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**Doctoral Dissertation:**

***Relationships among internalizing and externalizing problems,  
attachment and alexithymia in high-risk and community adolescents:  
a multi-method comparative study.***

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## **Introduction**

This research paper arises from the recognition of the lack of literature on risk and resilience factors in relation to internalizing and externalizing problems in groups of adolescents from high-risk contexts, namely late-adopted minors (i.e. adopted after 12 months of age) and those living in residential care. In Italy, approximately more than 44,000 come from such high-risk contexts, that is, around 5.1% of the total adolescent population.

Research performed on these groups during childhood reports that, due to histories of adverse, potentially traumatic experiences in their families of origin, both late adoptees and residential-care children are at “high risk” for internalizing and externalizing problems and also prove to have psychological difficulties in the area of affect regulation, in terms of attachment representations and affective awareness, resulting in a potential increase in the likelihood of psychopathological outcomes, for example. Therefore, these high-risk groups were assumed to be even more at risk during adolescence. Adolescence is a stage of normative increase in terms of vulnerability to internalizing and externalizing problems and attachment insecurity, especially if the person also displays alexithymia, which is considered a “transdiagnostic” risk factor during adolescence and index of (poor) development of affective regulation abilities. However, since research in these groups is scarce and inconsistent for over-14s, there has been no conclusion that vulnerabilities found in children also manifest in adolescence. Likewise, the roles of attachment and alexithymia have not been proven as potential risk or resilience factors for their psychopathology manifestations in this development phase.

Therefore, the rationale behind the research was to provide institutions with information which is helpful to the ends of evaluating the efficacy of adoption and residential care in relation to safeguarding the well-being of adolescents with adverse backgrounds, and contribute knowledge about possible shared and specific risk factors among community and high-risk adolescents.

SECTION 1 provides the theoretical background of the research, deriving from an in-depth literature review. Paragraph 1 provides evidence about vulnerability in high-risk groups in terms of

internalizing and externalizing problems. First, “high-risk” adolescents are defined with an overview of their characteristics, specific vulnerabilities, international and national numbers and geographical distribution. Then the definition of internalizing and externalizing problems is provided, reporting the prevalent data and distribution from international and national studies, firstly in wider literature on community adolescents, the “normative” parameter, then in late adoptees and residential-care adolescents, also highlighting variables found to be generally influential, e.g. gender and the informant reporting the problem, and in high-risk groups, e.g. adoption or institutionalization features.

Paragraph 2 contains the theoretical definition of attachment, briefly reviewing assessment methods and the difficulties related to assessment during adolescence, explaining changes towards insecurity occurring in attachment system during this developmental stage. Further, an overview of international and national studies in community and high-risk adolescents is provided, reporting secure and insecure category distribution and comparative study results, as well as a review of findings that support the possible role of attachment as a risk or resilience factor in all groups of adolescents.

Paragraph 3 follows the structure of the previous one but introduces the construct of alexithymia, providing a theoretical definition, notes on the evolution of the construct and the difficulties of evaluating in adolescence, followed by a review of studies of prevalence in community and high-risk adolescents, and lastly reporting findings that support the role of alexithymia as a risk factor for internalizing and externalizing problems in these groups.

Lastly, paragraph 4 provides the rationale behind studying attachment insecurity and alexithymia simultaneously, emphasizing the common aspects, i.e. traumatic etiology and difficulties in the area of affective regulation, presenting studies which linked such variables and their independent and mutual influences on internalizing and externalizing problems showed by community and high-risk adolescents.

SECTION 2 contains the research, including a brief introduction based on findings reported in part I, research questions and hypotheses, an accurate description of the method, with the results reported in three parts: part I contains the results of the comparative study, aiming to confirm the assumption of greater vulnerability to attachment insecurity and alexithymia problems in high-risk adolescents; part II contains results of the correlational study on relationships between variables, ending with two risk prediction models for adolescent problems, providing detailed information about the role of attachment and alexithymia as risk factors across groups. Part III contains an exploration of the multiple psychological domains of adolescent life assessed with the Friends and Family Interview, presenting a comparative study of them and their relationships with internalizing and externalizing problems, in order to detect further areas of vulnerability and possible new directions for research. All results are commented within a literature framework in the Discussion. In the conclusions, I tried to connect the results to provide a unified picture, highlighting the social and clinical implications, as well as the limits of the research and the areas which should be investigated in future studies.

## **SECTION 1: THEORETICAL BACKGROUND**

## 1.1 High-risk adolescents: theoretical definition and overview

In literature, populations defined "high risk" usually have an increased psychopathological vulnerability, such as clinical populations with physical or psychiatric diagnoses and/or coming to disadvantaged environments, characterized by high rates of poverty and crime.

However, the term "high risk" could also define other groups that have a greater psychopathological vulnerability for other reasons, not necessarily because of diagnosis or a social disadvantage. For instance, children and adolescents exposed to adverse and potentially traumatic experiences, such as relational disruption(s) and trauma(s) with primary care-givers, are supposed more at risk to further negative mental health outcomes and affective regulation's difficulties (Fonagy & Bateman, 2016; Krystal, 1988; Main & Hesse, 1990; Tottenham et al., 2010; Villodas et al., 2016). Among these groups with possible vulnerability resulting from relational traumas, in this dissertation the focus was on two groups of adolescents: late-adoptees and in residential-care (Fagan, 2011; Hodel et al., 2015; Hughes et al., 2017; Layne et al., 2014; Villodas et al., 2016).

Late-adopted<sup>1</sup> [LA], or "older" adopted, adolescents are those placed for adoption after 12 months of age, thus they are more likely than the children adopted within the year (*i.e.* early-adopted) to have suffered the total absence or the rupture of the relation with a primary care-giver during the period of attachment development, being even more exposed to early institutionalization and the risk of other pre-adoptive adverse experiences (Bowlby, 1973; Pace & Zavattini, 2011; van den Dries, Juffer, van IJzendoorn, & Bakermans-Kranenburg, 2009).

Residential-care<sup>2</sup> [RC] adolescents are those temporary placed in institutional care to safeguard

<sup>1</sup> Most of the later placements occur on during the school age due to International Adoptions [IA], thus all internationally adopted children can be label as "late-adopted", but the two terms does not overlap because, even if rare, also children in Domestic Adoption [DA] may be late-adoptees (Palacios & Brodzinsky, 2010).

<sup>2</sup> Residential-care is defined as a "formal" type of care, recognized internationally as "care provided in any non-family-based group setting, such as places of safety for emergency care, transit centers in emergency situations, and all other short- and long-term residential care facilities, including group homes" (United Nations General Assembly, 2009, para 29(c) (iv)). Due to international differences among institutions and welfare laws, there are different terms in literature to describe children with the in RC, all included in the theoretical background under the label "residential-care" when other terms were used with the same meaning than in the current dissertation.

More in detail, UK studies commonly used the label "Looked after children", as in care of local authority for more than 24 hours (Children Act, 1989), while other studies have been used it is use the generic term of "institutionalized" children, included only when not referred to psychiatric impatients in residential treatment.

Indeed, the Italian RC, namely "comunità di accoglienza per minori" (Italian law n. 328/2000, art.8), included looking-after children in formal care as well as youths convicted by the justice system, who are usually placed in educational institutions in order to promote their social recovery rather than in juvenile jail as other European Countries, unless they showing problems exceeding

them in case of abandonment or when the family of origin is legally declared incapable of providing an healthy care environment for different reasons, such as severe neglect or abuse on the child, domestic violence, or parental inability due to psychiatric illness, substance abuse or incarceration (van Ijzendoorn et al., 2011; Italian law n. 328/2000, art. 8).

As detailed below, in this dissertation the adolescents in these groups were labeled as "high-risk" because they are more likely to show internalizing-externalizing problems, and difficulties in the area of affective regulation, such as attachment insecurity and alexithymia, exposing them to cumulative vulnerability to symptoms and to secondary victimization (Barroso, Barbosa-Ducharne, Coelho, Costa, & Silva, 2017; Batki, 2017; Dozier & Rutter, 2016; Pace & Muzi, 2017; Pace, Folco, & Guerriero, 2018; Paull, 2013; Schimmenti & Caretti, 2016).

Therefore, while considering that many adolescents in these populations may have diagnoses or came from disadvantages environments, these features were not the focus of the current research, as late-adopted and residential-care adolescents were not considered "clinical" group nor is certain the social background for all of them, e.g. orphans or early abandoned.

