stato adottato con il fine di valutare eventuali differenze di genere nel modello. Con l’intento di ridurre al minimo i possibili errori relativi al campionamento e per potenziare la generalizzabilità dei risultati ottenuti, è stata utilizzata la procedura della cross-validation. I risultati indicano che gli strumenti somministrati possiedono buone caratteristiche psicometriche. Inoltre dal confronto tra i due gruppi d’età, emerge che i preadolescenti riportano più alti livelli di attaccamento (nei confronti di madre, padre e pari) e di autostima, mentre gli adolescenti riportano livelli più elevati di sintomi depressivi. Considerando il genere all’interno dei due gruppi, emerge che le ragazze mostrano punteggi più elevati relativamente alle relazioni d’attaccamento nei confronti dei pari e ai sintomi ansiosi; differentemente i ragazzi hanno punteggi più elevati rispetto alla stima di sé e alla relazione d’attaccamento nei confronti del padre. In generale, il principale risultato che emerge dai modelli valutati, è il ruolo cruciale dell’autostima. Le relazioni d’attaccamento verso madre, padre e pari, presentano un’influenza limitata sia sui sintomi ansiosi che su quelli depressivi, mentre l’autostima ha un effetto piuttosto forte su entrambi. L’unica eccezione riguarda i sintomi depressivi in adolescenza, dove le relazioni d’attaccamento verso i pari sono risultate essere un fattore fondamentale per la prevenzione del disturbo. In conclusione, questo studio sembra suggerire che il disagio psicologico percepito da preadolescenti ed adolescenti, è maggiormente influenzato dalla valutazione che hanno di sé, piuttosto che dalla qualità delle loro relazioni d’attaccamento. I limiti, così come i possibili sviluppi futuri dello studio, sono discussi.

Preface

WHAT IS ADOLESCENCE?

Although nowadays there is a more consistent interest on adolescence, on its features and its problems than in the past, there is no one scientific definition of adolescence or set age boundary (Geiger & Castellino, 2011). The term adolescence is commonly used to describe the transitional stage between childhood and adulthood (Adams & Berzonsky, 2003; Brenhouse & Andersen, 2011; Buwalda, Geerdink, Vidal & Koolhaas, 2011; Laviola & Marco, 2011; Meeus, Van de Schoot, Keijsers, & Branje, 2011; Steinberg & Morris, 2001). During this transition there are fundamental development changes experienced by almost all adolescents that involve many different areas of life, such as the physical, cognitive, social, affective and psychological domains (Kaplan, 2004).

In regards to the age boundary of adolescence, no empirical agreement has been found between the researchers. As example, the World Health Organization (WHO) defines adolescence as: "the period of life between 10-19 years old" [..] "youth between 15-24 years old and young people" [...], "those between 10-24 years old"(WHO, 1997). Furthermore, the American Psychological Association (APA, 2002) states that "there is no standard age range for defining adolescence. Some individuals can begin adolescence earlier than age 10, as well as some aspects of adolescent development often continue past the age of 19" (pg.1). The American Academy of Child and Adolescent Psychiatry uses the age span 10-24 years old as a working definition of adolescence, and further divided this age boundary into three sub stages of development: (1) early adolescence which approximately ranges from 10 to 13 years old, (2) middle adolescence that includes youth between 14 and 19 years of age, and (3) late adolescence which approximately ranges from 20 to 24 years old. A number of international peer-reviewed journals exclusively devoted to research on adolescents and youth (e.g., Youth & Society, Journal of Youth and Adolescence, Journal of Adolescence, Journal of Early Adolescence, Journal of Research on Adolescence, and the Journal of Adolescent Research) consider adolescence a stage of life comprised

between 11 and 19 years, suggesting an internal division between early adolescence (11-14 years old) and adolescence (15-19 years old).

In the past, this transitional phase of life has often been characterized as a period of "Sturm und Drang", with an over-estimation of problems in adjustment that were generalized as normative experience for all adolescents (Hall, 1904). However, most adolescents are able to cope successfully with those demands without showing any maladaptive behaviors (Arnett, 1999; Coleman, 1993; Steinberg, 2001; Steinberg & Morris, 2001; Van IJzendoorn & Bakermans-Kranenburg, 2010). Nevertheless, the depiction of adolescence as a difficult and problematic period, led researchers to focus more on problematic and maladaptive behavior than on normative and healthy adolescent development (Steinberg & Morris, 2001).

Erikson (1968) postulated that one of the main tasks for adolescents is to develop a coherent sense of identity. The role of parents, and the whole environment, in building the sense of identity is well-known (Kamkar, Doyle, & Markiewicz, 2012).

Furthermore, there may be times, and adolescence is an example, when the normal patterns of risk–disorder association are temporarily different from the patterns seen before and after (Copeland, Shanahan, Costello, & Angold, 2009a, 2009b; Costello, Copeland, & Angold, 2011). Many studies have been devoted to clarify the impact that maladaptive behaviors might have during this period of transition (Bohnert, Kane, & Garber, 2008; Measelle, Stice, & Hogansen, 2006; Mesman & Koot, 2006; Ormel et al., 2005). In early and mid-adolescence an increase of psychological adversities (such as anxiety and depressive symptoms as well as dissatisfaction with body and self-image) are more likely to occur, especially for girls (Lee & Bukowski, 2012; Verona, Javdani, & Sprague, 2011; Vierhaus, Lohaus, & Shah, 2010).

At the same time, other researchers have focused on the study of possible risk factors that might interfere or enlarge the chance to develop such maladaptive behaviors (Deković, Buist, & Reitz, 2004; Galambos, Barker, & Tilton-Weaver, 2003; Lee & Hankin, 2009; Tambelli, Laghi, Odorisio, & Notari, 2012, Wilkinson, 2004). Many empirical studies have reported the association between attachment quality to parents and psychosocial adjustment during adolescence (Laghi, D'Alessio, Pallini, & Baiocco, 2009; Noom, Deković, & Meeus, 1999; Rice, 1990), and it is well-established that positive perceptions of self and others in attachment relationships with parents are associated with numerous indicators of psychosocial adjustment in early as well as in mid-adolescence (Laghi, Pallini, D'Alessio, & Baiocco, 2011; Rice, 1990; Simons,

Paternite, & Shore, 2001), and negatively with problem behaviors (Laible, Carlo, & Raffaelli, 2000), low perception of social support (Larose & Boivin, 1998), feelings of loneliness (Ammaniti, Ercolani, & Tambelli, 1989; Kems & Stevens, 1996) and psychological distress (Cooper, Shaver, & Collins, 1998). Attachment quality has been positively related to self-esteem (Cassidy, 1988; Clark & Symons, 2000; Verschueren, Marcoen, & Schoefs, 1996), feelings of competence (Papini & Roggman, 1992), perceived social support (Blain, Thompson, & Whiffen, 1993; Larose & Boivin, 1998), and a sense of mastery over their worlds (Paterson, Pryor, & Field, 1995). Moreover, starting from mid-adolescence, attachment behavior is often directed toward non-parental figures especially peers, who may be considered such on a situational or temporary basis (Goodvin, Meyer, Thompson, & Hayes, 2008). Particularly peers may become new sources of trust and security (Tambelli et al., 2012). Although, a particularly important aspect of adolescent peer attachment is the peer's ability to support and encourage the adolescent's assumption of growth-promoting challenges, several studies have confirmed that throughout the whole adolescence parents continue to be considered important figures for emotional support and advice (Byers et al., 2003; Blyth, Hill, & Thiel, 1982; Gottfried, Gottfried, Bathurst, Guerin, & Parramore, 2003; Maccoby & Martin, 1983; Nickerson & Nagle, 2005) and that attachment security with parents predict an individual's well-being across the lifespan (Larson, Richards, Moneta, Holmbeck, & Duckett, 1996).

This study, in line with the APA's (2002) view and most of the published literature, focuses on adolescents with an age comprised between 11 and 19 years old. In other words, following the classification proposed by the American Academy of Child and Adolescent Psychiatry, this study refers to early and mid-adolescence and it is aimed to assess protective and mediator factors for the psychological well-being during these specific phases of life. In specific, *Chapter 1* presents a brief literature review on internalizing problem behaviors in adolescence, paying particular attention to anxiety and depressive symptoms. Characteristics, prevalence rates, etiology, and comorbidity of anxiety and depressive symptoms are discussed. Distinct domains of adaptive functioning are believed to relate meaningfully to one another through the course of development (Bornstein, Hahn, & Haynes, 2010; Burt, Obradović, Long, & Masten, 2008; Masten, Burt, & Coatsworth, 2006; Masten et al., 2005; Mesman, Bongers, & Koot, 2001; Rutter, Kim-Cohen, & Maughan, 2006). Since adolescence is a transitional stage of human development, during which the individual undergoes marked

physiological, psychological, social and also affective changes (Laukkannen, Shemeikka, Notkola, Koivumaa-Honkanen, & Nissinen, 2002), *Chapter 2* focuses on parental and peer relationships. In particular quality of attachment and relationships with others (parents and peers) have been considered as potential protective factors for psychological well-being. In *Chapter 3* is discussed the role of self-esteem in early and middle adolescence. Self-esteem resulted to be associated with security of attachment to parents across adolescence (Doyle, Brendgen, Markiewicz, & Kamkar, 2003; Doyle, Markiewicz & Brendgen, 2000; McCormick & Kennedy, 1994). Moreover self esteem has been found to have a core role in the prevention of maladaptive behaviors, especially for internalizing behavior problems (Kamkar et al., 2012). An integrative model comprising maladaptive behaviors, quality of attachment and self-esteem during adolescence is proposed in *Chapter 4*.

The second part of this work focuses on the empirical research carried out. To a large group of early (n=1078) and mid-adolescents (n=1138) were administered self-report questionnaires assessing attachment security, self-esteem and psychological well-being. Participants, procedures and measures adopted are presented in *Chapter 5*. *Chapter 6* shows the main results. The discussion of the results, with a critical analysis of the limits and the directions for further studies are summarized in *Chapter 7*.

Part I

OVERVIEW AND FOUNDATIONS

CHAPTER 1

Psychological Disorders in Adolescence

Adolescence is a developmental stage in which many physical and psychological changes occur. Adolescents have to deal and struggle with many new and different developmental demands, therefore some problems in adjustment may arise (Oliva, Jiménez, & Parra, 2009). The development of psychopathology in adolescence has been widely studied (Steinberg & Morris, 2001). Problems in adjustment are historically classified in two broad categories: *externalizing* and *internalizing* disorders (Achenbach, 1991a, 1991b; Achenbach & Edelbrock, 1978; Achenbach, Howell, Quay, & Conners, 1991; Allen & Prior, 1995). More recently, Chan, Dennis, and Funk (2008) as well as Verona and colleagues (2011), have proposed a three factors classification model for psychopathology in youths, including internalizing disorders, externalizing disorders, and substance use as a separate category. Externalizing disorders or behavioral problems, are generally considered behaviors that are potentially harmful and disruptive to others, and are characterized by an undercontrol of emotions (Achenbach & Edelbrock, 1978; Guttmannova, Szanyi, & Cali, 2008; Hinshaw, 1992). "Externalizing disorders include problems with attention, self-regulation, and noncompliance, as well as antisocial, aggressive, and other undercontrolled behaviors" (Bornstein et al., 2010, p. 2). Internalizing or mood disorders, are defined as an overcontrol of emotions and include social withdrawal, depression, anxiety, as well as feelings of worthlessness or inferiority, hypersensitivity, and somatic complaints (Bornstein et al., 2010; Guttmannova et al., 2008; McCulloch, Wiggins, Joshi, & Sachdev, 2000).

In the study of development of psychopathology during adolescence, researchers have focused more on externalizing than internalizing disorders (Deković et al., 2004). This interest might be due to the fact that more often adolescents become involved in some level of antisocial behaviors during adolescence, and those behavioral problems and the negative consequences associated to them, are more visible from

others (Burt et al., 2008; Koot & Verhulst, 1992; Loeber, 1990; Moffit, 1993; Resnick & Burt, 1996). Conversely, internalizing disorders, although also fairly common among adolescents, remain more frequently unnoticed by adolescents' affiliative system and social environment (Petersen et al., 1993).

Contemporary approaches in developmental psychopathology endorse two main etiological perspectives concerning disorders: *multideterminism* and *interaction*. According to those ideas, psychopathologies have multiple causes that interact with one another as well as changing over time (Rutter & Sroufe, 2000; Sameroff, 2000; Vulić-Prtorić & Macuka, 2006).

Internalizing and externalizing disorders have been found to increase in prevalence during adolescence, to be highly correlated with one another and to influence each other over time (Besser & Blatt, 2007; Beyers & Loeber, 2003; Gilliom & Shaw, 2004; Lilienfeld, 2003; Oland & Shaw, 2005; Overbeek et al., 2006). Some studies suggested that externalizing disorders are predictors of change in internalizing disorders (Boylan, Vaillancourt, Boyle, & Szatmari, 2007; Capaldi, 1992; Copeland et al., 2009b; Fergusson, Wanner, Vitaro, Horwood, & Swain-Campbell, 2003; Kiesner, 2002; Lahey, Loeber, Burke, Rathouz, & McBurnett, 2002; Lee & Bukowski, 2012; Loeber & Keenan, 1994; Measelle et al., 2006; Nock, Kazdin, Hiripi, & Kessler, 2007; Sheidowet al., 2008; Ybrandt, 2008). Years ago, Patterson and Capaldi (1990) posited that youths with conduct problems reported more difficulties in managing social situations. In turn, these difficulties lead to a gradual development of anxiety and depressive symptoms. Capaldi (1992), in her famous study, found that boys reporting conduct problems were more likely to report depressive symptoms two years later, but there were no such relationship between early symptoms of depression and later conduct problems. Conversely other studies, after controlling for concurrent externalizing behaviors, showed internalizing disorders as predictors of later externalizing problems (Fanti, Henrich, Brookmeyer, & Kuperminc, 2008; Farrington, 1995; Kerr, Tremblay, Pagani, & Vitaro, 1997; Masten et al., 2005; Moffitt, Caspi, Harrington, & Milne, 2002; Pine, Cohen, Cohen, & Brook, 2000; Verhulst, Eussen, Berden, Sanders-Woudstra, & van der Ende, 1993). The theory of masked depression suggested that depressive symptoms lead to acting out behaviors (Glaser, 1967). Ritakallio and colleagues (2008), found that girls with higher depressive symptoms were most likely to develop antisocial behavior in a 2-year prospective follow up study, antisocial behavior did not predict subsequent depression.

Several studies have reported consistent gender differences in mean level and developmental trajectories of internalizing and externalizing disorders (e.g., Angold, Erkanli, Silberg, Eaves, & Costello, 2002; Broidy et al., 2003; Galambos et al., 2003; Keiley, Bates, Dodge, & Pettit, 2003; Leve, Kim, & Pears, 2005). In specific, girls tend to report more severe internalizing problems whereas boys presented higher score on externalizing problems (Keiley et al., 2003; Leadbeater, Kuperminc, Blatt, & Hertzog, 1999; Wiesner, 2003). Community-based studies indicate that internalizing disorders tends to be relatively stable over time, whereas equivocal finding are reported in regards to externalizing problems (Achenbach, Howell, McConaughy, & Stanger, 1995; Bonhert et al., 2008; Bornstein et a., 2010; Costello, Angold, & Keeler, 1999; Ferdinand & Verhulst, 1995; Hofstra, van der Ende, & Verhulst, 2000; Keiley et al., 2000; McConaughy, Stanger, & Achenbach, 1992; Moffitt & Caspi, 2001; Stanger, Achenbach, & Verhulst, 1997; Verhulst & Koot, 1992; Vierhaus et al., 2010; Webster-Stratton & Taylor, 2001). Leve and colleagues (2005), looking at the relationship between stability and gender, reported that internalizing disorders increased over time for girls only whereas externalizing problems decreased over time for both sexes.

The primary focus here is on internalizing behaviors, in specific on anxiety and depression disorders.

Anxiety and depression have been often linked in adolescence. Contemporary approaches in developmental psychopathology endorse two main etiological perspectives concerning disorders: *multideterminism* and *interaction*. According to those ideas, psychopathologies have multiple causes that interact with one another as well as changing over time (Rutter & Sroufe, 2000; Sameroff, 2000; Vulić-Prtorić & Macuka 2006). Consensus is being reached around the relationship that adolescent anxiety and depression have with one another (Hale, Raaijmakers, Muris, van Hoof, & Meeus, 2009). Previous studies have addressed three main interrelated issues about this relationship. First, it has been found that 25–50% of the adolescents with a depressive disorder also have a comorbid anxiety disorder and that 10–15% of adolescents with an anxiety disorder have a comorbid depressive disorder (Axelson & Birmaher, 2001; Bittner et al., 2007; Brady & Kendall, 1992; Cole, Truglio & Peeke, 1997; Vulić-Prtorić & Macuka 2006). Second, it has been shown that comorbid anxiety and depressive disorders have strong effects on one another, the presence of anxiety disorder symptoms predicts an increase in depressive symptoms and vice versa (Bittner et al., 2007; Goodwin, Fergusson, & Horwood, 2004). Thus, it has been explored the role of one

disorder in the etiology of the other. Most authors showed that adolescent anxiety seem to precede adolescent depressive disorder development (Cole, Peeke, Martin, Truglio, & Seroczynski, 1998; Reinherz et al., 1993), on the other hand, inconsistent findings have been found on the converse relationship (Axelson & Birmaher, 2001). The third issue is strongly related to the previous two and to the history of depression and anxiety disorders. Since adolescent anxiety and depression present high comorbidity and predictability of one other, it has been questioned whether in adolescence, anxiety and depression are two distinct syndromes or are the same disorder but can be viewed on a severity continuum (Lee & Rebok, 2002). The phenomenology of these syndromes has been recently disputed (e.g., Angold & Costello, 2008; Cole et al., 1997; Hale et al., 2009; Laurent & Ettelson, 2001; Turner & Barrett, 2003). The general factor approach is represented by the negative affectivity theory of Watson and Clark (1984), it suggested that anxiety and depression, in adolescence, are different expression of the same underlying disorder. In 1991, Clark and Watson, expanded their theory including a specific anxiety component (psychological hyperarousal), and a specific depression component (low positive affect). Empirical support has been equivocal (Cole et al., 1997; Joiner, Catanzaro, & Laurent, 1996; Turner & Barrett, 2003). On the other hand, following the category approach, anxiety and depression in adolescence have been seen as distinct disorders with distinct vulnerability and risk factors (Gurley, Cohen, Pine, & Brook, 1996; Wittchen, Beesdo, & Goodwin, 2003). As stated by Angold and Costello (2008), nevertheless there is overwhelming evidence that anxiety and depression are related, “linkage is not the same as identity” (p. 2). However, both the general factor approach and the category approach agree on the difficulty to conceptually differentiate the sub-syndrome symptoms of adolescent anxiety and depression from one another (Hale et al., 2009).

1.1 DEPRESSION IN ADOLESCENCE

Throughout the years, depression has been defined as a normal and necessary affective state (Bibring, 1953; Freud, 1914; Zetzel, 1960), as a reaction to extreme deprivation during infancy (Spitz & Wolf, 1946), as a developmental stage (Winnicott, 1954), as being linked with restoring past pleasure (Rubenfine, 1968), and as an individual’s character style (Blatt, 1966).

Nowadays depression has been conceptualized in at least three different ways: as a mood, as a syndrome, and as a disorder (Angold, 1988). *Depressed mood* is defined as a general feeling of negative affect, including sadness, dysphoria, and irritability. *Depressive syndromes* refer to sets of symptoms that have been empirically fund to co-occur. Such symptoms comprehend appetite disturbance, weight loss or gain, sleeplessness, concentration problems, feelings of guilt or worthlessness, fatigue, and suicidal thoughts or behavior (Seroczynsky, Jackez, & Cole, 2003). To diagnose a depressive disorder, a minimum number, duration and severity of such symptoms should be present, as stated in the two main classification systems, the International Classification of Diseases-10 (ICD-10; World Health Organization, 1992) and the American Diagnostic and Statistical Manual of mental disorders (DSM-IV-TR; APA, 2000). *Depressive disorders* include bipolar disorder (which are rare in childhood and adolescence), major depression disorder, and dysthymia (Cicchetti & Toth, 1998). All lead to impairment in the social, cognitive, academic, or occupational domains (APA, 2000). Bipolar disorders include successive episode of mania and depression. Major depression in childhood and adolescence is characterized by one or more episode of diagnosable depression that may include depressed affect, anhedonia, or irritability. Dysthymic disorder is a milder but more chronically depressed mood (or irritability for children) (Seroczynsky, et al., 2003). Many studies suggest that during this phase of transition, there is little difference between major depressive disorder and dysthymia around clinical course, impairment, or demographic factors except that dysthymia tends to precede major depression (Goodman, Schwab-Stone, Lahey, Shaffer, & Jensen, 2000; Hankin & Abela, 2005). Therefore, it appears that major depression and dysthymia in youth are fairly similar psychiatric disorders.

Throughout this work, the term *depression* is used to denote a continuous variable (i.e., individual differences in depressive affect) rather than a clinical category such as major depressive disorder (APA, 2000). Taxometric analyses suggest that depression is best conceptualized as a continuous construct (Hankin, Fraley, Lahey, & Waldman, 2005; Lewinsohn, Solomon, Seeley, & Zeiss, 2000; Prisciandaro & Roberts, 2005; Ruscio & Ruscio, 2000; Sowislo & Orth, 2013).

Currently, depression is diagnosed with the same symptoms in childhood and adolescence, as well as in adulthood (APA, 2000; Lobovitz & Handel, 1985). However, in contrast to the DSM-IV-TR (APA, 2000), efforts have been done to recognize that symptoms of depression may be showed differently in childhood and adolescence than

in adulthood (Cicchetti & Toth, 1998; Hankin & Abela, 2005; Weiss & Garber, 2003). The specific symptoms may differ developmentally because "younger children may not have developed the requisite cognitive, social, emotional, or biological capacities to experience certain typical adult depressive symptoms and the causes or consequences of depression may change across different developmental periods" (Hankin & Abela, 2005, p. 246). When depression occurs during adolescence, common symptoms include social withdrawal, crying, academic problems, avoidance of eye contact, physical complaints, and poor appetite (Seroczynsky et al., 2003).

Literature showed that the prevalence of depression in childhood is low (<1-2%), with no gender differences (Kessler, Avenevoli, & Ries Merikangas, 2001; Simms, 2006; Thapar, Collishaw, Pine, & Thapar, 2012). Early adolescents tend to have low lifetime prevalence rates of depression (<3%) (Cohen, Cohen, Kasen, & Velez, 1993; Costello et al., 1996). Rates of depression increases significantly between ages 15 through 18 years old (Bonhert et al., 2008; Ge, Conger, & Elder, 2001; Hankin et al. 1998; Kandel & Daviesc, 1982). Point prevalence rates for depression in adolescence range from 2% to 5% and rates of recurrence are found to be around 70% in 5 years (Birmaher et al., 1996; Lee & Hankin, 2009). Reynolds (1994), in his review, presented that large-scale community screenings of adolescents typically identify 8% to 18% of youth with significant self-reported depressive symptomology, with one in six adolescents referred for psychiatric evaluation being diagnosed with a depression disorder. Figure 1 illustrates a representative birth study for the overall rates of depression in adolescence (early, middle and late adolescence).

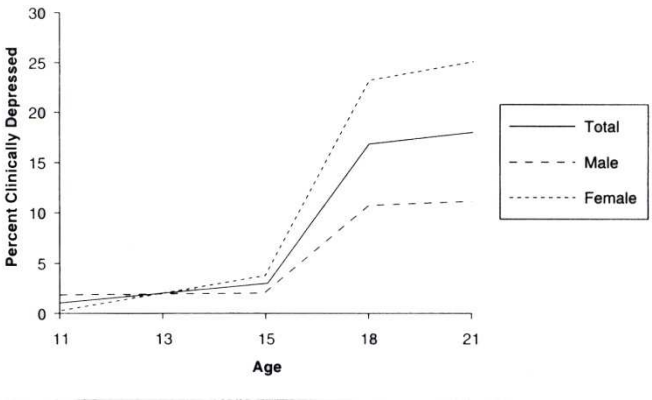

Figure 1. Developmental course of rates of clinical depression by age and gender (Hankin et al., 1998).

During adolescence, gender differences start to increase, showing higher prevalence of depression in girls than in boys (Marcotte, Fortin, Potvin, & Papillon,

2002). Some studies reported that depressive disorders in girls begin to rise as early as ages 10 years to 14 years (Angold, Costello, & Worthman, 1998; Kessler, McGonagle, Swartz, Blazer, & Nelson, 1993). The emergence of these higher depressive rates for girls than for boys could possibly be linked to pubertal status rather than chronological age (Rutter, 1986). Angold and colleagues (1998) proposed that the Tanner stages of pubertal status covary more with depression rates than with age. Moreover, gender differences in depression could be explained referring also to gender roles (Marcotte et al., 2002). Body changes related to puberty heighten teenagers' attention to the significance of their gender. Because adolescents may still be unclear about gender role identification, they may tend to rely more on gender stereotypes (Hill & Lynch, 1983). It is well-known how gender stereotypes impact on body appreciation. Studies have focused on the gender differential impact of negative body appreciation on self-esteem (Marcotte et al., 2002). Gender differences in self-esteem during adolescence (Tobin-Richard, Boxer, McNeil Kavrell, & Petersen, 1984), as well as the relationship between self-esteem and depressive symptoms (Rosenberg, Schoenbach, Schooler, & Rosenberg, 1995), have been well-documented in the literature. Furthermore, Nolen-Hoeksema and Girgus (1994) underlined the co-occurrence of puberty, a particularly stressful events for girls, with the transition to high school. Following the theoretical hypothesis that normative developmental transitions are more stressful when they happen simultaneously because they do not allow the adolescent to adjust to one change a time (Coleman, 1989; Simmons, Blyth, Van Cleave, & Bush, 1979) girls would be more at risk of developing depressive symptoms at the beginning of adolescence than boys (Marcotte et al., 2002).

Cicchetti and Toth (1998), proposed a developmental model to better understand depression in adolescence. Children and adolescents struggle with a variety of life challenges or developmental tasks (Cicchetti & Schneider-Rosen, 1986; Sroufe & Rutter, 1984). The child's successful resolution of these life challenges influences the subsequent organization of biological and psychological resources. So, the positive resolution of each task lead to a healthier psychological system better prepared to face with the demands of the next developmental issue. On the other hand, the inadequate resolution of such challenges may facilitate the integration of maladaptive strategies that make the individual less capable to resolve future developmental tasks. Thus, early competence promotes later competence, conversely, early incompetence leads to later

incompetence (Cicchetti & Toth, 1998). Depression can be seen as an unsuccessful response to such developmental changes.

Following two essential principles of developmental psychopathology, such as *equifinality* and *multifinality* (Cicchetti & Rogosch, 1996), depression in different people may have different causes (equifinality). In contrast, a sequence of events that result to depression in one individual, might lead to different disorders (e.g. anxiety or conduct disorders) or no disorders at all in other people (multifnality) (Seroczynsky et al., 2003). Thus, to understand depression in adolescence, it results fundamental to consider the dynamic and transactional relations that exists between biological, psychological, and social variables across time. Referring to Cicchetti and Toth's (1998) transactional model, proximal and distal processes operate upon the child. The first process is *ontogenic* development, that is the gradual appearance of intrapersonal factors that affect development (e.g. the attachment relationship, the self-system, physiological regulation). The second system in which the child is inset it is the *microsystem* or proximal interpersonal environment (e.g. the family, the best friends). The third is the *exosysytem*, which comprehend the child's community. It has a more indirect effect upon the child (e.g. the local school board, the religious community). The last process is the *macrosystem*, which includes the values and beliefs of the surrounding community (Bronfenbrenner, 1979).

Although for a complete understanding of the development of depression in adolescence, all four levels should be considered, the majority of studies have focused on ontogenic development and the role of microsystem (Seroczynsky et al., 2003).

Genetic and family history vulnerability

One of the strongest predictors of depression in childhood or adolescence is having a parent with a history of major depression (Hankin & Abela, 2005). Youth of parents with depression, face three to four times increased rated of depression compared with offspring of healthy parents (Field, Diego, & Sanders, 2001; Hammen, Shih, Altman, & Brennan, 2003; Rice, Harold, & Thapar, 2002). In addition to depression being moderately heritable, research also indicated that some of the etiological risk for depression are moderately heritable. Inherited factors seem to contribute to depression in adolescents increasing the risk, and through gene-environment interplay, specifically by increasing sensitivity to adversity (gene-environment interaction) and by increasing the probability of exposure to risky environments (gene-environment correlation)

(Eaves, Silberg, & Erkanli, 2003; Lau & Eley, 2008; Pine, Cohen, Johnson, & Brook, 2002). Twin and family studies have suggested that adolescents (especially girls) at high inherited and familial risk of depression show increased sensitivity to psychosocial risk factors (gene-environment interaction), such as stressful life events (Silberg, Rutter, Neale, & Eaves, 2001) and family adversity (Kendler, Gardner, & Lichtenstein, 2008; Lau & Eley, 2008), and are the ones most likely to be exposed to such risks (Thapar et al., 2012). Uher and McGuffin (2009), as well as Caspi and colleagues (2003), reported that a variant (5-HTT) in the serotonin transporter gene might increase risk of depression, but only in the presence of adverse life stressors or early maltreatment. In sum, findings supported the perspective that there is a moderate genetic vulnerability to experience depression (Hankin & Abela, 2005; Thapar et al., 2012). However, there is no clear agreement on what is inherited and the mechanism by which genes influence the development of depression. Studies on how specific genetic risk can combine with environmental stress and moderate the effects of adversity on rain function and clinical outcomes opened an avenue for future research.

Biological vulnerability

Many research has been carried out on the role of neurotransmitter and neuroendocrine dysregulations in the central nervous system in response to stressors, and putative neurobiological substrates of a dysregulated brain circuit underlying depression (Hankin & Abela, 2005). Two interrelated neural circuits and associated modulatory systems have been found linked to risk for depression. These circuits are active in the response to danger and learning about rewards (Feder, Nestler, & Charney, 2009; Forbes & Dahl, 2005). The first circuit connects the amygdala to the hippocampus and ventral expanses of the prefrontal cortex (PFC) and is connected to hypothalamic-pituitary-adrenal (HPA) axis activity. Patients with major depression presented a higher activity in this circuit (Brody et al., 1999). Similar neural changes have been found also in behaviorally inhibited individuals and in those at high familial genetic risk for depression (Clauss, Cowan,& Blackford, 2011; Pine, 2003). Changes in this circuit link depression to stress-related enhancements in HPA-stress systems, such as higher than expected cortisol concentrations and activity in the serotonergic system (Goodyer, et al., 1996; Lopez-Duran, Kovacs, & George, 2009). Genetic factors, psychosocial stress, sex hormones, and development have also been linked to changing activity in this circuit (Davidson, Pizzagalli, Nitschke, & Putnam, 2002; Hariri et al., 2005; Pine, 2003). High concentrations of sex steroid receptors have been found in this circuit (Nelson,

Leibenluft, McClure, & Pine, 2005). This might offer an explanation about why girs have higher risk of depression than boys. The other circuit implicated in depression encompasses the striatum and its connection to both the PFC and ventral dopamine-based systems. Research into this reward circuit implies that reduced activity is linked with expression of and risk for depression. Reduced striatal and PFC activity during tasks involving rewards has been recorded both in individuals with major depression and in those with depressed parents (Forbes et al., 2009).

Psychosocial vulnerability

Many studies have focused on the association between depression and environmental factors such as exposures to acute stressful events (e.g. personal injury, loss) and chronic adversity (e.g. abuse, poverty, physical illness, family discord, bullying by peers) (Goodyer, Wright, & Altham, 1990; Pine et al., 2002). Such stressors seem to affect especially adolescents at high risk (Hariri et al., 2002). Chronic, severe stressors connected with salient interpersonal relationships seem the most important (Thapar et al., 2012). Parents' divorce, low levels of family support, negative and conflicting familial relationships are common risk for depression (Restifo & Bögels , 2009; Rueter, Scaramella, Wallace, & Conger, 1999; Seroczynsky et al., 2003). Moreover several studies have showed that attachment insecurity is associated with depressive symptoms in adolescence (e.g. Armsden & Greenberg, 1987; Armsden, McCauly, Greenberg, Burke, & Mitchell, 1990; Burbach, Kashani, & Rosenberg 1989; Lee & Hankin, 2009; Marton & Maharaj, 1993; McFarlane, Bellissimo, & Norman, 1995; Muris, Meesters, van Melisk, & Zwambag, 2001; Vivona, 2000; West, Spreng, Rose, & Adam, 1999). In specific, insecure attachment predicts increases in depressive symptoms through the mediating role of both negative cognition and interpersonal stress-generation processes (Hankin, Kassel, & Abela, 2005; Reinecke & Rogers, 2001). Furthermore, also the relationships with peers resulted implicated as risk factors for depression (e.g. peer victimization through bullying, peer rejections) (Brendgen, Wanner, Morin, & Vitaro, 2005; Garland & Fitzgerald, 1998; Hawker & Boulton, 2000; Rudolph, Hammen, & Burge, 1994).

Personality/ Temperament/ Emotion regulation vulnerability

Depression has consistently been linked with personality traits belonging to negative emotionality, in particular to neuroticism (Krueger, 1999, 2000; Krueger, Caspi, Moffit, Silva, & McGee, 1996). Research suggested that neuroticism represents a vulnerability to develop depression and may also contribute to the emergence of stressors or other

vulnerabilities that more proximally predict depression (Hankin & Abela, 2005). More recently, difficulties in emotion regulation have gained interest as a possible vulnerability factor for depression (Compas, Jaser, & Benson, 2009; Siener & Kerns, 2012). Silk, Steinberg and Morris (2003), found that depressive symptoms in early and middle adolescents were related to greater lability and intensity of sadness, anger, and anxiety. Moreover, the monitoring of one's emotional states is another aspect related to depression. Monitoring one's emotional states means having an awareness and clarity and being able to understand the source of one's emotions (Thompson, 1994). Adolescents who are not able to identify their emotions, may experience difficulties in the regulation and expression of these emotions, which may also increase their vulnerability to developing depression (Tems, Stewart, Skinner, Hughes, & Emslie, 1993). Furthermore, emotion regulation is also involved in the processes that can modify emotion, such as coping strategies (Thompson, 1994). Adolescents who are less able to effectively modify their negative emotions may be more vulnerable for experiencing depressive symptoms (Siener & Kerns, 2012).

In addition, self-esteem is known to be a risk factor in depression (Millings, Buck, Montgomery, Spears, & Stallard, 2012). Many studies showed low self-esteem as a predictive factor for depressive symptoms (Kamkar, et al., 2012; MacPhee & Andrews, 2006; Marcotte, et al., 2002; Millings et al, 2012; Muris, Schmidt, Lambrichs, & Meesters, 2001; Orth, Robins, & Roberts, 2008; Wilkinson, 2004). Since girls present lower self-esteem than boys, these results may offer a further explanation to gender differences in depression.

Cognitive vulnerability

Two of the most known cognitive models of depression among adults (and adolescents) are Beck's cognitive model and Abramson's hopelessness model. Both models posited that a pattern of thinking either interacts with or is provoked by specific types of negative life events. Beck (1967, 1976) suggested that depression is induced by negative schemas (probably learned during childhood), which generate negativistic views of one's self, the future, and the world. Abramson's (1989) model suggests that individual's explanatory style (e.g. attributing negative events to stable and personal characteristics instead of transitory or extrinsic circumstances) either exacerbate or inhibits the depressive effects of negative life events (Abela, 2001). Research in adolescence supported these models. Depressed adolescents tend to dramatize situations, have low frustration tolerance, make unrealistic demands on themselves and

others, attribute negative characteristics to themselves, and evaluate their performance as evidence of personal inability. Moreover, depressed adolescents tend to believe that they can not control life events, are pessimistic about the future, and appear to ruminate excessively on their problems (Seroczynsky et al., 2003).

A special issue of Cognitive Therapy and Research (vol. 25(4), 2001) pay special attention to research on the developmental antecedents of cognitive vulnerability to depression. Rudolf, Kurlakowsky, and Conley (2001), proposed that stressful life events and family disruption lead to an increasing in helplessness and decreasing in perceived control. Garber and Flynn (2001) suggested that low levels of maternal acceptance were related to low self-worth in young adolescent offspring. Gibb and colleagues (2001), in a retrospective study of late adolescents, found that individual who presented sings of depressive cognitive errors and hopelessness were more likely to have histories of childhood emotional abuse. Alloy et al. (2001) noted that cognitive risk factors in late adolescence were related to parental attribution and feedback about negative events and low levels of parental acceptance and warmth.

1.2 ANXIETY DISORDERS IN ADOLESCENCE

Childhood and adolescence represent the core risk phases for the development of anxiety disorders (Beesdo, Knappe, & Pine, 2009).

Anxiety is a common feeling throughout childhood and adolescence. In normal development, children experience different transitory phases of high levels of anxiety (Nauta, 2005). Anxiety is the brain response to danger and fear, stimuli that an individual actively attempt to avoid. Usually, anxiety is not pathological as it is adaptive in many situations when it helps to avoid danger (Beesdo, Knappe, et al., 2009). Anxiety becomes a disorder when it (a) is excessively related to the situation, (b) cannot be reasoned away, (c) is not under voluntary control, (d) leads to a voluntary avoidance of the feared situation or object, (e) lasts over time, (f) is maladaptive, and (g) is not age specific (Ollendick & Francis, 1988). In general children and adolescents with anxiety disorders experience an anxiety that is extreme, has a prolonged duration, and that interferes with daily functioning and activities. These individuals tend to avoid confrontation with the feared situation or object or tolerate the situation with great anxiety (Nauta, 2005). Moreover anxious children and adolescents present also a broad

range of somatic symptoms, such as trembling, feeling faint, sweating, and cardiac and respiratory distress (Beidel, Christ, & Long, 1991).

Barlow (1988, 2000, 2002) defines anxiety as a cognitive-affective structure that involve a sense of helplessness and uncontrollability to cope with or prevent possible future threats or dangers. Individuals with anxiety often perceive a sense of apprehension toward the future, are vigilant for signs of potential danger, and are always in a state of preparation to cope with potential threats. Similarly, Beck and Clark (1997) define anxious state as an innate, survival-oriented response to stressors, originally aimed to orient individual to life-threatening danger. According to Beck's model, an individual manifests anxiety disorders when he/she develop overactive danger schemas that make the individual to misunderstand or exaggerate the intensity of future dangers, and, at the same time, to underestimate his/her ability to cope with them (Williams, Reardon, Murray, & Cole, 2005).

In regards to the definition of anxiety and its disorders, two main issues have been pointed out from different authors (e.g. Endler & Kocovski, 2001; Nauta 2005).

First, anxiety can be defined as either unidimensional (trait) or multidimensional in nature. Anxiety as a single trait concerns an underlying factor that can represent a vulnerability to each of the anxiety disorders. Theoretical and empirical evidences supported this unidimensional factor (Anderson, 1994; Barrett, Dadds, & Rapee, 1996; Berman, Weems, Silverman, & Kurtines, 2000; Cobham, Dadds, & Spence, 1998; Kendall, 1994; Zinbarg & Barlow, 1996). As example, Anderson (1994) highlighted that anxiety disorders tend to co-occur each others. This finding could be seen as the first proof for a unique underlying factor. Second, different anxiety disorders seem to positively respond to the same treatment (e.g. drug, cognitive-behavioral treatment) (Kendall, 1994), and the outcome of treatment was independent from specific anxiety disorder, suggesting that the disorders may share common features (Barrett et al., 1996; Berman et al., 2000; Cobham et al., 1998). Third, comorbid anxiety disorders tend to decrease with positive treatment of the primary anxiety disorder (Nauta, 2005). Conversely, the multidimensional perspective, highlights that the different cluster of anxiety disorders represent different and meaningful syndromes (Spence, 1997, 1998). Several authors have found support for a hierarchical model. Zinbarg and Barlow (1996), presented a higher order factor of trait anxiety and, lower order factors. Brown, Chorpita, and Barlow (1998), found four different factors of anxiety, called generalized anxiety disorder, panic disorder, obsessive-compulsive disorder, and social phobia.

Clark and Watson (1991) in their tripartite model, already mentioned in the introduction, found a higher order factor (the general negative affectivity) for both anxiety and depression, with anxiety and depression representing different disorders at a lower level (Laurent & Ettelson, 2001).

The second issue argued wether anxiety is a dimensional or a categorical concept. In the psychological field, anxiety is often considered as a dimensional concept, expressed on a continuum (Van Oort, Greaves-Lord, Verhulst, Ormel, & Huizink, 2009). Individuals differ in their level of anxiety, with individuals experiencing higher levels of anxiety presenting greater problems in adaptive functioning. The categorical concept, which is based on the medical model, states that an individual has an anxiety disorder when he/she meets the criteria for that disorder. This model presents at least three disadvantages, (1) it does not allow for evaluation of the severity of the disorder, (2) the severity of the cut-off is quite arbitrary, (3) individuals in the same diagnostic category may not present the same symptoms (Nauta, 2005). As suggested by Endler and Kocovski (2001), anxiety should be considered by both researchers and professionals as a multidimensional (as opposed to unidimensional) and a dimensional (verus categorical) concept.

Following the multidimensional perspective, anxiety disorders are described and classified in both the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR, American Psychiatric Association, 2000) and in the International Classification of Diseases (ICD-10, World Health Organization, 1992). Although in the DSM-III-R (American Psychiatric Association, 1987), three anxiety disorders specific for childhood and adolescence were mentioned, the DSM-IV-TR (American Psychiatric Association, 2000), considered all of the anxiety disorders as age-downward extensions of adult diagnoses, with the exception of separation anxiety disorder, (Beesdo, Knappe, et al., 2009; McKay & Storch, 2011; Nauta, 2005). DSM-IV-TR acknowledges this by adding for some disorders, though not consistently, some of the features that might present differently in children and adolescents Conversely, in ICD-10, children receive specific codings, different from the ones used for adults (Beesdo, Knappe, et al., 2009).

Anxiety disorders classification is based on different fears. The most common anxiety disorders found in adolescence are (1) Separation Anxiety Disorder (SAD), (2) Social Phobia, (3) Specific Phobia, (4) Panic Disorder and Agoraphobia, (5) Generalized Anxiety Disorder (GAD), (6) Obsessive-Compulsive Disorder (OCD), and (7) Posttraumatic Stress Disorder (PTSD).

(1) *Separation Anxiety Disorder*

Separation anxiety is characterized by developmentally inappropriate and excessive anxiety or distress concerning separation from the home or from major attachment figures. The anxiety causes significant distress or impairment in social, academic, or other important areas of functioning. The duration is at least 4 weeks and the onset must be before the age of 18 (DSM-IV-TR; American Psychiatric Association, 2000). Separation anxiety may manifest as excessive worry about staying alone, about harm befalling major attachment figures, school and sleep refusal and somatic symptoms may manifest when separation occurs or is anticipated (American Psychiatric Association, 2000). Research suggests that expression of SAD symptoms varies across developmental stages (Francis, Last, & Strauss, 1987). In specific, young children (5-9 years old) were more likely to report nightmares and worry, early adolescents (ages 10-13) were more likely to report excessive distress when occurring separation from major attachment figures, and middle adolescents (ages 14-18) were more likely to report physical symptoms and present school refusal behaviors. Epidemiological studies have estimated a prevalence of SAD ranging from 2.8% to 12% (Bolton, Eley, & O'Connor, 2006; Bowen, Offord, Boyle, 1990; Pine, Cohen, Gurley, Brook, & Ma, 1998; Silverman & Ginsburg, 1998), with a reported prevalence of 4% in DSM-IV-TR (American Psychiatric Association, 2000). In community based sample, girls seem to be at higher risk to develop SAD than males (Costello & Angold, 1995; Silverman & Ginsburg, 1998).

(2) *Social Phobia*

Social phobia refers to a persistent fears of social or performance situations involving scrutiny by others because of the possibility of doing something embarrassing or humiliating (DSM-IV-TR; American Psychiatric Association, 2000). Exposure, or anticipation of the exposure, to the social or performance situation most often provokes an immediate anxiety response, that may take the form of a panic attack. Adolescents, as adults, may recognize that their fear or anxiety response is exaggerate to the situation. The anxiety interferes significantly with the daily routine, academic or social functioning, or other important areas of functioning. The symptoms must have persisted for at least 6 months (DSM-IV-TR; American Psychiatric Association, 2000). Adolescents with social phobia may avoid interacting with friends, showing initiative during class breaks, asking for something in a shop, joining sport clubs, parties meeting members of the opposite sex, using public transportation, or showing assertiveness in

general (Nauta, 2005; Tuner, Williams, Beidel, & Mezzich, 1986). Individuals with social phobia reported the highest levels of somatic symptoms among anxiety disorders, including trembling, heart palpitations, sweating, and nausea (Beidel et al., 1991). Epidemiological data showed a lifetime prevalence ranging around 7%-14% (Feehan, McGee, Nada-Raja, & Williams, 1994; Kim-Cohen, Caspi, Moffitt, Milne, & Poulton, 2003; Verhulst, van der Ende, Ferdinand, & Kasius, 1997; Wittchen, Nelson, & Lachner, 1998; Wittchen, Stein & Kessler, 1999), and a lifetime prevalence ranging from 1% to 6.3 % (Beesdo, Knappe, et al., 2009). Turner, Beidel, Dancu, and Stanley (1989), suggested that social phobia begins in early adolescence. Social phobia occurs more frequently in girls than boys (3:2 sex ratio).

(3) *Specific Phobia*

Specific phobia, known as "simple phobia" in DSM-III (American Psychiatric Association, 1980) and DSM-III-R (American Psychiatric Association, 1987), refers to a marked and persistent fear of an identifiable and circumscribed objects or situations (DSM-IV-TR, American Psychiatric Association, 2000). Exposure to the phobic stimulus provokes an anxiety response that may take the form of panic attack. Exposure to the phobic stimulus is avoided. Individuals with specific phobia know that their fear is excessive (Essau, Conrad, & Peterman, 2000). Although many specific phobias have been identified, the DSM-IV-TR (2000) recognizes four main categories of specific phobias and a residual category: animal type (e.g. spiders, snakes, insects), natural environment type (e.g. heights, water, darkness, or storms), blood injection injury type (e.g. seeing blood or an injury, or receiving an injection), situational type (e.g. elevators, bridges, public transportation), and other types (e.g. vomiting, choking, loud sounds). Specific phobia shows a lifetime prevalence ranging from 1.5% to 20.6 % (Essau, Karpinski, Petermann, & Conradt, 1998; Essau et al., 2000; Lewinsohn, Hops, Roberts, Seeley, & Andrews, 1993; Woodward & Fergusson, 2001) and a current prevalence between 0.2% and 14.6% (Bittner et al., 2007; Gau, Chong, Chen, & Cheng 2005; Romano, Tremblay, Vitaro, Zoccolillo, & Pagani, 2001; Wells 2009). Specific phobia typically begins in childhood; the median age of onset is seven years (Kessler, Berglund, Demler, Jin, & Walters, 2005). Strong gender differences emerge for fears of animals, lighting, enclosed places, and darkness, with girls being more anxious than boys (Ollendick, King, & Muris, 2002). Moreover Ollendick and colleagues found that specific phobia is age related, with children (ages 7-10) being the most fearful, followed by early adolescents, middle adolescents and late adolescents. Social and school-

achievement fears, usually start in early adolescence, and are more likely to persist into adulthood (Williams et al., 2005).

(4) *Panic Disorder and Agoraphobia*

Panic disorder is defined as "recurrent, unexpected panic attacks followed by at least 1 month of persistent concern about having anther panic attack, worry about the possible implications or consequences of the panic attack, or a significant behavioral change related to the attacks" (American Psychiatric Association, 2000, p.397). Panic attacks are defined as a intense period of discomfort or fear. During an attack, symptoms like shortness of breath, palpitations, chest pain or discomfort, choking or smothering sensations, and fear of 'going crazy' or losing control may occur. Panic attacks develop suddenly and reach their climax within 10 minutes. Agoraphobia may take place in addition to panic attacks, and is characterized by anxiety or avoidance of places or situations from which escape might be difficult, or help might be unavailable if a panic attack occurs. Agoraphobia often involves the avoidance of feared situations such as being outside the home, entering crowded situations, or taking public transport. Epidemiological data suggest that panic disorder is mainly an adult disorder with a relatively chronic course (Williams et al., 2005). Lifetime prevalence is around 2%-3%, and the current prevalence ranges from 0.2% to 4% (Bittner et al., 2007; Essau et al., 1998; Essau et al., 2000; Feehan et al., 1994; Kim-Cohen et al., 2003; Verhulst et al., 1997; Wittchen et al., 1998; Wittchen, et al., 1999).

(5) *Generalized Anxiety Disorder* (GAD)

GAD is characterized by excessive and persistent anxiety and worry that occurs for a period of at least 6 months (American Psychiatric Association, 2000). The pervasive worry in GAD is often uncontrollable and associated with a variety of fields (e.g. health, social relationship, sports). GAD results associated with impairment in social, school, or other important areas of functioning (DSM-IV-TR; American Psychiatric Association, 2000). GAD physiological symptoms may include the inability to sit still or relax, difficulty paying attention and concentrating, irritability or getting upset easily, muscle aches, and sleep disturbance (Kendall & Pimentel, 2003). It is quite difficult to provide accurate estimates of GAD in children and adolescents, because this diagnosis has been applied to youth starting from 1994, with DSM-IV-TR. Before that year, youth presenting with worries about several events, were diagnosed as OAD (overanxious disorder) but not GAD. The epidemiological studies that focused on GAD, reported a low lifetime prevalence (around 1%) and a period prevalence of 3.5% (Bittner et al.,

2007; Breton et al., 1999; Canino et al., 2004; Essau et al., 1998; Essau et al., 2000; Gau et al., 2005; Romano et al., 2001).

(6) *Obsessive-Compulsive Disorder* (OCD)

OCD is characterized by recurrent obsessions or compulsions that cause distress, impairment, or that consume more than 1 hour of time daily (American Psychiatric Association, 2000). Obsessions are characterized by recurrent thoughts, feelings, or impulses that are experienced as intrusive and unwanted (American Psychiatric Association, 2000). The most common types of obsessions include contamination fears, aggressive impulses, and the need to have things in a particular way (Rasmussen & Eisen, 1992). Differently, compulsions are characterized by ritualized patterns of behavior or cognition that the person must perform to reduce the anxiety or distress associated with an obsession or to prevent the occurrence of some dreaded consequences (American Psychiatric Association, 2000). The most common compulsions involve washing and cleaning, counting, checking, ordering, and repeating actions (Rasmussen & Eisen, 1992). Epidemiological studies have estimated a lifetime prevalence of 1% to 2.3% in children and adolescents community samples (Weissman et al., 1994). However subclinical levels of OCD are relatively common among individuals (Hajack, Huppert, & Foa, 2006). OCD is commonly diagnosed from early adolescence throughout adulthood, although cases have been reported also in children (Swedo, Rapoport, Leonard, Lenane, & Cheslow, 1989). Research suggests that adolescent boys are more likely to be diagnosed with OCD than girls. Bellodi, Sciuto, Diaferia, Ronchi, and Smeraldi (1992) estimated a mean age onset ranging from 14 to 19.5 years old for boys and of 21 to 22 years old for girls. This sex ratio becomes equivalent during adulthood.

(7) *Posttraumatic Stress Disorder* (PTSD)

PTSD may develop after the occurrence of an extreme traumatic stressor (e.g. threatened death or serious injury, of self or significant other, sexual or physical abuse). PTSD is characterized by symptoms of persistent reexperiencing, or avoidance of such events (American Psychiatric Association, 2000). The DSM-IV-TR has made some modifications aimed to compensate the different symptom presentation in children and adolescents versus adults. However, DSM-IV-TR criteria seem not yet well suitable for youth. For example, PTSD diagnostic criteria does not include symptoms that could represent a source of social or emotional distress for children and adolescents, such as regressive behaviors that may lead to peer rejection (e.g. enuresis, thumb-sucking), and

limit their ability to function in various social contexts (Armsworth & Holaday, 1993). Studies show that about 15-43% of girls and 14-43% of boys go through at least one trauma. Of those children and teens who have had a trauma, 3-15% of girls and 1-6% of boys develop PTSD. Rates of PTSD are higher for certain types of trauma survivors (e.g. war, natural disasters). Kilpatrick and Saunders (1999) in their epidemiological study based on a nationally representative sample of adolescents, estimated a prevalence of PTSD around 5%. Girls appeared most likely than boys to develop PTSD.

Epidemiological data, in summary, evidenced that the onset of the anxiety disorder is in late childhood/early adolescence (Beesdo, Pine, Lieb, & Wittchen, 2010; Kessler, et al., 2005; Last, Perrin, Hersen, & Kazdin, 1996). Separation anxiety disorder and some kinds of specific phobias (e.g. animal, blood injection injury, and environmental type), present the earliest age of onset, with most cases emerging before the age of 12 years old (Becker et al., 2007; Kessler et al., 2005; Wittchen et al., 1999). Social phobia has been found to arise in late childhood and throughout adolescence, with most of the cases emerging before the age of 25 years old (Beesdo et al., 2007; Kessler et al., 2005; Wittchen & Fehm, 2003). Panic disorder, agoraphobia, and GAD, have their onset in later adolescence. However few cases, especially with panic attack, might occur in early adolescence or before (Beesdo et al., 2010; De Graaf, Bijl, Spijker, Beekman, & Vollebergh, 2003; Kessler et al., 2005). Concerning GAD, it should be noted that some doubts have been articulated on the appropriateness of the 6-months duration criterion for children and adolescents (Beesdo, 2006; Kessler et al., 2005; Ruscio et al., 2007). Confounding results have emerged in regard to OCD, with an age of onset ranging from childhood (around 6-7 years old) to adulthood (mid 20's) (Lensi, et al., 1996; Swedo et al., 1989). However middle and late adolescence seem to represent the core phase for the onset of the first symptoms. PTSD can develop at any age, including childhood and adolescence, but research shows that the median age of onset is 23 years old (Kessler, Berglund, et al., 2005). No remarkable gender differences in onset patterns emerge with 3 exceptions: compared with females, males exhibit a somewhat earlier onset of specific phobia of natural environmental type, a earlier onset of OCD, and a later onset of GAD (Costello, Mustillo, Erkanli, Keeler, & Angold, 2003; Craske, 2003; Pine, et al., 1998; Wittchen et a., 1998). Figure 2 shows the patterns of age of onset of anxiety disorders for males and females assessed in a prospective-longitudinal community study (Early Developmental Stages of Psychopathology, EDSP) (Beesdo, Knappe, et al., 2009). Studies on adolescence showed a lifetime prevalence of "any anxiety disorder" around

15% to 20% (Beesdo, Knappe, et al., 2009). As already mentioned, the most frequent disorder in early and middle adolescents is separation anxiety, followed by specific and social phobias. OCD, as well as agoraphobia and panic disorder are quite present among adolescents. PTSD has a low-prevalence among adolescent population. As already stated, it is more difficult to provide accurate estimates of GAD in children and adolescents, because this diagnostic category is relatively "new". Considering the studies available, GAD presents a similar prevalence to Agoraphobia (Beesdo, Knappe, et al., 2009).

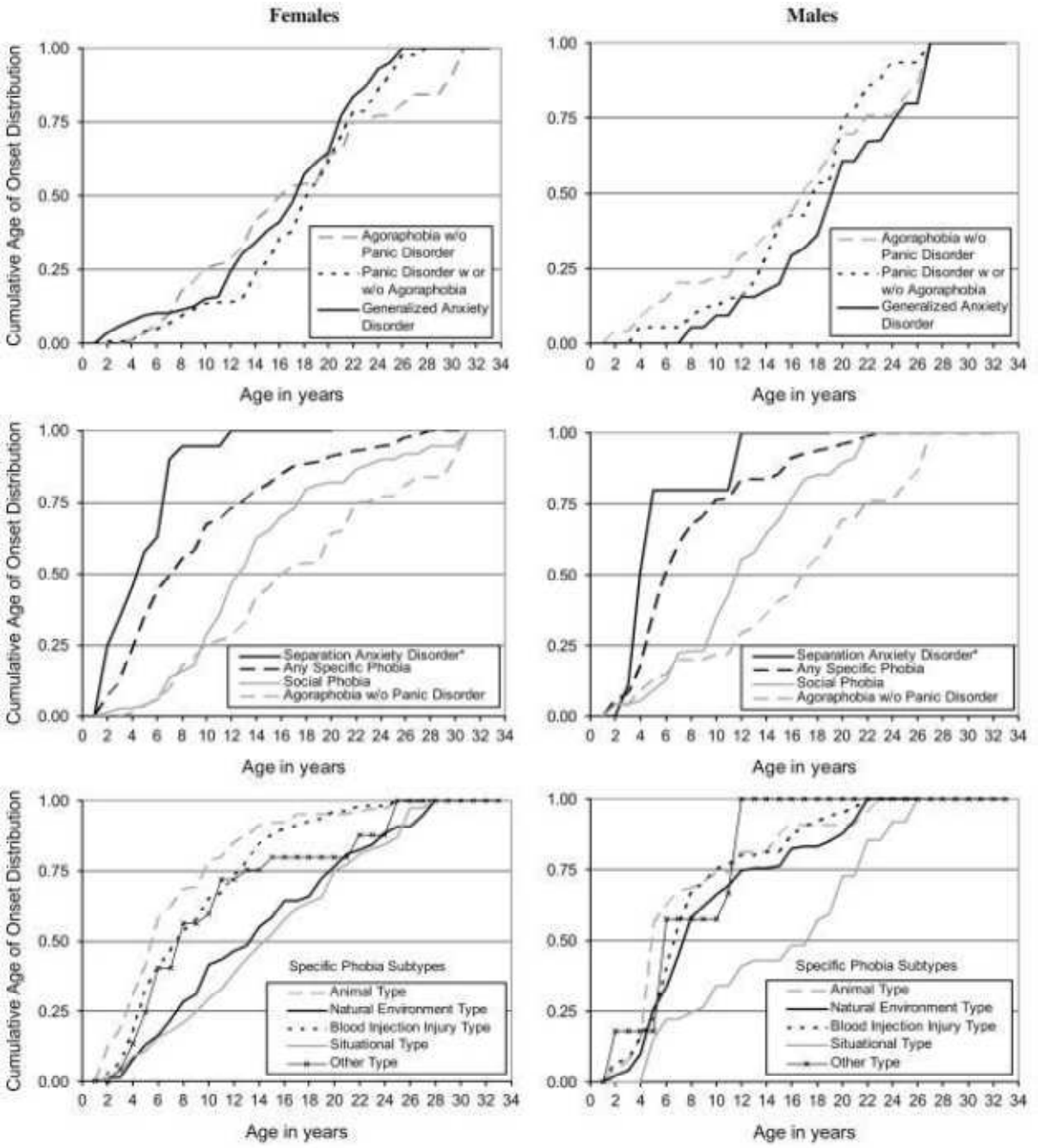

Figure 2. Cumulative Incidence of anxiety disorders (EDSP; *N*=3021) (Beesdo, Knappe, et al., 2009).

Many variables are considered to be risk factors for anxiety disorders. Following Barlow's (1988, 2000, 2002) tripartite model of vulnerability, three main clusters are considered: generalized biological vulnerabilities, generalized psychological vulnerabilities and specific psychological vulnerabilities.

Generalized biological vulnerabilities represent heritable dispositional factors that increased the vulnerability in manifesting psychopathology under appropriate activating conditions. Studies support a moderate to modest heritability for anxiety disorders. For example, Fyer and colleagues (1995) found moderate but specific familial aggregation of simple phobia, social phobia, and panic disorder with agoraphobia in families who had any of these disorders but no other lifetime anxiety disorder comorbidity. Moreover, genetic models are shifting from single-gene models to poly-genetic models in which multiple genetic effects combine to form a general biological vulnerability to anxiety (Plomin, DeFries, McClearn, & McGuffin, 2001). Brain imaging procedures allowed researchers to study brain functioning in relation to anxiety disorders. To date, findings are still equivocal, whereas some studies suggested amygdala hypersensitivity in some forms of anxiety among youth. Thomas and colleagues (2001) found enhanced amygdala activation during the viewing of evocative face-emotion displays among children with anxiety disorders. In specific, McClure et al., (2007) found in a sample of adolescents with GAD increased amygdala responses to fearful facial expressions, particularly when they rated subjective degrees of internal fear. Thus, attention modulates emotion processing and plays an important role in shaping the function of the adolescent human fear circuit. Beesdo, Lau, et al., (2009) focused on differences in amygdala activity in anxious versus depressed adolescents. Findings suggest the view of neural distinctions between depression and anxiety as complex and nuanced, but clearly demonstrable (Beesdo, Knappe, et al., 2009).

Temperamental and personality trait vulnerabilities such as Eysenck's (1967) neuroticism, Gray's (1982) trait-anxiety, or Kagan's (1989) behavioral inhibition assume a core role in anxiety disorders. These construct can be seen as precursor conditions to the occurrence of anxiety disorders. In specific, several studies show high correlations between neuroticism and anxiety (as well as depression) (Hettema, Neale, Myers, Prescott, & Kendler, 2006; Khan, Jacobson, Gardner, Prescott, & Kendler, 2005). Furthermore, behavioral inhibition refers to the tendency to react with distress

and withdrawal when confronted with strangers or new situations (Biederman et al., 2001). Many authors show that children classified as behaviorally inhibited presented higher levels of multiple anxiety disorders (Biederman et al., 2001; Hayward, Killen, Kraemer, & Taylor, 1998; Rohrbacher et al., 2008). In specific, behavioral inhibition presents a strong association to social phobia (Biederman et al., 2001; Mick & Telch, 1998; Schwartz, Snidman, & Kagan, 1999).

Generalized psychological vulnerabilities comprehend two main clusters: perceived uncontrollability and unpredictability, and parenting styles and attachment. Barlow and colleagues stated that a perceived sense of uncontrollability and unpredictability, acquired from the individual's early experiences with the environment, has a core role in the developmental of anxiety disorders (Barlow, 1988, 2000, 2002; Chorpita & Barlow, 1998). These early experiences, in turn, may lead to individual's negative emotionality, with a perceived lack of self-efficacy, that can be seen as vulnerabilities. As suggested by Chorpita and Barlow (1998), parenting and rearing styles have a key role not only as direct vulnerabilities to anxiety disorders, but also for the development of perceived uncontrollability and unpredictability. Studies on the relationship between parenting styles and anxiety disorders found that parental overprotection and parental rejection were significantly associated with higher level of social phobia in adolescents (Knappe, et al., 2009; Lieb et al., 2000). Kendler, Myers and Prescott (2000) considered three dimensions of parenting (coldness, protectiveness, authoritarism) and found that high levels of coldness and authoritarianism correlated modestly with an increased risk for almost all disorders. Nevertheless, the impact of protectiveness was more specific on anxiety disorders, presenting significant association with phobia, GAD, and panic disorder. Attachment theory has the potential to explain the development of psychopathology (Davila, Ramsay, Stroud, & Steinberg, 2005; Sroufe, Carlson, Levy, & Egeland, 1999). Data support a significant association between insecure attachment and anxiety symptoms in adolescents (Muris & Meesters, 2002; Muris, Meesters, et al., 2001) and adults (Hankin et al., 2005; Safford, Alloy, Crossfield, Morocco, & Wang, 2004). As example, insecure attachment have been linked to GAD (Cassidy, 1995), and social phobia (Eng, Heimberg, Hart, Schneier, & Liebowitz, 2001). Moreover, Kendler and colleagues (1992) focused on the association between anxiety disorders and familial events. They reported that increased risk for GAD was associated with parental separation and increased risk for phobia was associated with parental death but not parental separation.

Considering *specific psychological vulnerabilities* to anxiety disorders, Barlow's tripartite model focused on the looming cognitive style and anxiety sensitivity. "The looming cognitive style is a type of cognitive threat overestimation bias that specifies individuals who are cognitively vulnerable to anxiety imagine real or perceived threat stimuli as rapidly and dynamically approaching and increasing in threat" (Kleiman & Riskind, 2012, p.1110). Looming cognitive style has been found related to specific anxiety disorder symptoms such as OCD (Elwood, Riskind, & Olatunji, 2011; Riskind, Tzur, Williams, Mann, & Shahar, 2007), social anxiety (Brown & Stopa, 2008), GAD (Riskind & Williams, 2005), and PTSD (Reardon & Williams, 2007; Williams, Shahar, Riskind, & Joiner, 2005). Anxiety sensitivity is a cognitive style that refers to the individual's perception that anxiety symptoms may produce harmful or adverse consequences (Reiss & McNally, 1985; Taylor,1999). Studies suggested that anxiety sensitivity is a predictors for the development of panic symptoms (Bouton, Mineka, & Barlow, 2001; Schmidt, Lerew, & Jackson, 1997, 1999).

In conclusion, DSM-IV-TR (American Psychiatric Association, 2000) diagnostic classification for anxiety disorders leads to some critical issues. First, there is considerable evidence that most of the adolescents that do not meet the DSM criteria for clinical levels of anxiety disorders, still present similar range of distress and difficulties as those meeting the threshold (Wittchen et al., 1998). Another critical issue is related to symptomatic threshold required for diagnosis, such as symptom number, intensity, severity, and temporal thresholds such as duration, persistence, and the clustering of symptoms and criteria in a given time frame (Pincus, McQueens, & Elinson, 2003). Despite given clinical significance (e.g. distress or impairment), such conditions would be included in the nonspecific category of "Anxiety Disorder Not Otherwise Specified". Since, with few exceptions, criteria for adolescents are the same of those for adults, it would be clinically relevant to lower the threshold for children and adolescents (eg, shorter duration requirement, fewer symptoms), in order to be able to detect earlier affected youth and to provide adequate interventions (Beesdo, Knappe, et al., 2009). The DSM-5 research board for anxiety disorders discussed such concerns, as well as whether dimensional and developmental aspects should be included to provide more accurate and clinically relevant information useful for clinicians in the diagnostic phase and for treatment (Helzer et al., 2008; Pincus et al., 2003; Regier, 2007; Shear, Bjelland, Beesdo, Gloster, & Wittchen, 2007; Wakefield & First, 2003). Furthermore, the DSM-5 research board has dealt with other fundamental issues like whether (1) OCD is an

anxiety disorder, (2) Agoraphobia does exist without panic disorder, (3) GAD criteria are still adequate (for adults and for children and adolescents in specific), (4) Hypochondrias is an anxiety disorder. The last stage of the development of the DSM-5 began few months ago and its release is scheduled for next May. Hopefully some of these proposals will be accepted and integrated in the new manual.

CHAPTER 2

Parental and Peer Relationships in Adolescence

As already stated, adolescence is a phase in which many challenges and changes occur in the lives of youth and their families (Buist, Deković, Meeus, & van Aken, 2004). One of the most important challenge the adolescents have to deal with is the renegotiation of their position within the family, while maintaining a supportive and warm relationship with their parents (Buist, Reitz, & Deković, 2008; Laible et al., 2000). The importance of family relationships was already been mentioned in the previous chapter as protective factor to adolescents' well-being (Collins & Laursen, 2004; Steinberg & Silk, 2002).

A current issue discussed in the literature focusing on the psychological health of adolescents is the extent of influence of the parental relationship in comparison to other interpersonal relationships (Wilkinson, 2004). Many authors have focused their attention on the role of peer relationships (Batgos & Leadbetter, 1994; Berndt & Ladd, 1989; Collins & Repinski, 1994; Kerns, Klepac, & Cole, 1996; Laible, 2007; Laible et al., 2000; Solomon & Grunebaum, 1982; Steinberg & Silverberg, 1986). Historically, two main conceptualizations of the link between family and peer relationships have been proposed: compensatory/competition models and continuity/cognitive models (Cooper & Ayers-Lopez, 1985; Cooper & Cooper, 1992). Compensatory/competition models state that adolescents refer to their peers to satisfy the unmet needs of the parental/family relationships. Compensatory/competition models argue that during this developmental stage, parental relationships become less salient or even inhibitory and the adolescents tend to orient themselves to their friends and peers (Blos, 1979; Coleman, 1961; Douvan & Adelson, 1966). Relationships with parents and with peers are seen as being in tension and representing the "two worlds of childhood" (Bronfenbrenner, 1970). Conversely, continuity/cognitive models, state that the shape and quality of relationships that develop with peers is a continuum of the shape and quality of the relationships that has developed within the family (Bowlby, 1969/1997; Offer, Ostrov, & Howard, 1981; Sullivan, 1953). Continuity/cognitive models seen the

two “worlds” as related and complimentary. This last approach is the most considered and studied by researchers that often refer to the attachment theory (Ainsworth, 1985, 1989; Bowlby, 1969/1997), as a central explanatory account. Studies which have examined the link between family and peer relations during adolescence have shown that the strength of this relationship does not decline and that parents retain a substantial influence on the development of adolescent social relationships outside the family (Deković & Meeus, 1997; Steinberg & Silk, 2002). Feldman and Wentzel (1990) found that during early adolescence parental child-centeredness and social support from the family were positively related to the adolescent being liked by peers. Even in middle-late adolescence, close relationships with parents are associated with perceived social competence and greater satisfaction with peer relationships (Bell, Avery, Jenkins, Feld, & Schoenrock, 1985; Lapsley, Rice, & FitzGerald, 1990; Samuolis, Layburn, & Schiaffino, 2001).

The main theories of parent-adolescent relationship will be briefly discussed. Particular attention will be given to attachment theory, being one such integrative theory that can be used as a cognitive-interpersonal framework for understanding relationships in adolescence and also the development of depression and anxiety in youth. Implications for parental and peer relationships will be discussed.

2.1 THEORIES OF PARENT-ADOLESCENT RELATIONSHIPS

Conceptual models of relationships between adolescents and parents vary in whether they principal focus is on adolescents or on the relationship (Laursen & Collins, 2009). The first perspective suggested that adolescents’ physical, cognitive, and social maturation lead inherently to unstable relationships (Collins & Laursen, 2004). The implications of this instability changed from one theoretical model to another. A different perspective, highlights the nature and processes of adaptation in parent-adolescent relationships. This perspective, following the continuity/cognitive models mentioned before, emphasizes continuity and the enduring nature of bonds between parents and adolescents considering that parent-adolescent interaction persists despite adolescent development and alterations in the content and form of interactions.

Models that consider the adolescent maturation as the principal reason for the destabilization of parent-adolescent relationship include psychoanalytic theory. Freud and his daughter (A. Freud, 1958; S. Freud, 1921/1949) stated that hormonal changes

occurring during puberty cause unwelcome Oedipal urges that lead to impulse control problems, anxiety and rebelliousness and distance from family (Collins & Laursen, 2004). Other psychoanalytic models emphasize adolescent autonomy and ego identity instead of impulse control (Blos, 1979; Erikson, 1968). These models explained that the relationship between parent and early adolescents is deteriorate by parental deidealization and psychic emancipation. The inner turmoil produced by adolescent hormonal fluctuations exacerbates relationship difficulties, that in turn, heighten conflict and diminish closeness between members. Evolutionary views suggest that physical and cognitive developments enable adolescents to separate from their families to seek mates elsewhere (Belsky, Steinberg, & Draper, 1991). Although evolutionary views does not include specific mechanisms for the reestablishment of parent-offspring relationship during years, it may be argued that parental investment in offspring and the warmth and closeness experienced in earlier years provide positive affects that enable both parties to overcome difficulties of adolescence (Gray & Steinberg, 1999). Other maturational models give a core role to cognitive development: advances in abstract and complex reasoning foster interpersonal distinctions and a more reciprocal view of parent-child relationships (Kohlberg, 1969; Selman, 1980). As a result adolescents tend to assume equal power in their interactions with parents. Parents' hesitancy to transform the hierarchical relationships established during childhood into more egalitarian ones generates conflict and renegotiation of familial roles (Collins, 1995; Selman, 1980; Youniss, 1980). A fourth group of theorists (e.g. Simmons & Blyth, 1987), assign equal emphasis to change in social expectations and the need to adapt to a variety of new situations during school transitions. Parents' developmental issues concerning offspring' career or hopes for the future can enlarge the difficulties in the adjustment required in parent-adolescent relationships, especially those involving mothers (Collins & Laursen, 2004). Maturationist models assume that once the changes of adolescence are mostly completed, relationship roles and closeness can be successfully renegotiated (Collins, 1995).

Conversely, models of parent-adolescent relationships focus on forces for stability and change within the dyad, rather than on the impact of individual change on the dyad. Interdependence, or social models, suggest that partners engage in mutually influential exchanges and share the perception that their connections are reciprocal and enduring (Reis, Collins, & Berscheid, 2000). These interconnections are internalized by participants and organized into mental schemas that lead to expectations concerning

future interactions. Cognitive advances allow adolescents to understand that the rules of reciprocity and social exchange that govern interactions are different in regards to addressees: rules adopted with parents are not fully generalizable to interaction with parents and vice versa (Youniss, 1980). Collins (1995) proposed that interactions between parents and children are mediated by cognitive and emotional processes associated with expectancies about the behavior of the other person. In period of rapid changes, parents' expectancies are often violated and it can generate emotional stress and conflict. However, the most salient example of models that focus on relationship is attachment theory.

Attachment theory

Attachment theory was developed by John Bowlby. Attachment has been defined in several ways, however all the definitions agree on the idea that attachment is essential for normal human development (Malekpour, 2007). Bowlby's (Bowlby, 1969/1997, 1973/1998, 1980/1998) defines attachment as a strong emotional bond established between the infant and the primary caregiver (generally the mother). Papalia, Olds and Feldman, (2008) see attachment as a reciprocal relationship between two individuals, each of whom contributes to the quality of the relationship. Attachment is fundamental for babies, ensuring that their physical and psychosocial needs are met. Aisworth (1979) stated that it may be "an essential part of the ground plan of the human species for an infant to become attached to a mother figure". According to Bowlby (1980/1998), the basic principle of attachment theory states that individuals' experiences with the emotional availability of attachment figures in their lives shape their feelings of felt security and trust in others. The comfort provided reassures the infant that the caregiver will be responsive in times of distress. The accumulation of interactions and experiences with the caregiver is posited to provide the infant with information that is eventually used to organize an individual's expectations of others and understanding of rules for how the world operates. As a result of these early experiences with caregivers, individuals built internal working models of themselves, others, and relationships that they use to guide their expectations in subsequent close relationships (Bretherton, 1990). Individuals whose caregivers have been emotionally available, especially during periods of stress, construct internal working models of the self as worthy, others as trusting, and relationships as worthwhile and important. Conversely, individuals with a history of caregiver insensitivity construct negative working models of the self, others,

and relationships. These models are expected to color an individual's approach to relationships and views of the self throughout the lifespan (Bowlby, 1980/1998). Although internal working models may be modified by experiences of other close relationships throughout childhood and adulthood, they tend to persist across time and markedly influence the manner in which the infant construes and perceives the self and others in the context of interpersonal relationships (Laible et al., 2000; Wilkinson, 2004). Thus, Bowlby, along with other theorists (e.g., Ainsworth, 1969, 1985, 1989, 1991; Main, Kaplan, & Cassidy, 1985; Sroufe & Waters, 1977), argued that attachment to parents and the internal working models associated to these relationships continue to influence the individual also during adolescence and adulthood, even if a new primary attachment figure replaces the original caregiver. In specific, security, or lack of it, experienced in the child-parent relationship represents a base for the pattern of interpersonal relationship the child encounters across the lifespan (Bowlby, 1977; Schneider, Atkinson, & Tardif, 2001). Recently the focus of attachment research has been extended, referring to all the salient relationships throughout life span (Armsden & Greenberg, 1987; Hazan & Shaver, 1987; Kobak & Cole, 1994; Kobak & Sceery, 1988). For example, Hazan and Shaver (1987) and Bartholomew and Horowitz (1991) have proposed alternative models of attachment styles based on intimate peer relationships or adult romantic relationships rather than parental bonds.

Four main attachment styles are used to classified adult attachments: secure, dismissing/avoidant, anxious/preoccupied, and unresolved/disorganized. The secure attachment style in adults corresponds to the secure attachment style in children. The anxious/preoccupied attachment style in adults corresponds to the anxious/ambivalent attachment style in children. The dismissing/avoidant attachment style correspond to the avoidant attachment style in children. The Unresolved /disorganized attachment style in adults correspond to the disorganized attachment style in children.

2.2 ATTACHMENT AND ADOLESCENCE

Starting from the early adolescence, peer relationships start to increase in importance, and the process of separation/individuation from the family usually begin (Buhrmester, 1990; Inderbitzen, 1994). Although adolescents are struggling for autonomy from parents, they also are struggling to remain connected to them (Grotevant & Cooper, 1986; Steinberg, 1990). Although these changes could occur in any stage of

life, it appears most likely to occur during adolescence for several reasons (Allen & Land, 1999). First, in adolescence increases the capacity for formal operational thinking, including logical and abstract reasoning abilities (Keating, 2004). This capacity enables the individual to develop, from experiences with multiple caregivers, a more overarching attitude toward attachment experiences (Main et al., 1985). Second, adolescence is characterized by strong increases in differentiation of self and other (Bowlby, 1973/1998). This differentiation allows individual to a more concrete perception of the self as existing apart from caregivers and the interactions with them (Ricks, 1985). So view of oneself may become more internally based and less centered around a particular relationship (Allen & Land, 1999). Moreover the development of formal operational thinking also allows an adolescent to give more consideration to abstract and counterfactual possibilities, which may allow the individual to compare relationships with different attachment figures either to one another either to hypothetical ideals. So, adolescent may discover and realize that parents are deficient in some ways in meeting attachment needs (Kobak & Cole, 1994). This recognition implies that other relationships may meet attachment needs better than current relationships with parents, such as, for example, peer relationships.

Transformations in the parental relationship

During adolescence dramatic changes occur in day-to-day interactions with parents (Allen & Land, 1999). Adolescent's cognitive development results in increasing abilities in managing the "goal-corrected partnership" with each parent, in which behavior is not determined only by adolescent's current needs and wishes, but also by recognition of the need to manage certain "set goals" for the partnership (Bowlby, 1973/1998). This coordination is possible due to adolescent's enhanced perspective-taking ability and capacity to consider attachment relationship from both adolescent's own and parents' points of view (Allen & Land, 1999). The increasingly goal-corrected nature of the relationship leads to adolescent's becoming less dependent on parents in several ways. However, such autonomy can develop only in a context of close and enduring relationship with parents (Larson et al., 1996). Early and middle adolescents will still turn to parents under conditions of extreme stress (Huntinger & Luecken, 2004; Kamkar et al., 2012), as well as parents are still used as attachment figures even in late adolescence and young adulthood (Fraley & Davis, 1997). Thus, adolescent's relationship with attachment figures does not seem to undertake big changes from the

attachment relationships characterizing previous developmental phases. Bowlby's (1973/1998) emphasis on the balance of the attachment and exploratory systems, can be found also in adolescence. Adolescent autonomy-seeking behavior can be seen as part of the exploratory system, which may not be interpreted only as a system with opposing goals to the attachment system, but may actually have the goal to minimize the power of the attachment system with respect to parents. In other words, the adolescent seeks to explore living without being emotionally dependent on his or her parents (Allen & Land, 1999). This is not so far away from the competing influence of the attachment and exploratory systems on infant. However the press for autonomy in adolescence may be more persistent and in a direct competition with the attachment system than it is during childhood (Allen, Kuperminc, & Moore, 1997). Adolescent's cognitive abilities allow him/her to recall that the parents remain available as attachment figures when needed. In this way, "the analogy to exploratory and secure-base behavior in infancy remains apt: adolescents can explore (emotionally) the possibility of living independently from parents, (…) because they know that they can turn to parents in cases of real need" (Allen & Land, 1999, p.322).