### **Late-adopted adolescents in Italy.**

According to the International Adoption Commission (2013, 2018), Italy is the second Country in the world for number of International Adoptions [IA], with approximately 53.736 children adopted from 2000 to 2018, placed for adoption on average at 6 years old (range 4-9 years), therefore all late-adopted. Considering that 4-6 years old children placed for adoption from 2000 to 2013, the peak period of international adoptions in Italy, are supposed to be currently in the age range 10-19 years old, it can be estimated that around 31.749 internationally-adopted adolescents currently live in Italy and approximately 60% of them are boys (International Adoption Commission, 2013; ISTAT, 2019).

clinical psychiatric or social risk thresholds, as in that case all adolescents are placed in residential psychiatric houses not included in this research (Italian law n. 328/2000, Castelli, Di Lorenzo, Maggiolini & Ricci, 2016).

Other studies focused on "orphanages" and "orphans", according to institutions nomenclature in different Countries, but it is a partial definition, as children may be in RC for different reasons than the death of parents. Lastly, among the studies using the terms "out-of-home care" or "group-care" or "welfare child-care", studies with participants in foster-care or in group-care with only a couple of foster-parents, as care-givers of multiple children, have been excluded, because in Italy such conditions are different than RC, also named differently, respectively "affidamento familiare" and "casa-famiglia".



Area of origin of children adopted from 2001-2018 was mostly Eastern Europe (~ 48%), followed by Central and South America (~ 23%), Asia (~ 16%) and Africa (~ 12%). To these are added about 17470 Italian minors, domestically adopted from 2001 to 2018 (Dipartimento Giustizia minorile e di comunità, 2019).

Therefore, more than 40.000 late-adopted adolescents can be estimated in Italy, around 6% of total national adolescent population, and they are all considered “special needs adoptees”, according to the definition of Mullin & Johnson (1999, p. 590): “children who have experienced physical and sexual abuse and/or severe neglect, children with physical or emotional disabilities; children who are older than one year; and children who are members of a sibling group who are placed with the same adoptive family”.

Indeed, in addition to the age at adoption, *reasons for adoption in Italy* are mainly the legal revocation of parental responsibility to the family of origin by the Justice court (61-64%), which is more likely to occur in case of severe neglect and abuse of the children, or parental psychiatric disease, substance abuse and incarceration, while parental abandonment and renunciation (33-37%) or death of parents (8%) result less frequent (International Adoption Commission, 2013, 2018; Dipartimento Giustizia minorile e di comunità, 2019). For children declared legally "adoptable" due to early adverse experiences, the later the adoption takes place, the more time they are exposed to such potentially traumatic experiences in the family of origin and/or to early institutionalization, with multiple placement and consequent disruptions of further bonds with professional care-givers and friends (Juffer et al., 2011; Villodas et al., 2016). Such cumulative environmental instability and relational ruptures can have short and long term consequences in term of increased psychopathological vulnerability, developmental delays and problems in the emotional recognition, more attachment and social difficulties, as well as lower school competence and worse academic results (Barone & Lionetti, 2012; Batki, 2017; Juffer et al., 2011; Pace, Zavattini & D’Alessio, 2012; Tottenham et al., 2010). Moreover, in case of IA, children may be set-back in their adaptation in the host Country due to somatic and ethnic differences, which highlight the difference with adoptive

family and peers, increasing the exposure to cultural stigma or discrimination, affecting their identity development especially during a critical stages such as the school beginning or adolescence (Chistolini, 2006; Grotevant, Lo, Fiorenzo, & Dunbar, 2017; McKay, Ross & Goldberg, 2010).

Regarding the geographical distribution, adoptions are prevalent in the North of the country (~34-44%<sup>3</sup>), followed by the South (~23 - 33%) then the Center (~32-33%) (International Adoption Commission, 2013, 2018; Dipartimento Giustizia minorile e di comunità, 2019).

Given the national criteria for the selection of adoptive parents, most of adoptive parents have 20-45 years more than adopted child, and the adoptive families have medium to high SES (Italian law n.184/83 and 1.149/2001). Indeed, age at adoption of both parents is more frequently 40 to 44 years old, being in the range 49-59 years for adolescents adopted from 2001 to 2013, and moreover Italian adoptive parents mostly have a job (99%) and belong with the middle-upper class, showing an higher cultural level than the national average, having attended with at least 13 years of education (high school, 45%) or more (BS, MS or more: 40%). Further, around 14% of adoptive parents had at least a biological son or daughter, and 20% have adopted two or more children, therefore at least 34% of adoptees have siblings (International Adoption Commission, 2013, 2018).

### **Residential-care adolescents in Italy.**

According to UNICEF data, in 2017 there were 2.7 million of children aged 0-17 years in residential-care around the world, of which 384.000 in 39 Industrialized Countries, approximately 7% only in Italy, that at the end of the 2016<sup>4</sup> counted 12.603 minors in residential-care<sup>5</sup> (Ministero del Lavoro e delle Politiche Sociali, 2019; Petrowski, Coppa & Gross, 2017). Among them, 49% were aged 11-17 years (n= 6175), reaching 8.115 including adolescents aged 18-19 years old, approximately 0.1% of the total Italian population from 11 to 19 years of the three-year period 2016-2019. RC children are placed on average at 9.7 years old, the larger part between 11 and 14 years (29%), and they are mostly boys (56%) with Italian nationality, while RC minors from foreign

<sup>3</sup> Combined percentages derived from the CAI report 2013 and 2018, which summarized data from 2001 to 2018. Data on DA are less accurate. The Ligurian area, where the research took place, counts around 2100 late-adoptees.

<sup>4</sup> 31/12/2016, more recent institutional data available and year in which data collection began.

<sup>5</sup> Excluded unaccompanied minors.

countries are around 40%, with a growing prevalence (Autorità Garante dell'Infanzia e l'Adolescenza, 2015; Ministero del Lavoro e delle Politiche Sociali, 2019). 68% of minors stay in RC for 24 months or less, on average for 12 months, even if one third of them stay in RC for 24-48 months or more (32%). The larger part (59%) is at the first placement, coming directly from the family of origin, but 24% of them experienced previous and multiple placements, as 19% previously placed in another RC, 4% in foster-care and 1.6% from adoption breakdowns (Ministero del Lavoro e delle Politiche Sociali, 2019).

According to institutional data (Autorità Garante dell'Infanzia e l'Adolescenza, 2015; Ministero del Lavoro e delle Politiche Sociali, 2019), 81% of children are placed in residential-care for decision of the Justice Court, 67% of the cases without the compliance of the family of origin and 29% in emergency. In 52% of cases, the reasons for placement are adverse experiences which directly affect the minor, such as direct or witnessing domestic violence (27%) or neglect (9%), abuse (6.7%) or environment declared unsuitable for the care of the housing condition, the indigence or lack of employment of the parents, which proved to have negative consequences on the psychological a/o physical well-being of the child (6.6%). Otherwise, children are placed in RC due to certified problems in parents, such as parental educational incapacity (23%), declared mostly in case of psychiatric disease, or in case of parental substance abuse, incarceration or other legal issues (9.7%). Finally, in a small part the minors, mostly adolescents, acted delinquency, severe behavioral problems or substance abuse not reaching clinical subthreshold (7.6%), or they have been abandoned (1.7%) or they are orphans (0.6%).

Therefore, the aforementioned vulnerabilities or late-adoptees, consequent to their adverse backgrounds, are displayed also by the residential-care adolescents, as well-documented in literature on RC population (Akpunne, 2017; Hodel et al., 2015; Rimehaug, Undheim & Ingul, 2018; Tottenham et al., 2010). Indeed, given that the age at placement (i.e. time of exposure to potential adversities) and the presence of multiple placements are greater, these vulnerabilities should be even more marked in the RC than in the late adopted adolescents. Furthermore, there are additional

risk factors specific of residential-contexts, such as the “structural neglect” (van IJzendoorn, et al., 2011) due to the greater instability of care-giving, as minors usually have contact with their family of origin, which may promote positive long-term outcomes but may be also source of pain for them, especially considering the high turnover of professional care-givers in residential-house which may prevent the access to another adult reliable care-giver in case of distress (Attar-Schwartz, & Fridman-Teutsch, 2018; Melkman, 2015; Sen & Broadhurst, 2011; van IJzendoorn, et al., 2011). Further, RC children may be more exposed to peer victimization, bullying, or to be involved in deviant peer relationships (Indias, Arruabarrena & De Paúl, 2019). About that, in Italian residential-houses children usually have weekly or monthly contacts with parents (~60%), coming home during weekend or having daily contacts by phone, and each adolescent is provided with a main educator as a primary care-giver, in a proportion of about 2-3 adolescents each professional care-giver, in residential houses hosting a maximum of 10-15 minors, usually mixed for boys and girls together (Autorità Garante per l’Infanzia e l’Adolescenza, 2015).