In adolescence, attachment to parents may evolve differently and influence security and attachment quality in different ways (Markiewicz, Doyle, & Brendgen, 2001). As reported by Kamkar and colleagues (2012), until late adolescence parents remain the primary attachment figures (Hazan & Zeifman, 1994), with mother being consistently the preferred figure to turn to in times of stress and need for security and support (e.g., Markiewicz, Lawford, Doyle & Haggart, 2006), particularly for adolescent girls (e.g., Youniss & Smollar, 1985). In turn, mothers of adolescents tend to remain more emotionally involved with both sons and daughters. Referring to fathers, although the attachment relationship between the father and the adolescent becomes more limited in communication and emotional quality over time, the adolescent continues to view his or her father as an important attachment figure (Paterson, Field & Pryor, 1995). Youniss and Smollar (1985) found that fathers tend to detach more from their daughters than sons. During the whole adolescence phase, fathers presented low scores on quality of affect, support and proximity, as rated by their sons and daughters (Paterson et al., 1995). Comparing to childhood, during adolescence girls perceive their fathers as less available and report being less dependent on their fathers than their mothers (Lieberman, Doyle, & Markiewicz, 1999). However, as stated by Hosley and Montemayor (1997), although fathers are perceived as more distant than mothers, they

make unique contributions (Markiewicz et al., 2001). Fathers may express caring and closeness in different ways than mothers. For example they may express caring and closeness through shared activities, and even if they usually spend less time with adolescents than mothers do, this time tend to be leisure time. Indeed both boys and girls report enjoying a lot interactions with fathers.

Transformations in peer relationships

Research into attachment in adolescence, beyond the parental relationship, has usually focused on the role of peer relationships. By middle adolescence, interactions with peers assume many salient functions such as providing feedback about social behavior, social influence and information, and becoming important sources of intimacy (Ainsworth, 1989). Peer relationships in adolescence promote the capacity for supportiveness and adult-like intimacy. Although a primitive form of these features of relationships is present also in childhood peer relationships, they can be more clearly seen in the attachment relationship with parents (Allen & Land, 1999). This finding suggests that peer attachment relationships may derive from both prior attachment relationships with parents and from prior relationships with peers. However, as stated by Ainsworth (1989), peer relationships during childhood do not represent "attachment relationships" under most conditions. Ainsworth (1989) listed four features that characterize attachment relationships from other social relationships. These characteristics comprehend (1) proximity seeking, (2) secure-base behavior (free to explore when the attachment figure is present), (3) safe-haven behavior (go back to the attachment figure when facing a perceived risk), and (4) separation protest when separations are not voluntary. Ainsworth's list makes clear how childhood playmates differ from attachment figures. By middle adolescence, relationships (best friends or romantic relationships) can meet the four characteristics listed by Ainsworth (1989) and be defined as attachment figures in all senses (Fraley & Davis, 1997; Hazan & Zeifman, 1999; Nickerson & Nagle, 2005). As a result, some attachment researchers consider peers to be attachment figures in adolescence (Allen & Land, 1999).This may be especially important in early and mid-adolescence when adolescents are striving to seek autonomy from parents. This growth in the attachment qualities of peer relationships is prompted by the same set of social and cognitive development described earlier, which improves the ability of both an adolescent and his or her peers to serve as attachment figure to one another (Allen & Land, 1992). Moreover during adolescence occurs also a

transformation from hierarchical attachment relationships (in which one receives care from a caregiver) to peer attachment relationships (in which one either receives and offers care and support). Conversely, other researchers are more skeptical in regards to the construct of peer attachment and its operationalization, formulating questions such as to whether or not this construct is compatible with attachment theory. Major attachment theorists, such as Bowlby (1969/1997) and Ainsworth (1991), have argued that attachments are fundamentally dyadic in nature. That is, they are formed on the basis of a relationship between an individual and *a* significant other. Weiss (1991, 1998) in a more conservative way, stated that attachments can only be considered in terms of dyads and that relationships beyond dyads can not be considered as attachment relationships. Thus, the degree of intimacy in the relationship with friends is not clearly established in many of the available measures (Wilkinson, 2004). Further clarification of the issues raised by Weiss (1998) should be examined by comparing the assessment of attachments to "peers," specified as nondyadic (e.g. the level of relatively superficial activity with peers and friends), to the attachment to "close" or "intimate" friends.

2.3 ASSESSING ATTACHMENT RELATIONSHIPS IN ADOLESCENCE

Researchers have usually referred to one of two strategies for studying adolescent attachment (Allen & Land, 1999). One, called the Adult Attachment Interview (George, Kaplan, & Main, 1984, 1985, 1996), is an extended, semi-structured interview concerning the adolescent's recollections of parental care during childhood and beliefs about its current significance. The interview is transcribed for scoring and yields to an attachment classification based on representations of early childhood care experiences. This measure was originally developed for adults and then adapted for use with adolescents (Hesse, 1999). Conversely, the other strategy, focuses on the adolescent's current experience of the relationships with parents through a self-report questionnaire. The most widely adopted measure to assess attachment relationships in adolescence is the Inventory of Parent and Peer Attachment (IPPA) (Armsden & Greenderg, 1987). The IPPA comprehends three forms which refer to mother, father and peers respectively. The IPPA includes subscales reflecting the adolescent's perception of the extent of trust and communication in the relationships, and the extend of alienation experienced (for a detailed description of this tool see the Measure section). Moreover it yields to a total score reflecting the quality of the attachment relationship. It

is fundamental to note that these are very different approaches that assess attachment from different perspective (recollections of childhood care versus current relationships with significant others such as parents or peers), evaluate different aspects of attachment (attachment patterns versus quality of attachment relationships), and do not necessarily lead to comparable portrayals of attachment in adolescents (Song, Thompson, & Ferrer, 2009).

However, because the main focus was on characterizing the current status of the parent-adolescent and peer-adolescent relationships, the IPPA was selected to assess quality of attachment relationships on this study.

CHAPTER 3

Self-esteem in Adolescence

Self-esteem is a widely studied concept that has elicited a large body of theoretical accounts and empirical research (Baumeister, 1998; Kernis, 2006; Swann & Bosson, 2010). Scheff and Fearon (2004) searching in PsychoINFO found more than 30,000 articles concerning self-esteem with nearly 6000 of these appearing within the last five years. Moreover more than 200 instruments are purported to measure this construct (Scheff & Fearon, 2004). An unfortunate consequence of the proliferation of self-esteem instruments is that these measures may be contributing to the divergent views of self-esteem that have emerged in the literature (Brown & Marshall, 2001, 2006; Marsh, Craven, & Martin, 2006; Mruk, 2006). During the past decades, for example, self-esteem has gone from being considered as a sort of panacea that would cure many of the problems existing in the society (California Task Force to Promote Self-Esteem and Personal and Social Responsibility, 1989), to recent assumptions that it is largely inconsequential (Baumeister, Campbell, Krueger, & Vohs, 2003; Scheff & Fearon, 2004) and it has even been suggested that programs intended to boost self-esteem may unintentionally lead to harmful consequences (Baumeister, Smart, & Boden, 1996). However, in contrast to this negative view of self-esteem, other researchers have argued that self-esteem remains a useful construct but that its utility may often be underestimated due to factors such as its diverse array of conceptualizations (e.g., global self-esteem vs. domain-specific self-esteem; see Swann & Bosson, 2010; Swann, Chang-Schneider, & McClarty, 2007; Trzesniewski et al., 2006).

Historically, the first influential definition of self-esteem dates back to James (1980) who defined self-esteem as the ratio of success in relevant areas of life and focused on the individual processes that form self-esteem (Sowislo & Orth, 2013). Later on, symbolic interactionists underlined the social influences on self-esteem (Cooley, 1902; Goffman, 1959; Mead, 1934). For example, Cooley (1902), in his conception of the looking-glass self, stated that explicit or implicit feedback from others serves as

base for the self-views. Mead (1934) took this concept a step further, maintaining that self-esteem is also influenced by the "generalized other"—thus the entire socio-cultural environment (the media too). Recently, definitions of self-esteem suggest that self-esteem should be distinguished from other components of the self-concept (such as self-knowledge and self-efficacy), to the extent that self-esteem represents the affective, or evaluative, component of the self-concept; in other words self-esteem refers to how people feel about themselves (Leary & Baumeister, 2000). This affective self-evaluation is not objective and is not related to specific behaviors (Robins, Hendin, & Trzesniewski, 2001). According to Rosenberg (1989), high self-esteem "expresses the feeling that one is 'good enough.' The individual simply feels that he is a person of worth. . . . He does *not* necessarily consider himself superior to others" (p. 31). Global self-esteem is "the positivity of the person's self-evaluation" (Baumeister, 1998, p. 694) or "the level of global regard that one has for the self as a person" (Harter, 1999, p. 88).

A debated issue in the literature concerns whether self-esteem is best conceptualized as a *global* evaluation of the self or as an evaluation in *domain-specific* self-esteem such as intellectual and athletic abilities, physical appearance, behavioral conduct, and social competence. Findings suggested that both global and domain-specific self-esteem are both important, but that they are important for different reasons and are relevant in different ways (Rosenberg et al.,1995). Indeed both global and domain-specific self-esteem show relevant outcomes "as long as these outcomes exhibit the same degree of specificity as the self-evaluation that is used as a predictor" (Sowislo & Orth, 2013, p. 214). Thus, global self-esteem seems to have predictive ability for outcomes measured at a global level (Trzesniewski et al., 2006), while domain-specific self-esteem shows predictive ability for outcome assessed at a specific level (e.g. academic self-esteem predicts academic outcomes; Marsh, Trautwein, Lüdtke, Koller, & Baumert, 2006). As suggested by Rosenberg, and colleagues (1995), global self-esteem is most relevant to psychological well-being whereas specific self-esteem is most relevant to behavior. The theoretical foundation for the expectation that global self-esteem is most relevant to psychological well-being lies in "self-enhancement theory" (Baumeister 1982; Greenwald 1980; Jones 1973; Kaplan 1975; Swann 1987), which posited that self-esteem is fundamental for humans. Thus, the self-esteem motive - also called the "self-maintenance motive" by Tesser and Campbell (1983) and the "motive for self-worth" by Covington (1984) - has been identified by Maslow (1970) as one of the "strong" human needs. All of these theories share the view that exists in

human beings a universal desire to protect and enhance their feelings of self-worth and that the frustration of this desire generates some measure of psychological distress. Maintenance of self-esteem leads to self-protective motives, self-enhancement processes, and a variety of coping processes. Moreover, as suggested by Sowislo and Orth (2013), there are at least three more reasons for focusing on global self-esteem rather than domain-specific self-esteem considering the psychological well-being. First, most of the theories linking self-esteem to psychological adjustment address global self-esteem but not domain-specific self-esteem (e.g., Abramson, Seligman, & Teasdale, 1978; Blatt, D'Afflitti, & Quinlan, 1976; Brown & Harris, 1978). Second, most studies in this field referred to tools assessing global self-esteem (for reviews, see Orth et al., 2008; Zeigler-Hill, 2010). Third, following the specificity-matching principle, psychological disorders (depression and anxiety in this specific context) are global construct that combine several cognitive, affective, social and somatic symptoms, thus it seems reasonable to refer to global self-esteem (Swann et al., 2007).

3.1 CHARACTERISTICS OF SELF-ESTEEM

Research has identified some relevant features of self-esteem (Harter, 2003; Kernis, 2002). One important characteristics is self-esteem *stability* (Bos, Muris, Mulkens, & Schaalma, 2006). Unstable self-esteem refers to short-term fluctuations in one's self-esteem and reflects fragile feelings of self-worth (Kernis & Goldman, 2003). Correlations between level of self-esteem and self-esteem stability are generally low, suggesting that these are independent manifestations of self-esteem, although are both related to psychological well-being (Kernis & Goldman, 2003; Paradise & Kernis, 2002).

A related concept to self-esteem stability is *contingent self-esteem*, that refers to the extent to which self-esteem is contingent upon outcomes and achievements (Kernis, 2002). People with contingent self-esteem are afraid of their abilities and of judgments from others. Their levels of self-esteem change depending on success or failure. Contingent self-esteem is also strictly connected to fragile self-esteem: individuals with contingent self-esteem need to be success in order to feel good about themselves (Bos et al., 2006). A further distinction can be made between global contingent self-esteem and domain-specific contingent self-esteem. Individuals with domain-specific contingent self-esteem base their global self-esteem, on outcomes and rewards in certain domains,

such as academics, approval from others, and athletics (Crocker & Wolfe, 2001; Jansen & Vonk, 2005).

Another relevant feature of self-esteem is *implicit self-esteem*. Often self-esteem in children and adolescents is assessed using self-report measures (see Butler & Gasson, 2005; Zeigler-Hill, 2010). These explicit measures of self-esteem refer to conscious perception of the self. Implicit self-esteem is a non-conscious form of self-esteem that is based on automatic self-evaluative processes (Dijksterhuis, 2004; Greenwald & Banaji, 1995). Implicit and explicit self-esteem show weak correlations, suggesting that they refer to two different processes (Baccus, Baldwin, & Packer, 2004; Hoffman, Gawronski, Gschwender, Le & Schmitt, 2005). Implicit self-esteem is linked to lower levels of ambition after failure and seems a better predictor for anxiety during a very subject-focused interview (Bos et al., 2006). Research suggests that early childhood experiences with parents affect levels of implicit self-esteem later in life (DeHart, Pelham, & Tennen, 2006). Individuals who experienced nurturing parents reported moderately high implicit self-esteem, whereas subjects with overprotecting parents displayed relatively low levels of implicit self-esteem. Despite the importance to distinguish explicit from implicit self-esteem and in spite of the unique impact of implicit self-esteem on psychological outcomes, no study has yet examined implicit self-esteem in children and adolescents (Bos et al., 2006).

3.2 FUNCTIONS OF SELF-ESTEEM

Regarding the *functions* of self-esteem, many psychological theories believe that people are motivated to enhance and maintain their self-esteem without further explaining its functional utility (Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004). However, there are other scholars that seek to explain why self-esteem is fundamental for humans (see Crocker & Park, 2004; Leary & Baumeister, 2000). First, in line with the sociometer theory (Leary & Baumeister, 2000; Leary, Tambor, Terdal, & Downs, 1995), humans possess a basic need for belongingness, because social inclusion has many adaptive benefits (e.g., the possibility of sharing knowledge within social groups; see also Baumeister & Leary, 1995; Sowislo & Orth, 2013). This theory sees self-esteem as a sociometer that serves as a subjective monitor of the degree to which a subject is valued as a member of preferred groups and relationships. Thus, when people recognize their relational value as low, their self-esteem should be equally

low, fostering their behavior to increase or restore social inclusion. For example, children easily embrace the views that others, like caregivers and other significant adults, have about them (Leary & MacDonald, 2003). Thus, parents who are positive, responsive and nurturing are likely to build high levels of self-esteem in their children, whereas disapproving, unresponsive and uninterested parents may break down self-esteem levels in their children. In adolescence the link between parenting style and self-esteem is still quite strong, but approval of peers becomes the most important predictor of self-esteem. The sociometer hypothesis has been supported in various studies (e.g., Leary, Haupt, Strausser, & Chokel, 1998; Leary et al., 1995; Nezlek, Kowalski, Leary, Blevins, & Holgate, 1997; Srivastava & Beer, 2005). Furthermore, sociometer theory, posits a process which is consistent with features of the attachment theory presented in the previous chapter. Specifically, according to attachment theory, secure individuals have higher self-esteem than insecure individuals because of their earlier social interaction experiences. For example, securely attached individuals have experienced caregivers who often gave feedback in an effective way at the proper time, which have allowed them to develop feelings of trust and dependence on their caregivers. In addition, they developed a positive self-concept through the stable and predictable feedback from their caregivers, and become able to consider themselves to be lovable, resulting in higher levels of self-esteem. In contrast, children with insecure attachment receive little or unstable feedback from their caregivers. With this unsupportive or unstable situation, children develop a model of other people as untrustworthy and unpredictable and think of themselves as unlovable, resulting in lower self-esteem (Laible, Carlo, & Roesch, 2004; Wu, 2009). Another possible explanation about why self-esteem is fundamental for human beings, is offered by the terror management theory (Greenberg, Pyszczynski, & Solomon, 1986; Pyszczynski et al., 2004). According to this theory, people strive for positive self-evaluations, because self-esteem provides a buffer against the fear of death. Several studies have provided empirical evidence for the anxiety-buffering properties of self-esteem (see Pyszczynski et al., 2004).

The theories mentioned pay greater attention on the interpersonal component of self-esteem, in line with early psychological definition of self-esteem as self-views (e.g., Cooley, 1902; Goffman, 1959; Mead, 1934). Furthermore, both perspectives imply an association between self-esteem and psychological well-being. Terror management theory stated that self-esteem is assumed to buffer against anxiety. From the perspective

of sociometer theory, self-esteem is related to psychological well-being through beneficial aspects of social inclusion (Joiner, 1997; Nolan, Flynn, & Garber, 2003; Stice, Ragan, & Randall, 2004). Attachment theory stated that self-esteem mediates the association between attachment security and psychological health (Kamkar et al., 2012).

3.3 DEVELOPMENT OF GLOBAL SELF-ESTEEM

Whereas the level of global self-esteem is generally high during childhood, it drops when children enter adolescence (Major, Barr, Zubek, & Babey, 1999; Robins, Trzesniewski, Tracy, Gosling, & Potter, 2002). This decrease can be attributed to relevant changes that take place during this phase of transition. As already stated, adolescence is a stressful developmental stage with marked biological, cognitive, social, psychological, and academic changes (Finkenauer, Engels, Meeus, & Oosterwegel, 2002; Robins et al., 2002). First, girls and boys become reproductively mature in early adolescence. Second, they earn the ability for formative thinking. Third, adolescents spend less time with their family members, and spend more time with peers and partners. Therefore, adolescents become vulnerable to feelings of social inadequacy. Finally, during both early and middle adolescence, they experience the transition from elementary school to middle and high school respectively. Huang (2010) proposed that global self-esteem may change when people are going through changes in their lives, and that global self-esteem may increase when people succeed in confronting the developmental challenges of maturation and environmental changes. According to the self-determination theory (Ryan & Brown, 2006), genuine and true global self-esteem develops as a result of the satisfaction of three fundamental human needs for autonomy, competence, and relatedness. Luckily, for most of the adolescents, support provided by significant others, in particular their parents, is quite high and stable during adolescence. Thus, their global self-esteem may also be high and stable during this age period (Huang, 2010). However, some adolescents may not have the support they need, thereby disabling them to deal with developmental challenges in an appropriate way. These adolescents may experience a decrease in their global self-esteem. Block and Robins (1993) reported that although they found no age differences in the mean levels of global self-esteem during adolescence, about 60% of the participants showed either an increase or a decrease in global self-esteem of at least one standard deviation. Baldwin and Hoffman (2002) used growth curve modelling to estimate intra-individual

changes in global self-esteem from early adolescence (age 11 years) to young adulthood (age 21 years). They found that the mean level of global self-esteem changed in a non-linear way during adolescence, and that these changes varied significantly among individuals. Furthermore, Hirsch and DuBois (1991) analyzed longitudinal data from 128 American adolescents aged 12–14 years. Global self-esteem was measured at four points in time within two years, and cluster analysis extracted a four-class solution. They designated the classes "consistently high" (35%), "chronically low" (13%), "steeply declining" (21%), and "small increase" (31%). Zimmerman, Copeland, Shope, and Dielman (1997) replicated this study with 1160 American adolescents aged 11-15 years, and identified four trajectories: "consistently high" (48%), "moderate and rising" (19%), "steadily decreasing" (20%), and "consistently low" (13%). In the study by Deihl, Vicary, and Deike (1997) of American adolescents aged 12–15 years, three distinct trajectories were identified: "consistently high" (47%), "small increase" (37%), and "chronically low" (16%). This findings are consistent with theorizations of adolescence as characterized by identity diffusion and variability (Erikson, 1959; Harter, 1990; Meeus, Iedema, Helsen, & Vollebergh, 1999; Trzensiewski et al., 2006). Research on gender differences in adolescence self-esteem shows that males report higher levels of global self-esteem than females, and that girls to a greater extent than boys report decrease and fluctuation in self-esteem (Baldwin & Hoffmann, 2002; Kling, Hyde, Showers, & Buswell, 1999; Robins et al., 2002; Wilkinson, 2004).

Early correlates of global self-esteem development in adolescence

Body image and social relations may be seen as the strongest sources of self-esteem in adolescence (Birkeland, Melkevik, Holsen, & Wold, 2012). Body dissatisfaction and negative physical appearance seem to be strongly correlated with negative global self-esteem (Donnellan et al., 2007; Harter, 1999; van den Berg, Mond, Eisenberg, Ackard, & Neumark-Sztainer, 2010). Moreover healthy, close and supportive relations with parents, as well as with peers, seem to have a core role in the development of general self-esteem (Huntsinger & Luecken, 2004; Kamkar et al., 2012; Laible et al., 2004; Leary et al., 1995). Furthermore high global self-esteem seems related to participation in physical activity (Biddle, Whitehead, O'Donovan, & Nevill, 2005; Schmalz, Deane, Birch, & Davison, 2007; Seefeldt, Malina, & Clark, 2002; Van der Horst, Paw, Twisk, & Van Mechelen, 2007).

Late correlates of global self-esteem development in adolescence

Referring to outcomes of global self-esteem, Baumeister et al. (2003), Gilman and Huebner (2003) and Swann and colleagues (2007) stated that it is associated with general happiness-related measures such as life satisfaction and depressive symptoms, but to a lesser degree with specific adaptive behaviors. In regard to depressive symptoms, many studies see low levels of general self-esteem as risk factors for depressive symptoms (Lin et al., 2008; MacPhee & Andrews, 2006; Marcotte et al., 2002; Millings et al., 2012; Muris et al., 2001; Negovan, & Bagana, 2011). A step further was done by Orth and colleagues (2008). They analyzed two samples of adolescents between the ages of 15 and 21 years and 18 and 21 years, and found that low global self-esteem predict subsequent levels of depression, but depression did not predict subsequent levels of global self-esteem (Orth et al., 2008). However, it's important to mention also Shahar and Henrich's (2010) work. Following the "scar hypothesis" (Lewinsohn, Steinmetz, Larson, & Franklin, 1981) which suggests that depression might adversely affect personality and the self-concept, they found that in early, but not in mid or late adolescents, depression has an effect on self-esteem. In particular, students with more depressive symptoms presented lower levels of global self-esteem (Shahar & Henrich, 2010).

Furthermore, low level of global self-esteem has been found associated also with other psychological disorders, such as anxiety symptoms (Lee & Hankin, 2009; Muris, Meesters, & Fijen, 2003), somatic complaints (Poikolainen, Aalto-Setala, Marttunen, Tuulio-Henriksson, & Lonnqvist, 2000), and insomnia (Rafferty, Restubog, & Jimmieson, 2010).

CHAPTER 4

An Integrative Model

Before to present the hypothesized structural model, the most important research on the main topics characterizing this research, such as attachment, self-esteem and psychological well-being, are briefly reviewed, in order to offer a more integrated and comprehensive understanding of the model itself and of the stated hypotheses.

Attempts to understand the development of depression and anxiety in adolescence have considered both cognitive and interpersonal approaches. Separately, each approach has contributed to the understanding of the development of such disorders. Cognitive theories (e.g., Beck and colleagues' cognitive-clinical and information-processing models of anxiety, Beck & Clark, 1997; Beck & Emery, 1985) have provided evidence for the influence of negative cognitions in the development of depression and anxiety, whereas interpersonal theories (e.g., Interactional Theory of Depression; Coyne, 1976) emphasize the role of interpersonal processes (e.g., relationships with family and peers). The examination of the interaction between both intrapersonal and interpersonal factors may be carried out referring to an integrative approach that consider both cognitive and interpersonal perspectives. Attachment theory can be seen as an useful integrative approach to understand the development of depression and anxiety in adolescence. The attachment dynamics that develop between infant and caregiver can be used to understand the role of cognitions and expectations of others in an interpersonal context (Lee & Hankin, 2009). Attachment theory has assumed a core role in this study. Good quality of attachment relationships has been considered as a protective factor for psychological well-being. Moreover it has been reported that "secure" attachment relationships promote aspects of self-esteem in adolescence. Both parental and peers attachment relationships were considered in this study.

Supportive and close relationships with both parents and peers are fundamental during this phase of transition because serve attachment needs. Adolescents turn to their friends more often for emotional support, during times of stress, than children (Furman

& Buhrmester, 1992; Nickerson & Nagle, 2005). However adolescents still rely on the support of parents (Hazan & Zeifman, 1999). In specific, mother resulted to be the preferred figure, especially for adolescent girls, to turn to in times of stress (Markiewicz et al., 2006; Youniss & Smollar, 1985).

Moreover, girls in general, seem to rate attachment to parents higher than do boys (e.g., Benson, Harris, & Rogers, 1992; Papini, Roggman, & Anderson, 1991). Newman (1989) confirmed that mothers and daughters became increasingly close whereas mothers and sons became increasingly distant. Conversely, Youniss and Smollar (1985) as well as Lieberman and colleagues (1999), found that mother–son relationships do not become more distant during adolescence but adolescent girls reported feeling more distant, uncomfortable, and withdrawn from their fathers and felt that their fathers did not meet their emotional needs. Rice, Cunningham, and Young (1997) proposed a gender identification or "allegiance" effect, for which maternal relationships are more influential for girls and paternal relationships are more influential for boys. Rice and Mulkeen (1995) found that while there were similar levels of mother and father attachment with adolescents, different patterns of intimacy in maternal and paternal relationships developed over time. Thus mixed findings were found for either a same or opposite sex bias with regard to adolescent-parent attachment quality. However, a number of studies have not found significant differences between girls and boys considering the overall parental attachments (e.g., Greenberg, Siegel & Leitch, 1983; Kenny & Gallagher, 2002; Papini et al., 1991; Raja, McGee, & Stanton, 1992).

Paterson, Field and Prior (1994) found that while females continue to refer to their mothers for support in late adolescence, males decreased their reliance on mothers for support and proximity. Papini et al. (1991), however, found that as girls mature they perceive less closeness to both parents while boys actually feel closer to mothers and less attached to fathers. Others have shown that from middle adolescence, girls perceive their fathers as less available than do younger girls, and report being less dependent on their fathers than mothers (Lieberman et al., 1999). A Dutch study of mid-adolescents found that the relationship between girls and parents was less positive and had greater negative consequences for psychological well-being than for males (van Wel, Linssen, & Abma, 2000). Referring to relationships with peers, increased levels of peer attachment were reported by older adolescents and girls. Mid adolescents reported higher levels of peer attachment than younger adolescents, supporting the idea that as adolescents growth, attachment networks begin to increase beyond the immediate

family (Wilkinson, 2006). Moreover, higher levels of peer attachment were found in girls than boys (Armsden & Greenberg, 1987; Laible et al., 2004; O'Koon, 1997; Song et al., 2009; Wilkinson, 2004). This gender difference remained stable during the years, suggesting that girls did not become differentially more oriented towards peers than boys. Furthermore, the increase in peer attachment did not appear to be associated with the decrease in parental attachments: older adolescents, although reporting higher levels of peer attachment, did not present lower levels of parental attachment (Wilkinson, 2004, 2006). This result is line with the continuity/cognitive models which stated that the relationships with peers are an extension of the form and quality of relationship that has developed within the family.

A relevant issue related to attachment is its role as an indicator for the well-being in adolescence, specifically for depression and anxiety symptoms.

As already presented in the first chapter, epidemiological studies reported a medium-low prevalence rates for depression in early adolescence and an increasing on prevalence rates from middle adolescence (around 15 years old) (Bonhert et al., 2008; Cohen et al., 1993; Costello et al., 1996; Ge et al., 2001; Hankin et al., 1998; Kandel & Davies, 1982). Moreover during adolescence, gender differences start to increase, with girls reporting higher depressive symptoms than boys (Angold et al., 1998; Kessler et al., 1993; Marcotte et al., 2002; Lee & Hankin, 2009). In regards to anxiety disorders, their prevalence rates slightly decreased from early to middle-late adolescence (Hale et al., 2008; Twenge & Nolen-Hoeksema, 2002). Referring to gender differences, all anxiety disorders affect more frequently girls than boys (Costello et al., 2003; Craske, 2003; Pine et al., 1998; Wittchen et al., 1998).

Focusing on the link between attachment and psychological well-being, the role of good quality of attachment as protective factor for the development of anxiety and depression, is well-known. Several studies reported that lower levels of mother, father and peer attachment were associated with increased depressive and anxiety symptoms (Doyle et al., 2003; Wilkinson, 2004; Wilkinson, 2006; Wilkinson & Walford, 2001). However, a more relevant question concerns the different impact that mother, father and peers play on adolescent adjustment. Allen, Hauser, Bell, and O'Connor (1994) found that fathers have a greater impact on adolescent well-being than mothers. Kenny, Lomax, Brabeck and Fife (1998) found that both maternal and paternal attachment contributed equally to longitudinal changes in psychological well-being for males, but not for females. Furthermore, while some authors have evaluated the role of peer

attachment relationships and concluded that they are more important than parental relationships for adolescent well-being (e.g., Laible et al., 2000), others have argued that the quality of parental attachments remain significant for adolescent health (Raja, et al., 1992). As example, lower levels of parental attachment relationships were found in depressed adolescents, compared to a nondepressed psychiatric control group, a nonpsychiatric control group, and a group of adolescence with resolved depression. Referring to peer attachment, results showed significantly lower scores only for the nonpsychiatric group (Armsden et al., 1990). Wilkinson and Walford (2001), found that, after controlling for parental attachment, peer attachment had no significant effect on psychological well-being. In general, researchers have found that problematic interpersonal relationships are more closely tied to depression in girls than in boys (Hankin & Abrahmson, 2001; Rudolph et al., 2001). Thus, findings of the research on parental and peer relationships seem somewhat contradictory and while it has often been stated that peer attachment relationships are as salient as parental attachment relationships to adolescent development, adjustment, psychological health and self-esteem, the empirical data seems puzzled, especially in regard to self-esteem (Armsden & Greenberg, 1987; Batgos & Leadbetter, 1994; Goosens, Marcoen, van Hees, & van de Woestijne, 1998; Wilkinson, 2004).

Self-esteem in the third theoretical construct considered in this work. Research suggests that self-esteem destabilizes during adolescence, such that there is a drop in self-esteem in early adolescence and a recovery between mid- and late adolescence (Baldwin & Hoffman 2002; Block & Robins 1993; Kort-Butler & Hagewen, 2011; Orth, Robins, & Widaman, 2012; Orth, Trzesniewski, & Robins, 2010; Quatman & Watson 2001; Trzesniewski, Donnellan, & Robins, 2003). Considering gender differences, higher levels of self-esteem have been found in boys than girls (Trzesniewski et al. 2003; Twenge & Campbell, 2001).

Although Paterson and colleagues (1995), focusing on the correlations between parental and peer attachment and self-esteem, found almost no relationship between peer attachment and self-esteem, and only a modest correlation between mothers and fathers attachment and self-esteem, the association between attachment relationships and self-esteem is well-established in the literature (Brennan & Bosson, 1998; Brennan & Morris, 1997; Fass & Tubman, 2002; Laible et al., 2004; Park, Crocker, & Mickelson, 2004; Roberts, Gotlib, & Kassel, 1996). However, as for the psychological well-being, many researchers have focused on the different role that parents and peers may have in

the development of self-esteem. Song and colleagues (2009) in a study on non-western countries found that for adolescents in middle school, the quality of maternal attachment was the most important predictor of self-esteem, while for high school students (both girls and boys), both maternal and paternal attachments were significantly associated with levels of self-esteem. Greenberg and colleagues (1983) examined the influence of parental and peer attachments during this phase of challenges. They developed a specific measure to assess parental and peer attachment in adolescence (the Inventory of Adolescent Attachments). Results from their works showed that the quality of both parental and peer attachments were predictor of self-esteem and life-satisfaction (Armsden & Greenberg, 1987; Greenberg et al., 1983). However, peer attachment was more highly related to self-esteem than to life-satisfaction, whereas parental attachment was equally related to both, even if the considered samples were very small. Cotterell (1992) found that peer attachment showed a stronger correlation with self-esteem and general self-concept than parental relationship. Laible and colleagues (2004), as well as Noom and colleagues (1999) found that parental attachment quality was more influential than peer attachment in predicting adolescent self-esteem. McMahon and Wilkinson (2004) found that mother, father and peer attachments were all significant predictors of self-esteem, in specific the most influential contribute was given by peer attachment, followed by mother attachment and father attachment. Raja and colleagues (1992) and Wilkinson (2004) argued that the quality of relationships with both parents and peers had a core role for the development of positive self-esteem. Wilkinson (2006) considering younger (14 to 16.49 years) and older (16.5 to 18.5 years) adolescents, found that peer attachments had a similar and significant influence on self-esteem for both age groups. The influence of maternal attachment on self-esteem was more important for younger than older adolescents, as well as for paternal attachment. Thus father attachment was a significant predictor of self-esteem for younger adolescents but not older adolescents. Moreover, while gender allegiance has not emerged when just considering the mean levels of parental attachments, maternal attachment ratings had a greater influence on girls self-esteem and paternal attachment had a greater influence on boys self-esteem. Similar results were reported in regards to attachment and depressive symptoms. Peer attachment was found a significant predictor of self-esteem for both girls and boys but was also a significant predictor of depression for girls but not boys.

Furthermore, the relation between self-esteem and depression, has been conceptualized as self-esteem both a causal (e.g. the vulnerability model; Roberts, Kassel, & Gotlib,

1995) and an effect (e.g. the scar model; Kistner, Ziegert, Castro, & Robertson, 2001) of depression. A growing body of longitudinal studies suggests that low self-esteem prospectively predicts depression (e.g., Kernis et al., 1998; Orth, Robins, & Meier, 2009; Orth et al., 2008; Orth, Robins, Trzesniewski, et al., 2009; Roberts & Monroe, 1992). Following Sowislo and Orth's (2012) recent meta-analysis as well as findings from longitudinal studies on this topic, in this study self-esteem is thought to have a causal role for the development of depressive symptoms. In line with this perspective, several studies have reported how low levels of self-esteem are associated with higher symptoms of anxiety and depression (Evraire & Dozois, 2011; Hammen, 2005; Joiner, 2000; Millings et al., 2012; Morley & Moran, 2011; O'Brien, Bartoletti, & Leitzel, 2006; Orth et al., 2008; Roberts, 2006). Although the mean levels of self-esteem and depression vary as a function of gender (Hyde, Mezulis, & Abramson, 2008; Kling et al., 1999) and age (Kessler, Foster, Webster, & House, 1992; Lewinsohn, Rohde, Seeley, & Fischer, 1991; Orth et al., 2012; Orth et al., 2010; Robins et al., 2002), no differences on gender and age were found on the structural relations between self-esteem and depression (Sowislo & Orth, 2012). Sowislo and Orth (2012) data were consistent with the findings from previous studies that suggested that the vulnerability effect of low self-esteem on depression held across gender (Orth et al., 2008; Orth et al., 2009) and replicated across age groups from young adolescence to old age (Orth et al., 2009; Shahar & Henrich, 2010). From a theoretical perspective, the evidence that the effect of low self-esteem on depression is independent from gender and age is consistent with the vulnerability model, which states that low self-esteem is a global risk factor for depression.

Conversely, the relation between self-esteem and anxiety has only rarely been studied (Roberts, 2006). This study embraces the theories which postulate that self-esteem serves as a buffer against anxiety (see Crocker & Park, 2004). Cross-sectional studies have reported negative, medium-sized to strong correlations between the constructs (Lee & Hankin, 2009; Riketta, 2004; Watson et al., 2002). However, no longitudinal study were found that has focused on the prospective relation between self-esteem and anxiety. Furthermore no studies were found reporting age and gender differences on the relation between self-esteem and anxiety.

Following a more comprehensive perspective, several studies have focused their attention on the relations that these constructs (parental and peer attachment relationships, self-esteem, depression, and anxiety) have with each others. As example,

Wilkinson and Walford (2001), proposed a model from which, after controlling for parental attachment, peer attachment had no significant effect on psychological well-being. They justify this result showing that self-esteem/self-concept mediated the role of peer attachment on psychological well-being. However, equivocal results come from several research. Noom et al., (1999) examined the relationships between maternal, paternal, peer attachment, self-esteem and depression in a sample of adolescents. Results displayed that maternal and paternal attachments were more strongly related to self-esteem than was peer attachment and the results of the multiple regression analyses showed that peer attachment was not a significant predictor of self-esteem but was a significant predictor of depression. Wilkinson (2004), examined the role of parental attachment, peer attachment, perceived community problems, self-esteem, and psychological health on two different samples of adolescents. Wilkinson (2004) in his model found that the effect of peer attachment on depression was entirely mediated by self-esteem. Moreover, contrary to expectations, the quality of parental attachment on psychological well-being showed a weak direct effect. Thus, the primary effect of parental and peer attachments was on self-esteem rather than directly on psychological well-being. These results underlined the role that the quality of relationships plays in the construction of the self-identity. Furthermore, the data demonstrated that the quality of the attachment relationship with parents influences the quality of peer attachment relationships, in line with the internal working model perspective.

Before to conclude, other researchers have focused on these three constructs, moving the focus from the attachment relationships with parents and peers to individuals' specific patterns of attachment. As already mentioned, four main patterns (or styles) of attachment can be described: secure, dismissing/avoidant, preoccupied/anxious and unresolved/disorganized. Huntsinger and Luecken (2004) in their study on 793 late adolescents, found that those with secure attachment styles participated in healthier preventive health behavior and had higher self-esteem than those with insecure styles. Kamkar and colleagues (2012) on a sample of 140 adolescents with mothers or fathers presenting depressive symptoms, found that anxious attachment to mother was associated with depressive symptoms for girls ant it was fully mediated by the effect of self-esteem and maladaptive attributions for negative events. Lee and Hankin (2009) in a 4-way prospective study on 350 adolescents, found that anxious and avoidant attachment predicted changes in both depression and anxiety (after controlling for initial symptom levels). Only the association between anxious attachment and later

psychological disorders (depressive or anxiety symptoms) was mediated by dysfunctional attitudes and low self-esteem.

4.1 THE PRESENT STUDY

This study is designed to address the issues outlined above. The main purpose of the study is to examine, for early and mid-adolescents separately, some of the most significant risk factors for depressive and anxiety symptoms among a group of common predictors, and possible mediational variables. Specifically, the study presented here seek to clarify the roles of mother, father and peer attachment in the psychological health and adjustment of adolescents. A key issue to be considered is the different relationships that mother, father, and peer attachment may have with regard to self-esteem and how these differences then impact on psychological health. Since the literature shows that symptoms of depression and anxiety have different trends during adolescence (see Lee & Hankin, 2009), as well as attachment relationships (1) early adolescent and adolescents are considered as separate samples, and (2) depression and anxiety are considered as different psychological disorders, in line with Angold and Costello (2008). Thus in this study, a structural model is carried out to assess (1) depressive symptoms in early adolescence, (2) depressive symptoms in mid-adolescence, (3) anxiety symptoms in early adolescence, and (4) anxiety symptoms in mid-adolescence. Furthermore, gender differences are also taken into account.

To test the theoretical constructs listed above, four self-report measures were selected and administered to both early and mid-adolescents. The Inventory of Parental and Peer Attachment (IPPA; Armsden & Greenberg, 1987, 1989; Greenberg et al., 1983) was administered to assess attachment relationships respectively to mother, father and peers; the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965) was used to evaluate self-esteem, the Children's Depression Inventory (CDI; Kovacs, 1992) and the Spence Children's Anxiety Scale (SCAS; Spence, 1997) were selected to measure depressive and anxiety symptoms respectively (for a more detailed description of these measures please see the Method Section).

However, a preliminary step to the main purpose was to examine the psychometric properties of the selected measures. Although all these measures have been already translated in Italian, data on reliability and validity as well as normative data, specific for Italian early and mid-adolescents are somehow lacking.

Thus, the questions to be addressed and hypotheses to be tested in this study are:

Question 1: Does IPPA, RSES, CDI, and SCAS present good psychometric properties for both early and mid-adolescent samples?

Structural validity (confirmatory factor analysis) and reliability (Cronbach's alpha; Cronbach, 1951) are investigated. For each measure, confirmatory factor analyses (CFAs) are carried out on three different models rising from theoretical and empirical studies. For clarity purpose the factor models analyzed for each measures are discussed in the method section and briefly summarized in the results section. One of the most important ways to assess the adequacy of a CFA lies with successful cross-validation (Browne, 2000; Brownw & Cudeck, 1983; Cudeck & Browne, 1983; Leak, 2011). Roth, Decker, Yorck Herzberg, and Brähler (2008), recommend to use this procedure to confirm the goodness of fit criteria for the tested models. Floyd and Widaman (1995) stated that "cross validation is desirable for both exploratory and confirmatory solutions." (p. 295). Moreover, cross-validation is useful to avoid Type III errors (Immekus & Imbrie, 2010; Yuan, Marshall, & Weston, 2002). Thus, the cross-validation procedure is adopted in order to confirm the adequacy of the CFAs and to avoid Type III errors.

It is hypothesized that all the measures evidence factor structure with good fits for both samples and show high internal consistency (Di Riso, Chessa, Bobbio, & Lis, 2012; Di Riso et al., 2010; Pace, San Martini, & Zavattini, 2011; Poli, Sbrana, Marcheschi, & Masi, 2003; Schmitt & Allik, 2005).

Question 2: Do Italian early adolescents and mid-adolescents report different scores on the major variables of interest?

In the first stage of the analysis the means and standard deviations of the total scores and subscales of the selected measures for the total sample and for early and mid-adolescents are reported. This stage would be aimed to fill the gap found in the literature, offering normative data referring to Italian adolescents, and more specifically to Italian early and mid-adolescents, taking into account the age-related specificity that characterize these sub stages of development. Thus, in the second stage, age-related differences are assessed. Following the continuity/cognitive models for attachment relationships, it is hypothesized that attachment to mother and father do not show any significant decrease from early to mid-adolescence. However a significant increase in peer attachment it is expected for mid-adolescents (Wilkinson, 2004, 2006). Moreover higher levels of depression are expected in mid-adolescence (Bonhert et al., 2008;

Cohen et al., 1993; Costello et al., 1996; Ge et al. 2001; Hankin et al. 1998; Kandel & Davies, 1982). Conversely, higher levels of anxiety symptoms are hypothesized in early adolescents (Hale et al., 2009; Twenge & Nolen-Hoeksema, 2002). Higher levels of self-esteem are expected in early adolescents than in mid-adolescents (Robins, et al., 2002).

Question 3: Do boys and girls report different scores on the major variables of interest?

Gender differences in regards to scores reported for attachment, self-esteem and psychological adjustment are tested. In general it is hypothesized that girls rate attachment to parents higher than boys (e.g., Benson, Harris, & Rogers, 1992; Papini et al., 1991). Following the "allegiance" effect postulated by Rice and colleagues (1997), girls are expected to show higher levels of relationships to mothers whereas boys are expected to show higher levels of security to fathers. Moreover higher levels of peer attachment are hypothesized in girls (Armsden & Greenberg, 1987; Laible et al., 2004; O'Koon, 1997; Song et al., 2009; Wilkinson, 2004). Furthemore, girls are expected to score higher than boys also for symptoms of depression and anxiety (Angold, et al., 1998; Costello et al., 2003; Craske, 2003; Kessler et al., 1993; Marcotte et al., 2002; Lee & Hankin, 2009; Pine et al., 1998; Wittchen et al., 1998). Conversley, it is hypothesized that boys present higher level of self-esteem than girls (Block & Robins, 1993; Kling et al., 1999; Major et al., 1999).

Question 4: Are mother, father and peer attachment related with internalizing problems, such as depressive or anxiety symptoms? Does self-esteem play a role too ?

Correlations between the total score of each measure are carried out to explore the link between the selected theoretical constructs. It is hypothesized that the three forms of the attachment security (IPPA) present significant and positive correlations (Pace et al., 2011; Wilkinson, 2006). Moreover attachment security is expected to negatively correlate to psychological maladjustment (SCAS and CDI) (Doyle et al., 2003; Kenny et al., 1998; Kamkar et al., 2012; Wilkinson, 2006). Moderate correlations are expected between anxiety (SCAS) and depressive (CDI) symptoms (Angold & Costello, 2008). In line with several previous studies, significant correlations are expected between self-esteem and attachment security (Bartholomew & Horowitz, 1991; Brennan & Bosson, 1998; Brennan & Morris, 1997; Collins & Read, 1990; Griffin & Bartholomew, 1994; Park et al., 2004; Roberts et al., 1996) Further it is hypothesized that early adolescents' self-esteem (RSES) shows a stronger association with parental than peer attachment.

Conversely, a stronger association between self-esteem and peer attachments it is expected during mid-adolescence (Cotterell, 1992; Laible et al., 2004; Noon et al., 1999). Significant negative correlations are hypothesized between self-esteem and psychological maladjustment (Fennel, 2004; MacPhee & Andrews, 2006; Millings et al., 2012; Muris et al., 2003; Neiss, Stevenson, Legrand, Iacono, & Sedikides, 2009)

Question 5: How mother, father, and peer attachment contribute to psychological well-being in early and mid-adolescence? Have mother, father and peer attachment a different role in the development of internalizing problems, such as depressive or anxiety symptoms? Which is the role of self-esteem?

A structural model it is hypothesized to answer to this question (Figure 3). For clarity purpose although depressive and anxiety symptoms are assessed separately, are here represented together as "maladaptive behavior".

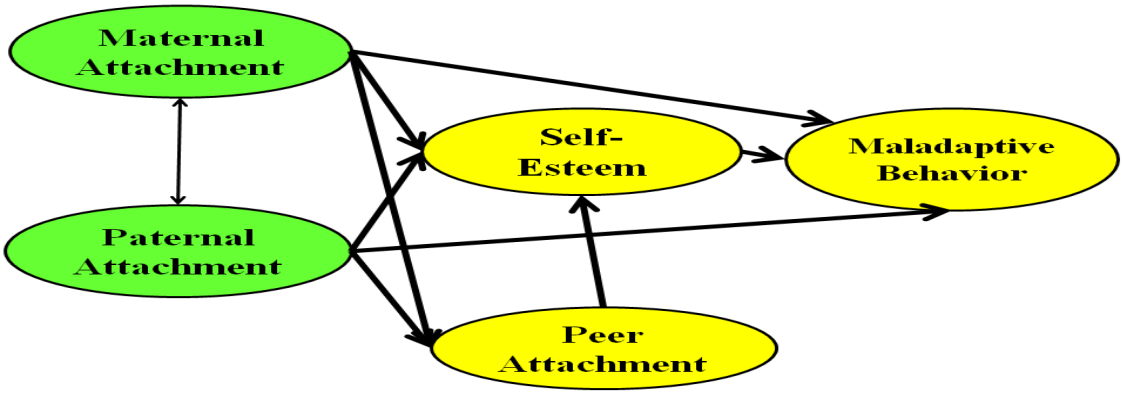

Figure 3. The hypothesized model.

First of all, it is hypothesized that the quality of maternal and paternal attachment have a direct and positive influence on the quality of peer attachment (Figure 4) reported by early adolescents and adolescents (Wilkinson, 2004, 2006).

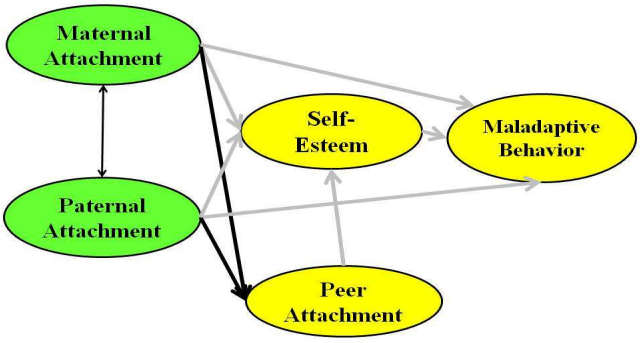

Figure 4. Direct effect of maternal and paternal attachment on the quality of peer attachment.

Moreover it is hypothesized that mother and father attachment have a direct and positive influence on psychological health outcomes (Figure 5) (Doyle et al., 2003; Kenny et al., 1998). It is expected that adolescents with higher levels of maternal and paternal attachment report decreased levels of psychological symptoms (anxiety and depressive symptoms) compared to those with lower levels of maternal and paternal attachment (Van Eijck, Branje, Hale, & Meeus, 2012; Viana & Rabian, 2008; Wilkinson, 2004). Referring to Wilkinson and Walford (2001) and Wilkinson's (2004) findings, no direct path it is hypothesized between peer attachment and psychological health. As suggested by several authors, the quality of parental and peer relationships impacted on different aspects of adolescent psychological well-being (Barrera & Garrison-Jones, 1992; Gore, Aseltine, & Colten, 1993; McFarlane, Bellissimo, Norman, & Lange, 1994; Sheeber, Hops, & Davis, 2001). Whereas positive parental attachment was directly associated with a decreasing in depressive symptoms and an increasing in self-esteem, self-esteem fully mediated the relationship of peer attachment to depressive symptoms (Wilkinson, 2004).

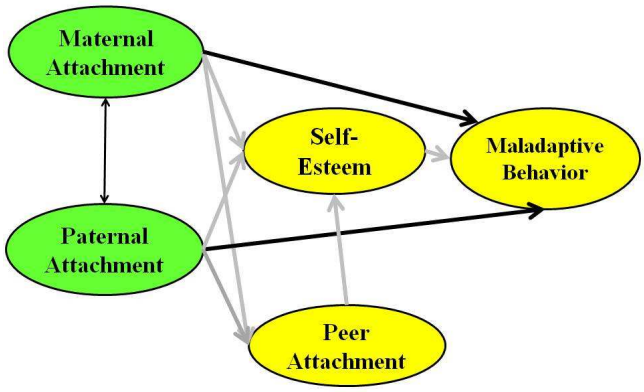

Figure 5. Direct effect of maternal and paternal attachment on health outcomes.

Furthermore, in accordance to the attachment theory and previous empirical findings (e.g., Brennan & Bosson, 1998; Park et al., 2004; Rice, 1990), it is hypothesized that mother, father, and peer attachment have a direct and positive influence on early and mid-adolescents' self-esteem.

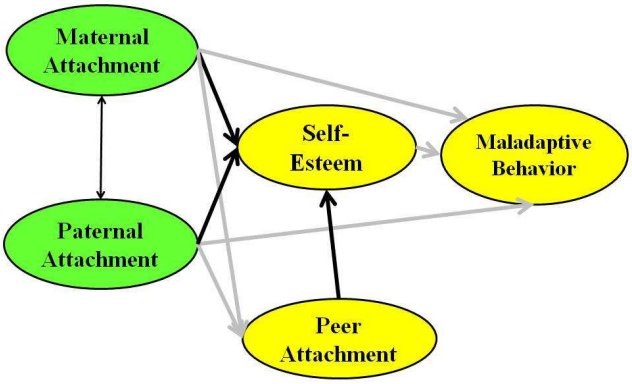

Figure 6. Direct effect of maternal, paternal and peer attachment on self-esteem.

Moreover, according to previous studies, it is hypothesized that self-esteem would assume the mediator role between attachment and psychological maladjustment in the model (Kamkar et al., 2012; Lee & Hankin, 2009; Wilkinson, 2004, 2006).

Part II

THE RESEARCH

CHAPTER 5

Method

5.1 PARTICIPANTS

Thirty-eight schools were contacted to participate in this study, out of which nine middle and twenty high schools agreed to participate. This represents 76% response rate for schools. Schools were recruited all over Italy with a prevalence of schools from North-East (48%). A total of 3046 students were available and were invited to participate. Parents of 2254 youth (73.99%) provided active written consent; all 2254 youth were willing to participate. Of this group, 2216 youth (98.31% of the 2254; 72.75% of the 3046 available students) completed the questionnaires, and the remaining 38 were either absent from school, and were unable to reschedule the administration, or failed to complete portions of their materials. To minimize attrition practical measures were adopted (Boys et al., 2003; Epstein & Botvin, 2000; Stephens, Thibodeaux, Sloboda, & Tonkin, 2007).

Youth's age range was 10 to 19 years (M=14.27, Sd=2.47), 1084 (48.9%) were male and 1132 (51.1%) were female. All the participants identified themselves as White and belonged to a medium socio-economical status (Hollingshead, 1975). The sample was divided into two age-group for data analysis, considering Italian levels of schooling (see Table 1). The first, constituting the early adolescent or middle school student group, was aged between 10 and 13 (M=12.08, Sd=.94) and comprised a total of 1078 (486 male, 592 female) participants. The second group was aged between 14 and 20 years (M=16.34, SD=1.48) and comprised a total of 1138 (598 male, 540 female) high school students.

Table 1.
Descriptive statistics for the early and mid-adolescent samples

	Early Adolescents	**Mid-Adolescents**
Total (%)	1078 (48.6)	1138 (51.4)
Male (%)	486 (45.1)	598 (52.5)
Female (%)	592 (54.9)	540 (47.5)
Mean age (Sd)	12.08 (.98)	16.34 (1.48)
Age range	10-13	14-19

The Strength and Difficulties Questionnaire (Goodman, 1997) was administered to adolescents to screen for nonclinical sample. Potential participants were excluded if they report scores on the SDQ falling in the clinical range. Results were compared to Mellor (2005) normative data on adolescents and to Di Riso et al., (2010) who validated the SDQ on Italian children. Table 2 reports means and standard deviations for both the early and mid-adolescents sample with the borderline and clinical cuts off suggested by Mellor (2005). The results of the Student T-test confirmed that participants did not meet the exclusion criteria.

Table 2.
Means, standard deviation and clinical cut off, for the SDQ total score and subscales according to age-groups (N=2216)

	Early adolescents (*n*=1078)		**Mid-adolescents** (*n*=1138)		**Borderline** (*N*=53) >11 yrs	**Clinical** (*N*=53) >11 yrs
	M	*SD*	*M*	*SD*		
Total Difficulties	11.09	5.68	11.13	5.28	16	≥20
Internalizing Problems	4.39	2.94	4.33	2.95		
Externalizing Problems	4.95	2.96	4.88	2.59		
Prosocial Behavior	8.91	1.96	8.97	1.73	5	≤4
Emotional Symptoms	2.97	2.23	3.02	2.29	6	≥7
Conduct Problems	2.45	1.81	2.49	1.66	4	≥5
Hyperactivity -inattention	3.51	2.03	3.59	1.94	6	≥7
Peer-problem	2.16	1.87	2.03	1.81	4-5	≥6

As a part of cross-validation, both samples included in the analysis were first stratified by gender and grade and then randomly split into two subsamples to create a calibration sample (60%) and a validation sample (40%). The early adolescents calibration sample comprehend 651 students, whereas 427 were included in the validation sample. The mid-adolescents calibration sample was constituted of 700 students, while the validation sample included 438 students.

5.2 PROCEDURE

After school consent, the project was briefly described to students during school hours. Letters describing the study to parents were sent home with the students. In specific, students and parents were told that this study was about feelings and experiences in youth and it would require completion of questionnaires during school hours. Written consent was required from parents, and oral consent from students. Permission to conduct this investigation was provided by the school principals and individual classroom teachers. Ethical approval for the study was obtained from the local institutional committee (University of Padova) and it was conducted in compliance with the ethical standards for research of the American Psychological Association (2010).

Data were collected throughout group administration including about 20-25 students. Data collection for each group was organized in one session (about 120 minutes) during a morning regular class arranged at the teacher's convenience. In most cases, nonparticipants left the classroom during the test administration, although in a few instances, nonparticipating students remained in the classroom during the administration and worked silently on other materials. Participants completed self-report measures of attachment, self-esteem, depressive and anxiety symptoms. Clarifications were provided whenever requested throughout the process. Participants didn't receive any monetary compensation for their participation. Seminars were offered to students and parents to present and discuss the general results.

5.3 MEASURES

5.3.1 Inventory of Parental and Peer Attachment

As suggested by Wilson and Wilkinson (2012) the Inventory of Parental and Peer Attachment (IPPA; Armsden & Greenberg, 1987) is the most utilized measure of attachment relationships in adolescence. According to Bowlby's attachment theory, the IPPA was ideated for individuals between 9 and 20 years old, to measure the affective-cognitive dimension of attachment to parents and close friends. So, it refers to the adolescent's representation of the attachment bond to the main important attachment figures, seen as source of psychological security and well-being for the individual. The IPPA is scored on a five-point scale ranging from 'Almost always or always true' to 'Almost never or never true'. Participants are asked to read the statements about their feelings about their mother/father or the person who has acted as their mother/father and to answer the questions for the one their feel has most influenced their life. They has to read each statement and circle the number that tells how true the statement is for them now. Similar instructions are given for the peers form. It takes about 30-40 min to fill in. The overall attachment security scores can be calculated, after reversing the negatively-worded items and the items belonging to the alienation scale, adding up the trust, communication and alienation scores. The original version (Greenberg et al., 1983) contained two forms to assess attachment security towards parents (28 items) and peers (25 items). Later, Armsden and Greenberg (1987), arguing that one factor was not enough to describe the complex construct of attachment, added few items in both forms (3 items in the parental version and 4 items in the peers one). They carried out an exploratory factor analysis (EFA) on 179 college students (M=18.9). The authors predicted to find two different factors, one linked to a "positive affective/cognitive experience of trust in the accessibility and responsiveness of attachment figures" and one referring to ''negative affective/cognitive experiences of anger and/or hopelessness resulting from unresponsive or inconsistently responsive attachment figures'' (Armsden & Greenberg, 1987, p. 431). However, considering the criterion of eigenvalues greater than 1, they extracted (and rotated orthogonally) three factors, psychologically meaningful, in both versions. Regarding the parental form, the first factor extracted was called "trust" and it was interpreted as "parental understanding and respect and mutual trust" (e.g. Item 21: When I am angry about something, my mother tries to be understanding), the second factor was "communication" and it was read as "the extent

and quality of verbal communication with parents"(e.g. Item 16: I tell my father about my problems and troubles), and the third (alienation) was interpreted in terms of "feelings of alienation and isolation" (e.g. Item 23: My mother doesn't understand what I'm going through these days). Referring to the peer form, the first factor (trust) was read in terms of "mutual respect and trust" (e.g. Item 19: I can count on my friends when I need to get something off my chest), the second (communication) as "perceived quality of communication"(e.g. Item 25: If my friends know something is bothering me, they ask me about it), and the third (alienation) in terms of "alienation from friends, but with the recognition of the need to be closer to them" (e.g. Item 11: I feel alone or apart when I am with my friends) (Armsden & Greenberg, 1987, p. 433). Strong correlations between the subscales were found in both forms, ranging from $|r|$=.70 to $|r|$=.76 for the parental form, and from $|r|$=.40 to $|r|$=.76 for the peer form. Considering these results, the authors themselves mainly referred only to the overall attachment security scores and not to the three subscales. In 1989, Armsden and Greenberg, presented a revised version of the inventory, in which the parental form was split in two identical forms referring to mother and father separately. This versions contains 75 items, 25 about the relationship with the mother, 25 with the father, and 25 regarding the relationship with peers. Many authors (e.g. Buist et al., 2004; Pace et al., 2011; Paterson et al., 1994; van Eijck et al., 2012) adopted and recommended using the revised version of the inventory in order to be able to differentiate between the roles of mother, father and close friends. In a recent study, Johnson, Ketring, and Abshire (2003), analyzed the responses of a small group of adolescence (N=89, mean age=14.3 years old), to the paternal and maternal forms of IPPA through a confirmatory factor analysis (CFA). Results showed bad fit for the three factor model in both cases. So Johnson and colleagues (2003), carried out EFA, using a scree test to determine the number of factors and the oblique rotation of the factor axes. They found for both forms two factors that interpreted as trust (mainly including items originally labeled as trust and communication) and alienation. In another study (N=289, mean age=14.6 years old), Vignoli and Mallet (2004), run EFA on the item in the maternal and paternal forms, imposing on both analyses a three-factor solution with orthogonal rotation. In both form, the extracted factors appeared to correspond only partially to the three subscales proposed by Armsden and Greenberg (1987). More recently, Pace and colleagues (2011), in a sample of 1059 adolescents between 13 and 18 years old (M=15.66, Sd=1.59), compared the one-factor model (attachment security; Greenberg et al., 1983), the two-factor model

(trust–communication and alienation; Johnson, et al., 2003), and the three-factor model (trust, communication and alienation; Armsden & Greenberg, 1987) using CFA. The three factor model showed the best fit, although the three dimensions were strongly interrelated. Nowadays is still unclear whether it would be preferable to refer to one, two or three dimensions within the global construct of attachment, keeping in mind that this tool was originally designated to capture the complexity of attachment by identifying its different components. As both the author of the IPPA and Vivona (2000) suggested, the three dimensions model is useful to assess individual differences on attachment patterns. In specific, individuals who reported high levels of trust and communication with lower level of alienation are described as securely attached; individuals with medium or low level of trust, low level of communication and high level of alienation are described as insecure-avoidant. Insecure-ambivalent attachment pattern is characterized by medium or low level of trust, and medium or high scores on communication and alienation.

The internal consistency (Cronbach's alpha) for the revised form of the IPPA was .87 for mother attachment, .89 for father attachment, and .92 for peer attachment (Greenberg & Armsden, 2009). San Martini, Zavattini, and Ronconi (2009) on a 789 adolescent between 13 and 18 years old (M=15.96), found a Cronbach's alpha reliability for overall scales and subscales of the three forms, ranging from .64 to .94. Similar results were reported by Baiocco, Laghi and Paola (2009), in a sample of adolescents between 15 and 19 years old (M=17; Sd=1.41). They found Cronbach alphas ranging from .83 to .93 for mother and father and from .64 to .92 for peers version. Test-retest variability was calculated by Armsden and Greenberg (1987, 1988) on 27 adolescents between 10 to 20 years of age, using the two forms version (parent and peers). The reliability was .93 for parent attachment and .86 for peer attachment, over a three week period. Regarding the convergent validity of the parent version in a sample of late adolescents it was moderately to highly related to Family and Social Self scores from the Tennessee Self Concept Scale and to most subscales on the Family Environmental Scale (Armsden & Greenberg, 1987). Considering adolescents between 12 to 18 years, the parental attachment form resulted to be moderately to highly correlated with scores on the FACES, and the degree of positive family coping (communication among family members and relatives concerning problems) (Lewis, Woods, & Ellison, 1987). Baiocco and colleagues (2009) found moderate to high correlations with the Parental Bonding Instrument (PBI; Parker, Tupling & Brown, 1979), the Parental Attachment

Questionnaire (Lopez & Gover, 1993), and the Multi-dimensional questionnaire for Adolescents (QMA; Baiocco, Couyoumdjian & Del Miglio, 2005). Gullone and Robinson (2005), using a revised version of the IPPA (parent and peers versions on a three-point scale), found similar results for the PBI considering children (*n*=118; age *M*=9.97, *Sd*=0.72) and early adolescents (*n*=163; age *M*=14.16, *Sd*=0.37).

Referring to peer attachment, it was positively related to social self concept as assessed by the Tennessee Self Concept Scale and family expressiveness on the Family Environment Scale, and was strongly negatively correlated with loneliness. It was low to modestly correlated with the QMA (Baiocco et al., 2009). Peer attachment was modestly correlated with parent attachment as assessed by the IPPA as well as measures of general family functioning and self concept as family member (Armsden & Greenberg, 1987; Lewis et al., 1987). Baiocco and colleagues (2009), confirmed the modest correlation between peer attachment and parent attachment.

Scores on the IPPA have also been found to be associated with a number of personality variables. Among late adolescents, parent and peer attachment were correlated with positiveness and stability of self-esteem, life-satisfaction, and affective status (depression, anxiety, resentment/alienation, covert anger, and loneliness) (Armsden & Greenberg, 1987; Baiocco et al., 2009). The relationship of attachment and affective status held even when degree of negative life-change was controlled (Armsden & Greenberg, 1987). Quality of attachment to parents and to a lesser extent, peers, was associated with self-reported tendencies toward the use of more problem-solving coping strategies relative to emotion-managing efforts in stressful situations (Armsden & Greenberg, 1987). Among early to middle adolescents, parent attachment, and to a lesser extent, peer attachment, were found to be associated with lesser hopelessness and less externally oriented locus of control and with greater self-management (coping) skills (Armsden & Greenberg, 1987; Lewis et al., 1987). San Martini and colleagues (2009), reported many correlations between the IPPA and several measures. As example the IPPA showed correlations with tools assessing adaptive ability (Gonzales, 2004; Lapointe & Legault, 2004; Mattanah, 2004; Schwuartz & Buboltz, 2004; Zelt, 2003), perception of social support (Collins e Feeney, 2004), the integrity of the self and objectual relationship (Gussoni-Leone, 2003), the ability to cope with anger (Offer, 2003), defensive styles (Delaney, 2002), empathy (Gelb, 2002), the relationship with the body (Sieve-Ramirez, 2001), self-identity (Meeus, Oosterwegel & Vollebergh, 2002), and self-esteem (Bagheri, 2005). Raja and colleagues (1992), reporting results

from a large longitudinal study of New Zealand adolescents, found that a combination of low parental and high peer attachment was associated with the highest levels of depression in their sample. Paterson and colleagues (1995), on the other hand, found only minimal relationships between the IPPA scales and measures of self-esteem, coping abilities, and social competence. Burge and colleagues (1997), in a longitudinal study of 137 adolescent girls, found that both the IPPA Parent and Peer scales were predictive of eating and personality disorder symptoms while only the Peer scale predicted substance problems. In a study of 400 Dutch adolescents, Noom et al., (1999) found that while peer attachment was associated with measures of social competence and self-esteem, parental attachment was associated with self-esteem, academic competence, problem behaviors, and depressive symptoms. Wilkinson (2004) demonstrated, using structural equation modeling, that while parental attachment predicts self-esteem and depression in adolescence, peer attachment is more strongly associated with self-esteem. Wilkinson (2010) found that while a modified form of the IPPA Peer Scale was predictive of psychological health in adolescents, it was not predictive of other adjustment indicators such as school attitude, although a measure of friend attachment was. Despite the widespread interpretation of the IPPA Peer scale as an attachment measure, Wilkinson (2008, 2010) has pointed out that there are limitations to the extent to which it can actually be considered as a measure of intimate, dyadic, peer attachment relationships. The way the IPPA Peer Scale is constructed indicates that it is more likely a measure of the quality of peer clique relationships (Brown & Klute, 2003) rather than dyadic attachment with a 'best' friend. Instructions for the IPPA Peer scale and individual items specifically refer to interactions with 'friends' rather than a particular individual. This leaves the possibility open that responses are based on interactions with a group of friends or that responses to different items may be based on the behavior of different friends.

Baiocco et al. (2009), as San Martini and colleagues (2009) have shown no significant differences in the IPPA Parent Scale for gender, age group (15-16/17-19) and for the interaction. Regarding the Peer Scale, Baiocco (2009) found one significant results in the interaction between gender and age group. In specific, younger girls and older boys presented higher scores on peer attachment than older girls and younger boys. Differently, San Martini et al. (2009) found significant results only on gender, with girls scoring higher than boys. Gullone and Robinson (2005), found significant age-group and gender differences for all of the IPPA Parent subscales, with one exception

(alienation subscale). The significant age-group differences were due to the child sample scoring significantly higher than the early adolescent sample. With regard to the significant gender differences, males scored higher than females on parent trust and communication as well as on overall IPPA Parent attachment but lower on parent alienation. In contrast, the differences relating to Peer Attachment were due to the early adolescent sample scoring significantly higher than the child sample. Referring to gender differences, females scored higher on two (i.e. trust and communication) of the IPPA Peer attachment subscales but lower on the alienation subscale. Females also scored higher than males on overall Peer Attachment. It is important to note, however, that the female sample was over-represented by older participants while the male sample was over-represented by younger participants. This may explain why the trends for males and females were generally the same as those for the two age-groups. Scores on the IPPA were not found to be significantly related to socio-economic status among a sample of 400 adolescents aged 18 to 20 year olds. In the same study, negligible but significant positive correlations were obtained between attachment and parents' education levels (Armsden & Greenberg, 1987).

The Italian translation and validation carried out by San Martini and colleagues (2009) was used for this project. Three different studies administered the IPPA on the Italian sample (Baiocco et al., 2009; Pace et al., 2011; San Martini et al., 2009). Pace and colleagues (2011) as well as San Martini and colleagues (2009), reported the mean and standard deviations for the maternal, paternal and peer version at different ages (from 13 to 18 years old). They showed very similar means and standar deviations. Baiocco and colleagues' (2009) data did not consider mother and father separately. They have referred to the parental version of the measure.

5.3.2 Rosenberg Self-Esteem Scale

The Rosenberg Self-Esteem Scale (RSES, Rosenberg, 1965) is a popular and widespread used measure of global self-esteem (Gray-Little, Williams, & Hancock, 1997). It is a brief paper-and -pencil self-report questionnaire ideated for population between 10 and 99 years old. The RSES has 10 items, five positively (e.g., "I feel that I have a number of good qualities") and five negatively (e.g., "At times I feel that I am no good at all") worded. Participants are instructed to complete the instrument according to how they typically or generally feel about themselves. Responses are made on scales ranging from 1 (strongly disagree) to 5 (strongly agree). The RSES total score ranges

from 10 to 50, with a mean value of 30.85 (*Sd*=4.82) (for nation-level mean scores and standard deviations across 53 nations see Schmitt and Allik, 2005). There is no time limit on the RSES, and it can be administered individually or in groups. The RSES takes about 3-5 minutes to fill in. A total score is computed by adding the numerical values assigned to each marked choice. The scale was conceptualized as a single-factor scale with scores ranging along a continuum from low self-esteem to high self-esteem. According to Rosenberg (1979), the individual with a high level of self-esteem can be characterized as follows: "he has self-respect, considers himself a person of worth. Appreciating his own merits, he nonetheless recognizes his faults (..) The term 'low self-esteem' means that the individual lacks respect for himself, considers himself unworthy, inadequate, or otherwise seriously deficient as a person" (p. 54).

The RSES was initially validated in the US by Rosenberg (1965, 1989) on a sample of 5,000 adolescents and reported good initial psychometric characteristics (test-retest >.80), that were confirmed in more recent studies. As example, regarding RSES internal consistency, Mar and DeYoung, Higgins, & Peterson, (2006) reported Cronbach alphas of .89 and .90, Schmitt and Allik (2005) in their cross-national study, found a mean reliability of .81, where the lowest value was α=.45 (Democratic Republic of the Congo), and the highest was α=.90 (Israeli and the United Kingdom). Martin-Albo, Núñez, Navarro and Grijalvo (2007) reported Cronbach alphas of .85 (first administration) and .88 (second administration), the test-retest correlation value after a 4-week interval was .84. Blascovich and Tomaka (1991), Santos and Maia (2003), as well as Robins et al., (2002), found good internal consistency and test-retest reliability.With regard to construct validity, Martin-Albo et al's (2007) study showed significant (p<.05) positive correlation with the five self-concept dimensions (academic: r=.38, social: r=.28, emotional: r=.50, family: r=.28, and physical: r=.46). This result is in line with considering self-esteem an evaluative conceptual level of self-concept (Purkey, 1970; Shavelson, Hubner, & Stanton, 1976). Convergent validity values were reported also by Zeigler-Hill (2010), who found correlations ranging from .63 to .90 between RSES and other measures of self-esteem as the Janis–Field Feelings of Inadequacy Scale (Fleming & Courtney, 1984), the Texas Social Behavior Inventory (Helmreich & Stapp, 1974), the Self-Liking/Self-Competence Scale (Tafarodi & Swann, 2001), and the State Self-Esteem Scale (Heatherton & Polivy, 1991). Schmitt and Allik (2005) tested convergent and discriminant validity administering the Big Five Inventory (BFI; Benet-Martinez & John, 1998). Results showed positive correlations

between RSES scores and extraversion , negative correlations with neuroticism and no significant correlations to openness to experience in most of the countries. To confirm discriminant validity of RSES, Blascovich and Tomaka (1991), Lucas, Diener, and Suh (1996), and Robins and colleagues (2001), referred to measures for life satisfacton, optimism and academic outcomes. M. T. Greenberg. and colleagues (2003) reported positive correlation (p<.001) with RSES, parental warmth (r=.42), optimism (r=.61), life satisfaction (r=.61) and self-deception (r=.61); negative correlation was found to depressive symptoms (r=-.64). However, many researchers have focused attention on the RSES factorial structure in order to clarify whether self-esteem represents a unidimensional/global concept or whether it is a multidimensional concept. Vallieres and Vallerand (1990) and Hagborg (1993) used exploratory factor analysis and multiple regression techniques, respectively, to conclude that the RSES measured a global–unitary construct. Shelvin, Bunting, and Lewis (1995), as Mimura and Griffiths (2007), employed confirmatory factor analysis; they also found a unitary factor. Subsequently, Gray-Little and colleagues (1997) employed item response theory to replicate the scope and unidimensionality of the RSES and Zimprich, Perren, and Hornung (2005) also found support for the single factor model of self-esteem within the RSES, although in their study the RSES was modified using only negatively worded items. This notion of the RSES functioning as a unidimensional–global measure of self-esteem has been challenged. Other authors have claimed that two factor models explained the RSES structure in more accurate ways (Kaufman, Rasinski, Lee, & West, 1991; Owens, 1993, 1994; Prezza, Trombaccia, & Armento, 1997; Shahani, Dipboye, & Philips, 1990; Tafarodi & Milne, 2002; Tafarodi & Swann, 1995). Carmines and Zeller (1979) reported a two factor model in which five negatively worded items make up the first factor and five positively worded items constitute the second factor. The authors concluded that the bifactorial structure is a function of a single dimension of global self-esteem that is contaminated by a response set artifact. Subsequent to their paper, several other studies have drawn the same conclusion of response set bias (e.g. Hagborg, 1993, 1996; Hensley & Roberts, 1976; Tomas & Oliver, 1999). Corwyn (2000) and Marsh (1996) found that the negative items effect result stronger than the positive ones, and that the negative item effect could be related to participants' age and verbal ability. Other authors considered positive and negative item effect not only as a methodological artifact, but they saw these items as expression of a positive and a negative image of the self that load onto separate factor, which in turn constitute global self-esteem in a higher

order level (Goldsmith, 1986; Pullmann & Allik, 2000). Some researchers have described these two factors as different kind of self-image that are linked to different experiences (Owens, 1994; Sheasby, Barlow, Cullen, & Wright, 2000). Others, as Kaplan and Pokorny (1969), suggested that the first factor belonged to self-derogation and the second factor reflected conventional defense of individual worth. Another model was tested by Kaufman and colleagues (1991), who reported two substantively meaningful global self-esteem factors that they interpreted to be "general evaluations of oneself" and "transient self-evaluations". Marsh (1996) found that Kaufman and colleagues' model fit better than the one-factor model. Tafarodi and colleagues (Tafarodi & Milne, 2002; Tafarodi & Swann, 1995) used a different approach, proposing that self-esteem can be considered a multifaceted construct formed by two substantive dimensions: self-competence and self-liking which constituted global self-esteem on a higher order level. Roth and colleagues (2008) compared (a) the unidimensional, (b) Tafarodi and Milne, and (c) Pullmann and Allik's model on a sample of 4,988 subjects from 14 to 92 recruited in Germany. Two factor structures appeared more adequate, in specific model (c) showed the best fit indices. They did not confirmed Marsh (1996), and von Collani and Herzberg (2003), findings regarding the issue that this dimensionality is an artifact of verbal ability. Indeed, in line with M. T. Greenberg et al., (2003) the two-factor structure emerged in both participants with low and high level of education. In order to discover if the two factor solution was due to the bimodal item distribution, they conducted an item response theory analysis. Results supported the one-dimensional structure of the RSES, in line with M. T. Greenberger et al. (2003) findings. Huang and Dong (2012), in their meta-analysis involving 23 studies, 80 samples and 32,491 participants found that the 2-factor structure (five positively and five negatively worded items) of the RSES was generally supported by all studies except for Schmitt and Allik (2005). However, Huang and Dong (2012) suggested that the one factor solution should be considered the best solution of the RSES until further evidence indicates that positive and negative self-esteem factors measure substantively different underlying construct with different correlates.

Regarding age, gender and ethnic differences, previous research underlined differences in mean self-esteem (e.g., Kling et al., 1999; Robins et al., 2002). Harter (1990), found adolescent boys to have higher self-esteem than adolescent girls. However, this may not be true for all girls as ethnic differences in girls' self-esteem have been found. Specifically, White and Latina girls have lower self-esteem and show a greater decline

in self-esteem during adolescence than do African-American adolescent girls (Gray-Little & Hafdahl, 2000). Indeed Owens (1993) and Goldsmith (1986), reported differences across late adolescence and early aduhthood. However other authors found RSES to be invariant across gender (e.g., Hensley, 1977; Jang & Thornberry, 1998; Roth, et al., 2008; Simmons & Blyth, 1987), race (Alwin & Jackson, 1981; Jang & Thornberry, 1998), and various age groups of adolescents (Bagley, Bolitho, & Bertrand, 1997; Roth et al., 2008).

Prezza and colleagues (1997) translated and validated the Italian version of RSES. They collected a sample of 1271 subjects ranging from 15 to 75 years old and did not found any age-related differences. The mean value reported of the RSES for the Italian sample was 29.83 (*Ds*=4.56). No normative specific data has been found for Italian early and mid-adolescents.

5.3.3 Children's Depression Inventory

Depression was measured by the Children's Depression Inventory (CDI; Kovacs, 1992, 1998). The CDI is a paper-and-pencil self-report questionnaire designed to assess the level and nature of depression in population between 7 and 19 years old. It is an extension of the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), with most of these items covering content and symptom areas similar to those assessed on the BDI. Kovacs (1992) added several items that attempt to assess areas of schools, aggression and social-peer relations (Craighead, Smucker, Craighead, & Ilardi, 1998). The CDI differs from the BDI in its format and style, which have been made suitable for younger. The CDI has 27 items, each item consists of three statements that are graded in severity and are assigned numerical values from 0 to 2, where 0 means the symptom is not present, 1 the symptom is present and mild, and 2 the symptom is present and marked (e.g., 0="I am sad once in a while" or 1="I am sad many times" or 2="I am sad all the time"). CDI total score ranges from 0 to 54. The higher the numerical value, the more clinically severe the symptom is rated. Participants are instructed to mark the sentence that best describes the way they have been feeling and thinking during the preceding 2 weeks. There is no time limit on the CDI, and it can be administered to adolescents individually or in groups. The CDI takes about 10-20 min to fill in. A total score is computed by adding the numerical values assigned to each marked choice. Several subscales can be computed (see construct validity for a brief description). Kovacs' original version comprised a total score and seven subscales

as following: Negative Mood (e.g., Interpersonal Problems, Ineffectiveness, Anhedonia, and Negative Self-Esteem. Furthermore the original scale included also one item (# 9) which refers to Suicidal Ideation.

In general populations, the CDI mean score and standard deviation are around 9 ± 7; the cutoff score of 19, corresponding to the 90th percentile, has been considered suitable for screening in the general population, while the cutoff score of 13, corresponding to the 65th percentile, has been suggested as being adequate for screening purposes in clinical samples (Giannakopoulos et al., 2009; Timbremont, Braet, & Dreesen, 2004).