In terms of geographical distribution, the RC appear more used in the North-east of Italy (37%), while less RC is register in the North-west of the country (22%), of which the Liguria constitutes an exception, as second region in Italy for number of children in RC, 2.6 minors each 1000 peers, for a total of ~300-400 minors, on average 8 people each institution, which are approximately 110 in the whole region<sup>6</sup>, around 3.5% of the RC national houses (Ministero del Lavoro e delle Politiche Sociali, 2019; ISTAT, 2019).

Data on families of origin are fragmented (Ministero del Lavoro e delle Politiche Sociali, 2019), as for 53% of parents the employment status is unknown (35% fathers and 18% mothers), but from the available information only 22% of employed parents emerged, and in 40% of cases the father is absent, while no data are available about their marital status. Most of RC minors have one of more siblings (66%), in 59% of cases removed all together from the family of origin, 68% of

<sup>6</sup> Private residential-houses, not registered by the government, are not included in this number.

times placed in the same institution, while 32% of RC minors have one or more siblings in another RC (24%) or in foster-care (8%).

## **1.2 Internalizing and externalizing problems in high-risk adolescents: are they different from community peers?**

One of the consequence of childhood traumatic experiences is the increased psychopathological vulnerability showed by many late-adopted and residential-care children (Bimmel et al., 2003; Layne et al., 2014; Villodas et al., 2016; Hughes et al., 2017). Further research have investigated the rates of internalizing and externalizing problems in these groups during adolescence, in order to understand the effectiveness on adolescent's adjustment of the different forms of welfare childcare, i.e. adoption, foster care or residential care. So far, the adoption appears the more effective measure, because late-adoptees showed only modest differences with community peers in terms of externalizing problems, while residential-care adolescents showed much higher rates of both internalizing and externalizing problems, even if the results may be misleading due to the scarcity of comparative studies and the possible influence of the gender and the problems' informant (Barroso et al., 2018; Campos et al., 2019; Palacios & Broadzinsky, 2010).

### **Premise: theoretical definition of internalizing and externalizing problems.**

The term *internalizing problems* (i.e. symptoms) was used in the dissertation to refer to symptoms of withdrawal, anxiety-depression and somatic complaints, while *externalizing problems* referred to delinquent, opposite, rule-breaking and/or aggressive behaviors, according to a widely shared framework proposed by Achenbach (1966)<sup>7</sup>. This framework is at the basis of the measures used in this research, the Child Behavior Check List 6-18 years (CBCL) and the Youth Self Report 11-18 years (YSR), included in the ASEBA system for school-age (Achenbach & Rescorla, 2001), along with the Teacher Report Form (TRF) not used in this study.

<sup>7</sup> Problems reported in the literature with different names have been always renamed to be included in this distinction, in order to facilitate the reader in connecting the proposed literature with the method and the results of the research.

The choice to use this distinction allowed to focus the research on two groups of symptoms recognized as useful in the field of adolescent psychopathology, both in international and national research and in the clinical practice (Achenbach et al., 2008).

To further explain the reasons behind the choice to group aforementioned symptoms as “internalizing” or “externalizing”, the Theasaurus of the EBSCO© search platform<sup>8</sup> describes internalizing symptoms as “directed inward”, while externalizing symptoms are “directed toward the external environment, such as aggression, delinquency, and deviant behaviors”.

### **Internalizing and externalizing problems in Italian high-risk adolescents within an international framework.**

In a recent international systematic review including 38 Western Countries belonging with *the Global Burden of Disease Study* (GBD 2013), the world-wide prevalence for any mental disorder in the age range 5-17 years was 6.7% , with greater prevalence of externalizing disorders (10.5%<sup>9</sup>), with respect of the anxious-depressive ones (9.4%<sup>10</sup>, Erskine et al., 2017).

According to data collected with the ASEBA system, the Italian prevalence of total problems is 8.2% and Italy is located approximately in the middle of a world ranking on 42 societies, below the average mean score, aligning with other European Countries albeit Italians show less externalizing problems (1.2% vs. 4-7%), with a greater prevalence for internalizing ones, that ranges 4.7% to 9.8% in individuals older than 10 years old (Frigerio et al., 2009; Istituto Nazionale di Statistica, [ISTAT], 2017; Rescorla et al., 2007a).

More in detail, a first epidemiological study with the CBCL and the TRF was conducted by Frigerio et al. (2004), involving parents and teachers of 3418 community children and adolescents aged 4-18 years (49% boys), of which 552 (47%) adolescents from 12 to 18 years, overall reporting higher scores in internalizing and total problems in the Italian sample compared to the international

<sup>8</sup> The platform of literature research (<http://web.b.ebscohost.com>) that includes the famous American Psychiatric Associations' databases for social sciences, such as PsycARTICLES, PsycINFO, PsycBOOKS and PsycEXTRA.

<sup>9</sup> Pooled prevalence of Attention Deficit Hyperactive Disorder (ADHD, 5.5%) and Conduct Disorder/Opposite Deviant Disorder (CD/ODD 5%) and <sup>3</sup> depression (6.2%) with anxiety disorders (3.2%).

ones (Crijnen et al., 1997, 1999). A further larger PrISMA study (Frigerio et al., 2009) reported an higher prevalence of internalizing problems compared to externalizing ones in 3418 Italian early adolescents (age range 10-14 years old), as such results were confirmed also for adolescents older than 15 years old in a recent national report (ISTAT, 2017). As these community epidemiological studies were conducted through schools, it is not specify if they included high-risk participants. However, such studies highlighted that younger adolescents with low socioeconomic status (SES) showed more total and externalizing problems, while more internalizing problems were found in older adolescents (Frigerio et al., 2004; 2009).

### ***Internalizing-externalizing problems in late-adoptees.***

Focusing on late-adopted population, a recent meta-analysis (Behle & Pinquart, 2016), report that adoptees have a life-long double risk than community individuals to receive psychiatric diagnoses in the internalizing and externalizing spectrum, such as depression, anxiety disorder, ADHD, CD/ODD, substance use disorders, personality disorders and psychoses, overall showing prevalence ranging 13.5% (depression) to 32% (ADHD).

Consistently, late-adopted adolescents are over-represented in mental health services and they show more total and externalizing problems than community peers in international meta-analyses and a systematic review, while weak or null differences are reported for internalizing problems (Askeland, 2017; Barroso et al., 2017; Bimmel et al., 2003; Hawk & McCall, 2011). However, such differences result modest, depending to several moderators such as gender, older age at adoption, type of adoption (i.e. international or domestic) and the problems' informant (Barroso et al., 2017).

Moreover, despite the differences, overall late-adopted adolescents exhibit a good level of adaptive functioning, without showing difference with community peers in several international comparative studies (Altinoğlu-dikmeer, Erol e Gençöz, 2014; Escobar, Pereira & Santelices, 2014; Groza, Muntean e Ungureanu, 2012; McSherry, Malet & Weatherall, 2016; Palacios & Broadzinsky, 2010; Paull, 2013).

In Italy, only three published studies investigated the internalizing-externalizing problems of late-adopted adolescents, who showed more problems in two cases (Molina, Casonato, Ongari & Decarli, 2014; Pace et al., 2018; Pace & Muzi, 2017). Specifically, in the two comparative studies from Pace et al. (2017, 2018), assessing 112 adolescents aged 11-17 years, 46 late-adopted (age at adoption  $M = 6y$ , 91% AI) and 66 community peers, the late-adoptees showed significantly higher scores of externalizing problems in the CBCL, which were predicted by their adoption status ( $b = 4.07$ ; Pace et al., 2018).

Furthermore, most of aforementioned studies investigate variables that were related to more problems in adopted children: first at all, the later age at adoption, which has been confirmed as a risk factor for more internalizing-externalizing problems in late-adopted adolescents by all meta-analysis and reviews, and most of cited studies (Askeland, 2017; Barroso et al., 2017; Barroso et al., 2018; Behle & Piquart, 2016; Bimmel et al., 2003; Ferrari, Ranieri, Barni & Rosnati, 2015a; Ferrari, Rosnati, Manzi & Benet-Martinez; 2015b; Julian & McCall, 2016; Simonelli & Vizziello, 2009). Secondly, all cited meta-analyses suggest an effect of the type of adoption, in the sense of a greater risk of externalizing problems in case of international adoption ( $d = 0.11$ ; Bimmel et al., 2003). However, the newest systematic review with mixed IA and DA samples from Barroso et al. (2017) reported a contrasting results, as adopted adolescents showed more externalizing problems than community peers, regardless of the type of adoption. Further, none of the cited studies found relations with the length of adoption, which was suggested as relevant in literature on adopted children but it does not appear relevant for adopted adolescents.