In non-clinical populations, this measure appears to have relatively good levels of internal consistency, test–retest reliability, criterion-related validity and sensitivity to Major Depressive Disorder, convergent and construct validity (Craighead et al., 1998). More specifically, internal consistency for total score ranged from .71 to .95 (Abela & Hankin, 2011; Brooks & Kutcher, 2001; Da Fonseca et al., 2009; Frigerio, Pesenti Molteni, Snider, & Battaglia, 2001; Giannakopoulos et al., 2009; Kovacs et al., 1984; Ivarsson, Svalander, & Litlere, 2006; Milan, Snow, & Belay, 2009; Saylor, Finch, Spirito, & Bennett, 1984; Soto Molina, Rodriguez Gomez, & Velez Pastrana, 2009), test-retest reliability has been shown moderate to high depending on the time interval (from 1 week to 1 year) and the type of sample (e.g. normative vs. clinical) (Kazdin, 1987; Smucker, Craighead, Craighead, Green, 1986; Sorensen, Frydenberg, Thastum, Thomsen, 2005). In regards to the normative sample, Finch, Saylor, Edwards, and McIntosh (1987) reported reliability coefficients ranging from .82 over 2 weeks, .66 over 4 weeks and .67 over 6 weeks. Giannakopoulous and colleagues (2009) found an ICC's of .82 for girls and .62 for boys over 3-4 weeks. Smucker et al. (1986) reported significant test-retest correlation coefficients of .77 for early adolescence male and .74 for female, over 3 weeks period. In the adolescents' sample, the coefficients were .41 for males and .69 for females over 1 year administration. Trivial results are reported about predictive validity. Studies indicate that the CDI can distinguish children with general emotional distress from normal school children. However, differences between CDI scores of depressed (by symptom checklists from the *Diagnostic and Statistical Manual of Mental Disorders,* DSM-1II; American Psychiatric Association, 1980) and nondepressed children were not significantly different (Saylor et al., 1984). Kovacs herself failed to show the CDI having criterion validity in a comparison of clinical cases with depressive disorders and a non-clinical comparison group (Kovacs, 1992), as did Saylor et al. (1984), while others have found good criterion validity (Carey, Faulstich,

Gresham, Ruggiero, & Enyart, 1987; Craighead et al., 1998; Hodges, 1990). The convergent validity of the CDI has been documented in many studies (Kovacs, 1992). The convergent validity of the CDI relative to another measure of depression, the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977) was moderate (Doerfler, Felner, Rowlinson, Raley, & Evans,1988). Furthermore, Ollendick & Yule (1990), and Iwarsson and colleagues (2006) noted a moderately strong correlation in children and adolescents between the CDI and the Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1978). Moreover Sorensen et al. (2005) found significant correlation between the CDI and the Schedule for Affective Disorders and Schizophrenia for Children – Present and Lifetime version (K-SADS-PL; Kaufman et al., 1997) and the Children Global Assessment Scale (CGAS; Shaffer et al., 1983). Although the literature suggests that self-report measures can discriminate clinical from nonclinical samples, several studies stressed their lack of discriminant validity among different types of disorders, especially in the field of intemalizing problems (Carey et al., 1987). This is evident in the high correlations among scores on child anxiety and depression measures (Stark & Laurent, 2001). Timbremont and colleagues (2004), suggested that the CDI successfully discriminates depressive disorders from anxiety and disruptive behavior disorders. A more contested feature of the CDI has been its construct validity as assessed by factor analytic studies (Cole, Hoffman, Tram, & Maxwell, 2000). Research on the CDI suggests that depression is a complex and multidimensional phenomenon since this instrument has a multifactor structure. Reports of both the number and the nature of the factors yielded from the CDI have varied across studies (e.g., Cole et al., 2000; Craighead et al., 1998; Drucker & Greco-Vigorito, 2002; Kovacs, 1992). Because some authors have hypothesized that specific factors or symptom clusters of the CDI may be differentially related to subsequent diagnoses and correlates of major depression (Craighead, Curry, & Ilardi, 1995; Curry & Craighead, 1990), further investigation of the structure of the CDI may have significant clinical implications. To the extent that factors illuminate underlying symptom patterns, differences in factor structures may suggest differences in the experience or expression of depressive symptoms across samples. When exploratory factor analytic (EFA) results are compared across the literature, a set of "core factors" emerges that reflect specific domains of functioning and that generally correspond to three of the original five factors found in the norming studies of Kovacs (1992). For example, Cole et al. (2000), Craighead et al. (1998), Drucker and Greco-Vigorito

(2002), and Kovacs (1992) reported primary factors associated with *negative mood/dysphoria* (e.g., "I feel sad"), *low self-esteem*/*self-concept* (e.g., "I look ugly"), and *externalizing/oppositional behavior* (e.g., "I get in fights all the time"; although Kovacs labeled this factor *interpersonal problems*). The presence of these factors across the samples represented by the four investigations noted above suggests a high degree of stability and construct validity. Further, these factors correspond to current conceptualizations of the primary symptoms of depression among children (e.g., dysphoria, worthlessness, irritability; American Psychological Association, 2000). Beyond the factors that appear stable across studies, a number of additional factors have been reported that do not evidence such stability. For example, in addition to the three factors that have been replicated in subsequent studies, Kovacs (1992) reported two additional factors corresponding to *ineffectiveness* and *anhedonia*, who have received further confirmatory support from the confirmatory factor analysis (CFA) carried out by Steele and colleagues (2006). Similarly, beyond the three core factors, Craighead et al. (1998) in their CFA study, reported three factors corresponding to *social problems*, *school problems*, and *biological dysregulation* (only for adolescents). Drucker and Greco-Vigorito (2002) reported two additional non-core factors, *hopelessness* and *somatic symptoms*, in addition to the three core factors. Finally, Cole et al. (2000) confirmed only the three core factors. Consistent with the labels chosen by these various authors, there exists some item overlap in the non-core factors (e.g., somatic symptoms and biological dysregulation). However, the substantial differences in item content and factor loadings suggest that beyond the core factors, the additional factors are sample dependent (i.e, unique to specific populations) or related to the particular factoring algorithms or the heuristic decisions involved. One noteworthy commonality across all of these factor analytic studies is their reliance on samples lacking significant minority ethnic or racial group representation. For example, Kovacs (1992) reported that her sample was composed of a total of 23% non-European American children (including African American, Native American, and Hispanic Children). Likewise, children from non-European American ethnic or racial groups made up only 5% of the Craighead et al. (1998) sample, and Drucker and Greco-Vigorito (2002) reported that their sample was comprised of entirely European American children. Although the Cole et al. (2000) sample was more diverse (35% ethnic or racial minority), differences between ethnic or racial groups were not reported. However, only few of these studies had explored the

structure of the CDI using confirmatory factor analyses (CFA), they mainly refer to exploratory factor analysis.

A meta-analysis on the CDI conducted in the USA (Twenge & Nolen-Hoeksema, 2002) has shown that girls' CDI scores tend to stay steady from ages 8 to 11 and increase between ages 12 and 16, whereas boys' depression scores remain stable from ages 8 to 16, except for a high CDI score at age 12. Additionally, girls seem to report slightly lower CDI scores than boys' during childhood, but higher from the age of 13 (Twenge & Nolen-Hoeksema, 2002). The same study showed no differences in depression, as measured by the CDI, across socioeconomic status (SES) of children, although other studies do indicate that a low SES is correlated with a greater prevalence of depression (Blazer, Kessler, McGonagle, & Swartz, 1994; Roberts, Roberts, & Chen, 1997). Twenge and Nolen-Hoeksema (2002) have suggested, in their meta-analysis, that this discrepancy can be attributed to methodological issues since very few studies of the CDI have had sufficient numbers of children from different socioeconomic backgrounds to allow examination of mean scores across all SES levels. Other researchers suggest that the introduction of mediating factors in the study of SES and depressive symptoms relationship reduces the magnitude of this association. In other words, SES may not remain associated with depressive symptomatology after adjustment for a cluster of factors (i.e. family structure, ethnicity, parental health status, parental education, inequalities in education, welfare services and health care use as well as social exclusion) that can either increase the risk for depressive symptomatology through imposing psychosocial stressors or/and put barriers to the appropriate diagnosis and treatment of depression (Bor et al.,1997; Flouri & Tzavidis, 2008; McMunn, Nazroo, Marmot, Boreham, & Goodman, 2001).

In the present study the Italian version of the CDI was translated and validated by Camuffo, Cerutti, Lucarelli, and Mayer (1988). Poli et al., (2003) reported the normative data for Italian early adolescents (M=8.30, Sd=6.03) and mid-adolescents (M=11.80, Sd=6.30). They found significant differences between early and middle adolescents, with the latter scoring higher than the former.

5.3.4 The Spence Children's Anxiety Scale

Researchers have invested much effort in developing a valid self-report scales to assess anxiety symptoms as presented in the DSM-IV-TR (American Psychiatric Association, 2000). A well used and validated self-report scale is the Spence Children's Anxiety

Scale (SCAS; Spence, 1997) that measures the frequency of anxiety symptoms experienced by children and adolescents and it was designed according to the six anxiety dimensions presented in the DSM-IV (American Psychiatric Association, 1994). Moreover this measure was empirically developed to assess anxiety in a community sample of children and adolescents (Spence, 1998). Indeed, most of the tools available to date are downward extension of adult measure of anxiety (e.g. the Revised Children's Manifest Anxiety Scale, RCMAS; Reynolds and Richmond, 1978; and the State-Trait Anxiety Inventory for Children, STAI-C; Spielberger, 1973), or are based on the features of a clinical sample (e.g. SCARED, Birmaher et al., 1997). Originally the scale was ideated for children between 8-12 years of age, but it has subsequently been validated in youth up to 19 years old (Muris, Schmidt, & Merckelbach, 2000). Successively a version for parents was developed. The parent version of the Spence Children's Anxiety Scale (SCAS-P; Nauta, Scholing, Rapee, Abbott, Spence, & Waters, 2004) allows for comparisons between child and parent ratings of the same symptoms (Whiteside & Brown, 2008). Furthermore a version to assess anxiety in preschoolers was adapted from the SCAS (Preschool AnxietyScale, PAS; Spence, Rapee, McDonald, & Ingram, 2001). The SCAS has been validated and used in many countries including Australia (Spence, 1998), the Netherlands (Muris et al., 2000), Germany (Essau, Sakano, Ishikawa, & Sasagawa, 2004), Japan (Essau et al., 2004; Ishikawa, Sato, & Sasagawa, 2009), China (Essau, Leung, Conradt, Cheng, & Wong, 2008; Li, Lau & Au, 2011), Greece (Mellon & Moutavelis, 2007), Cyprus (Essau, Anastassiou-Hadjicharalambous, & Muñoz, 2011), South Africa (Muris, Schmidt, Engelbrecht, & Perold, 2002), Spain (Tortella-Feliu, Balle, Servera, & de la Banda, 2005; Orgilés, Méndez, Spence, Huedo-Medina, & Espada, 2012), Iran (Essau, Olaya, Pasha O'Callaghan, & Bray, 2012), the United States (Whiteside & Brown, 2008), and Italy (Delvecchio, Di Riso, Chessa, & Lis, 2010; Di Riso, Chessa, Bobbio, & Lis, 2012; Essau, Sasagawa, Anastassiou-Hadjicharalambous, Olaya Guzmán, & Ollendick, 2011). This self-report questionnaire asks to put a circle around the word (never, sometimes, often, always) that shows how often each of these things happen. There is no time limit on the SCAS, and it can be administered to adolescents individually or in groups. The SCAS takes about 15 minutes to fill in. The SCAS has 44 items (with 6 positive filler questions) measured on a 4-point scale from "never"(0) to "always" (3). The 0-3 ratings of the 38 anxiety items are summed to yield a total score (possible range 0-114), with higher scores reflecting higher levels of anxiety symptoms. Moreover the SCAS present

six subscales which are (1) separation anxiety disorder (e.g. item 8 " I worry about being away from my parents"), (2) social phobia (e.g. item 35 "I feel afraid if I have to talk in front of my class"), (3) obsessive-compulsive disorder (e.g. item 14 "I have to keep checking that I have done things right (like the switch is off, or the door is locked"), (4) panic attack and agoraphobia (e.g. item 36 "My heart suddenly starts to beat too quickly for no reason"), (5) physical injury fears (e.g. item 23 " I am scared of going to the doctors or dentists"), and (6) generalized anxiety disorder (e.g. item 1 "I worry about things"). In general population the SCAS cutoff score of 30, corresponding to the 90th percentile, has been considered suitable for adolescents aged 13-19 (Muris et al., 2000). Considering the effect of gender, 36 and 25 were the cutoff for girls and boys respectively, for the SCAS total score (Muris et al., 2000).

Three main types of studies have been carried out using the SCAS. The first set of studies refers to the psychometric properties of the scale. Spence (1997) in her first studies on the SCAS, found that the alpha for the total score was .92; the alphas for the six subscales were .82 for panic agoraphobic symptoms, .70 for separation anxiety, .70 for social phobia, .60 for physical injury fears, .73 for obsessive–compulsive, and .73 for generalized anxiety. Several other studies showed similar high alpha coefficients for the SCAS, ranging from .89 to .97 (e.g., Delvecchio et al., 2010; Di Riso et al., 2012; Essau, Muris, & Ederer, 2002; Essau et al., 2004; Essau et al., 2008; Essau et al., 2012; Ishikawa et al., 2009; Mellon & Moutavelis, 2007; Orgilés et al., 2012; Spence, Barrett, & Turner, 2003; Whiteside & Brown, 2008). The six subscales presented medium to excellent alpha coefficients (Essau, Sasagawa, et al., 2011). The 6-month and 12-week test–retest reliability was calculated among two Australian samples, it was .60 (Spence, 1997) and .63 (Spence et al., 2003), respectively. Higher test–retest reliability coefficients have been reported when the SCAS was administered within a shorter time period. For example, the 3-week test–retest reliability coefficient for the Hellenic SCAS was .83 (Mellon & Moutavelis, 2007). The test–retest reliability coefficients (2–4 weeks) of the Japanese SCAS were .76 in children and .86 in adolescents (Ishikawa et al., 2009).

The second type of studies has focused on the validity of the SCAS. Spence (1998) reported differences between anxious children and non-anxious children on the SCAS. Also, Whiteside and Brown (2008) showed significant differences in mean scores on all subscale and total scores of the SCAS between anxious and non-anxious community samples of children and adolescents. Moreover, the correlations among the six subscales

scores were lower than the correlations of each of the subscale scores with the total anxiety scores (Mellon & Moutavelis, 2007; Muris et al., 2000; Spence, 1998). The convergent validity of the SCAS has been carried on by computing correlations between SCAS and other measures that assess, as well, the construct of anxiety such as the Screen for Child Anxiety Related Emotional Disorders (SCARED; Birmaher et al., 1999) and the Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1978). Essau et al. (2002), found a significant positive correlation between the SCAS and the SCARED, as well as between most of the SCAS subscales and their corresponding SCARED subscales. In specific, SCAS separation anxiety correlated strongly with SCARED separation anxiety, SCAS panic with SCARED panic, and so forth. The SCAS also correlated significantly with the Children's Depression Inventory (Kovacs, 1992), Depression Self-Rating Scale (Birleson, 1981), Centre for Epidemiological Studies Depression Scale for Children (CES-DC; Weissman, Orvaschel, & Padian, 1980), Columbia Impairment Scale (CIS; Bird et al., 1993) and the Youth Self-Report (Achenbach, 1991a) (in particular with the internalizing problems scale and the anxious/depressed subscale) (Essau et al., 2002; Ishikawa et al., 2009; Spence et al., 2003). Moreover the SCAS correlated significantly also with the with the total difficulties of the Strength and Difficulties Questionnaire (Goodman, 1997), as well as with its emotional symptoms subscale (Di Riso et al., 2012; Essau et al., 2012). These findings confirm that a high level of anxiety symptoms is associated with a high level of depression, high impairment in various life domains, and a high level of emotional and behavioral problems (Essau et al., 2011; Ollendick & Seligman, 2006). The divergent validity of the he SCAS has also been reported. The SCAS correlates significantly and negatively with teacher's evaluations of the children's school performance and adjustment (Mellon & Moutavelis, 2007). Furthermore it correlates negatively also with the externalizing problems scale of the Youth Self-Report (Nauta et al., 2004).

The third type of studies examined the factor structure of SCAS. Compared to the two other types of studies, much more controversy has characterized these findings. In the original studies on children aged 8-12, confirmatory factor analyses comparing four models (i.e., single-factor, six uncorrelated factors, six correlated factors, and six factors loading onto a single higher order factor) suggested that the six-factor, higher order model fit better than the other models (Spence, 1997). Muris and colleagues (2000) found the same structure in a sample of students between 7 and 19 years old. However,

a subsequent study by Spence et al. (2003), based on early-adolescents (13-14 years old), provided strong support for a six-correlated factor model which involved six factors related to generalized anxiety disorder, separation anxiety disorder, social phobia, panic disorder and agoraphobia, obsessive–compulsive disorder, and fears of physical injury. Mellon and Moutavelis (2007), found the same results on a sample of Hellenic children aged 9-12. Essau and colleagues (2011) considering adolescents (12-17) from Cyprus found similar results, as well as Essau and others (2012) on Iranian adolescents (12-17). Moreover Essau and colleagues (2011) in their study on adolescents (12-17) of 5 different countries (Germany, Cyprus, England, Sweden, and Italy) reported that the six factor structure presented the most adequate fit for the data of all five countries. Di Riso and colleagues (2012) focusing on Italian children (8-10) found similar results. However, these factor structures have not always fit the data (Essau et al., 2011). For example, in Essau et al.'s study (2004), a five-factor model (generalized anxiety disorder and social phobia as combined factor) best accounted for the data of German children, Essau and colleagues (2008) reported similar results for the Chinese children. Ishikawa and colleagues (2009) found that the five-factor model with one higher order factor had the better fit for the Japanese SCAS. In addition, data from South Africa (Muris, Schmidt, et al., 2002) showed a four-factor structure which was different from any other country. These four factors combined fears of physical injury and separation anxiety as one factor, generalized anxiety and obsessive-compulsive disorder as another factor, then social phobia and panic disorder as the fourth factor. As suggested by Essau and colleagues (2008) differences in socialization practices and cultural values (e.g., social norms, theoretical worldviews, environmental factors, educational and parenting practice) may have lead to these differences.

The translation and validation of the SCAS used in this study were carried out by Delvecchio et al. (2010) and Di Riso and colleagues (2012). Since these authors mainly referred to children in their works, here are reported the data referring to Essau and colleagues (2011) which considered adolescents from 12 to 17 years old and found a mean total score of 27.11 (*Sd*=15.42).

5.4 STATISTICAL ANALYSES

Before running the analyses, data normalization and imputation of missing values for all variables were performed for both the early and mid-adolescence samples.

Imputation of missing values and computation of normal scores were performed using the PASW Statistics 18, Release Version 18.0.0 (SPSS, Inc., 2009). Cases were eliminated when 10% or more of the items of each measure did not receive an answer. The missing values were imputed based upon values observed in other cases that had a similar response pattern over a set of matching variables.

Confirmatory factor analysis (CFA) were conducted with the LISREL 8.80 for Windows (Jöreskog & Sörbom, 2006). Since the observed variables included in the models were ordinal and presented a certain level of skewness and kurtosis, an asymptotic un-weighted least square (ULS) robust method based on polichoric correlations was used (Satorra & Bentler, 1994). To compare the models, a variety of indices as indicators of the model's overall goodness of fit were compared: the Satorra-Bentler chi-square (χ^2), for example, was used as a test of the null hypothesis that the model fit the data. However, reliance on chi-square has been criticized, especially in the case of large samples (more than 200; Jöreskog & Sörbom, 1996; Saris, 1982). For that reason, other indices were also used to test the model fit. Following the suggestions of Hu and Bentler (1999), the Root Mean Square Error of Approximation (RMSEA), the Normed Fit Index (NFI), the Non-Normed Fit Index (NNFI), and the Comparative Fit Index (CFI) were used as goodness-of-fit indices. Values of NFI higher than .90 indicate adequate fit, as well as NNFI and CFI higher than .95 (Schermelleh-Engel, Moosbrugger, & Muller, 2003). RMSEA of .08 or lower is considered as indicative of an adequate fit (Schermelleh-Engel et al., 2003). A favourable value of the SRMR is less than .10 (Hu & Bentler, 1999). The Akaike Information Criterion (AIC), the CAIC and the Expected Cross-Validation Index (ECVI) were used as parsimony indices: smaller model AIC, CAIC and ECVI than the comparison model indicate better fit.

A cross-validation procedure was used for the purpose of confirming the goodness of fit criteria for the models, thus both the early and mid-adolescent samples were randomly split into calibration (60% of the sample) and validation (40%) samples, balanced for gender and grade, and analysis were conducted separately for each sample.

The internal consistencies (Cronbach's alpha) of the measures (total score and subscales) were then calculated using the PASW Statistics 18 (SPSS, Inc., 2009).

Univariate analyses of variance (ANOVAs) and multivariate analyses of variance (MANOVAs) were conducted to determine if age and gender have a significant effect on the set of dependent variables. Effect size was measured using partial eta-squares, in which small, medium, and large effects were .0099, .0588, and

.1379, respectively (Cohen, 1988, p. 283; Snyder & Lawson, 1993; Stevens, 1992). PASW Statistics 18, Release Version 18.0.0 (SPSS, Inc., 2009) was used to calculate ANOVAs.

The zero order correlations between the major variables of interest were carried out using the PASW Statistics 18, Release Version 18.0.0 (SPSS, Inc., 2009).

Then, the hypothesized model of the relationship between the attachment measures (both parents and peer) and the outcome measures (RSES, SCAS, CDI) was evaluated using structural equation modeling (SEM) techniques implemented in the LISREL 8.80 for Windows (Jöreskog & Sörbom 2006). The analysis proceeded in a number of steps. Firstly, the parceling technique was used to construct multiple indicators of latent variables. Secondly, Maximum Likelihood Estimation (ML) was used to evaluate the hypothesized model. Thirdly, model fit indices and modification indices were considered and parameters were freed or fixed as appropriate. Finally, the fit of the model was evaluated following the indicators mentioned above. The parceling technique (Kishton & Widaman, 1994; MacCallum & Austin, 2000) was used to construct multiple indicators based on single scales. This involves obtaining multiple indicators of variables based on items from the original scale. For example, instead of the full 10 items being employed to the self-esteem total score, 2 self-esteem scales of 5 items each were created. To provide a metric for the latent constructs and to identify the measurement model, the first indicator weight for each latent construct was set to 1.0.

To evaluate both early and mid-adolescents gender differences in the model, a multi-group approach was used (Jöreskog & Sörbom, 1996; Byrne, 1989). This approach allows estimation of the fit of the model and the parameters simultaneously on different subgroups. In particular, the hypothesis of the invariance of the covariance matrix and the hypothesis of the form invariance (same dimensions and same patterns of fixed, free, and constrained values in all matrices) on different groups tested the fit and parameters of the model comparing boys and girls.

CHAPTER 6

Results

6.1 *QUESTION 1*: Does IPPA, RSES, CDI, and SCAS present good psychometric properties for both early and mid-adolescent samples?

6.1.1 IPPA

The dimensional structure of the inventory (Mother, Father and Peer version) was assessed by CFAs on the three main models found in the literature (for further details see the Measure section): (1) the three-correlated factor model (trust, communication and alienation; Armsden & Greenberg, 1987), (2) the two-correlated factor model (trust–communication and alienation; Johnson, et al., 2003), and (3) the one-factor model (attachment security; Greenberg et al., 1983).

It is hypothesized that Model 1 (three-correlated factor model) presents the best fit for all the three versions of the inventory, in line with Pace and colleagues' (2011) study on an Italian sample of early and mid-adolescents.

As already mentioned, all the three models were carried out on the calibration and validation samples for both early and mid-adolescents samples. The purpose of the calibration sample was to confirm the best factor structure of the IPPA among the models reported in the literature (Greenberg & Armsden, 2009; Pace et al., 2011) and eventually make theoretically and empirically guided modifications. The validation sample was used to replicate the models for confirmatory evaluation of the internal structure of IPPA (Browne, 2000).

For clarity purpose, psychometric characteristics of IPPA-M, IPPA-P, and IPPA-Peer are presented separately.

6.1.1.1 IPPA Maternal version (IPPA-M)

Structural Validity

Table 3 shows the goodness of fit indices comparing the models (Model 1, Model 2, and Model 3), as well as the Satorra-Bentler chi-square (χ^2) difference values considering both early and mid-adolescents with the calibration (1) and validation (2) samples.

Calibration sample.

Since the sample size is large, the chi-square tests associated with model quality was significant. Therefore, the evaluation of both measurement and structural models based on other model-data fit statistics was done. Model 1 showed excellent fit indices in both samples. Model 2 and Model 3 presented adequate fits, too. The parsimonious indices (AIC, CAIC, and ECVI) were lower in Model 1 and the χ^2 difference tests were significant, indicating that Model 1 fits the data better than Model 2 and Model 3.

Focusing on the **early adolescence** sample, as can be seen in Figure 7 (a), the majority of factor loadings ranged from .51 to .88. Item 6 ("I feel it's no use letting my feelings show around my mother") and item 14 ("My mother has her own problems, so I don't bother her with mine") had the lowest factor loadings, both of them corresponding to the communication factor. Pace et al., (2011) reported the lowest factor loadings for the same items. Screening of Modification Indices (MI) for the lambda-x matrix highlighted no items showing cross-loadings on more than one

IPPA-M subscale.

A strong inter-factor correlation was found between the latent dimensions of the three-factor model: trust and communication (r=.93). Further, alienation presented high correlations with trust (r=-.76) and communication (r=-.61).

Figure 7 (b) shows the Model 1 with the factor loadings referring to the **mid-adolescents** sample. The factor loadings ranged from .40 to .86. Item 6 and 14 showed adequate fit indices in this sample. Trust presented the strongest inter-factor correlations with communication (r=.85) and alienation (r=-.85). The correlation between communication and alienation was also high (r=-.74).

Table 3.
Goodness of fit indice categories of IPPA-M for Model 1, Model 2, and Model 3 for Early Adoelscents (EA) and Mid-Adoelscents (MA)

Goodness of fit indexes categories	**Fit indexes**	**Sample**	**Model 1** (three factors)		**Model 2** (two factors)		**Model 3** (one factor)		**Good fit**	**Acceptable fit**
			EA	MA	EA	MA	EA	MA		
df			272	272	274	274	275	275		
Satorra-Bentler scaled chi-square		1	878.22	970.70	1094.39	1606.51	1845.69	1828.57	$0 \leq \chi^2 \leq 2df$	$2df \leq \chi^2 \leq 3df$
		2	969.17	853.50	1085.41	1249.79	1509.97	1561.61		
Descriptive measures of overall model fit	RMSEA	1	.059	.061	.068	.083	.094	.090	0≤RMSEA≤.05	05≤RMSEA≤.08
		2	.078	.070	.083	.090	.100	.100		
Descriptive measures based on model comparison	NFI	1	.98	.98	.97	.96	.95	.96	.95≤NFI≤1.00	.90≤NFI≤.95
		2	.96	.97	.95	.95	.93	.94		
	NNFI	1	.98	.98	.98	.97	.96	.96	.97≤CFI≤1.00	.95≤CFI≤.97
		2	.97	.97	.96	.96	.94	.94		
	CFI	1	.98	.98	.98	.97	.96	.97	.97≤CFI≤1.00	.95≤CFI≤.97
		2	.97	.98	.96	.96	.95	.95		
Descriptive measures of model parsimony	Model AIC	1	984.22	650.00	1196.39	1708.51	650.00	1928.57	Smaller than AIC for comparison model	
		2	1075.17	959.50	1187.41	1351.79	1609.57	1661.61		
	Model CAIC	1	1274.58	45861.01	1475.80	1991.62	2219.61	2206.12	Smaller than CAIC for comparison model	
		2	1343.18	1228.86	1445.31	1610.98	1872.81	1915.72		
	ECVI	1	1.51	1.54	1.84	2.44	2.99	2.76	Smaller than ECVI for comparison model	
		2	2.52	2.20	2.79	3.09	3.78	3.80		
Δ S-Bχ^2 (p)					Comparison Model 2 vs. Model 1		Comparison Model 3 vs. Model 1			
		1			216.17 (p<.001)	635.81 (p<.001)	967.47 (p<.001)	857.87 (p<.001)		
		2			116.24 (p<.001)	396.29 (p<.001)	540.80 (p<.001)	708.11 (p<.001)		

Note: EA refers to Early Adolescents, MA referd to Mid-Adolescents.
Sample 1 refers to calibration samples (*n*=651 for EA, *n*=700 for MA). Sample 2 refers to validation samples (*n*=427 for EA, *n*=438 for MA).

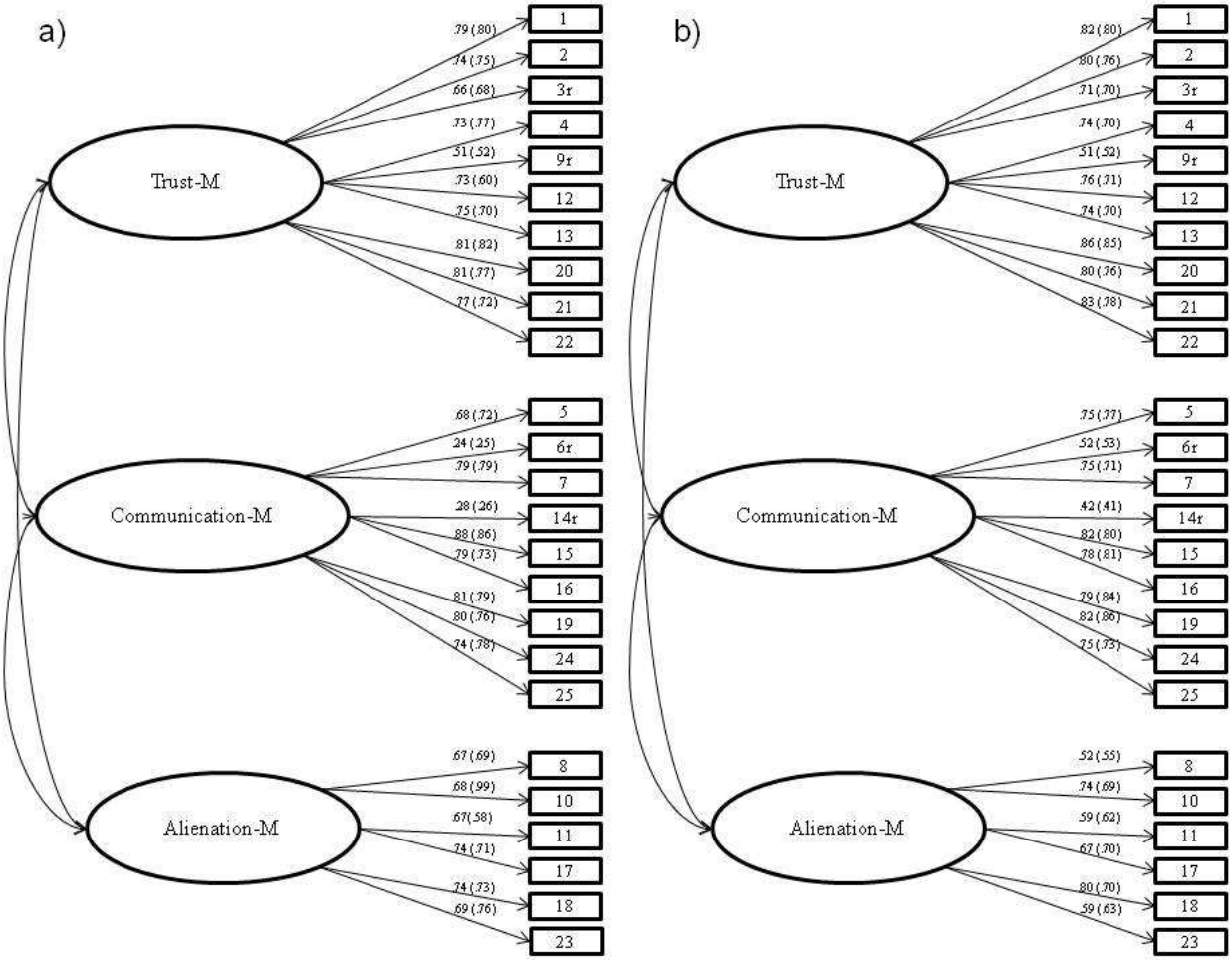

Figure 7 (a, b). The three correlated model of IPPA-M, for the early (a) and mid-adolescents (b) samples.
Note: Validation sample values are in brackets.

Validation sample.

The three models examined with the calibration samples were replicated and cross-validated with the validation samples (Byrne, 1998).

For both **early** and **mid-adolescents**, the three models with the validation samples obtained satisfactory and similar fit, in line with findings with the calibration samples. The parsimonious indices, as well as the χ^2 difference tests confirmed that Model 1 (the three-correlated factor model) fitted the data better than Model 2 and Model 3. Standardized parameters estimates were highly significant for all items, with most of the factor loadings ranging from .40 to .80 and from .42 to .86 for early and mid-adolescents respectively. Item 6 ("I feel it's no use letting my feelings show around my mother") and item 14 ("My mother has her own problems, so I don't bother her with mine") presented the lowest loadings for the early adolescents also with the validation sample. Conversely, those two items presented adequate loadings in the mid-

adolescence sample, in line with the findings from the calibration sample. These findings seem to suggest that those items may be age-related.

The inter-factor correlations were strong, with coefficients very similar to the ones found with the calibration samples. Inter-factor correlations for the early adolescents sample ranged from |.60| to |.92| whereas for the mid-adolescents were included between |.65| and |.84|.

Reliability

The internal consistencies of the IPPA-M (total score and subscales) were calculated. Cronbach‘s Alpha for the IPPA-M security (total score) was excellent for the total sample (α=.92, CI: .92-.93), as well as for both the early and mid-adolescents sample with a value of .91(95% CI: .90-.92) and .93 (95% CI: .93-.94) respectively.

The Cronbach’s Alphas means and ranges were good for the IPPA-M subscales for both age-groups (Kline, 1999; Nunnally, 1978). For the early adolescents sample the results were: trust .86 (95% CI: .85-.87), communication .79 (95% CI: .77-.81), and alienation .78 (95% CI: .76-.80) In regards to the mid-adolescents sample, for trust α=.89 (95% CI: .88-.90), for communication α=.87 (95% CI: .86-.88), and for alienation α=.78 (95% CI: .74-.78).

Further analysis showed significant intercorrelations among IPPA-M subscales. For both groups, the strongest correlation was found between the trust and the communication subscales, with a correlation of .77 for early-adolescents, and .74 for mid-adolescents. The lowest correlation was found between the communication and the alienation subscales, with a negative correlation of .52 and .60 respectively. The negative correlation between the trust and alienation subscales was .59 for early adolescents and .68 for mid-adolescents.

6.1.1.2 IPPA Paternal version (IPPA-P)

Structural Validity

Calibration sample.

The results for the paternal version were similar to those of the maternal version (Table 4): once again, the three-factor model appeared to be the most appropriate, with all the indices lied at the “good range” or at the upper limit of the ‘‘adequate range’’, for both the early and mid-adolescence samples. Although Model 2 and Model 3 presented

acceptable fits, the parsimonious indices and the χ^2 difference tests indicated that Model 1 fits better the data.

Table 4.
Goodness of fit indice categories of IPPA-P for Model 1, Model 2, and Model 3 for Early Adoelscents (EA) and Mid-Adoelscents (MA)

Goodness of fit indexes categories	**Fit indexes**	**Sample**	**Model 1** (three factors)		**Model 2** (two factors)		**Model 3** (one factor)		**Good fit**	**Acceptable fit**
			EA	A	EA	A	EA	A		
df			272	272	274	274	275	275		
Satorra-Bentler scaled chi-square		1	1112.14	1108.59	1554.54	1667.51	2064.99	1812.01	$0 \leq \chi^2 \leq 2df$	$2df \leq \chi^2 \leq 3df$
		2	869.23	869.43	1222.01	1173.08	1586.14	1278.51		
Descriptive measures of overall model fit	RMSEA	1	.069	.066	.085	.085	.101	.089	0≤RMSEA≤.05	05≤RMSEA≤.08
		2	.072	.071	.090	.087	.109	.091		
Descriptive measures based on model comparison	NFI	1	.96	.97	.95	.96	.93	.96	.95≤NFI≤1.00	.90≤NFI≤.95
		2	.96	.96	.94	.95	.92	.95		
	NNFI	1	.97	.98	.95	.96	.94	.96	.97≤CFI≤1.00	.95≤CFI≤.97
		2	.97	.97	.95	.96	.93	.95		
	CFI	1	.97	.98	.96	.97	.94	.96	.97≤CFI≤1.00	.95≤CFI≤.97
		2	.97	.97	.95	.96	.94	.96		
Descriptive measures of model parsimony	Model AIC	1	1218.14	1214.59	1656.54	1769.51	2164.99	1912.01	Smaller than AIC for comparison model	
		2	975.23	975.43	1324.01	1275.08	1686.14	1378.51		
	Model CAIC	1	1508.50	1508.80	1935.94	2052.61	2438.92	2189.56	Smaller than CAIC for comparison model	
		2	1243.24	1244.79	1581.90	1534.27	1938.98	1632.62		
	ECVI	1	1.87	1.74	2.55	2.53	3.33	2.74	Smaller than ECVI for comparison model	
		2	2.29	2.23	3.11	2.92	3.96	3.15		
Δ S-Bχ^2 (p)					Comparison Model 2 vs. Model 1		Comparison Model 3 vs. Model 1			
		1			442.40 (p<.001)	558.92 (p<.001)	952.85 (p<.001)	703.42 (p<.001)		
		2			352.78 (p<.001)	303.65 (p<.001)	716.91 (p<.001)	409.08 (p<.001)		

Note: EA refers to Early Adolescents, MA referd to Mid-Adolescents.
Sample 1 refers to calibration samples (*n*=651 for EA, *n*=700 for MA). Sample 2 refers to validation samples (*n*=427 for EA, *n*=438 for MA).

Figure 8 (a) shows the factor loadings of the three-correlated factor model for **early adolescents**. As for the maternal version, most of factor loadings ranged from .57 to .82. Item 6 and item 14 presented the lowest loadings. The latent dimensions of the three-factor model presented strong inter-factor correlations also for the paternal version: trust vs. communication (*r*=.86), trust vs. alienation (r=-.77), and communication vs. alienation (*r*=-.60).

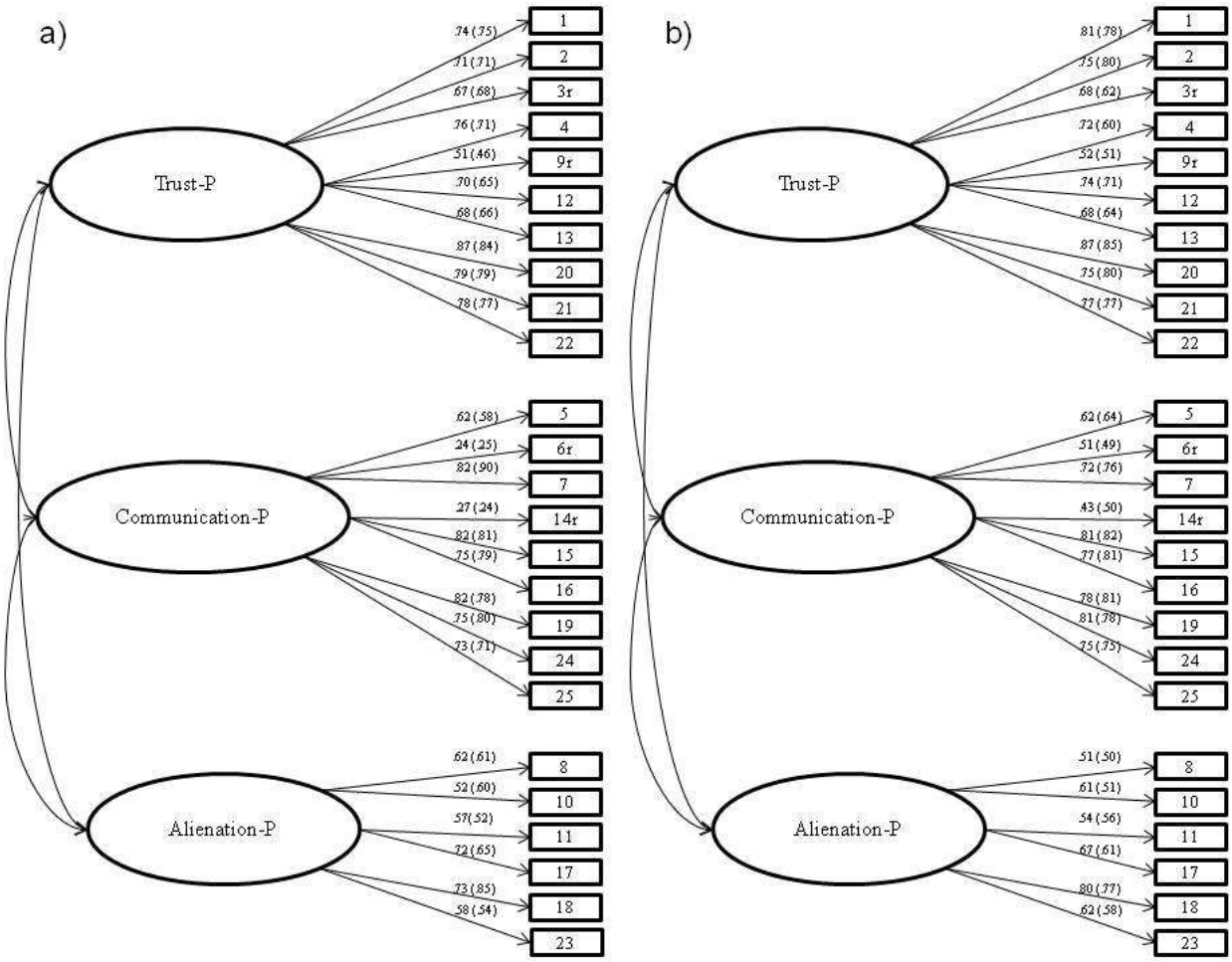

Figure 8(a, b). The three correlated model of IPPA-P, for the early (a) and mid-adolescents (b) samples.
Note: Validation sample values are in brackets.

Figure 8 (b) presents the factor loadings of the three-correlated factor model for **mid-adolescents**. All the factor loadings were above .40 and the majority of them ranged from .62 to .80. The strongest inter-factor correlation was between trust and alienation (*r*=-.91). However the correlations between trust and communication (*r*=.87), as well as communication and alienation (*r*=-.77) were strong too.

Validation sample.

The parsimonious indices, as well as the χ^2 difference tests confirmed the Model 1 as the most indicate to fit the data referring to both **early** and **mid-adolescents** samples. Factor loadings were similar to the ones emerged with the calibration samples, with most of the values between .55 and .80. Item 6 and item 14 showed poor factor loadings in the early-adolescents sample.

The inter-factor correlations were strong, with coefficients very similar to the ones found with the calibration samples. Inter-factor correlations for the early adolescents sample ranged from |.57| (communication vs. alienation) to |.85| (trust vs. communication) whereas for the mid-adolescents were comprise between |.74| (communication vs. alienation) and |.89| (trust vs. alienation).

Reliability

The internal consistencies of the IPPA-P (total score and subscales) were calculated and the results were similar to the IPPA-M version. Cronbach‘s Alpha for the IPPA-P security (total score) was excellent for the total sample (α=.92, 95% CI: .92-.93), as well as for both the early and mid-adolescents sample with a value of .91(95% CI: .90-.92) and .94 (95% CI: .94-.94) respectively.

The coefficients for the IPPA-P subscales demonstrated good internal consistency in both groups.

For the early adolescents sample, means and ranges of Cronbach’s alpha were: trust .86 (95% CI: .84-.87), communication .81 (95% CI: .79-.83), and alienation .74 (95% CI: .71-.76).

Referring to the mid-adolescents sample, the alpha coefficients were: trust α=.89 (95% CI: .88-.90), communication α=.87 (95% CI: .86-.88), and alienation α=.74 (95% CI: .72-.76).

Further analysis showed significant intercorrelations among IPPA-P subscales. For both groups, the strongest correlation was found between the trust and the communication subscales, with a correlation of .71 for early-adolescents, and .76 for mid-adolescents. The lowest correlation was found between the communication and the alienation subscales, with a negative correlation of .50 and .62 respectively. The negative correlation between the trust and alienation subscales was .62 for early adolescents and .74 for mid-adolescents.

6.1.1.3 IPPA Peer version (IPPA-Peer)

Structural validity

Calibration sample.

CFAs for the peer version (Table 5) reveled that all three models present appropriate fit indices. However, the parsimonious indices and the χ^2 difference tests indicated that Model 1 fits better the data than Model 2 and Model 3, for both the early and mid-adolescence samples, in line with findings from the maternal and paternal versions of the inventory.

Figure 9 (a) shows the factor loadings of the three-correlated factor model (Model 1) for early adolescents. Most of factor loadings ranged from .47 to .80. The only one item presenting factor loadings below .40 was the Item 22 ("I get upset a lot more than my friends know about") belonging to the alienation subscale (see Figure 9 (a)). The latent dimensions of the three-factor model presented strong inter-factor correlations also for the peer version: trust vs. communication (r=.92), trust vs. alienation (r=-.87), and communication vs. alienation (r=-.68).

Figure 9 (b) presents the factor loadings of the three-correlated factor model for mid-adolescents. The majority of factor loadings ranged from .47 to .75. Item 22 showed the lowest factor loading (.30). The peer version showed strong inter-factor correlations with the mid-adolescents sample. The strongest inter-factor correlation was between trust and alienation (r=-.95), the inter-factor correlations between trust and communication (r=.93), as well as communication and alienation (r=-.79) were strong too.

Validation sample.

Considering the **early adolescents** sample, Model 1 appeared to be the most appropriate. The other two models presented considerably worse fits with decidedly lower CFI, NNFI, and RMSEA values which were beyond acceptability. Thus, according also to parsimonious indices, as well as the $\chi 2$ difference tests the Model 1 resulted to be the most indicate to fit the data. Factor loadings were similar to the ones emerged with the calibration samples, with most of the values between .44 and .78. Item 22 showed poor factor loading also with the validation sample (see Figure 9 (a)).

The inter-factor correlations were strong: trust vs. communication, as well as trust vs. communication presented r=|.90| respectively, communication vs trust was r=|.68|.

Table 5.
Goodness of fit indice categories of IPPA-Peer for Model 1, Model 2, and Model 3 for Early Adoelscents (EA) and Mid-Adoelscents (MA)

Goodness of fit indexes categories	**Fit indexes**	**Sample**	**Model 1** (three factors)		**Model 2** (two factors)		**Model 3** (one factor)		**Good fit**	**Acceptable fit**
			EA	A	EA	A	EA	A		
df			272	272	274	274	275	275		
Satorra-Bentler scaled chi-square		1	1340.85	1623.95	1684.15	1651.10	1737.88	1681.64	$0 \leq \chi^2 \leq 2df$	$2df \leq \chi^2 \leq 3df$
		2	1321.77	1690.79	1688.60	1828.87	1813.40	1829.73		
Descriptive measures of overall model fit	RMSEA	1	.078	.081	.089	.084	.090	.086	0≤RMSEA≤.05	.05≤RMSEA≤.08
		2	.080	.095	.116	.109	.118	.116		
Descriptive measures based on model comparison	NFI	1	.96	.94	.95	.94	.95	.94	.95≤NFI≤1.00	.90≤NFI≤.95
		2	.95	.95	.93	.95	.92	.95		
	NNFI	1	.97	.95	.96	.95	.96	.94	.97≤CFI≤1.00	.95≤CFI≤.97
		2	.95	.95	.93	.95	.93	.95		
	CFI	1	.97	.95	.96	.95	.96	.95	.97≤CFI≤1.00	.95≤CFI≤.97
		2	.96	.96	.93	.95	.94	.95		
Descriptive measures of model parsimony	Model AIC	1	1446.85	1720.95	1786.15	1728.10	1837.88	1786.64	Smaller than AIC for comparison model	
		2	1427.77	1793.79	2790.60	1930.87	1913.40	1935.73		
	Model CAIC	1	1737.21	2015.16	2065.56	2011.21	2111.81	2064.19	Smaller than CAIC for comparison model	
		2	1695.78	2063.15	3070.00	2190.06	2166.24	2189.84		
	ECVI	1	2.23	2.46	2.75	2.47	2.83	2.56	Smaller than ECVI for comparison model	
		2	3.35	4.10	4.29	4.42	4.49	4.43		
Δ S-Bχ^2 (p)					Comparison Model 2 vs. Model 1		Comparison Model 3 vs. Model 1			
		1			343.30 (p<.001)	27.15 (p<.001)	397.03 (p<.001)	57.69 (p<.001)		
		2			366.83 (p<.001)	138.08 (p<.001)	491.63 (p<.001)	138.94 (p<.001)		

Note: EA refers to Early Adolescents, MA referd to Mid-Adolescents.
Sample 1 refers to calibration samples (*n*=651 for EA, *n*=700 for MA). Sample 2 refers to validation samples (*n*=427 for EA, *n*=438 for MA).

Referring to **mid-adolescents**, all the three models showed acceptable fit. Although the RMSEA is lightly greater than the suggested acceptable value, Model 1 appeared to be the most appropriate. The parsimonious indices, as well as the $\chi 2$ difference tests confirmed this finding. The factor loadings were similar to the ones found with the calibration sample (see Figure 9 (b)). Inter-factor correlations for the mid-adolescents sample ranged from |.76| (communication vs. alienation) to |.95| (trust vs. alienation).

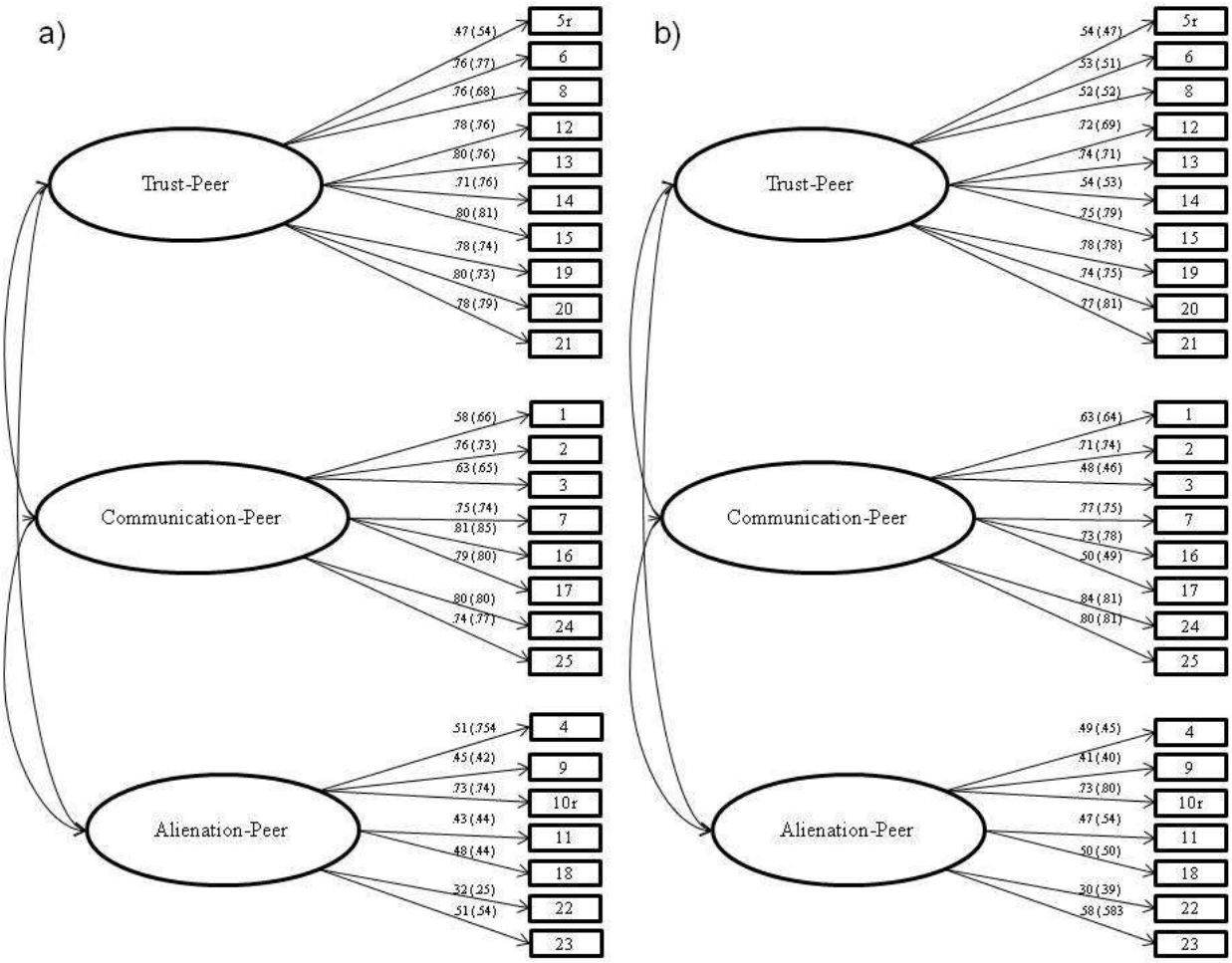

Figure 9(a, b). The three correlated model of IPPA-Peer, for the early (a) and mid-adolescents (b) samples.
Note: Validation sample values are in brackets.

Reliability

Overall internal consistency (Cronbach's alpha) of the IPPA-Peer was α=.85 (95% CI: .84-.86) for the total sample, α=.87 (95% CI: .86-.88) for the early adolescence sample and α=.83 (95% CI: .82-.85) for the mid-adolescents.

Alpha coefficients for the IPPA-Peer subscales ranged from good to acceptable in both groups.

Considering the early adolescence sample, means and ranges of Cronbach's alpha were: trust .82 (95% CI: .80-.83), communication .88 (95% CI: .87-.89), and alienation .61 (95% CI: .57-.64).

The intercorrelations among the IPPA-Peer subscales were carried out. As for IPPA-M and IPPA-P versions, the strongest correlation was found between the trust and communication subscales, with a correlation of .79. Although the correlations between the alienation and the other two subscales were significant, the magnitude was medium: r=-.48 (trust) and r=-.27 (communication).

Referring to the mid-adolescents sample the alpha coefficients were: trust α=.60 (95% CI: .57-.64), communication α=.82 (95% CI: .80-.83), and alienation α=.55 (95% CI: .50-.58).

The intercorrelations among IPPA-Peer subscales were all significant with the trust and the communication subscales presenting the strongest correlation (r=.78), followed by the trust and the alienation (r=-.61), and by the communication and the alienation (r=.47) subscales.

6.1.2 RSES

Using CFA, one- and two-dimensional models were tested. In specific three models were considered: (1) a 10-item unidimensional model rising from Rosenberg's original conception of global self-esteem (e.g., Rosenberg, 1965, 1979) and validated by several researchers (e.g., Fleming & Courtney, 1984; Mimura & Griffiths, 2007), (2) a second order model with two correlated factors that include the positive items on the one hand, and the negatives items on the other and one global self-esteem factor (Goldsmith, 1986; Pullmann & Allik, 2000; Roth et al., 2008), and (3) a second order model with two latent variables (self-competence and self-liking) with five measured variables loading onto each and one global self-esteem factor (Tafarodi & Swann, 1995, 2001; Tafarodi & Milne, 2002).

Structural validity

Table 6.

Goodness of fit indice categories of RSES for Model 1, Model 2, and Model 3 for Early Adoelscents (EA) and Mid-Adoelscents (MA)

Goodness of fit indexes categories	**Fit indexes**	**Sample**	**Model 1** (one factor)		**Model 2** (two factors: pos-neg)		**Model 3** (two factor: s.comp-s.like)		**Good fit**	**Acceptable fit**
			EA	A	EA	A	EA	A		
df			35	35	33	33	33	33		
Satorra-Bentler scaled chi-square		1	258.46	402.79	107.49	335.11	250.88	386.71	$0 \leq \chi^2 \leq 2df$	$2df \leq \chi^2 \leq 3df$
		2	155.23	359.42	55.44	330.94	155.79	327.48		
Descriptive measures of overall model fit	RMSEA	1	.099	.118	.059	.108	.109	.122	0≤RMSEA≤.05	05≤RMSEA≤.08
		2	.090	.149	.040	.136	.093	.141		
Descriptive measures based on model comparison	NFI	1	.94	.92	.98	.93	.95	.92	.95≤NFI≤1.00	.90≤NFI≤.95
		2	.94	.88	.98	.89	.94	.89		
	NNFI	1	.94	.90	.98	.91	.93	.90	.97≤CFI≤1.00	.95≤CFI≤.97
		2	.94	.86	.99	.86	.93	.86		
	CFI	1	.95	.92	.98	.94	.95	.92	.97≤CFI≤1.00	.95≤CFI≤.97
		2	.95	.89	.99	.90	.95	.90		
Descriptive measures of model parsimony	Model AIC	1	298.46	442.79	151.49	379.11	294.88	430.71	Smaller than AIC for comparison model	
		2	195.23	399.42	99.44	374.94	199.79	371.48		
	Model CAIC	1	408.03	553.82	272.02	501.23	415.40	552.83	Smaller than CAIC for comparison model	
		2	296.36	501.07	210.69	486.75	311.74	483.29		
	ECVI	1	.46	.63	.23	.54	.45	.62	Smaller than ECVI for comparison model	
		2	.46	.91	.23	.86	.47	.85		
Δ S-Bχ^2 (p)					Comparison Model 1 vs. Model 2		Comparison Model 3 vs. Model 2			
		1			150.97 (p<.001)	67.68 (p<.001)	--	--		
		2			99.79 (p<.001)	28.48 (p<.001)	--	--		

Note: EA refers to Early Adolescents, MA referd to Mid-Adolescents.
Sample 1 refers to calibration samples (*n*=651 for EA, *n*=700 for MA). Sample 2 refers to validation samples (*n*=427 for EA, *n*=438 for MA).

Calibration Sample.

Considering the **early adolescence** sample, as shown in Table 6, Model 1 and Model 3 both demonstrated some indices with unsatisfactory fit (e.g. RMSEA, NNFI). In contrast, the fit indices associated with Model 2 indicated excellent model fit, although the Satorra-Bentler chi squared tests associated with model quality was significant, but as already said, it might be biased by the sample size (Jöreskog & Sörbom, 1996). The evaluation of the parsimonious indices, lower in Model 2, as well as the χ^2 difference tests comparing Model 1 and Model 2 revealed that Model 2 was superior ($\Delta S\text{-}B\chi^2$=150.97, p<.001). A χ^2 difference test comparing Model 3 and Model 2 was not admissible given that these models were not nested. Nonetheless, the superiority of Model 2 (Positive-Negative items) over Model 3 (Self Competence-Self Liking) was consistently apparent across measures of overall and parsimonious fit.

Figure 10 (a) shows the factor loadings for the Model 2. All factor loadings were significant and ranged from .62 to .74. The inter-factor correlation between the latent variables was |.72|, the correlations with the second order factor (global self-esteem) were |.70| for the positive items factor and |.89| for the negative items factor.

Looking at the **mid-adolescents** sample (see Table 6), the fit of Model 2, although better than its competitors, was itself inadequate. Therefore, following Zeller and Carmines' (1980) proposal that the RSES is characterized by correlated errors among items of the same valence, as well as Tafarodi and Milne's empirical study (2002), all three models were combined to determine whether significant item variance was accounted by the assessment-acceptance and valence distinctions, respectively, beyond variance common to all ten items. In this combined five-factor model, each item was modeled as loading on three factors: a common factor (Model 1), a positive (for positively-worded items) or negative (for negatively-worded items) factor (model 2), and a self-competence (for self-competence items) or self-liking (for self-liking) factor (Model 3). The factors were specified as uncorrelated.

The combined model presented an improvement on the fit indices that resulted adequate (*RMSEA*=.057, *NFI*=.99, *NNFI*=.98, *CFI*=99, *AIC*=129.21, *CAIC*=351.25, *ECVI*=.18). The common factor loadings were consistently significant and 7/10 positive/negative loadings and 6/10 self competence-self liking loadings were significant.

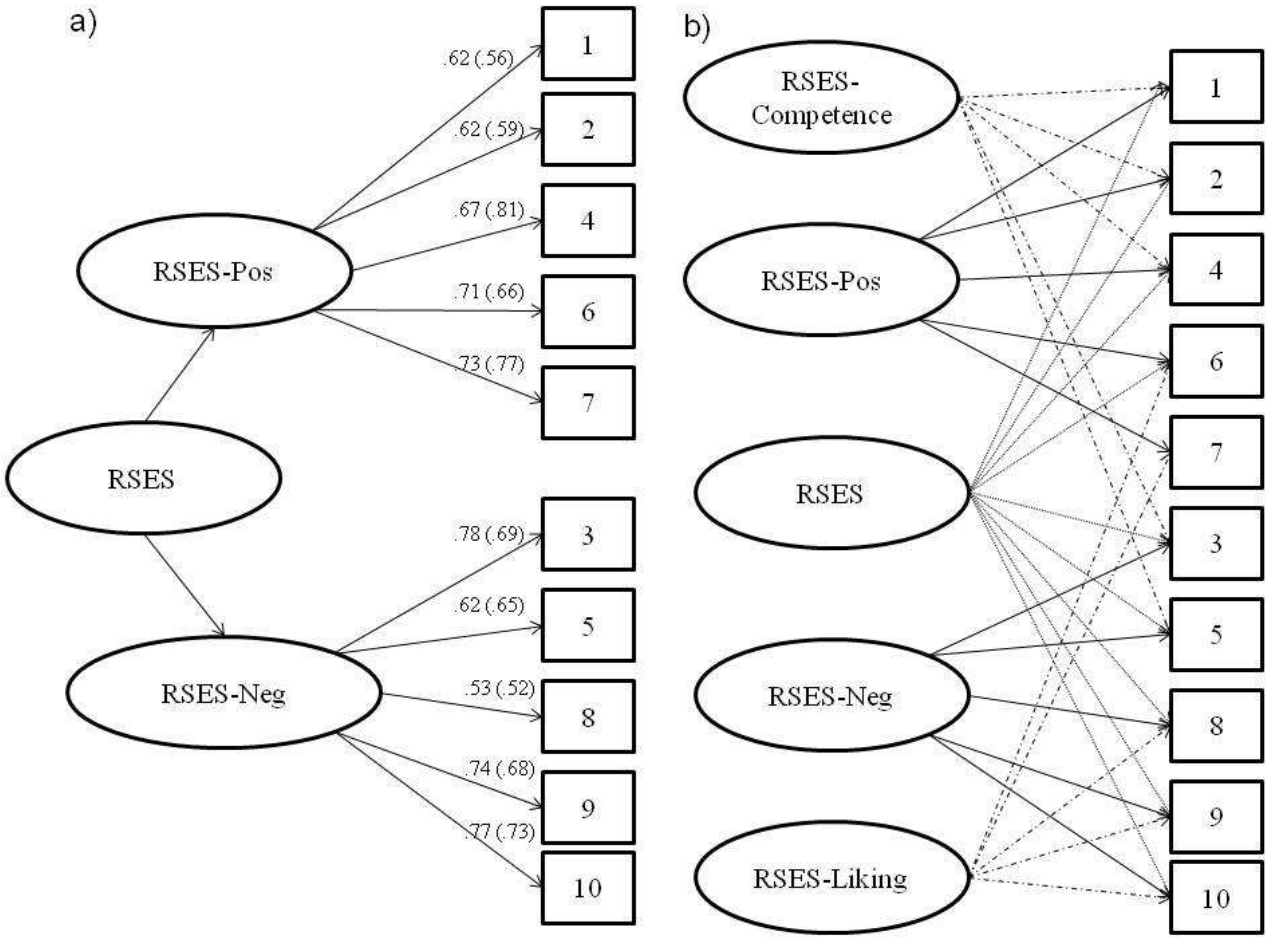

Figure 10 (a, b). The three correlated model of RSES, for the early (a) and mid-adolescents (b) samples.
Note: Validation sample values are in brackets.

Validation sample.

The parsimonious indices, as well as the χ^2 difference tests confirmed the Model 2 as the most indicate to fit the data referring to **early adolescents** sample. Factor loadings were similar to the ones of the calibration sample.

The inter-factor correlation was |.68|, the correlations with the global self-esteem factor were |.66| with positive items and |.92| with negative items.

Focusing on **mid-adolescence**, any of the three models tested reported adequate fit indices. Model 2 and Model 3 showed very similar indices. Differently from the calibration sample, parsimonious indices suggested that Model 3 may fit better the data than Model 2. Because these two models are not hierarchically related, it was not possible to formally test the difference in their fit. However the combined five-factor model was carried out to improve the fit. Fit indices (*RMSEA*=.053, *NFI*=.99, *NNFI*=.98, *CFI*=98, *AIC*=112.50, *CAIC*=336.12, *ECVI*=.26) showed an adequate fit for

the five-factor model, presenting factor loadings similar to the ones characterizing the calibration sample.

Reliability

The internal consistencies of the RSES total score and subscales, were calculated. Cronbach‘s Alpha for the RSES total score for the total sample (*N*=2216) was good (*α*=.81; CI: .80-.82).

Based on the results concerning the internal structure of the scale for the early-adolescents sample, Cronbach’s alpha means and ranges of the total score of the RSES (*α*=.80; 95% CI: .78-.82) as well as scores for the subscales representing the positive (*α*=.74; 95% CI: .71-.76) and negative (*α*=.74; 95% CI: .71-.76) evaluation components of self-esteem were adequate. The intercorrelation between the subscales was *r*=.50 (*p*=.001).

In regards to mid-adolescents, alphas for the total score of the RSES (*α*=.81; 95% CI: .79-.82), the subscales representing the positive (*α*=.61; 95% CI: .57-.64) and negative (*α*=.81; 95% CI: .79-.82) evaluation components, as well as scores for the self-competence (*α*=.65; 95% CI: .62-.68) and self-liking (*α*=.70; 95% CI: .67-.73) components of self-esteem ranged from adequate to good (Kline, 1999; Nunnally, 1978). The intercorrelation between the positive-negative components was *r*=.52 (*p*=.001), whereas the intercorrelation between self-competence and self-liking components of self-esteem was *r*=.67 (*p*=.001).

6.1.3 CDI

Three different models were carried out to examine the structural validity of the CDI. Model 1 has six correlated-factors: Negative Mood, Interpersonal Problems, Ineffectiveness, Anhedonia, Negative Self-Esteem, and Suicidal Ideation. It represents the original model proposed for the CDI by Kovacs (1992). Model 2 is a six-factor model proposed by Craighead and colleagues (Craighead et al., 1995; Craighead et al., 1998; Curry & Craighead, 1990, 1993). The factors in this model are Externalizing, Dysphoria, Self-Deprecation, School Problems, Social Problems, and Biological Dysregulation. The third model (Model 3) refers to Drucker and colleagues’ findings who proposed a five-factor model which includes Negative Self-Concept, Acting Out, Somatic Symptoms, Mood, and Hopelessness (Drucker & Greco-Vigorito, 2002;

Drucker, Greco-Vigorito, Coill, Moore-Russell, & Avaltroni, 1997; Greco-Vigorito, Drucker, Moore-Russell, & Avaltroni, 1995).

Table 7 shows the goodness of fit indices comparing the models (Model 1, Model 2, and Model 3), as well as the Satorra-Bentler chi-square (χ^2) difference values considering both early and mid-adolescents with the calibration (1) and validation (2) samples.

Structural validity

Calibration Sample.

Regarding the **early adolescents** sample, all the three models presented adequate fit, with most of the indices of Model 1 and Model 2 fell in the excellent-fit range. The evaluation of the $\chi 2$ difference tests comparing Model 1 and Model 3 revealed that Model 1 was superior (Δ *S-B*χ^2=52.80, p<.001). The comparison between Model 2 and Model 3 (Δ *S-B*χ^2=141.72, p<.001) showed that Model 2 fits better. Since the χ^2 difference test comparing Model 1 and Model 2 was not admissible given that these models were not nested, the superiority of Model 2 (Craighead and colleagues' model) over Model 1 (Kovacs' original model) was confirmed by the parsimonious indices. The factor loadings of Model 2 are reported in figure 11 (a). A majority of them ranged from .51 to .81.

The strongest inter-factor correlation was found between dysphoria and self-deprecation (r=.92). Further, biological dysregulation presented high correlations with dysphoria (r=.82), self-deprecation (r=.81), social problems (r=.68), externalizing disorders (r=.66), and school problems (r=.65). Moreover, self-deprecation showed high correlations with externalizing disorders (r=.78), school problems (r=.72), and social problems (r=-.72). Social Problems displayed high correlations with dysphoria (r=.70) and externalizing disorders (r=.61). School Problems highly correlated with externalizing disorders (r=.61), whereas it had moderate correlation with dysphoria (r=.56) and low correlation with social problems (r=.34).

Table 7.
Goodness of fit indice categories of CDI for Model 1, Model 2, and Model 3 for Early Adoelscents (EA) and Mid-Adoelscents (MA)

Goodness of fit indexes categories	**Fit indexes**	**Sample**	**Model 1** (six factors, Kovacs)		**Model 2** (six factors, Craighead)		**Model 3** (five factors, Drucker)		**Good fit**	**Acceptable fit**
			EA	A	EA	A	EA	A		
df			309	309	309	309	314	314		
Satorra-Bentler scaled chi-square		1	580.82	492.39	491.90	590.07	633.62	560.08	$0 \leq \chi^2 \leq 2df$	$2df \leq \chi^2 \leq 3df$
		2	436.06	421.95	419.01	505.93	495.48	476.95		
Descriptive measures of overall model fit	RMSEA	1	.037	.029	.030	.036	.040	.033	0≤RMSEA≤.05	05≤RMSEA≤.08
		2	.031	.029	.029	.038	.037	.034		
Descriptive measures based on model comparison	NFI	1	.97	.99	.98	.98	.97	.98	.95≤NFI≤1.00	.90≤NFI≤.95
		2	.97	.98	.97	.98	.97	.98		
	NNFI	1	.99	.99	.99	.99	.98	.99	.97≤CFI≤1.00	.95≤CFI≤.97
		2	.99	.99	.99	.99	,99	.99		
	CFI	1	.99	.99	.99	.99	,99	.99	.97≤CFI≤1.00	.95≤CFI≤.97
		2	.99	1.00	.99	.99	.99	.99		
Descriptive measures of model parsimony	Model AIC	1	718.82	630.39	629.90	728.07	761.62	688.08	Smaller than AIC for comparison model	
		2	574.06	559.95	557.01	643.93	623.48	604.95		
	Model CAIC	1	1096.84	1013.41	1007.91	1111.10	1112.25	1043.35	Smaller than CAIC for comparison model	
		2	922.98	910.63	905.92	994.61	947.12	930.21		
	ECVI	1	1.11	.90	.97	1.04	1.17	.98	Smaller than ECVI for comparison model	
		2	1.35	1.28	1.31	1.47	1.46	1.38		
Δ S-Bχ^2 (p)					Comparison Model 3 vs. Model 2		Comparison Model 3 vs. Model 1			
		1			141.72 (p<.001)	29.99 (p<.001)	52.80 (p<.001)	67.69 (p<.001)		
		2			73.53 (p<.001)	28.98 (p<.001)	59.42 (p<.001)	55.00 (p<.001)		

Note: EA refers to Early Adolescents, MA referd to Mid-Adolescents.
Sample 1 refers to calibration samples (*n*=651 for EA, *n*=700 for MA). Sample 2 refers to validation samples (*n*=427 for EA, *n*=438 for MA).

The three models presented adequate and very similar fits also in the **mid-adolescents** sample. In specific, trough the evaluation of the *χ2* difference tests (Model 1 vs. Model

3) and the parsimonious indices, Model 1 (Kovacs' original model) showed the best fit. Model 1 is showed in figure 11 (b). The majority of the factor loadings ranged from .63 to .90. Item 14 ("My look is ok"), corresponding to the Negative Self-Esteem scale, showed the lowest factor loading (.22).

All the inter-factor correlations were significant and in the expected direction. Interpersonal Problems presented the strongest inter-factor correlations with anhedonia (*r*=.96), negative mood (*r*=.95), self-esteem (*r*=.90), and ineffectiveness (*r*=.70). Anhedonia showed high correlations with self-esteem (*r*=.95), negative mood (*r*=.97), and ineffectiveness (*r*=.69). Negative mood highly correlated with self-esteem (*r*=.97) and ineffectiveness (*r*=.79). Because the suicidal ideation factor included only one item (i.e. Item 9), the inter-factor correlations were low, ranging from (.12) to (.28).

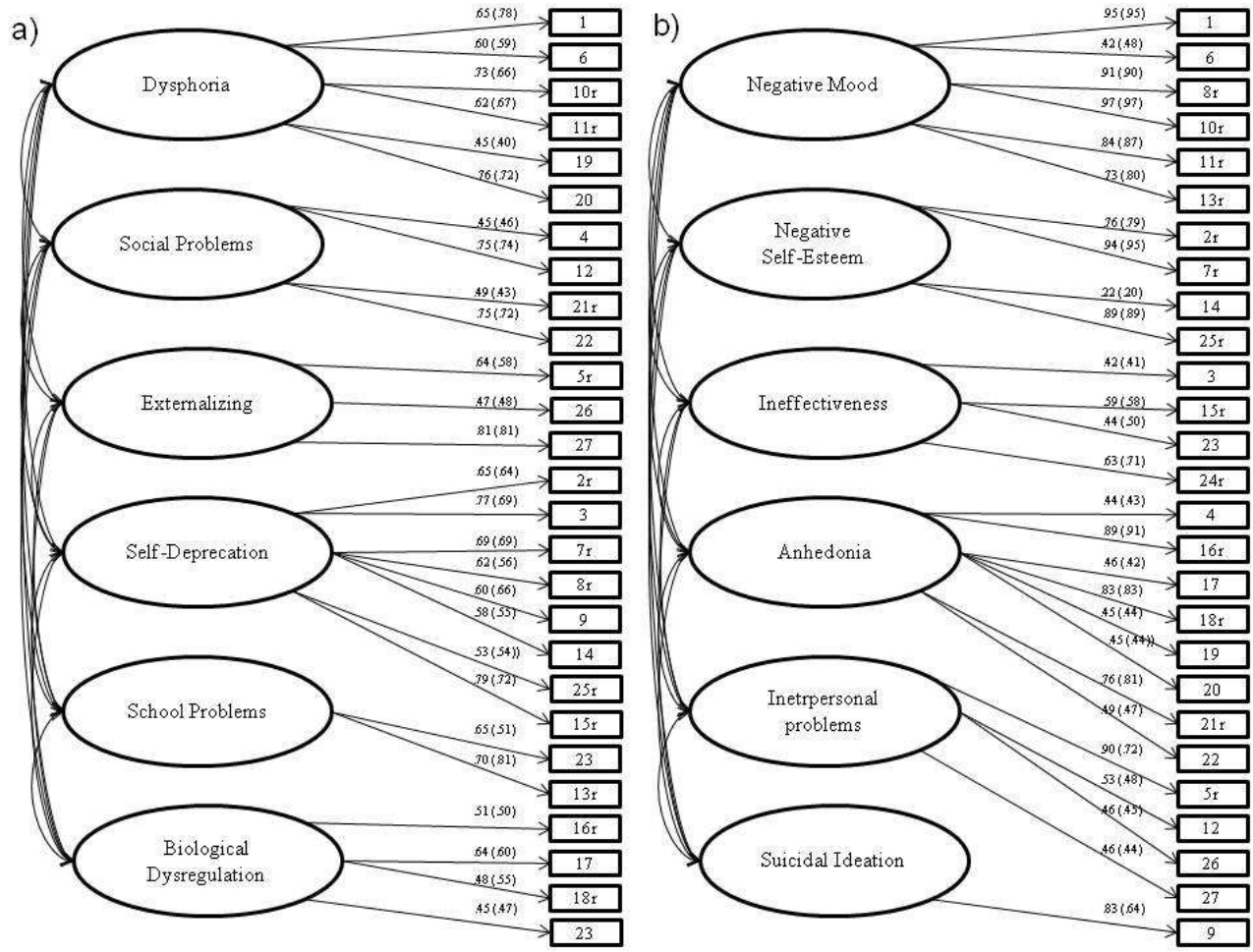

Figure 11 (a, b). The three correlated model of CDI, for the early (a) and mid-adolescents (b) samples.
Note: Validation sample values are in brackets.

Validation Sample.

CFAs findings were very similar with the results of the calibration stage, for both **early** and **mid-adolescents**. In specific, Model 2 (Craighead et al., 1998), and Model 1 (Kovacs' 1992) showed the best fits for early and mid-adolescents respectively. Factor loadings were close to the ones reported with the calibration samples, as well as inter-factor correlations (see Figure 11 a,b).

Reliability

The internal consistencies of the CDI total score and subscales, were calculated. Cronbach's Alpha for the CDI total score for the total sample (*N*=2216) was good (*α*=.88; CI: .88-.89), as well as for early (*α*=.86; CI: .84-.87) and mid-adolescents (*α*=.88; CI: .87-.89).

Because early and mid-adolescents showed different results concerning the internal structure of the scale, Cronbach's alpha means and ranges for subscales concerning the early adolescents sample referred to Craighead and colleagues' (1998) model, whereas for the mid-adolescents referred to Kovacs' (1992) original model.

Considering the early-adolescents sample, alpha coefficients were acceptable: externalizing (α=.53; 95% CI: .46-.58), dysphoria (*α*=.65; 95% CI: .61-.68), self-deprecation (*α*=.75; 95% CI: .73-.75), social problems (*α*=.53; 95% CI: .48-.58), and biological dysregulation (*α*=.66; 95% CI: .63-.69). School Problems subscale showed a weaker internal consistency (*α*=.47; 95% CI: .41-.53).

Although the intercorrelations between the subscales were all significant (*p*=.01), the coefficients ranged from .298 (school problems vs. social problems) to .462 (dysphoria vs. biological dysregulation).

In regards to mid-adolescents, internal-consistencies of the subscales of the CDI were: negative mood (*α*=.76; 95% CI: .74-.78), interpersonal problems (*α*=.44; 95% CI: .38-.49), ineffectiveness (*α*=.63; 95% CI: .59-.66), anhedonia (α=.59; 95% CI: .55-.62), and negative self-esteem (*α*=.70; 95% CI: .67-.73).

The intercorrelation between the subscales were all significant (*p*=.01) and ranged from *r*=.31 (ineffectiveness vs. negative self-esteem), to *r*=.83 (negative mood vs. negative self-esteem).

6.1.4 SCAS

The dimensional structure of the SCAS was assessed by CFAs on the three main models found in the literature: (1) the six-correlated factor model (panic disorder and agoraphobia, fears of physical injury, generalized anxiety disorder, separation anxiety disorder, social phobia, and obsessive–compulsive disorder; Spence, 2003; Essau et all., 2011; Essau et al., 2012; Di Riso et al., 2012), (2) the five-correlated factor model that includes: panic disorder and agoraphobia, fears of physical injury, separation anxiety disorder, obsessive–compulsive disorder and the generalized anxiety disorder with the social phobia as the same (Essau et al., 2008; Essau et al., 2004), and (3) the four-factor model which comprehends panic disorder and agoraphobia, social phobia and fears of physical injury and separation anxiety together, and generalized anxiety and obsessive–compulsive disorder as fourth factor (Muris et al., 2002).

Structural validity

Calibration sample.

Table 8 shows the goodness of fit indices comparing the three models, as well as the Satorra–Bentler χ^2 difference values. In general, the three models showed adequate and similar fit indices for both early and mid-adolescents. The parsimonious indices were lower in Model 1 (six-factor model) and the Satorra–Bentler χ^2 difference tests were significant, indicating that Model 1 fits the data better than Model 2 (five-factor model) and Model 3 (four-factor model) for both age-groups.

Considering the **early adolescents** sample, as can be seen in Figure 12 (a), the majority of factor loadings ranged from .50 to .71. Item 18 ("I am scared of dogs") had the lowest factor loadings, corresponding to the fears of physical injury.

The strongest inter-factor correlation was found between social phobia and generalized anxiety disorder (*r*=.82). Further, social phobia showed high correlations with obsessive-compulsive disorder (*r*=.74), fears of physical injury (*r*=.63), social phobia (.62), and panic (*r*=.60). Separation anxiety was highly correlated with panic (*r*=.75), fears of physical injury (*r*=.72), obsessive-compulsive (*r*=.70), and with generalized anxiety disorder (*r*=.59). Symptoms of obsessive–compulsive disorder strongly correlated with symptoms of generalized anxiety disorder and panic (*r*=.80 and *r*=.77, respectively), moreover showed a high correlation with fears of physical injury (*r*=.58).

Panic presented high correlations with generalized anxiety disorder (*r*=.68) and fears of physical injury (*r*=.67). Finally, fears of physical injury presented a high correlation with generalized anxiety disorder (*r*=.64).