Furthermore, these studies highlighted “new” factors related to more problems in adopted adolescents, such as low social competence and high levels of psychopathological symptoms in their adoptive mothers (Barroso et al., 2017, 2018; Pace & Muzi, 2017; Simonelli & Vizziello, 2009), while possible resilience factors were the better quality of relations with both parents and the positive integration of the bi-cultural identity (Ferrari et al., 2015a, 2015b).



### ***Internalizing-externalizing problems in residential-care adolescents.***

Like adoptees, children and adolescents in residential-care are over-represented in mental-health services, as demonstrated in a recent international meta-analysis (Bronsard et al., 2016), which reported four-fold greater prevalence of mental disorders compared to community samples, with a pooled prevalence of 49% in 3104 participants aged 5-19 years old from five Western Countries. Specifically, diagnoses more frequent in RC samples are disruptive disorder (20%), anxiety disorders (18%), ODD (12%), and depressive disorders and ADHD (both 11%).

Consistently, international studies on residential-care adolescents mainly reported rates of total problems ranging 40-86%, with mean scores for internalizing and externalizing problems exceeding clinical cut-off, especially for anxious-depressive symptoms and aggressive or rule-breaking behaviors, with a prevalence of externalizing problems on internalizing ones (Attar-Schwartz & Fridman-Teutsch, 2018; Baker, Archer & Curtis, 2007; Erol, Simsek & Münir, 2010; Gearing, Schwalbe, MacKenzie, Brewer & Ibrahim, 2013; Jozefiak et al., 2016; Melkman, 2015; Morgado & Vale Dias, 2017; Pumariaga, Johnson, Sheridan & Cuffe, 1996; Rodrigues, Barbosa-Ducharne, Del Valle & Campos, 2019; Schmid, Goldbeck, Nuetzel & Fegert, 2008; Segura, Pereda, Guilera & Hamby, 2017; Sempik, Ward & Darker, 2008; Vinnakota & Kaur, 2018). When compared to community peers, residential-care adolescents mostly showed significantly higher scores of total, internalizing and externalizing problems, being up to three times at risk to show clinical psychopathological vulnerability (Campos et al., 2019; Datta, Ganguly & Roy, 2018; Janssens & Deboutte, 2009; Padmaja, Sushma & Agarwal, 2014; Schleiffer and Muller, 2003; Schimd et al., 2008; Shechory & Sommerfeld, 2007; Simsek Nese Erol, Öztop & Münir, 2007; Surugiu & Moşoiu, 2013), with few exceptions in which no differences were found (Paull, 2013).

In Italy, only two forensic studies have assessed the internalizing-externalizing problems of residential-care adolescents aged 14-20 years, reporting rates of total problems ranging 60-91%, with a prevalence of externalizing problems (60-72%) on internalizing ones (29%), in line with international literature (Castelli et al., 2016; Maggiolini, Ciceri, Pisa & Belli, 2008).

Also in this case, five investigated institutionalization variables possibly related to more internalizing-externalizing problems in adolescents, reporting more problems at younger age of participants, in case of younger age at placement a/o multiple placements, and with longer length of placement (Simsek et al., 2007; Erol et al., 2010; Melkman, 2015; Pinchover & Attar-Schwartz, 2014; Rodrigues et al., 2019).

### **Gender differences in internalizing-externalizing problems across the groups.**

International and national community-based studies largely revealed gender differences in rates of problems, summarized in the meta-analytical evidence that girls show more internalizing problem and boys are more likely to show externalizing symptoms (Bor, Dean, Najman, & Hayatbakhsh, 2014; Chaplin & Aldao, 2013; Frigerio et al., 2004, 2009; Rescorla et al., 2012). Such gender differences have been found also in high-risk adolescents, in two adoption studies (Pace & Muzi, 2017; Molina et al. 2014) and in nine studies in residential contexts (Bimmel et al., 2003; Erol et al., 2010; Maggiolini et al., 2008; Paull, 2013; Powell, Coll, Trotter, Thobro & Haas, 2011; Pumariega et al., 1996; Schleiffer & Muller, 2003; Schimd et al., 2008; Simsek et al., 2007). Moreover, these studies revealed a possible specificity of high-risk contexts, as both late-adopted and residential-care girls showed also more total problems than boys.

### **Differences related to the problem's informant across groups: evidence for the utility of the multi-informant approach.**

Studies with the ASEBA system in community samples reported low informant-agreement between adolescent and adults, i.e. parents or teacher, given that adolescents tend to report more total and internalizing problems than adults, which conversely tends to refer more adolescent's externalizing problems, suggesting the utility of a multi-informant approach (Rescorla et al., 2012; Achenbach, 2019; Achenbach, Ivanova & Rescorla, 2017).

This poor agreement between informants has been found also in high-risk groups, which followed the community trend in residential contexts, while in the adoptive families was different, as adoptive parents tended to refer more problems of all type (total, internalizing and externalizing)

than those self-referred by the adopted adolescents (Askeland, 2017; Behle & Pinquart, 2016; Bosnard et al., 2016; Gearing et al., 2014; Rescorla et al., 2007b; White, 2016). Moreover, Handwerk et al. (2006) reported an interaction between gender and informant, as parents and teacher are more likely to refer more problems in girls than in boys.

## **2. Attachment: theoretical definition and relations with internalizing-externalizing problems in community and high-risk adolescents.**

The psychopathological vulnerability of high-risk adolescents could be partly understood through the lens of the attachment theory, developed by the British psychoanalyst John Bowlby, as an attempt to explain his clinical observations on the deleterious effects that early mother-child separations had on the social and psycho-cognitive development of the hospitalized children (Bowlby, 1958), as well as on the adolescent's involvement in delinquency (Bowlby, 1944).

Among other sources<sup>11</sup>, Bowlby drew inspiration by Spitz's (1945) observations about a development arrest in institutionalized children remained orphans after the II World War, coming to theorized that the infant is evolutionary predisposed to establish an exclusive attachment relationship with a care-giver, usually a parent, who promotes the survival of the child (Bowlby, 1982). More in detail, the infant is predisposed to act an "attachment behavior", namely any behavior to seek, achieve and maintain physical and/or psychological proximity toward an "attachment figure", i.e. a selected person that performs the functions of providing care, protection and comfort in case of fear and distress (i.e. safe-haven) and to provide a secure base for the exploration of the environment (Bowlby, 1973, 1980). Attachment behaviors occur within an "attachment relationship", i.e. an affectional bond where appear "a need to maintain proximity, distress upon inexplicable separation, pleasure or joy upon reunion, and grief at loss" (Ainsworth, 1989, p. 711). The reason for the distress at separation would be due to the evolutionary value of this relationship, through which the child gets the stimulation and can learn the knowledge and skills necessary for his / her psycho-cognitive and emotional development. On the contrary, the absence or the early disruption of the primary attachment relationships, or dysfunctions in them, may predispose the child to maladjustment, for instance the cognitive and emotional delays showed by late-adopted and residential-care children grown up in adverse caregiving environments (Bowlby, 1979; Doyle & Cicchetti, 2017; Dozier & Rutter, 2016).

<sup>11</sup> the studies of the ethologists Lorenz (1935), Harlow & Zimmermann (1959) and the evolutionary theory (Darwin, 1859).

Moreover, early attachment relationships would have long-term effects on individual development, because the child tends to generalize the daily interactions with primary caregivers in mental schemes called Internal Working Models (IWMs; Bowlby, 1969) of attachment, i.e. representations of the self and the others, which the child is supposed to use to guide his/her behavior and to predict that of others within significant relationships, using them as template for future relationships along the life span (Bowlby, 1980). If the child expresses his/her emotional and physical needs and the caregivers' responses are continually sensitive and contingent, the child develops a secure attachment and IWMs that reflect a self-representation as worthy of love and affection, a view of others as available and reliable in providing support and encouragement and a general representation of the interpersonal relationships as useful and meaningful (Belsky & Fearon, 2002; Bowlby, 1969; 1980). Otherwise, if caregivers' responses are mostly inappropriate or rejecting, the child may develop organized but insecure IWMs, or even fails to organize an attachment model, resulting in disorganized attachment, which is frequently observed along with childhood adverse experiences and attachment traumas, which sometimes may occur when parents suffer for psychiatric illnesses, are abusive or neglecting and/or have unresolved traumas their own (Bowlby, 1988; Granqvist, et al., 2017; Main & Hesse, 1990; Murphy et al., 2014).