Regarding the **mid-adolescents** sample, factor loadings mostly range from .50 to .73. Item 18 had the lowest factor loadings also in this sample.

Separation anxiety displayed the strongest inter-factor correlation with fears of physical injury (*r*=.94). Moreover, separation anxiety showed high correlations with panic (*r*=.82), generalized anxiety disorder (.71), social phobia (*r*=.68), and with obsessive-compulsive disorder (*r*=.60). Generalized anxiety disorder presented high correlations with panic, social phobia, and fears of physical injury (*r*=.79, *r*=.78, and *r*=75, respectively), as well as with obsessive-compulsive disorder (*r*=.67). Panic had high correlations with obsessive-compulsive disorder (*r*=.75), fear of physical injury (*r*=.73), and social phobia (*r*=.64). Obsessive-compulsive disorder showed high inter-factor correlation with social phobia (*r*=.57) and moderate correlation with fear of physical injury (*r*=.41). A high inter-factor correlation emerged between social phobia and fear of physical injury (*r*=.65).

Validation sample.

For both **early** and **mid-adolescents**, the comparison between the models showed that Model 1 (six-factor) fits the data better than Model 2 and Model 3 (see Table XX), confirming the goodness of the model.

In the early adolescents sample, the majority of factor loadings ranged from .50 to .74 , and the inter-factor correlations ranged from *r*=.57 (social phobia vs. panic) to *r*=.90 (social phobia vs. generalized anxiety disorder).

The validation stage on the mid-adolescents sample presented factor loadings very similar to the ones emerged during the calibration stage, ranging from .47 to .77. The strongest inter-factor correlation was found between separation anxiety and fear of physical injury (*r*=.92), the lowest correlation was found between separation anxiety and obsessive-compulsive disorder (*r*=.68).

Table 8.
Goodness of fit indice categories of SCAS for Model 1, Model 2, and Model 3 for Early Adoelscents (EA) and Mid-Adoelscents (MA)

Goodness of fit indexes categories	**Fit indexes**	**Sample**	**Model 1** (six factors)		**Model 2** (five factors)		**Model 3** (four factors)		**Good fit**	**Acceptable fit**
			EA	A	EA	A	EA	A		
df			650	650	655	655	659	659		
Satorra-Bentler scaled chi-square		1	1414.84	1611.92	1441.22	1685.34	1507.79	1810.79	$0 \leq \chi^2 \leq 2df$	$2df \leq \chi^2 \leq 3df$
		2	1165.97	1316.40	1192.69	1342.97	1225.93	1379.37		
Descriptive measures of overall model fit	RMSEA	1	.043	.046	.043	.047	.045	.050	0≤RMSEA≤.05	05≤RMSEA≤.08
		2	.044	.048	.044	.048	.045	.050		
Descriptive measures based on model comparison	NFI	1	.95	.96	.95	.96	.94	.95	.95≤NFI≤1.00	.90≤NFI≤.95
		2	.94	.95	.94	.95	.94	.95		
	NNFI	1	.97	.97	.97	.97	.97	.97	.97≤CFI≤1.00	.95≤CFI≤.97
		2	.97	.97	.97	.97	.97	.97		
	CFI	1	.97	.97	.97	.97	.97	.97	.97≤CFI≤1.00	.95≤CFI≤.97
		2	.97	.98	.97	.98	.97	.97		
Descriptive measures of model parsimony	Model AIC	1	1596.84	1793.92	1613.22	1857.34	1671.79	1974.79	Smaller than AIC for comparison model	
		2	1364.97	1494.40	1367.69	1498.97	1389.92	1543.37		
	Model CAIC	1	2084.37	2299.07	2095.38	2334.74	2121.03	2429.98	Smaller than CAIC for comparison model	
		2	1799.85	1932.88	1827.85	1960.04	1804.58	1960.11		
	ECVI	1	2.46	2.57	2.48	2.66	2.57	2.83	Smaller than ECVI for comparison model	
		2	3.20	3.42	3.21	3.43	3.26	3.53		
Δ S-Bχ^2 (p)					Comparison Model 2 vs. Model 1		Comparison Model 3 vs. Model 1			
		1			26.38 (p<.001)	73.42 (p<.001)	92.95 (p<.001)	198.87 (p<.001)		
		2			26.72 (p<.001)	26.57 (p<.001)	59.96 (p<.001)	62.97 (p<.001)		

Note: EA refers to Early Adolescents, MA referd to Mid-Adolescents.
Sample 1 refers to calibration samples (*n*=651 for EA, *n*=700 for MA). Sample 2 refers to validation samples (*n*=427 for EA, *n*=438 for MA).

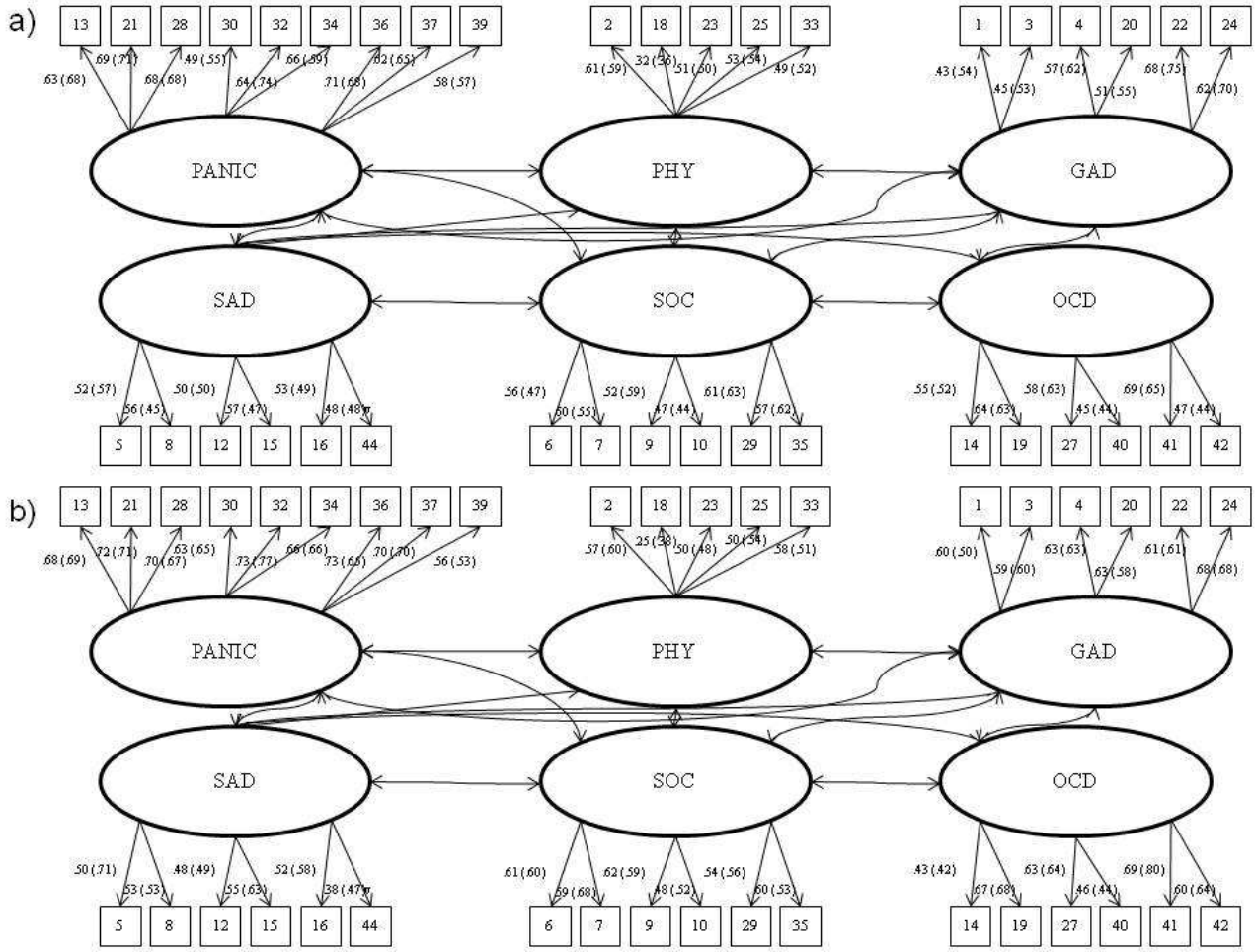

Figure 12 (a, b). The three correlated model of SCAS, for the early (a) and mid-adolescents (b) samples.
Note: Validation sample values are in brackets.

Reliability

The internal consistencies of the SCAS (total score and subscales) were calculated. Cronbach's Alpha for the total SCAS score was excellent, with a value of .89 (95% CI: .88-.91) for the whole sample (N=2216), as well as .89 (95% CI: .88-.91) and .90 (95% CI: .89-.91) for early and mid-adolescents respectively. The Cronbach's Alphas ranged from moderate to good for the SCAS subscales for both age-groups. For the early adolescents sample: panic (α=.78; 95% CI: .76-.80), fears of physical injury (α=.49; 95% CI: .44-.54), social phobia (α=.68; 95% CI: .64-.70), separation anxiety (α=.55; 95% CI: .51-.59), obsessive–compulsive (α=.63; 95% CI: .60-.67), and generalized anxiety (α=.70; 95% CI: .68-.73). Whereas for the mid-adolescents sample: panic (α=.80; 95% CI: .78-.82), fears of physical injury (α=.49; 95% CI: .44-.53), social phobia (α=.69; 95% CI: .67-.72), separation anxiety (α=.52; 95% CI: .48-.57), obsessive–compulsive (α=.70; 95% CI: .66-.72), and generalized anxiety (α=.74; 95% CI: .71-.76).

Further analysis showed significant intercorrelations among SCAS subscales (Table 9). The results were in line with Essau and colleagues (2012).Considering the early adolescents sample the strongest correlation was found between the generalized anxiety disorder and the social phobia subscales, with a correlation of .58. The lowest correlation was found between the fears of physical injury and the obsessive–compulsive subscales, with a correlation of .32.

Considering the mid-adolescents sample the strongest correlations were found between the generalized anxiety disorder and the social phobia as well as the panic disorder subscales, a correlation of .58 respectively. The lowest correlation was found between the fears of physical injury and the obsessive–compulsive subscales, with a correlation of .30.

Table 9.
Intercorrelations among SCAS subcales for early (n=1078) and mid adolescents (n=1138)

	SAD	SOC	OCD	PANIC	PHY	GAD
SAD	--	.43**	.45**	.50**	.38**	.43**
SOC	.45**	--	.46**	.39**	.36**	.58**
OCD	.41**	.43**	--	.51**	.32**	.53**
PANIC	.54**	.46**	.52**	--	.42**	.50**
PHY	.46**	.42**	.30**	.46**	--	.39**
GAD	.49**	.58**	.48**	.58**	.47**	--

Note: Coefficients above the diagonal referred to early adolescents' correlations, coefficients under the diagnonal referred to adolescents'
**$p < .01$.

6.2 *QUESTION 2*: Do Italian early adolescents and mid-adolescents report different scores on the major variables of interest?

Table 10 shows the means and standard deviations of the total scores and subscales of the selected measures for the total sample and for early and mid-adolescents. This stage would contribute to fill the gap found in the literature presenting the normative data for Italian adolescents. Moreover, more specifically, normative data referring to Italian early and mid-adolescents are also reported.

Moreover in Table 10 are summarized the results of the ANOVAs and MANOVAs. For clarity purpose, are here commented only the significant findings for the total score of each measure.

Table 10.
Means, standard deviations and analysis of variance for effect of age, for the total, early and mid-adoelscents samples.

	Total (*N*=2216)		EA (*n*=1078)		MA (*n*=1138)		$F_{(1,2214)}$	*p*	η^2
	M	*Sd*	*M*	*Sd*	*M*	*Sd*			
IPPA									
Security-M	95.67	15.50	97.39	15.56	94.04	15.27	26.21	.000	.012
Trust-M	41.71	6.95	42.45	6.96	41.00	6.87	24.17	.000	.011
Communication-M	33.43	6.90	34.21	6.70	32.69	7.01	27.31	.000	.012
Alienation-M	12.83	4.86	12.89	5.34	12.79	4.37	.22	.636	.000
Security-P	88.60	16.39	91.12	16.14	86.21	16.27	50.93	.000	.022
Trust-P	39.85	7.33	40.69	7.29	39.06	7.30	27.50	.000	.012
Communication-P	28.98	7.47	30.31	7.40	27.72	7.31	68.29	.000	.030
Alienation-P	13.71	4.70	13.51	5.00	13.90	4.40	3.72	.054	.002
Security-Peer	94.08	15.63	96.67	16.01	91.63	14.86	59.03	.000	.026
Trust-Peer	39.58	7.48	41.43	7.35	37.83	7.17	135.49	.000	.058
Communication-Peer	29.69	6.36	30.50	6.87	28.93	5.74	33.98	.000	.015
Alienation-Peer	17.20	4.42	17.26	4.84	17.14	3.99	.40	.526	.000
RSES									
Total score	29.91	4.95	30.95	4.73	28.92	4.94	97.43	.000	.042
RSES positive	15.59	2.44	16.40	2.34	14.83	2.28	253.99	.000	.103
RSES negative	14.31	3.25	14.55	3.11	14.09	3.36	11.46	.001	.005
RSES liking	14.26	2.94	14.84	2.90	13.71	2.88	84.16	.000	.037
RSES competence	15.65	2.49	16.11	2.36	15.21	2.53	75.53	.000	.033
CDI									
Total score	12.98	8.68	9.61	6.85	16.18	9.02	369.97	.000	.143
Anhedonia	3.76	2.68	--	--	4.53	2.76	--	--	--
Negative Mood	2.87	2.68	--	--	3.84	2.94	--	--	--
Negative Self-esteem	2.40	2.05	--	--	3.12	2.19	--	--	--
Ineffectiveness	2.42	1.70	--	--	2.88	1.57	--	--	--
Interpersonal Problems	1.26	1.27	--	--	1.58	1.31	--	--	--
Suicidal Ideation									
Externalizing prolems	1.09	1.13	.78	.98	--	--	--	--	--
Dysphoria	2.36	2.11	1.81	1.94	--	--	--	--	--
Self-deprecation	4.38	3.28	3.17	2.66	--	--	--	--	--
School problems	1.27	1.09	1.00	1.08	--	--	--	--	--
Social problems	1.46	1.33	1.22	1.28	--	--	--	--	--
Biological dysfunction	2.42	2.06	1.62	1.52	--	--	--	--	--
SCAS									
Total score	27.71	13.10	28.91	13.64	26.57	12.47	17.78	.000	.008
Panic	3.19	3.84	3.63	3.84	2.77	3.29	32.18	.000	.014
Physical injury	2.91	2.39	3.05	2.47	2.78	2.32	6.85	.009	.003
Social phobia	6.37	3.09	6.46	3.23	6.29	2.95	1.59	.207	.001
OBS	4.79	3.04	5.20	3.19	4.41	2.85	37.99	.000	.017
SAD	3.45	2.41	3.81	2.62	3.12	2.14	45.47	.000	.020
GAD	6.99	3.10	6.77	3.15	7.20	3.03	10.65	.001	.005

Note: in italics the total scores.

As already mentioned, the present samples belong to non-clinic populations. The majority of the means and standard deviations reported by both age-groups were below the clinical cut off. Focusing on the effect of age, mid-adolescents reported significantly higher levels of depressive symptoms than early adolescents and lower levels of self-

esteem. Furthermore, in general, early adolescents reported significantly higher levels of attachment than mid-adolescents. In specific early adolescents showed higher levels of both maternal and paternal, as well as peer attachment than mid-adolescents. Although anxiety symptoms, turned out to be significant, the partial eta-squared estimates was low. Thus only trivial effects, mainly due to the large sample size, can be hypothesized for this variable.

6.3 *QUESTION 3:* Do boys and girls report different scores on the major variables of interest?

In Table 11 are reported the means, the standard deviations, and the results of the analyses of variance, for the total scores and subscales of the selected measures for boys and girls. Analyses were carried out separately for early and mid-adolescents.

Table 11.
Means, standard deviations and analysis of variance for effect of gender, for the early adolescents sample.

	Boys (*n*=486)		Girls (*n*=592)		$F_{(1,1076)}$	*p*	η^2
	M	*Sd*	*M*	*Sd*			
IPPA							
Security-M	98.07	14.64	96.83	16.26	1.70	.193	.002
Trust-M	42.81	6.68	42.15	7.18	2.39	.122	.002
Communication-M	34.45	6.19	34.01	7.09	1.15	.284	.001
Alienation-M	12.99	5.41	12.80	5.34	.35	.554	.000
Security-P	93.45	15.41	89.21	16.48	18.72	.000	.017
Trust-P	42.32	7.08	40.17	7.42	6.66	.010	.006
Communication-P	31.74	6.89	29.13	7.60	34.15	.000	.031
Alienation-P	13.20	4.85	13.76	5.11	3.10	.069	.003
Security-Peer	93.09	16.11	99.60	16.01	45.94	.000	.041
Trust-Peer	40.25	7.64	42.39	6.97	23.04	.000	.021
Communication-Peer	28.97	7.14	31.75	6.20	45.80	.000	.041
Alienation-Peer	18.13	4.81	16.55	4.75	29.13	.000	.026
RSES							
Total score	31.50	4.63	30.50	4.77	11.99	.001	.011
RSES positive	16.64	2.26	16.18	2.38	9.64	.002	.009
RSES negative	15.04	2.40	14.60	2.12	8.56	.003	.008
CDI							
Total score	9.36	7.12	9.81	6.62	1.13	.287	.001
Externalizing prolems	.78	1.04	.77	.93	.04	.842	.000
Dysphoria	1.58	1.87	2.01	1.98	13.14	.000	.012
Self-deprecation	2.99	2.68	3.32	2.63	4.17	.041	.004
School problems	1.06	1.12	.96	1.05	2.93	.122	.002
Social problems	1.39	1.41	1.08	1.15	15.80	.000	.014
Biological dysfunction	1.56	1.52	1.67	1.52	1.43	.232	.001
SCAS							
Total score	24.75	12.01	32.33	13.94	89.41	.000	.077
Panic	2.90	3.48	4.23	4.02	32.79	.000	.030
Physical injury	2.37	2.25	3.60	2.51	69.89	.000	.061
Social phobia	5.51	2.90	7.24	3.28	82.04	.000	.071
OBS	4.49	3.09	5.41	3.23	5.95	.015	.006
SAD	3.36	2.42	4.17	2.73	26.17	.000	.024
GAD	5.66	2.75	7.68	3.16	122.49	.000	.102

Considering the **early adolescents** sample, as can be seen from Table 12, girls reported significantly higher levels of anxiety symptoms than boys and lower levels of self-esteem. Females also reported higher levels of peer attachment than males. Conversely males reported higher levels of paternal attachment. Boys and girls did not show significant differences on levels of maternal attachment, as well as on level of depressive symptoms.

Table 12.
Means, standard deviations and analysis of variance for effect of gender, for the mid-adolescents sample.

	Boys (*n*=598)		Girls (*n*=540)		$F_{(1,1136)}$	*p*	η^2
	M	*Sd*	*M*	*Sd*			
IPPA							
Security-M	92.95	13.90	95.24	16.59	6.41	.193	.002
Trust-M	40.94	6.55	41.07	7.22	.97	.755	.000
Communication-M	31.56	6.43	33.93	7.41	33.37	.000	.029
Alienation-M	12.79	4.14	12.79	4.61	.00	.994	.00
Security-P	87.77	14.18	84.47	18.17	11.78	.001	.010
Trust-P	39.56	6.47	38.51	8.08	5.83	.016	.005
Communication-P	28.22	6.59	27.17	8.02	5.89	.015	.005
Alienation-P	13.33	3.90	14.52	4.82	20.90	.000	.018
Security-Peer	87.77	14.53	95.90	14.05	91.78	.000	.075
Trust-Peer	36.22	6.98	39.62	6.97	67.22	.000	.056
Communication-Peer	26.99	5.70	31.08	4.96	165.37	.000	.127
Alienation-Peer	17.45	3.97	16.80	3.98	7.48	.006	.007
RSES							
Total score	29.35	5.23	28.44	4.56	9.58	.002	.008
RSES positive	15.04	2.40	14.60	2.12	10.53	.001	.009
RSES negative	14.31	3.62	13.84	3.03	5.49	.019	.005
RSES self-liking	14.03	2.95	13.06	2.77	15.20	.000	.013
RSES sef-competence	15.32	2.69	15.08	2.39	2.59	.108	.002
CDI							
Total score	16.78	9.73	15.50	8.11	1.13	.287	.001
Anhedonia	4.67	2.95	4.37	2.54	3.51	.067	.003
Negative Mood	4.02	3.13	3.64	2.69	4.75	.030	.004
Negative Self-esteem	3.23	2.36	3.00	1.99	3.13	.077	.003
Ineffectiveness	2.92	1.56	2.82	1.58	1.12	.298	.001
Interpersonal Problems	1.72	1.35	1.41	1.24	15.82	.000	.014
Suicidal Ideation	.21	.47	.25	.47	1.69	.194	.001
SCAS							
Total score	22.13	11.12	31.50	12.03	89.41	.000	.077
Panic	2.03	2.97	3.59	3.45	66.93	.000	.056
Physical injury	1.92	1.93	3.73	2.33	203.72	.000	.152
Social phobia	5.48	2.69	7.19	2.98	103.86	.000	.084
OBS	4.15	2.84	4.69	2.84	10.04	.002	.009
SAD	2.57	1.92	3.73	2.20	89.43	.000	.073
GAD	5.96	2.57	8.56	2.92	255.48	.000	.184

Focusing on **mid-adolescents**, females reported significantly higher levels of anxiety symptoms than boys. Moreover girls reported higher levels of maternal and peer attachment than boys. Conversely, boys reported higher levels of paternal attachment. Although gender differences have emerged considering the levels of self-esteem, the

partial eta-squared estimate was low, suggesting trivial results, mainly due to the large sample size. Boys and girls did not show significant differences on level of depressive symptoms.

6.4 *QUESTION 4*: Are mother, father and peer attachment related with internalizing problems, such as depressive or anxiety symptoms? Does self-esteem play a role too ?

Pearson's correlation were carried out separately for both early and mid-adolescents (Table 13). To interpret the coefficients the following guidelines have been considered: small correlations for |r| ranging from .10 to .29, medium correlations for |r| comprised between .30 to .49, high correlations for |*r*| greater than .50 (Cohen, 1988). In line with the theoretical constructs considered and for clarity purpose, are here reported only the correlations considering the total scores of each measure. All variables were significantly associated (p=.01) with each other in the expected directions.

As expected, depressive symptoms as well as anxiety symptoms, were positively correlated with each other and were each negatively correlated with self-esteem, maternal, paternal, and peer attachment.

Table 13.
Correlations between the total scores of the selected measures.

	CDI	SCAS	RSES	IPPA Mother	IPPA Father	IPPA Peer
CDI	--	.34	-.54	-.36	-.38	-.27
SCAS	.18	--	-.38	-.16	-.26	-.14
RSES	-.62	-.29	--	.40	.41	.31
IPPA Mother	-.16	-.10	.22	--	.52	.30
IPPA Father	-.17	-.21	.26	.42	--	.33
IPPA Peer	-.57	-.10	.39	.20	.17	--

Note: Coefficients above the diagonal referred to early adolescents' correlations, coefficients under the diagnonal referred to mid-adolescents'correlations.
All the correlations are significant at p<.01

Considering the **early adolescents** sample, higher levels of maternal attachment were strongly associated with high levels of paternal attachment. Moreover higher levels of

peers attachment were moderately associated with high levels of both maternal and paternal attachment. Furthermore, higher levels of both maternal and paternal attachment were associated with low levels of depressive symptoms. Higher levels of both maternal and paternal attachment were also moderately associated with high levels of self-esteem.

Focusing on **mid-adolescents**, higher levels of depressive symptoms were strongly negatively associated with high levels of self-esteem, as well as with high levels of peer attachment . Moreover higher levels of maternal attachment were moderately associated with high levels of paternal attachment.

6.5 *QUESTION 5*: How mother, father, and peer attachment contribute to psychological well-being in early and mid-adolescence? Have mother, father and peer attachment a different role in the development of internalizing problems, such as depressive or anxiety symptoms? Which is the role of self-esteem?

The hypothesized model of the relationship between the attachment measures (for mother, father and peer) and the outcome measures was evaluated using structural equation modeling (SEM) techniques. The parceling technique was used to construct multiple indicators of latent variables (Kishton & Widaman, 1994; MacCallum & Austin, 2000). Correlations for the parceled variables are presented in Table 14.

Table 14.
Correlations for parceled variables.

	dep1	dep2	anx1	anx2	s-est1	s-est2	m.at1	m.at2	p.at1	p.at2	peer1	peer2
dep1	--	.741	.301	.288	-.434	-.436	-.334	-.313	-.353	-.307	-.215	-.220
dep2	.709	--	.296	.283	-.435	-.477	-.345	-.332	-.373	-.315	-.263	-.269
anx1	.109	.262	--	.807	-.276	-.341	-.146	-.109	-.233	-.187	-.127	-.132
anx2	.092	.236	.845	--	-.301	-.355	-.180	-.155	-.265	-.222	-.120	-.123
s-est1	-.638	-.607	-.285	-.279	--	.616	.339	.313	.333	.319	.275	.259
s-est2	-.400	-.458	-.227	-.223		--	.368	.337	.401	.322	.277	.268
m.at1	-.090	-.200	-.147	-.083	.186	.208	--	.814	.516	.409	.256	.296
m.at2	-.101	-.211	-.094	-.084	.180	.188	.856	--	.508	.540	.264	.304
p.at1	-.105	-.218	-.250	-.213	.237	.262	.438	.483	--	.809	.293	.313
p.at2	-.102	-.192	-.159	-.219	.192	.197	.346	.502	.853	--	.293	.288
peer1	-.588	-.480	-.089	-.083	.446	.275	.172	.179	.146	.129	--	.859
peer2	-.484	-.447	-.096	-.098	.391	.265	.212	.199	.206	.168	.805	--

Note: Coefficients above the diagonal referred to early adolescents' correlations, coefficients under the diagnonal referred to mid-adolescents'correlations. All the correlations are significant at $p<.01$

A cross validation procedure was adopted (Cudeck & Browne, 1983).

For clarity purpose, are firstly presented results concerning the depressive symptoms in early and mid-adolescents respectively. Successively, the results referring to anxiety symptoms for both early and mid-adolescents are discussed.

6.5.1 Depressive Symptoms

Table 15 presents the fit statistics from the analysis of the hypothesized model for both early and mid-adolescents as well as for the calibration and validation samples.

Table 15.
Goodness of fit indice categories of depressive symptoms for early and mid-adolescents

	Early Adolescents (*n*=1078)		Mid-Adolescents (*n*=1138)	
	Calibration (*n*=651)	Validation (*n*=427)	Calibration (*n*=700)	Validation (*n*=438)
df	56	56	56	56
Satorra Bentler scaled chi-square	199.52	173.04	278.82	230.07
RMSEA	.063	.070	.075	.080
NFI	.99	.98	.99	.99
NNFI	.99	.98	.98	.98
CFI	.99	.98	.99	.99

Calibration Sample.

Focusing on the **early-adolescents** sample, the NFI, NNFI and CFI statistics were both above 0.95 indicating that the hypothesized model shows a good fit to the data (Bentler, 1990; Byrne, 1998). As $\chi 2$ is considered sensitive to large sample sizes (Ullman, 1996), its failure to reach the appropriate value with $p>0.05$ was not considered problematic. The RMSEA was below the recommended value of 0.08 that would indicate an adequate fit (Byrne, 1998).

No further modifications to the model were considered to be necessary. Screening of modification indices confirmed this decision.

This final model, with standardized coefficients, is presented in Figure 13. Based on the squared multiple correlation coefficients, 49% of the variance in self-esteem, 62% of the variance in depression, and 18% of the variance in peer attachment is accounted for in the model.

All of the hypothesized path weights were in the appropriate direction and, with the exception of the regression paths from both maternal and paternal attachment to depression, significant at the 0.05 level, in line with previous research (Wilkinson, 2004).

Examination of the model revealed a large effect of self-esteem on depression. Conversely, both maternal and paternal attachment, did not display a significant direct effect on depression. The indirect effect of maternal attachment on depression, mediated through self-esteem, was small (-.21), whereas the indirect effect of paternal attachment on depression was a bit greater (-.33). Peer attachment had only a weak indirect effect (-.18) on depression.

Both exogenous variables and peer attachment significantly influenced self-esteem. Paternal attachment had a marginally larger influence on self-esteem than maternal and peer attachment. Moreover, paternal attachment showed a larger influence on peer attachment than maternal attachment.

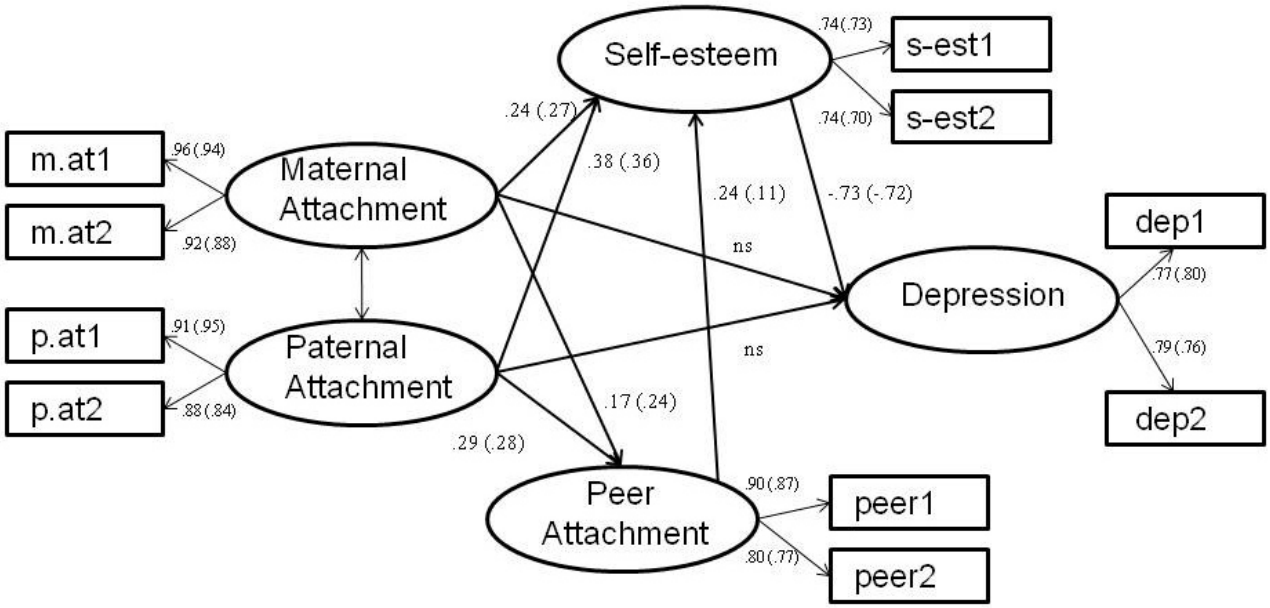

Figure 13. The final model for depressive symptoms in early adolescents.
Note: Validation sample values are in brackets.

Considering the **mid-adolescents**, the evaluation of the model using the same methods and statistics as used with the early-adolescents sample indicated that it was an adequate fit to the data (see Table 15). Although these statistics indicated that the hypothesized model was an adequate fit without modification, examination of the modification indices revealed that a path from the endogenous variable of peer attachment to the endogenous variable of depression should be freed and could further improve model fit. As such a modification was not considered to comprise the theoretical integrity of the model, this path was freed and the fit statistics for the resultant model (Modification 1) were: $\chi^2_{(55)}$=243.67, RMSEA=.070, NFI=.99

NNFI=.99 CFI=.99. There was a significant improvement in the fit of the model ($\chi^2_{(1)}$=36.15, p <0.001), which is reflected, in the various fit indices. The resultant modified model was indicated to be an adequate fit by the absolute value of all the fit statistics except for χ^2.

Based on the squared multiple correlation coefficients, 31% of the variance in self-esteem, 79% of the variance in depression, and 5% of the variance in peer attachment is accounted for in the model. The parameters of interest in the model are presented in Figure 14. With the exception of the regression path from both maternal and paternal attachment to depression, all of the path weights are in the appropriate direction and significant at the 0.05 level.

As for early adolescents, the model showed a large effect of self-esteem on depression. Although neither maternal, nor paternal attachment had a significant direct effect on depression, peer attachment showed a medium direct effect on depression. The indirect effect of both maternal and paternal attachment on depression, mediated through self-esteem, was small (-.17 and -.18, respectively). On the other hand, peer attachment, mediated by self-esteem showed a large effect (-.60) on depression.

An interesting difference from the results showed for early-adolescents is the role of maternal, paternal, and peer attachment on self esteem. Both maternal and paternal attachment had a low influence on self-esteem (.10 and .15 respectively) for mid-adolescents. Conversely, peer attachment had a large influence on self-esteem (.47).

Paternal as well as maternal attachment, showed a low influence on peer attachment.

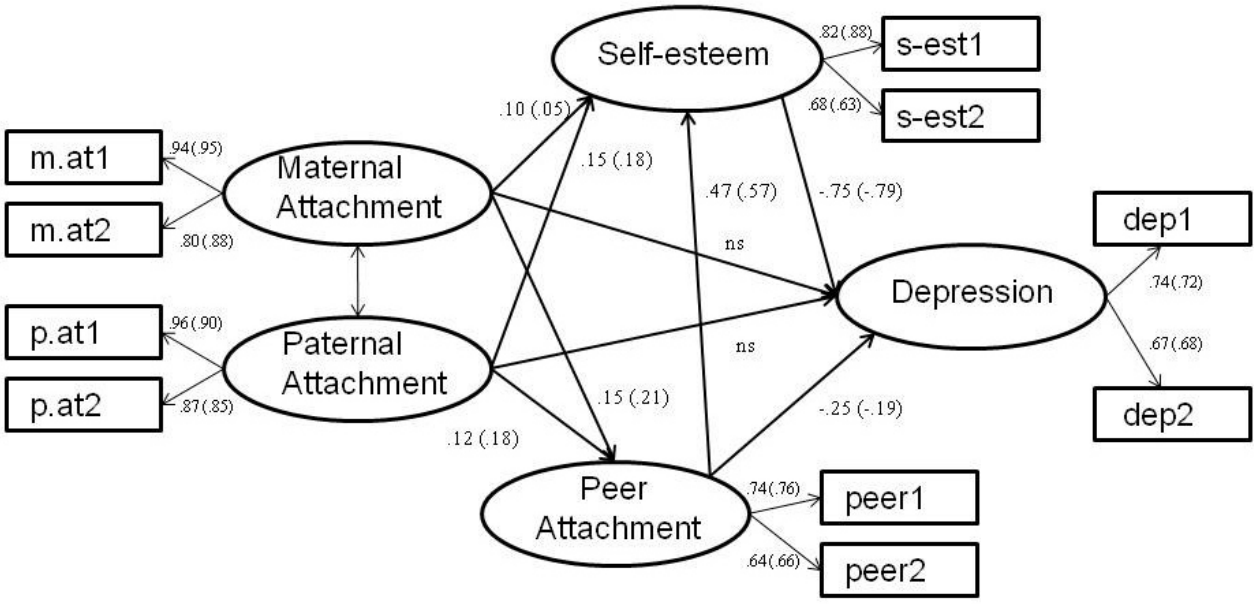

Figure 14. The final model for depressive symptoms in mid-adolescents.
Note: Validation sample values are in brackets.

Validation sample.

The hypothesized model showed good fit indices for the **early adolescents** sample (Table 15). Examination of the modification indices did not suggest any significant modification. Based on the squared multiple correlation coefficients, 39% of the variance in self-esteem, 57% of the variance in depression, and 21% of the variance in peer attachment is accounted for in the model. The direct path weights are reported between parentheses in Figure 13. The regression paths from maternal and paternal attachment to depression were not significant also with the validation sample. Beside them, all of path weights were significant and in the appropriate direction. The validation stage confirmed what was found with the calibration sample for direct and indirect effects.

Paternal attachment (-.28), mediated by the self-esteem, had the greater influence on depression, followed by maternal (-.21) and peer attachment (-.08) respectively.

Considering the **mid-adolescents**, the evaluation of the model using the same methods and statistics as used in with the early-adolescents sample indicated that it was an adequate fit to the data (see Table 15). Although, the examination of the modification indices did not revealed any modification, to proof the goodness of the model suggested by the calibration sample, a path from the variable of peer attachment to the endogenous variable of depression was freed. The indices of fit of the modified model were $\chi^2_{(55)}$=222.47, RMSEA=.071, NFI=.99 NNFI=.99 CFI=.99. The indices showed an improvement in the fit and the χ^2 difference tests was significant ($\chi^2_{(1)}$=7.60, *p=.006*), suggesting a better fit for this modified model than the hypothesized model. In other words, it seems that peer attachment has an effect on the development of depressive symptoms.

Based on the squared multiple correlation coefficients, 44% of the variance in self-esteem, 82% of the variance in depression, and 11% of the variance in peer attachment is accounted for in the model. The path weight were very similar to the ones find with the calibration sample (see Figure 14). Thus, the indirect effect of both maternal and paternal attachment on depression, mediated through self-esteem, was small (-.18 and -.25, respectively), whereas the indirect effect of peer attachment, mediated by self-esteem, on depression was large (-.65). These findings seem to suggest that this indirect effect on depression may be age-related.

Multi-group comparison

After evaluating the overall fit of the model, multi-group comparisons were used to examine the extent to which this model is consistent, in terms of covariance matrices and forms (dimensions, and patterns of fixed, free, and constrained values; *k*) across students' gender. Thus, the aim of these analyses was to test for gender interaction in the magnitude of the structural coefficients.

Considering the **early adolescents** sample, all the fit indices presented indicate no significant statistical differences in the covariance matrices (CFI=.998, NFI=.992, NNFI=.997, RMSEA=.031), and forms (CFI=.96, NFI=.94, NNFI=.94, RMSEA=.091), between boys and girls. These results suggested that the hypothesized model with its paths well-represent both early adolescent boys and girls.

Focusing on the **mid-adolescents** sample, the multi-group comparison was carried out on the modified model, showing similar results. The fit indices considered, show no significant differences in the covariance matrices (CFI=.998, NFI=.997, NNFI=1.00, RMSEA=.044), and forms (CFI=.94, NFI=.93, NNFI=.92, RMSEA=.10), between boys and girls. The validation stage confirmed the results of the calibration stage, allowing to generalize this findings to both boys and girls.

6.5.2 Anxiety Symptoms

Table 16 presents the fit statistics from the analysis of the hypothesized model for both early and mid-adolescents as well as for the calibration and validation samples.

Table 16.
Goodness of fit indice categories of depressive symptoms for early and mid-adolescents

	Early Adolescents (*n*=1078)		Mid-Adolescents (*n*=1138)	
	Calibration (*n*=651)	Validation (*n*=427)	Calibration (*n*=700)	Validation (*n*=438)
df	68	56	56	56
Satorra Bentler scaled chi-square	325.49	236.17	406.81	257.60
RMSEA	.076	.076	.080	.080
NFI	.98	.97	.97	.98
NNFI	.98	.97	.97	.98
CFI	.98	.98	.98	.98

Calibration Sample.

Referring to the **early-adolescents** sample, the fit indices suggested that the hypothesized model shows a good fit to the data. The χ^2 failed to reach the appropriate value with $p>0.05$, however since it is sensitive to large sample sizes, its failure was not considered problematic. According to the good fit presented and to the examination of

the modification indices, no further modifications to the model were considered to be necessary.

The final model, with standardized coefficients, is presented in Figure 15. Based on the squared multiple correlation coefficients, 39% of the variance in self-esteem, 37% of the variance in anxiety symptoms, and 15% of the variance in peer attachment is accounted for in the model.