Empirically, IWMs were firstly operationalized during infancy with the Strange Situation Procedure (SSP; Ainsworth, Blehar, Waters, & Wall, 1978; Main & Solomon, 1986, 1990), focused on the observation of child's separation-union behaviors toward the caregiver, providing a best-fitting attachment classification to the child among Secure (B), Avoidant (A), Ambivalent/Resistant (C) and Disorganized/Disoriented (D), briefly described in Figure 1. Subsequently, the investigation of the IWMs was extended to the parents of children evaluated with the SSP, for which the gold-standard measure for the evaluation of the attachment in adults was developed: the Adult Attachment Interview (AAI; George, Kaplan, & Main, 1985; Main, Goldwyn & Hesse, 2008), an audio-taped semi-structured interview based on how the person tells about own past attachment experiences, providing a more or less coherent narrative according to Grice's conversational

maxims (1975). The adult’s narrative of attachment may be classified in one of four best-fitting attachment categories, described in Figure 1, as correspondent to those showed by infants at the SSP. Indeed, one of the core findings of attachment research was the match of attachment classifications assigned to child-parent dyads at the SSP-AAI, which add evidence to the hypothesis of an intergenerational transmission of attachment, in other words that parental behavior in the early relationships has a long-life impact on the further relational behavior of the child, through the representations generalized by the child in his/her IWMs, which tend to stability across the life-span (Bowlby, 1979; Verhage et al., 2016).

Figure 1. Correspondence and description of attachment main categories in the Strange Situation Procedure (SSP) and the Adult Attachment Interview (AAI).

<i>Infant attachment category</i>	<i>Observations of infant in the Strange Situation<sup>2</sup></i>	<i>Corresponding adult attachment category</i>	<i>Discourse style on the Adult Attachment Interview</i>
Avoidant (A)	Little protest on separation. On caregiver’s return, hovers warily nearby, cannot play freely	Dismissing (Ds)	Brief discourse, which normally idealises parents, with few supporting examples
Secure (B)	Protests when caregiver disappears. Protest continues on return, but soon pacified and continues exploratory play	Secure/autonomous (F)	Narrative coherence. Valuing of attachment, but seems objective regarding particular events and relationships. Able to give examples to support statements
Ambivalent/resistant (C)	Protests, and hard to pacify on caregiver’s return, clings to carer, buries head in lap, pushes away toys offered	Preoccupied (E)	Incoherent, vague and excessively long discourse. Preoccupied with past attachment experiences. Speaker appears angry, passive or fearful
Disorganised/disoriented (D)	‘Freezes’ on separation, seems unable to sustain any organised pattern of behaviour on reunion. Behaviours may appear bizarre and stereotyped	Unresolved/disorganised (U) <sup>3</sup>	Striking lapses in monitoring of reasoning during discussion of loss or abuse

1. Both classificatory systems possess sub-categories within the broad categories listed. However, the latter are sufficient for the purpose of this article and for thinking about attachment in everyday clinical practice.
2. The Strange Situation (Ainsworth *et al*, 1978) consists of a laboratory session lasting about 20 min, and involves a 12-month-old infant, the infant’s caregiver and an experimenter. It focuses on the response of the infant to separation from the caregiver (which activates attachment needs) and subsequent reunion with the caregiver. Individual differences in coping with the stress of separation are observed and categorised according to a protocol.
3. Participants assigned the U classification are also assigned one of the other categories (F, Ds or E) that best captures their underlying attachment strategies.

After Hesse (1999).

This long-life impact of IWMs has been confirmed by more than thirty years of research, reporting that secure IWMs support individuals in the flexible exploration of the environment and the relationships, facilitating their adaptation and their desire to connection to others, while insecure

or disorganized attachment can hinder the development, increasing the vulnerability to psychopathological symptoms and to poorer social adaptation “from the cradle to the grave” (Bowlby, 1979, p. 129; Bowlby, 1980; Lyons-Ruth & Jacobvitz, 2016; Mikulincer & Shaver, 2012; Sroufe, 2005; Stovall-McClough & Dozier, 2016).

However, the impact of the IWMs on the development is not deterministic, given that they may also change to facilitate the adaptation of the individual, showing discontinuity in correspondence of critical stages of life, such as adolescence, or following life-changing experiences, such as adoption, thus also the impact of attachment on psychopathological vulnerability may change (Allen & Tan, 2016; Bowlby, 1982; Van Ijzendoorn & Juffer, 2006).

In particular, the role of IWMs as a risk or resilience factor may be relevant during adolescence, due to the co-occurrence of the increased psychopathological vulnerability in this development phase with normative changes in the attachment system that may increase insecurity (Allen & Tan, 2016). Therefore, in this dissertation the term “attachment” has been used to refer specifically to IWMs, as related to adolescent’s psychopathology, and not to refer to the “attachment behavior”, as traditionally do by research in childhood, nor to refer to “attachment style”<sup>12</sup>, as in part of literature on adults.

### ***Attachment during adolescence: changes, increased insecurity and assessment issues.***

The change in attachment system that occur in adolescence is due both to actual changes in attachment relationships and behaviors and to the psycho-cognitive development: on one side, adolescents seek greater independence and separation from their parents, with whom they negotiate for greater autonomy to respond to their growing desire for exploration. From an attachment perspective, the exploration behaviors prevails on the attachment ones and the adolescents actively try to do not turn into the parents as attachment figures, preferring to turn to peers or to romantic partners, therefore the hierarchy of attachment becomes unbalanced in favor of peers, while before

<sup>12</sup> i.e. stable and global individual differences in tendency to seek and experience comfort and emotional support from attachment figures, along with the expectations about the responsiveness of such figures to attachment requests, thus it presupposes a settle and stable identity (Rholes & Simpson, 2004).

the primary attachment figures were the parents<sup>13</sup>. On the other side, adolescents move towards to the formal operational stage, which allows them to re-think their attachment relationships in a new way, as they gain the capacities to reflect and generalize abstracted representations of their attachment relationships, to recognize and understand positive and negative aspects of the self, the others (firstly the parents) and in the relationships, becoming even more able to think about the relationship with a developmental perspective, recognizing and accepting the changes occurring inside (Steele and Steele, 2005). Moreover, adolescents' growing meta-cognitive skills allow to explore owns' and others' emotions and mental states and to start to integrate the specific IWMs of the multiple relationships with different attachment figures, that converge in a unique, generalized meta-representation of the attachment (Kriss et al., 2012). Therefore, as the adolescent "move to the level of representation" (Main, Kaplan & Cassidy, 1985), the transition to a meta-level of IWMs begins, thus "by adolescence the attachment system can be assessed in terms of a single overarching attachment state of mind that displays stability over time" (Allen & Tan, 2016, p. 401).

However, the assessment of attachment in adolescence poses some issues. There is still no gold-standard method for assessing IWMs in adolescence, with consequences that ought to be considered before analyse the literature that links attachment and internalizing-externalizing problems in this age: first, most of attachment studies involving teenagers use self-report questionnaires, most the Inventory for Parent and Peer Attachment (IPPA; Arnsden & Greenberg, 1987), which detect the conscious adolescents' opinion about the quality of their attachment relationships rather than their IWMs, without providing information about the nature of insecurity and may be less sensitive in detect insecurity than narrative methods, especially in high-risk populations (Lionetti, Pastore & Barone, 2015; Wilson & Wilkinson, 2012). Second, studies using narrative interviews are less and they mostly use the AAI or its age-adapted versions such as the Child Attachment Interview in middle childhood (CAI; Shmueli-Goetz, Target, Fonagy & Datta, 2008), and the Attachment Interview for Children and Adolescents (AICA; Ammaniti, Van

<sup>13</sup> However, Allen and Tan (2016) also highlighted that, in case of extreme distress, teenagers return to turn to parents as a source of comfort (i.e. safe haven) or support and encouragement (i.e. secure base).



Ijzendoorn, Speranza & Tambelli, 2000), all focused exclusively on the attachment relationships with parents, in that moment questioning by the teenager, with the risk to over-rate dismissing strategies (Allen & Tan, 2016). The only AAI-oriented interview that inquires about other relevant attachment figures during adolescence, such as siblings and peers, is the Friends and Family Interview (FFI; Steele & Steele, 2005), which however has been scarcely used in community samples (Pace, Muzi & Steele, 2019a; Pace, Di Folco, Guerriero & Muzi, 2019b). Few studies also used the Attachment Style Interview (ASI; Bifulco Moran Ball & Bernazzani, 2002), that however presuppose the existence of a style, which could be present within a stable identity, not yet completely defined in adolescents. As a consequence, there is substantial variability across the adolescence' studies, that may report contrasting findings due to the heterogeneity of the assessment within-method (e.g. AAI vs. FFI) and the primacy of self-reports, which may lead to under-rate attachment insecurity and/or to over-estimate the relationships between attachment and internalizing-externalizing problems (Madigan, Brumariu, Villani, Atkinson & Lyons-Ruth, 2016).

Made these premises, the instability of the attachment IWMs during adolescence could increase the already present psychopathological vulnerability of this phase, especially if tending to greater insecurity, given the meta-analytical evidence of the links between insecure attachment and internalizing and externalizing problems in community and clinical adolescents (Madigan et al., 2016), supported also in high-risk adolescents (Escobar et al., 2014; Simonelli & Vizziello, 2009; Suzuki & Tomoda, 2015; Zegers, 2008).

## **2.1 Attachment in community and high-risk adolescents.**

Consistently with previous observations, studies with narrative attachment interviews in Italian community samples in middle childhood and adolescence, summarized in Table A<sup>14</sup>, revealed less percentages of disorganization than in the international AAI meta-analytical adolescent's distribution (Bakermans-Kranenburg & van IJzendoorn, 2009a). Overall, Italian distributions with all attachment interviews showed higher prevalence of secure classifications, with

<sup>14</sup> Despite the CAI is a measure for the middle childhood, studies with this interview have been reported because they cover an age range (10-13 years) that partially overlap with the age range in this research (10-19 years).

percentages ranging 52% with the AICA and 67% with the FFI, as well as predominantly dismissing classifications among insecure categories (Ammanniti et al., 2011; Cassibba, Sette, Bakermans-Kranenburg & van IJzendoorn, 2013; Cavanna, Bizzi, San Martini & Castellano, 2018; Pace et al., 2019a).

Table A. Percentage distribution of attachment categories among community samples (age range 9-17 years) in the international meta-analysis with the AAI <sup>(a)</sup> and in main Italian studies <sup>(b/c/d/e)</sup> with different attachment interviews\*.

Measure	INT	ITA			
	AAI <sup>(a)</sup>	AAI <sup>(b)</sup>	CAI <sup>(c)</sup>	AICA <sup>(d)</sup>	FFI <sup>(e)</sup>
% Classification					
Secure-autonomous	44	62	54	52	67
Insecure-dismissing	34	24	22	36	23
Insecure-preoccupied	11	10	12	10	7
Disorganized	11	4	12	3	3
<i>N</i>	503	336	189	31	110
<i>Age range (years)</i>	13-19	13-19	9-13	14	11-17

Note: meta-analyses <sup>(a)</sup> Bakermans-Kranenburg & van IJzendoorn, 2009a, <sup>(b)</sup> Cassibba et al., 2013; main studies <sup>(c)</sup> Cavanna et al., 2018; <sup>(d)</sup> Ammaniti et al., 2000; <sup>(e)</sup> Pace et al., 2019a. \*AAI = Adult Attachment Interview; CAI = Child Attachment Interview; AICA = Attachment Interview for Children and Adolescents; FFI = Friends and Family Interview.

### ***Attachment in high-risk groups.***

As revealed by two meta-analyses focused on childhood, late-adopted children are less secure and more disorganized than both early adopted and non-adopted peers, showing however less disorganization than residential-care children, who have the higher risk to show insecure or disorganized attachment (van den Dries et al., 2009; Lionetti et al., 2015). Only van den Dries et al. (2009) included also two studies with participants older than 7 years old, using self-report questionnaires on participants aged 12-18 years old (McGinn, 2001; Rosnati & Marta, 1997), therefore information in detail about adolescence in these populations lacked. Few research focused on attachment during adolescence in these high-risk groups, overall suggesting different pathways for late-adopted and residential-care adolescents (Barroso et al., 2017; Bifulco, Jacobs, Ilan-Clarke, Spence & Oskis, 2016; Pace et al., 2019b).

As shown in Table B, studies with narrative interviews in late-adoptees reported percentages of secure classifications ranging 22.5% with the AAI to 63% with the FFI, a prevalence of dismissing among insecure categories, and disorganized classifications in three studies, respectively 6% with the CAI, 8% with the FFI and 22.5% with the AAI (Escobar & Santelices, 2013; Escobar et al., 2014; Groza et al., 2012; Groza & Muntean, 2015; Molina, Casonato, Ongari & De Carli, 2015; Pace, Di Folco, Guerriero, Santona & Terrone, 2015; Pace et al., 2018; Pace et al., 2019b; Riva Crugnola, Sagliaschi e Rancati, 2009; Simonelli & Vizziello, 2009; Vorria, Ntouma & Rutter, 2015). Among them, most of comparative studies did not find differences in the distribution of attachment categories between late-adopted and community adolescents (Pace et al., 2018; Riva Crugnola et al., 2009; Vorria et al., 2015), with the only exception of Escobar & Santelices (2013). Also comparative studies with self-report measures reported similar results, given that only in Vantieghem et al. (2017) the late-adoptees reported lower attachment security, while in other three studies they did not show differences with community peers (Altinoğlu-dikmeer et al., 2014; Barroso, Barbosa-ducharne & Coelho, 2018; McSherry et al., 2016).

Table B. Percentage distributions of attachment categories among late-adopted adolescents in international (INT <sup>a/b/c</sup>) and Italian (ITA <sup>d/e/f/g</sup>) studies with different attachment interviews\*.

Measure	INT			ITA				
	Country	CAI <sup>(a)</sup>	FFI <sup>(b)</sup>	FFI <sup>(c)</sup>	FFI <sup>(d)</sup>	FFI <sup>(e)</sup>	AICA <sup>(f)</sup>	AAI <sup>(g)</sup>
Classification %								
Secure-autonomous		50	54	32	65	40	60	22.5
Insecure-	dismissing			52	28	44	34	35.5
	preoccupied	44	46	16	7	8	3	12.5
Disorganized		6	0	0	0	8	3	22.5
	<i>N</i>	52	63	50	46	27	35	40
	<i>Age range (years)</i>	12-14	11-16	11-18	11-16	10-16	10-15	13-24

<sup>(a)</sup> Vorria, Ntouma & Rutter, 2015; <sup>(b)</sup> Groza & Muntean., 2015; <sup>(c)</sup> Escobar & Santelices, 2013; <sup>(d)</sup> Pace, Guerriero & Di Folco, 2018 <sup>(e)</sup>Molina, Casonato, Ongari & De Carli, 2015; <sup>(f)</sup> Riva Crugnola, Sagliaschi & Rancati, 2009.<sup>(g)</sup> Simonelli & Vizziello, 2009. \*CAI = Child Attachment Interview; FFI = Friends and Family Interview; AICA = Attachment Interview for Children and Adolescents; AAI = Adult Attachment Interview.

With respect to residential-care adolescents, despite the aforementioned long-standing interest in the topic, the first attachment study on the narratives of residential-care adolescents was in 2001, when Wallis & Steele assessed psychiatric inpatients with the AAI, reporting a predominance of disorganized (72%) and insecure-dismissing (8%) classifications. After, only four published studies (detailed in Table C) assessed the attachment of residential-care adolescents through narrative interviews, reporting a prevalence of insecure-dismissing or disorganized classifications, ranging respectively 20% - 76% and 12% - 62%, as well as rates of security strongly lower than in community distributions, overall confirming findings of childhood (Bifulco et al., 2016; Schleiffer & Muller, 2003; Zaccagnino et al., 2014; Zegers, Schuengel, Van Ijzendoorn & Janssens, 2006).

Among them, the only Italian study by Zaccagnino et al. (2014) reported lower rates of disorganized classifications than in other international RC distributions, following an Italian community trend. However, the 22 Italian participants in residential-care significantly differ in attachment compared to 35 community peers (age range 10-13y), as the residential group received less secure (12% vs. 61%), more insecure-dismissing (76% vs. 26%) and disorganized classifications (12% vs. 6%) than the community one. Moreover, RC showed lower scores in the scales for security and narrative coherence and higher scores in maternal dismissal and idealization.

Table C. Percentage distributions of attachment categories among residential-care adolescents in international (INT <sup>a/b/c</sup>) and an Italian (ITA <sup>d</sup>) studies, with different attachment interviews\*.