All of the hypothesized path weights were significant at the 0.05 level and, with the exception of the regression path from maternal attachment to anxiety, in the appropriate direction. As for symptoms of depression, self-esteem revealed a large effect on anxiety symptoms too. Although both paternal and maternal attachment displayed a low direct effect on anxiety, the path from maternal attachment to anxiety was in an unexpected direction. In other words, this path suggested that high security in maternal attachment led to high levels of anxiety symptoms. Looking at the indirect effect of maternal attachment on anxiety, mediated through self-esteem, it was low (-.15), whereas the indirect effect of paternal attachment on depression was moderate (-.23). Peer attachment had a weak indirect effect (-.11) on anxiety.

As already mentioned, maternal, paternal and peer attachment significantly influenced self-esteem, as well as maternal and paternal attachment influenced peer attachment. Paternal attachment showed the largest influences on both.

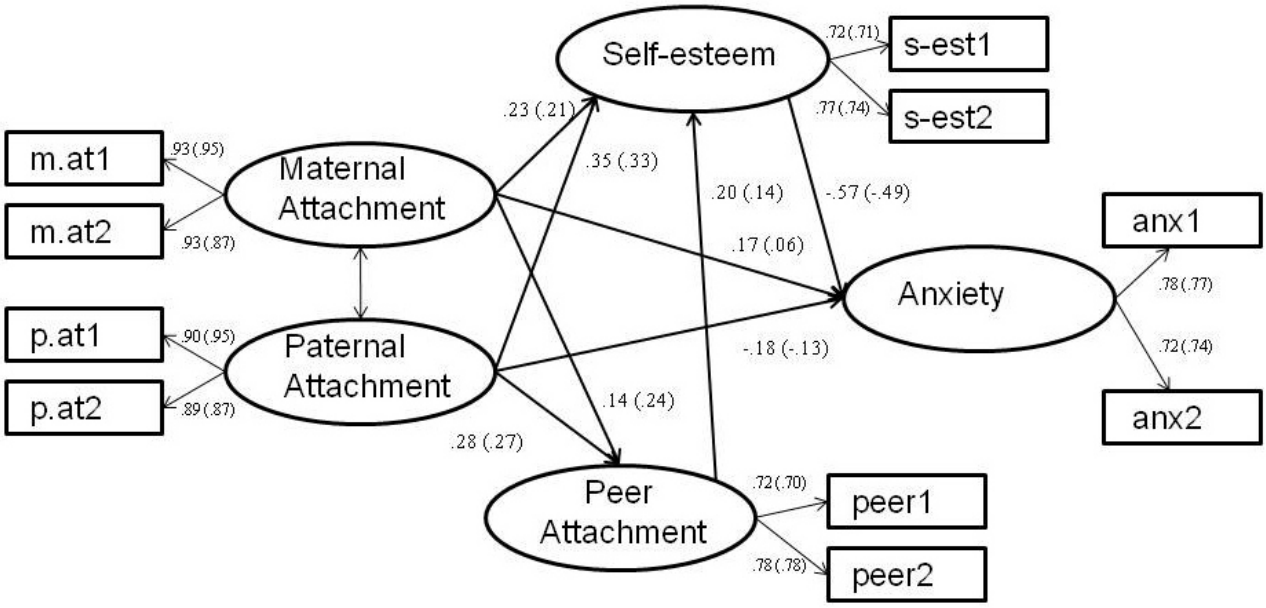

Figure 15. The final model for anxiety symptoms in early adolescents.
Note: Validation sample values are in brackets.

Shifting to the **mid-adolescents** sample, the hypothesized model showed adequate fit indices (Table 16). The examination of the modification indices did not suggest any further modifications, thus the model was considered satisfactory (Figure 16).

Based on the squared multiple correlation coefficients, 25% of the variance in self-esteem, 22% of the variance in anxiety symptoms, and 3% of the variance in peer attachment is accounted for in the model.

All of the hypothesized path weights, with the exception of the regression path from maternal attachment to anxiety, were significant at the 0.05 level and in the appropriate direction.

Self-esteem revealed a large effect on anxiety symptoms also for mid-adolescents. As said before, maternal attachment did not present a direct effect on anxiety symptoms, whereas paternal attachment displayed a direct effect, although low, on anxiety. The indirect effect of both maternal and paternal attachment on depression, mediated through self-esteem, were low (-.06 and -.10, respectively). Peer attachment had a weak indirect effect (-.14) on depression. Low direct effect were found from maternal and paternal attachment to peer attachment. Peer attachment resulted to have the greatest direct influence on self-esteem, followed by paternal and maternal attachment respectively.

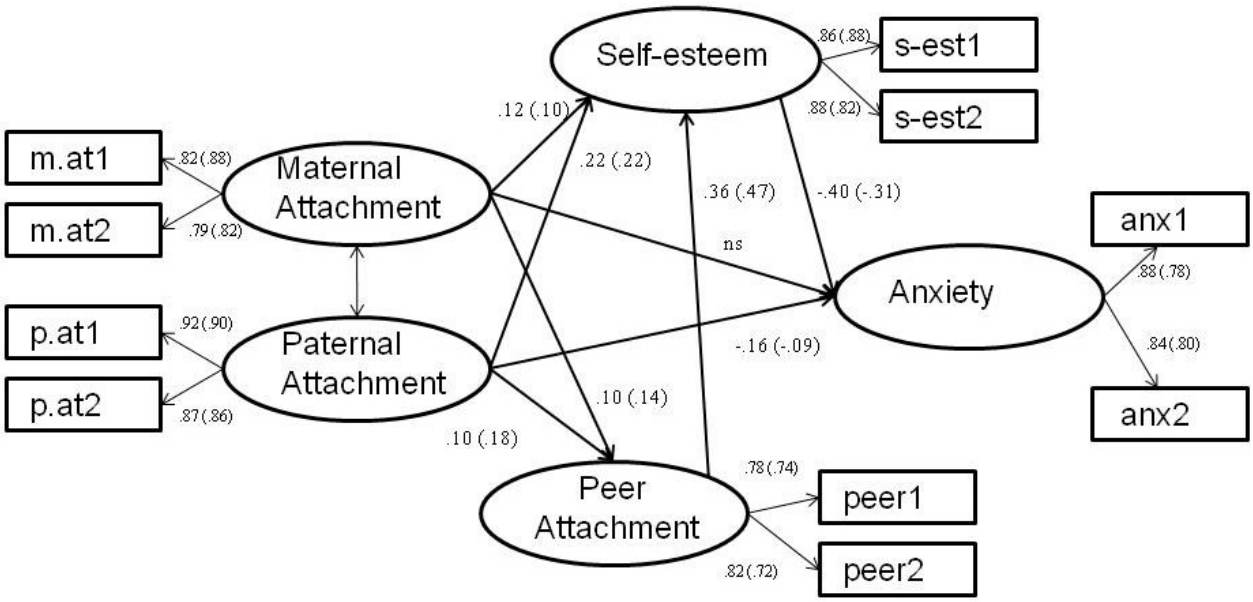

Figure 16. The final model for anxiety symptoms in mid-adolescents.
Note: Validation sample values are in brackets.

Validation sample.

The model presented acceptable fit indices for the **early adolescents** sample (Table 16). Examination of the modification indices did not suggest any significant modification. Based on the squared multiple correlation coefficients, 32% of the variance in self-esteem, 29% of the variance in anxiety symptoms, and 21% of the variance in peer attachment is accounted for in the model. All of the hypothesized path weights were significant at the 0.05 level and, with the exception of the regression path from maternal attachment to anxiety, in the appropriate direction. The path weights are reported between parentheses in Figure 15. Since most of the direct effects are very similar with the ones find with the calibration stage, are here reported only the indirect paths. The indirect effect of maternal attachment on anxiety symptoms, mediated through self-esteem, was low (-.12), as well as the indirect effect of paternal attachment (-.18). Peer attachment had a weak indirect effect (-.07) on anxiety symptoms. Paternal attachment resulted to have the greatest direct influence on self-esteem, followed by maternal and peer attachment respectively.

Considering the **mid-adolescents**, the hypothesized model exhibited adequate fit indices. The examination of the modification indices did not suggest any further modifications, thus the model was considered satisfactory.

Based on the squared multiple correlation coefficients, 37% of the variance in self-esteem, 14% of the variance in anxiety symptoms, and 8% of the variance in peer attachment is accounted for in the model. All of the hypothesized path weights, were in the appropriate direction and, with the exception of the regression path from maternal attachment to anxiety, significant at the 0.05 level. As with the calibration sample, the path from maternal attachment to anxiety was not significant, however, in the validation sample, the path was in the appropriate direction, although presenting a low weights.

The other path weights were similar to the ones characterizing the calibration sample, as well as similar were the indirect effects. In specific, the indirect effect of maternal attachment on anxiety symptoms, mediated through self-esteem, was low (-.05), as well as the indirect effect of paternal attachment (-.10). Peer attachment had a weak indirect effect (-.15) on anxiety symptoms. Paternal attachment resulted to have the greatest direct influence on self-esteem, followed by maternal and peer attachment respectively.

Multi-group comparison

After evaluating the overall fit of the model, multi-group comparisons were used to examine the extent to which the model is consistent, in terms of covariance matrices

and forms (dimensions, and patterns of fixed, free, and constrained values; *k*) across students' gender regarding.

Considering the **early adolescents** sample, all the fit indices presented indicate no significant statistical differences in the covariance matrices (CFI=.999, NFI=.992, NNFI=.999, RMSEA=.017), and forms (CFI=.951, NFI=.921, NNFI=.932, RMSEA=.096), between boys and girls. These results suggested that the model offered an adequate representation of the relationship between attachment and anxiety symptoms, mediated by the self-esteem, for both early adolescents males and females.

Focusing on the **mid-adolescents** sample, the multi-group comparison was carried out on the modified model, showing similar results. The fit indices considered, show no significant differences in the covariance matrices (CFI=.997, NFI=.991, NNFI=.995, RMSEA=.034), and forms (CFI=.90, NFI=.90, NNFI=.90, RMSEA=.09), between boys and girls.

Also for the anxiety symptoms, the validation stage confirmed the results of the calibration stage, allowing to generalize this findings to both boys and girls.

CHAPTER 7

Discussion

The main purpose of this study was to clarify the role that maternal, paternal and peer attachment may have in the prevention of the psychological maladjustment in a sample of 2216 Italian early and mid-adolescents. Furthermore the mediation role of self-esteem was taken into account. In specific, two different psychological disorders were considered: depressive and anxiety symptoms. According to the literature, depressive and anxiety symptoms, although presenting high comorbidity each other, show different trends during adolescence (Angold & Costello, 2008; Bohnert et al., 2008; Hale et al., 2008; Lee & Hankin, 2009; Twenge & Nolen-Hoeksema, 2002). Thus they were considered separately. Moreover, although empirical studies have frequently considered adolescence as a unique stage of life, early and mid-adolescents were considered two different groups, in order to better understand possible age or developmental-related differences.

This study proceed in a number of steps. Firstly, the psychometric characteristics of the selected measures were analyzed (Question 1). Secondly, normative data for the Italian early and mid-adolescent community samples were reported. Age and gender differences were examined (Question 2 and Question 3). Thirdly, correlations between the major variables of interest were carried out (Question 4). Finally, through the structural equation modeling technique, the hypothesized model was assessed. A multi-group procedure allowed to evaluate gender differences in the model (Question 5).

To answer to Question 1 "*Does IPPA, RSES, CDI, and SCAS present good psychometric properties for both early and mid-adolescent samples*?" reliability and confirmatory factor analyses with a cross-validation procedure were carried out. By using the cross-validation procedure, it was demonstrated that these results were not merely artifacts of sampling. The limited differences found between the samples amounted to a high degree of cross-validity for the results. Thus, the successful cross-validation of the CFAs allowed to strengthen the obtained results, given more power to

generalize the findings to other populations with similar features (Cudeck & Browne, 1983; Leak, 2011; Roth et al., 2008; Tafarodi & Milne, 2002).

In general, all the selected measures showed internal consistency ranging from good to excellent levels and good construct validity.

Specifically, in terms of the dimensional structure of the three versions of the inventory on attachment (IPPA-M, IPPA-P, IPPA-Peer), the CFAs showed that the model best fitted to the data was the model with three correlated dimensions, for both age-group samples, in line with previous studies focusing on Italian adolescent samples (Pace et al., 2011; San Martini et al., 2009). The three-correlated factor model is conceptually equivalent to a hierarchical model with three first order factors functionally dependent on a second order factor and supports both the use of the overall scores for attachment security and the subscale scores for trust, communication and alienation (Pace et al., 2011). In all three versions, however, the strong correlations between the latent variables suggested that the constructs may be poorly differentiated and this leaves some open doubt over whether the segmentation of the inventory into three subscales is useful at a practical level (San Martini et al., 2009). Nevertheless, the findings from this study gave further support to the factorial validity and the reliability of the questionnaire when it is used to evaluate overall attachment security and for the assessment of the three sub-dimensions originally proposed by Armsden and Greenberg (1987).

With respect to the dimensionality of the RSES, the CFA results supported the claim that the RSES is more than a unidimensional scale (Greenberger, Chen, Dmitrieva, & Farraggia, 2003; Roth et al., 2008; Tafarodi & Milne, 2002). The single-factor measurement model did not fit as well as either of the two-factor models. Furthermore, the CFA results of this study suggested different dimensional structures for early and mid-adolescents. According to Roth and colleagues (2008), in the early adolescents sample, the CFA results clearly indicated a two-factor structure in which positive and negative items load onto separate factors, which in turn constitute global self-esteem on a higher order level. Conversely, for the mid-adolescents sample, none of the three models showed adequate fit indices. The combined five-factor model proposed by Tafarodi and Milne (2002), to overcome these difficulties, exhibited a better fit for the mid-adolescents sample. A possible explanation for these different factorial structures could lie on RSES factorial variability. As stated by several authors, RSES seems to be affected by method effects, that is some variables such as particpants' age, gender, and reading skills led to different dimensional structures (Corwyn 2000; Martín-Albo et al.,

2007; Marsh, 1996). In this sense, the RSES seems not factorially invariable in different samples and the method effects may vary from one to another, as indicated by Goldsmith (1986).

Considering the factor structure of the CDI, all the three hypothesized models (Craighead et al., 1998; Drucker et al., 2000; Kovacs 1992) showed excellent fit indices for both age-groups. However, the examination of the parsimonious indices, led to a different dimensional structure of the CDI for early and mid-adolescent samples. Craighead and colleagues' (1995, 1998) dimensional structure appeared to be the most adequate for the youngest group. Conversely, Kovacs' (1992) original model fitted best the data for the mid-adolescents sample. As underlined by Steele and colleagues (2006), the CDI comprehends a set of common "core factors" that have been found in most of the studies on the CDI structural validity (Kovacs, 1992; Cole et al., 2000; Craighead et al., 1998; Drucker & Greco-Vigorito, 2002). In specific all authors reported primary factors associated with *negative mood/dysphoria*, *low self-esteem*/*self-concept*, and *externalizing/oppositional behavior* (although Kovacs labeled this factor *interpersonal problems*). The presence of these factors across the samples suggested a high degree of stability and construct validity. Further, these factors correspond to current conceptualizations of the primary symptoms of depression among children and adolescents (e.g., negative mood, worthlessness, irritability; American Psychological Association, 2000). Thus, the good fit indices reported by all the three models, could find an explanation on these common "core factors". Looking at the "additional" factors that have been reported beyond the three core factors, Kovacs (1992) mentioned *ineffectiveness* and *anhedonia*, whereas Craighead and colleagues (1998) referred to *social problems*, *school problems*, and *biological dysregulation*. Results from this study, suggested that Craighead et al.'s (1998) model with its more concrete factors (school and social problems, as well as biological dysregulation) seem to be more adequate to "understand and measure" what are depressive symptoms for early adolescents. Conversely, the cognitive and psychological sophistication required by Kovacs'(1992) additional factors, made this model to fit better with the mid-adolescent sample. In other words, depression seems to be characterized by different aspects throughout adolescence: a disease more concrete, interpersonal, and spread in several areas affects early adolescents, whereas a more intrapersonal and inner maladjustment is depicted by mid-adolescents. As stated by Steele and colleagues (2006) "the substantial

differences in factor labels and loadings suggest that beyond the core factors, the additional factors are sample dependent" (p.781).

Focusing on the SCAS, although few inconsistencies in the generalizability of the original six-factor model proposed by Spence (2003) have been arisen, the present study confirmed its goodness, in line with several international and national previous studies (Di Riso et al., 2012, Essau et al., 2008; Essau, Anastassiou-Hadjicharalambous, et al., 2011; Essau, Sasagawa, et al., 2011; Essau et al., 2012). The fit indices indicated that the same factor structure fit in early and mid-adolescents, and showed values in the same range as the original model. Despite the present data were in accordance for the original six-factor model, few items had low loadings. This finding can be interpreted referring to recent cross-cultural investigation on the SCAS (Di Riso et al., 2012; Essau, Sasagawa, et al., 2011). Furthermore, the internal consistency of the SCAS was high with Cronbach Alpha, replicating several previous studies (Delvecchio et al., 2010; Di Riso et al., 2012; Spence, 1998; Spence et al., 2003). However, similar to previous studies, the SCAS subscale of physical injury fear showed a low internal consistency (Essau, Sasagawa, et al., 2011; Spence, 1998; Spence et al., 2003). This low internal consistency could be due to the low number of items included on this scale (n=5) and to the fact that this subscale contains objects which can arouse adolescents' fear but are only loosely related to one another (Ollendick, Raishevich, Davis, Sirbu, & Ost, 2010).

Introducing the second question, it is fundamental to highlight that, in line with the results of the measure used for screening the sample (SDQ), the total scores of each measure revealed no statistically significant differences between the present samples and the normative Italian data (where available). The only one exception was for CDI total score that was higher in this sample. Anyway was below the clinical cut off, as well as the total score of each measure. These results confirmed that both early and mid-adolescent samples belong to community non-clinic population. Focusing now on the second question "*Do Italian early and mid-adolescents report different scores on the major variables of interest*?", as expected, mid-adolescents reported significantly higher levels of depressive symptoms, than early adolescents (Bohnert et al., 2008; Cohen et al., 1993; Costello et al., 1996; Ge et al. 2001; Hankin et al., 1998; Kandel & Davies, 1982). Conversely, no significant age-related differences were found on anxiety symptoms. As suggested by Van Oort and colleagues (2009), since the comorbidity of anxiety and depression is very high, this finding could be due to the effects of co-occurring depressive symptoms on age patterns of anxiety symptoms. Moreover another

possible interpretation could be that, from late childhood physical changes start to manifest themselves, and children change from primary school to secondary school. This, often stressful, transition from childhood to early adolescence might be reflected in the initially higher levels of anxiety in early adolescence. During middle adolescence however, a stronger exploratory drive, often reflected in more novelty seeking and risk-taking behavior, is necessary to develop more autonomy and independence (Kelley, Schochet, & Landry, 2004). Co-occurring lower anxiety levels during this period could therefore have adaptive benefits for making the first steps towards independence. Yet, once maturing to an autonomous, independent individual, important psychological processes take place. Often this maturation is accompanied by high perceived expectations from adults (Arnett, 2000). So feelings of insecurity and worries may arise and in turn may increase the level of anxiety symptoms experienced (Van Oort et al., 2009). Since the mid-adolescents sample included a quite wide span of years, older students may already be affected by those important psychological processes, altering the expected trend of anxiety symptoms.

The findings on self-esteem showed a decreasing trend of this construct from early to mid-adolescents. Researchers have attributed the adolescent's decline in self-esteem to maturational changes associated with puberty, cognitive changes associated with the emergence of formal operational thinking, and socio-contextual changes associated with the transition from middle to high school (Birndorf, Ryan, Auinger, & Aten, 2005; Harter, 1999; Robins et al., 2001; Simmons et al., 1979; Trzesniewski, Donnellan, & Robins, 2003; Wigfield, Eccles, Mac Iver, Reuman, & Midgley, 1991). Moreover other authors have justify this destabilization talking about the shifts in roles and responsibilities, as well as the changes in personal identity that may occur during these years (Greene & Way, 2005; Kort-Butler & Hagewen, 2011; Quatman & Watson, 2001; Trzesniewski et al., 2003).

Focusing on attachment, the data suggested that there is a progressive decline in the perceived quality of both parent–child attachment relationship. This decrease could be explained considering that early adolescents expressed a better communication and they reported more trust to receive help by both mother and father, than mid-adolescents. Conger and Ge (1999), which analyze the evolution of communication between early and middle adolescence, pointed to a deterioration of communication between these two stages. In this line were the results of a cross-sectional study by Moreno, Muñoz-Tinoco, Pérez and Sánchez-Queija (2006), which suggested that

communication at age 17 is more difficult than in early adolescence. Another possible explanation could be that the decrease of the perceived quality of parent-adolescent attachment relationships may be related to the needs of autonomy and independency that arise during the years (De Goede, Branje, & Meeus, 2009; Russell, Pettit & Mize, 1998; van Eijk et al., 2012). The decrease of the perceived quality of attachment relationship was found also by some national, as well as international studies (San Martini et al., 2009; Song et al., 2009; Tambelli et al., 2012). As example, San Martini et al. (2009), as well as Tambelli et al., (2012) reported a significant decrease for maternal and paternal attachment from early to mid-adolescence. According to Buist, Deković, Meeus, and van Aken (2002), Paterson et al., (1994), and Song et al., (2009) the perceived strength of parental attachments decline from early through middle adolescence. In specific high school is the period when adolescents describe the quality of their parental attachments as lowest (Buist et al., 2002). Moreover, from a qualitative perspective, the mother remained the preferred figure for both early and mid-adolescents. This difference may be related to the role of parents. Mothers are more involved in daily caretaking than fathers and may therefore be more available and in confidence with their child (Richards, Gitelson, Petersen, & Hurtig, 1991). Unexpected, the early adolescents reported also higher levels of peer attachment than mid-adolescents. Mixed findings arose from previous research, with some of them showing an increase, some others a decrease and others again no significant age-related differences (Pace et al., 2011; San Martini et al., 2009; Tambelli et al., 2012). A possible explanation could be linked to the inventory itself: it refers to "friends" in general. So, the individual respondent may respond with regard to individual friendships or the general quality of the relationships with their friends. The degree of intimacy in the relationship is not clearly established (Wilkinson, 2004). Mid-adolescents, may give a different meaning and weight to friendships, selecting more accurately their friends and being more demanding on them (Deković & Meeus, 1997; Markiewicz et al., 2001). However, an alternative hypothesis may be that during mid-adolescence there is a shift from friendships to romantic relationships (Parade, Leerkes, & Blankson, 2010).

Moving to the third question *"Do boys and girls report different scores on the major variables of interest?"* both early and mid-adolescent girls reported higher scores on the total anxiety scores and on all the SCAS subscales, except for obsessive–compulsive disorder. This gender difference in the frequency of anxiety symptoms replicated previous studies showing that more girls than boys were affected by anxiety symptoms

(Breton et al., 1999; Costello, et al., 2003; Craske, 2003; Essau et al., 2000; Lewinsohn, Hoberman, & Rosenbaum, 1988; Lewinsohn et al., 1993; Muris, Schmidt, et al., 2002; Pine et al., 1998; Reinherz et al., 1993; Su, Wang, Fan, Su, & Gao, 2008; Wren et al., 2007; Wittchen et al., 1998). The reason for this gender difference is, however, unclear. It could be that the psychological and social challenges during adolescence may be more demanding for girls, which may lead to higher levels of anxiety (Essau et al., 2012). As example, studies have found that girls scored higher on GAD, SAD, and social phobia than boys (Hale, Raaijmakers, Muris, & Meeus, 2005; Hewitt et al., 1997; Ogliari et al., 2006).The gender differences on these three factors, which are strongly based on anxiety with respect to interpersonal interactions, may be explained by a tendency for girls to have a stronger interpersonal orientation than boys (Hankin & Abramson, 2001). In support of this theory, girls reported higher scores than boys on peer attachment relationships. In addition, it should be considered that genetic predispositions may also make adolescent girls more susceptible to anxiety development (Silberg et al., 2001). These gender differences may also depend on the informant of the study. For example, some authors found that the mothers of adolescents reported no significant differences between boy and girl anxiety disorder symptoms; however, girls did report more anxiety symptoms than their mothers (Hale et al., 2008; Romano et al., 2001). The issue of informants is revisited in the discussion of the limitations of this study. Unexpected, depressive symptoms did not show any gender-related effect, suggesting that this disorder may affect similarly boys and girls. It is important to remember that these adolescents came from community based samples and this characteristic may have played a role. However, previous studies revealed that gender differences in depression began to emerge between 14 and 16 years of age (Hankin et al., 1998; Jose & Brown, 2008), so the age-span considered for the mid-adolescents sample (14-19 years old) may have altered the results, leading to trivial effects. Considering self-esteem, results showed early adolescent boys scoring higher than girls (Block & Robins, 1993; Kling et al., 1999; Major et al., 1999). No differences have emerged on mid-adolescence. According to Twenge and Campbell (2001), although boys' self-esteem increased more than in girls during the transition to middle school, the self-esteem of girls and boys decreased similarly from middle to high school. Regarding to attachment, no significant gender effects have emerged on maternal attachment: both boys and girls refer to her as the preferred attachment figure (Paterson et al., 1994). Thus, only "one way" of the "allegiance" effect as postulated by

Rice (1997) has been confirmed. In specific, both early and mid-adolescent males perceived higher levels of paternal security than females (Doyle & Markiewicz, 2009). According to Youniss and Smollar (1985) as well as Lieberman and colleagues' (1999) findings, mother–son relationships did not become more distant during adolescence and adolescent girls reported feeling more distant, uncomfortable, and withdrawn from their fathers and felt that their fathers did not meet their emotional needs. A further confirmation was given by mid-adolescents girls scoring higher than boys on the level of alienation perceived with father. Moreover higher levels of peer attachment were found in early and mid-adolescent girls (Armsden & Greenberg, 1987; Laible et al., 2004; O'Koon, 1997; Song et al., 2009; Wilkinson, 2004). As already mentioned, and in line with Gullone and Robinson (2005), the fact that females reported more positive attachments to their peers compared with males, may also be interpreted as girls' tendency to disengage earlier from parental bonds and invest more in their relationships with their friends.

In regards to question number four "*Are mother, father and peer attachment related with internalizing problems, such as depressive or anxiety symptoms? Does self-esteem play a role too* ?", as expected, negative correlations have been found between attachment and depressive as well as anxiety symptoms (Eng et al., 2001; Koohsar & Bonab, 2011; Mikulincer & Shaver, 2007; Takeuchi et al., 2003). Although significant, the correlations between anxiety symptoms and attachment to mother, father and peers, respectively, showed medium to low effects size, suggesting that other factors could play a more significant role (Lee & Hankin, 2009). A recent meta-analysis by Colonnesi et al. (2011), reported a significant medium effect size, which indicates a moderate relationship between insecure attachment and anxiety in childhood. Brumariu and Kerns (2010) obtained similar results. However, higher levels of self-esteem were associated with low levels of depressive and anxiety symptoms (Fennell, 2004; Lin et al., 2008; MacPhee & Andrews, 2006; Millings et al., 2012; Neiss et al., 2009). In specific, according to Joiner (1995) the association was stronger for symptoms of depression than anxiety. Tarlow and Haaga (1996) suggested that low self-esteem and a negative self-concept play a much more peripheral role in contemporary models of anxiety. Indeed numerous studies have reported a strong negative correlation between self-esteem and self-report measures of depressive symptoms (e.g., Furr & Funder, 1998; Joiner, 1995, 1997). As suggested by Watson and colleagues (2002), researchers need to be cautious to generalize these results and to keep in mind that self-esteem should

not be studied in isolation from other individual-differences dimensions. Concerning the association between attachment and self-esteem, several empirical research has pointed out that higher levels of self-esteem were associated with high levels of attachment security to mother, father, and peer (Armsden & Greenberg, 1987; Cotterell, 1992; Laible et al., 2004; Noom et al., 1999; O'Koon, 1997; Papini & Roggman, 1992; Paterson et al., 1995; Raja et al., 1992; Wilkinson, 2004). This study allowed to go a step further, showing that for early adolescents, higher levels of self-esteem were related to high levels of maternal and paternal attachment, whereas in mid-adolescence, higher levels of self-esteem were mainly related to high levels of peer attachment. According to previous studies, high school is a period when self-esteem may be exceptionally influenced by friends owing to emergence of closer friendships and romantic relationships, and peer networks also become important as sources of independence from the family (Collins & Steinberg, 2006; Wu, 2009).

Finally, the last step tried to offer an answer to the main question of this study: *How mother, father, and peer attachment contribute to psychological well-being in early and mid-adolescence? Have mother, father and peer attachment a different role in the development of internalizing problems, such as depressive or anxiety symptoms? Which is the role of self-esteem?*

The results of the present study confirmed the hypothesized model in which maternal, paternal and peer attachment, mediated by the self-esteem, concurred to promote the well-being in early and middle adolescence. The findings emphasized the key-role of self-esteem in the relationship between the quality of attachment and psychological health. The results showed age and symptom-related differences, however no gender differences within the samples have emerged. Focusing on anxiety symptoms, the contention that the relationship between the quality of peer attachment and anxiety symptoms is completely mediated by self-esteem was supported in both the early and mid-adolescent samples. Further, much of the influence of maternal and paternal attachment on psychological health was also mediated by self-esteem. Contrary to expectations, the hypothesized direct role of the quality of maternal and paternal attachments on anxiety symptoms was relatively minor and not consistently supported. In specific, the results referring to the quality of maternal attachment were trivial. Referring to the early adolescents sample, the results suggested that good quality of maternal attachment contributed, although weakly, to the development of anxiety symptoms. A possible explanation may be found in the higher levels of security, as well

as communication and trust to mother, reported by early adolescents. Thus, the perception of a good quality of attachment to mothers may allow the early adolescents to recognize, articulate and label their psychological difficulties. On the same line, higher levels of communication and trust to mother may lead to a warmer and more comfortable environment to express such symptoms. An alternative hypothesis may be that the interaction of protective factors, like attachment security, with contextual factors, like family stress, may be uniquely associated with the development and maintenance of children's anxiety (Dallaire & Weinraub, 2007; Wood, McLeod, Sigman, Hwang, & Chu, 2003). In addition, it may be that as mothers are usually more involved in daily caretaking than fathers, their strong involvement may ostacolate the way of early adolescents' developmental task of separating from home and developing their autonomy, arousing anxiety (Bögels & Phares, 2008).

Shifting to mid-adolescents, the quality of maternal attachment, although in the expected direction, was not significantly related to anxiety symptoms. According to Bögels and Phares (2008) the involvement of fathers in this specific phase of life, may be more important for adolescents' well-being than the involvement of mothers. As example, father may better contribute to mid-adolescents' individualization and separation from the family. In addition, father might act as a buffer against anxiety symptoms (Roelofs, Meesters, ter Huurne, Bamelis, & Muris, 2006).

However, the results showed that, especially during early adolescence, the quality of the attachment relationship established between an adolescent and his/her parents tends to influence, to a moderate degree, the quality of peer attachment relationships that they form. Father had a slightly more influence on peer attachment than mother. This finding supported the view that internal working models, as described in the attachment theory, may establish patterns of interpersonal relationships in an individual's psychosocial environment (Wilkinson, 2004). These patterns function for several different categories of relationship (i.e., parents, friends, peers, lovers) and, because they indicate an inclination to build relationships in a particular way, may be seen as "personality" constructs (Asendorf & Wilpers, 2000). However, many other factors besides quality of maternal and paternal attachment may contribute to the formation of satisfying peer relationships. For example, although family relationships are important, adolescent's characteristics such as physical attractiveness or temperament or ecological factors such as the school context may help explain why individual differences in adolescents' peer relationships arise (Doyle, Lawford, & Markiewicz, 2009; Wilkinson, 2010).

Moreover, the construct of peer attachment, as well as its operationalization present some controversies. The main controversy focuses on whether or not this construct is compatible with attachment theory. Major attachment theorists, such as Bowlby (1969/1997) and Ainsworth (1991), have argued that attachments are fundamentally dyadic in nature. That is, they are formed on the basis of a relationship between an individual and *a* significant other. Weiss (1991, 1998) has argued that attachments can only be reasonably conceived in terms of dyads and that relationships beyond dyads can not be considered attachment relationships. This may be a problem since the selected measure of peer attachment do not specify dyadic relationships but ask the respondent to evaluate items that refer to "friends" without establishing the degree of intimacy required. Thus, the individual may respond referring to "close" individual friendships or to the general quality of the relationships with their friends.

Anyway, the results of this study clearly indicated that both maternal and paternal, as well as peer attachment, contributed to the psychological adjustment of the adolescents. This finding, and the positive relationships between the quality of parental and peer attachment mentioned above, supported a continuity/cognitive model rather than a competitive/compensatory model. However, the effect on anxiety symptoms was predominately indirect via self-esteem. According to Wilkinson (2004), this suggested that a primary role of attachment relationships appears to be in the bolstering of the individuals self-worth rather than directly influencing psychological symptoms. Thus close, secure, and trustworthy relationships with both parents and friends allowed early and mid-adolescents to evaluate their own attributes and worth more highly (Ávila, Cabral, & Matos, 2012; Meeus et al., 2002). In turn, this evaluation seemed to prevent and influences anxiety symptoms.

Referring to symptoms of depression, in the early adolescents sample, self-esteem was found to fully mediate the relation between parental attachment and depressive symptoms. These findings are in line with a multitude of studies (Kamkar et al., 2012; Lee & Hankinn, 2009; Roberts & Monroe, 1999; Wilkinson, 2004, 2006). Again, the primary role of attachment relationships was to encourage and reinforce adolescents' sense of self rather than directly affect depressive symptoms (Wilkinson, 2004, 2006). More detailed, both maternal and paternal attachment relationships did not show a significant direct effect on depressive symptoms. A possible explanation could be that for early adolescents symptoms of depression were more related to intrapersonal aspects (e.g., self-esteem, perceived social acceptance, being part of a clique), than to

attachment relationships with parents (Witvliet, Brendgen, van Lier, Koot, & Vitaro, 2010). The factorial structure that best fitted the data for CDI on the early adolescents sample confirmed this issue, presenting depressive symptoms as more connected with social and school problems.

However maternal and paternal attachment relationships contributed in the development of peer relationship and self-esteem. Specifically, the results suggested that fathers may play a more significant role for peer relationships than mothers. A possible explanation may concern the role of father as a promoter of the early adolescents' separation from the family (Bögels & Phares 2008; Noom et al., 1999; Richards et al. 1991). In other words, father may represent the bridge from family relationships to the external world.

Considering the mid-adolescents sample, self-esteem showed the strongest effect on depressive symptoms. However, the perceived quality of peer attachment relationships assumed a core role for this age-group. Conversely to what was hypothesized, direct effect of peer attachment on depressive symptoms showed up, suggesting that good quality of attachment relationships to peer may be important to prevent the symptoms of depression in mid-adolescence (Furman & Buhmester, 1992; Laible et al., 2000; Nelis & Rae, 2009). Since this path has emerged only for depressive and not for anxiety symptoms, as well as it appeared only in mid-adolescence and not in early adolescence, further studies need to be carried out on this issue. Adolescents develop new attachment relationships as peers increasingly provide emotional support and may act as important figures. Security in attachment to peers and feelings of support in these relationships may buffer feelings of depression in adolescents (Laible et al., 2000). Furthermore, consistent with previous findings (Meeus et al., 2002, Wilkinson, 2004) the quality of peer relationships was particularly related to mid-adolescent self-esteem. Piaget (1932) suggested that peer interactions stimulate moral development, because peers provide a haven in which individuals can experiment with minimal risk to self-concept.

LIMITATIONS AND FUTURE DIRECTIONS

A limit of this study may be seen in the use of self-report measures that introduces issues of potential reporter-bias and shared method variance. Additional assessment modalities (e.g., observational tasks, structured interviews, multiple informants), in addition to self-report measures, can contribute to a more objective and accurate understanding of the phenomena. For example, parents, peers, and teachers

could be included in future research as informants on youths' symptom levels, and other measures (e.g. Adult Attachment Interview, Adult Attachment Projective Picture System) could be used to assess attachment dimensions. However, different ways to assess other aspects of anxiety and depression would help to provide a broader assessment of the multifaceted nature of these disorders with multiple measures and informants to reduce concerns about method variance (Lee & Hankin, 2009; Silverman & Ollendick, 2005).

Another limitation may be the ways in which some of the key constructs are operationalized. Regarding the measure of attachment employed, it may be relevant to note that in Armsden and Greenberg's study (1987) the content of some items is not clearly linked to the sub-scales to which they belong. For instance, ''My friend listens to what I have to say'', which belongs to the peer subscale of trust (item 12) could also be considerate a communication item. Moreover, Item 12 of the mother and father version: ''When we discuss things, my father/my mother cares about my point of view'' is included in the subscale of trust, but could also be interpreted as an aspect of communication. In fact, in the peer version the corresponding item (item 3) was included in the subscale of communication. In a future study, it would be interesting to see the results if the crossloading/ambiguous items were excluded. Furthermore, in specific for the measure of peer attachment, future studies should clarify exactly what kinds of relationships are being evaluated, for example intimate dyadic relationships should taken into account. It will be important for future research to examine the differential roles of parental attachments, romantic relationships, close friendships, and peer relationships in the development of different aspects of self-esteem and how this may then impact on psychological health outcomes, especially during this specific phase of life. By elucidating the paths through which important interpersonal relationships in adolescence come to influence the evaluation of the self and how this impacts on psychological health, a more comprehensive understanding of the role of psychological attachments across the lifespan can be developed. Moreover other measures of self-esteem should also be employed to enable a closer examination of the different aspects of self-evaluation such as self-worth and ability in several life domains. As example school connectedness, extracurricular activities, and sports competence and involvement have been considered linked to self-esteem (Brown, 1998; Tafarodi & Milne, 2002; Tafarodi & Swann, 1995).

In addition, the way in which the sample was splat may have led to the underestimation of some crucial differences. Future studies should segmentate the age-span considered here, for example taken into account possible specificity that may be peculiar for 15 rather than 19 years old and vice-versa.

Moreover it is important to interpret these results with caution because of the correlational nature of the data and the possibility that other unmeasured third variables, that are associated with dysfunctional attitudes and/or low self-esteem, may be the key mediating force. Because of the correlational and cross-sectional nature of the study, it is not possible to confidently determine the direction of the observed effects in this study. Although it seems plausible that parent and peer attachment foster adolescent well-being, a reasonable argument can be made that the direction of the effects is reversed (i.e., well-adjusted adolescents more easily form secure relationships with parents and peers). As Maccoby and Martin (1983) have argued, however, the effects are likely bidirectional with parent and peer attachment fostering adolescent adjustment and this in turn facilitating the formation and preservation of secure relationships. However, results of a two-year longitudinal study suggest that psychological maladjustment is more likely to results from insecure attachment and low self-esteem than vice versa (Lee & Hankin, 2009). In addition, Doyle & Markiewicz (2005) found that adolescents' attachment quality predicted changes in their self-esteem over time, whereas initial levels of the self-esteem did not predict changes in attachment anxiety or avoidance over time.

Longitudinal research would certainly overcome some of these limitations and would have further benefits in enabling an examination of the changes in attachment patterns and networks, as well as psychological adjustment, in adolescence over time.

CONCLUSIONS

The results of this study suggested that both early and mid-adolescents' attachment relationships with parents and peers are not in competition but play complimentary roles in psychological well-being during these so challenging phases of life. The primary effect of both parental and peer attachments appeared to be on adolescent self-esteem rather than directly on the expression of psychological symptoms. In specific, during early-adolescence paternal attachment showed the strongest association on self-esteem, whereas in mid-adolescence peer attachment

assumed a most crucial role. These findings suggested that the quality of multiple attachment relationships in this period of changes plays an important role in the construction and evaluation of the "self-identity". Thus, it is the evaluation of the self rather than the quality of attachment relationships that then influences the levels of psychological symptoms reported by adolescents. Goethe's sentence "as soon as you trust yourself, you will know how to live", which was in the title of this work, was thought to summarize this point. To conclude, these findings may inform clinical practice and interventions as the results suggest additional support for targeting both the parent-adolescent relationships and intra-individual cognitive factors in the treatment of symptoms of depression and anxiety in early and mid-adolescents.

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