Measure	INT			ITA	
	Country	AAI <sup>(a)</sup>	AAI <sup>(b)</sup>	ASI <sup>(c)</sup>	CAI <sup>(d)</sup>
Classification %					
Secure-autonomous		4	7	12	12
Insecure-dismissing		39	44	20	76
Insecure-preoccupied		11	19	7	0
Disorganized		46	30	38	12
	<i>N</i>	72	81	118	22
	<i>Age range (years)</i>	12-16	13-20	10-18	10-13

<sup>(a)</sup>Schleiffer and Muller, 2003; <sup>(b)</sup> Zegers, Schuengel, Van Ijzendoorn & Janssens, 2006; <sup>(c)</sup> Bifulco, Jacobs, Ilan-Clarke, Spence & Oskis, 2016; <sup>(d)</sup> Zaccagnino et al., 2014. \*AAI = Adult Attachment Interview; ASI= Attachment Style Interview; CAI = Child Attachment Interview

Such results have been confirmed also by two comparative studies that used self-report measures in RC contexts, specifically Shechory & Sommerfeld (2007) reported residential-care participants as more insecure-preoccupied than community peers, while Barroso et al. (2014) involved both high-risk groups, confirming residential-care adolescents as more insecure in the IPPA than both late-adopted and community peers, which no differ each other. However, other two studies with attachment questionnaires did not find differences in attachment between high-risk and community adolescents, preventing a total agreement in literature (McSherry et al., 2016; Paull, 2013).

*Adoption and institutionalization variables related to attachment in high-risk groups.*

Almost all of the above mentioned studies explored the role of several variables related to the placement, such as the age ad adoption, the length of adoption or previous a/o current institutionalization, the number of placement and IQ, which meta-analyses suggested to have potential impact on attachment in high-risk children (van der Dries et al., 2009; Lionetti et al., 2015).

During adoptive adolescence, later age at adoption had an effect on insecurity or disorganization of late-adoptees only in three of fifteen studies (Escobar et al., 2014; Vorria et al., 2015; Simonelli & Vizziello, 2009), whereas the length of adoption or previous institutionalization, as well as previous experiences, were never significant. Among factors related to greater security there were higher IQ and older age, as well as features of adoptive parents such as secure states of mind with respect of their own attachment, or positive and coherent representations of themselves as parent, higher parental reflective functioning and negotiating or limit-setting parenting style (Groza et al., 2012, 2015; Pace et al., 2015, 2018, 2019b; Vantieghem et al., 2017).

With respect to residential-care groups, institutionalization variables such as age and length, or multiple placement, none of the studies have reported relations with adolescent's attachment.

### ***Gender differences in attachment across groups.***

As relevant variable in different domains, attachment studies have explored also gender differences, mainly reporting no differences in attachment between girls and boys in both community and high-risk adolescents (Ammanniti et al., 2000; Bakermans-Kranenburg & van IJzendoorn, 2009a, 2009b; Bifulco et al., 2016; Cassibba et al., 2013; Cavanna et al., 2018; Wallis & Steele, 2002; Zaccagnino et al., 2014; Zegers et al., 2006). However, three studies reported community girls as more secure and coherent than boys, who were more insecure-dismissing (Borelli et al., 2016; Pace et al., 2019a), while Schleiffer and Muller (2003) reported residential-care boys as more dismissing and girls as more likely to be disorganized.

### **2.2 Relations between attachment and internalizing-externalizing problems across groups.**

The well-established link between attachment and psychological problems in community adolescents (Allen & Tan, 2016) have receive empirical evidence in a recent meta-analysis (Madigan et al., 2016), which reported a moderately significant combined effect of attachment on both internalizing ( $d=.40$ ) and externalizing problems ( $d=.48$ ), regardless of problems' informant and method of attachment assessment. Specifically, either insecure-preoccupied ( $d = .40$ ) insecure-dismissing ( $d =.20$ ) and disorganized ( $d =.26$ ) attachments are related to more internalizing problems, and only disorganized attachment had effect to increase the rates of externalizing problems ( $d =.58$ ).

### ***Attachment and internalizing-externalizing problems in high-risk adolescents.***

Given the slowed emotional processing resulting from previous adverse care environments, it can be supposed the massive changes in the attachment system induced by the adolescent's exploration and cognitive development can be particularly wearisome, perhaps overwhelming, for insecure adolescents in high-risk groups, and this overload could increase their risk of maintaining the insecurity of the attachment shown in childhood and of showing associated internalizing-externalizing problems (Bick, Luyster, Fox, Zeanah & Nelson, 2017; Blaze, Asok & Roth, 2015; Doyle & Cicchetti, 2017; Escobar et al., 2013; Humphreys et al., 2017; Verhage et al., 2016).

Negative consequences of early institutionalization and attachment disruptions on attachment and psychological well-being have been key themes for attachment theorists and researchers since the dawn of theory (Bowlby, 1951; Spitz, 1945), but curiously few research have investigate attachment as a risk factor for psychological outcomes in high-risk adolescents, among which only four studies used narrative interviews (Escobar et al., 2014; Pace et al., 2018; Schleiffer & Muller, 2003; Zegers, 2008).

The nine studies that linked attachment to psychopathological problems in high-risk groups have confirmed greater vulnerability to internalizing-externalizing problems along with greater insecurity or disorganization in attachment, apparently with different pathways (Altinoğlu-dİkmee et al., 2014; Escobar et al., 2014; Pace et al., 2018; Paull, 2013; Shechory & Sommerfeld, 2007; Schleiffer & Muller, 2003; Suzuki & Tomoda, 2015; Vantieghem et al., 2017; Zegers, 2008).

Among *adoption* studies, Pace et al. (2018) assessed 80 Italian adolescents aged 12-16 years (62% boys), 46 late-adoptees (age at adoption  $M = 6.2y$ , 91% IA) and 34 community peers with the FFI and the CBCL, reporting only in the adopted group associations between more internalizing problems and greater disorganization and lower security in attachment. Escobar et al. (2014) assessed 50 Chilean adolescent aged 11-18 years (56% boys), 25 late-adoptees (age at adoption  $M = 3.8y$ ) and 25 community peers with the FFI and both CBCL and YSR, reporting interactive effects of adoption and attachment in the prediction of self-reported anxious-depressed problems, as well as more social problems in older adopted children. Vantieghem et al. (2017) used the a self-report with 130 US participants aged 6-14 years (42% boys), 56 late-adopted and 74 community peers, reporting that only in the adopted sample the greater attachment insecurity predicted more internalizing problems. Also Altinoğlu-dİkmee et al. (2014) used self-reports to assess the attachment and problems of 123 Turkish participants aged 6-14 years, 61 late-adopted (age at adoption  $M = 5.95y$ ) and 62 community peers, but in this study there were no significant links between attachment and adoptees' problems.

With respect to studies in *residential-care* contexts, Schleiffer and Muller (2003) assessed 72 German adolescents 12-16y (54% boys) with the AAI and the CBCL, highlighting higher scores of total, internalizing and externalizing problems in adolescents classified as disorganized. Conversely, Zegers (2008), using the AAI and the CBCL on 61 Dutch adolescents aged 13-20y (60% F), reported disorganized participants as the group with fewer aggressive and rule-breaking behaviors, while insecure-preoccupied adolescents were the group exhibiting more externalizing problems; moreover, authors observed that the more narrative coherence the teenagers showed, the less rule-breaking behavior they displayed. Among studies with self-report attachment measures, Shechory & Sommerfeld (2007) assessed 68 Israel participants aged 6-14 (69% M) with the Attachment Style Questionnaire (ASI; Feeney, Noller, & Hanrahan, 1994) and the CBCL, reporting only for RC participants greater aggressive behaviors along with both insecure attachment styles, especially in participants placed before 7 years old. Instead, Suzuki & Tomoda (2015), assessing 342 Japanese RC participants aged 9-18 years old (58% F), revealing that greater depressive symptoms were predicted by lower security and more insecurity in terms of both dismissing and preoccupied models.

In sum, the lower security a/o higher disorganization in attachment appear related to more internalizing problems of late-adoptees, while residential-care adolescents with greater attachment disorganization and insecurity showed more problems of all types (total, internalizing and externalizing).



### **3. Alexithymia: theoretical definition and relations with internalizing-externalizing problems in community and high-risk adolescents.**

Beyond the attachment insecurity, in the domain of affective regulation there is another condition apparently more widespread in groups that have suffered from early adverse experiences: the alexithymia, established as a “transdiagnostic” risk factor for psychopathology in adolescents and adults (Honkalampi, De Berardis, Vellante and Viinamäki, 2018; Messina et al., 2014; Taylor & Bagby, 2012; Schimmenti & Caretti, 2018).

The term “alexithymia” (from *a-lexis-thymos*, which means “lacking words for feelings”), coined by Sifneos (1973) during studies on patients with psychosomatic diseases, has been used in this dissertation referring to a multi-factorial construct as defined by Nemiah et al. (1976), characterized by: (1) difficulties in identifying and (2) describing emotions, differentiating between bodily sensation and affective feelings, along with (3) a lack of imagination, scarce use of fantasy and (4) an externally oriented cognitive style, reflected in a communicative mode focused on concrete and pragmatic aspects of existence. Within this definition, in this dissertation the alexithymia is considered a disturbance which affects both cognitive and emotional aspects, that is different by the previous conceptualization of the construct as a disconnection between cognitive and physiological aspects of emotional experience, or a cognitive deficit in processing emotions (Luminet, Rimé, Bagby & Taylor, 2004; Taylor, 1994; Taylor, Bagby & Parker, 1997). Indeed, the first conceptualization led to a distinction between cognitive and emotional alexithymia, still used in few studies (e.g., van der Velde et al., 2015), but mainly revised to include both cognitive and affective systems, as equally useful and interacting in the understanding of somatic sensations.

This second conceptualization “revised” was the result of several authors who theorized the development of alexithymia as a consequence of repeated and severe failures in interpersonal affective regulation processes within relationships with primary caregivers during infancy, which hinder the child in developing affective regulation and emotional understanding (Krystal, 1988; Schimmenti & Caretti, 2016; Taylor, 2010). Specifically, the alexithymia may appear as

consequence of “infantile trauma”, occurred before the child has developed the ability to de-somatize and verbally represent affects (Krystal, 1988; Schimmenti & Caretti, 2018). More in detail, the child experiences an unknown bodily sensation associated to an affect, such as hunger and associated discomfort, crying to express to the caregiver a double need to be nourished and comforted by the negative emotion caused by hunger: if the caregiver is repeatedly unresponsive to the primary need, feeding him, or even comforting him to alleviate the discomfort, the child remains in a prolonged state of emotional distress and arousal, which exceeds his/her immature ability to tolerate it, provoking prolonged emotional dysregulation (Krystal, 1988). Further, as initially is the caregiver to name and separate the bodily sensations to associated emotions, define them verbally (e.g. “Oh, are you hungry? It’s ok, you are ok, it’s nothing bad, you only need to eat something.”), in case of care-giving failures the child lacks the opportunity to learn how to carry out this process, first interpersonal and then autonomous, and this predisposes to the development of alexithymia.

In fact, high levels of alexithymia are common in individuals who have suffered childhood trauma, such as abandonment, neglect or abuse, especially if perpetrated by the parents within the early attachment relationships: in that case, affects not only cannot be distinguished and named, but become unbearable and overwhelming to the child, becoming represented as dangerous (Sifneos, 1988; Schimmenti & Caretti, 2018). Indeed, the overwhelming arousal consequent to early traumatic experiences has long-term negative effects on the development of the child’s neurobiological system responsible for affective regulation, influencing levels of cortisol, the blood pressure and the parasympathetic system, which is too often triggered by threat, panic or fear arising from care-giving, and moreover negative emotions remain dys-regulated becoming mentally represented as “dangerous” stimuli, negatively affecting the subsequent development, e.g. the adult’s propensity to regulate negative affects through risk-taking behaviors or somatic symptoms (Maunder & Hunter, 2008; Panksepp & Biven, 2012; Porges, 2011; Sifneos, 1988).

Within this theoretical framework and in agree to the definition from Taylor & Bagby (2013), the alexithymia in this dissertation is considered a dimensional construct, a personal characteristic

normally distributed to different degrees in all people, more or less favored in its development by the persons interpersonal experiences during childhood and later, which influence also how alexithymia could assume the form of stable personality trait<sup>15</sup>, and/or be a “life-long dispositional factor that can lead to psychosomatic illness” (Lesser, 1981, p. 533; Messina, Beadle & Paradiso, 2014; Parker, keefer, Taylor & Bagby, 2008; Taylor & Bagby, 2013).

Therefore, in this research the referral is to “primary” alexithymia, also defined as trans-diagnostic risk factor which stemmed from early adverse experiences, and not to “secondary” alexithymia, which is instead a consequence of illness or accident, for example occurring as a defence mechanism to cope with psychological distress provoked by chronic disease such as cancer or diabetes (Messina et al., 2014; La Ferlita, Bonadies, Solano, De Gennaro & Gonini, 2007; Taylor & Bagby, 2013). Further, primary alexithymia in this research had to be differentiated by “organic” alexithymia, which is the consequence of an indirect or direct organic damage to brain structures involved in emotional processing, thus a medical condition and not developmental like the primary alexithymia<sup>16</sup> (Koponen et al., 2005; Messina et al., 2014).

Further, alexithymia in some studies was measured as affective (or emotional) awareness (e.g. Powell et al., 2011), while within the used theoretical definition, based on Taylor and Bagby’s assessment system (Bagby, Parker, & Taylor, 1994; Bagby et al., 2006), the “Affective Awareness”<sup>17</sup>(AA) is just one facet of the construct, specifically one macro-factor of the Toronto Structured Interview for Alexithymia (TSIA; Bagby et al., 2006), which includes factors Difficulty to Identifying Feelings (DIF) and Difficulty in Describing Feelings (DDF), but also the dimensions of the other TSIA’s macro-factor Operative Thinking, including Externally Oriented Thinking (EOT) and lack of Immaginative Processes (IP) are also needed to define alexithymia (Maroti, Lilliengren,

<sup>15</sup> In line with the definition provided by the APA through the EBSCO Theraurus as “Affective and cognitive disturbances characterized by impaired fantasy life and an inability to verbalize or differentiate emotions. These disturbances overlap diagnostic categories and appear generally in psychosomatic patients.” and associated to the broader term “Personality trait”.

<sup>16</sup> It should be pointed out that initially Sifneos (1988) defined the organic alexithymia as "primary " and "secondary" alexithymia as deriving from childhood experiences, while the above distinction is consequent to the assumption of an developmental perspective, in which also medical causes in old age , not innate, can cause alexithymia.

& Bileviciute-Ljungar, 2018). Such distinction was made clear in the TSIA to overcome the instability of the EOT in the most used measure of alexithymia, the self-report questionnaire Toronto Alexithymia Scale – 20 (TAS-20; Bagby et al., 1994), on which the TSIA is based and overlaps in the structure, also adding the fourth IP factor to the first three, i.e. DIF, DDF and EOT, with the aim of overcoming the limits of the use of a self-report methods for the assessment of this particular construct, considered paradoxical and bearer of the risk of over-estimation of alexithymia in adolescents (Taylor et al., 2006; Parker, Eastabrook, Keefer & Wood, 2010).

### **3.1. Alexithymia during adolescence: challenges in assessment and prevalence in international and national samples.**

The potential relevance of study the alexithymia in adolescents stemmed from more than three decades of research that linked adult's alexithymia to both physical and psychological problems, among which somatic complains, depression, anxiety, eating disorders, post-traumatic stress disorder, dissociative symptoms, gambling addiction, sexual dysfunctions, as well as with schizophrenia, autism traits and borderline personality disorder (Honkalampi, De Berardis, Vellante and Viinamäki, 2018; Morie & Ridout, 2018; Messina et al., 2014; Porcelli & Taylor, 2018; Samur et al., 2013; Taylor & Bagby, 2012).

Given such findings in adulthood, recent research have started to investigate the construct of alexithymia also during adolescence, confirming the links with psychopathology found in adults, thus revealing potential usefulness in term of prevention but also ongoing challenges in its assessment at this age (Taylor & Bagby, 2013; La Ferlita et al., 2007; Parker et al., 2010). Indeed, research during adolescence was betrayed because it was considered inappropriate to study alexithymia, defined as a stable tendency of the personality, in the developmental age in which both the capacity of affective regulation and even more the personality are under development and still not defined (Eastabrook, 2013; Parker et al., 2010).

However, according to the developmental definition proposed for “primary” alexithymia, alexithymic traits could be considered already present in adolescents, thus in the last two decades

there has been an increase of interest in the evaluation of alexithymia in developmental age, from which two problems emerged: first, the potential inadequacy of the alexithymia methods of assessment used with adults when used during developmental ages, and second, the consequent usefulness of methods of assessment able to capture alexithymia in a period of big changes in emotion regulation abilities (Balottin, Nacinovich, Bomba & Mannarini, 2014; Caretti et al., 2011; Di Trani, Presaghi, Renzi, Greeman & Solano, 2018; Parker et al., 2010). With respect of the first point, research have established the overall validity of the TAS-20 to assess alexithymia in middle and late-adolescents, revealing stability and reliability for total score factors DIF and DDF, along with the instability of factor EOT (e.g. Parker et al., 2010), while under thirteen years of age was developed a simplified version of the TAS-20, the Alexithymia Questionnaire for Children (AQC; Rieffe, Paul Oosterveld, Meerum & Terwogt, 2006), which appears more appropriated for children and pre-adolescents (e.g. Di Trani et al., 2018). With respect of second point, it seems suggested to use a multi-method approach because some authors highlighted that, even if the TAS-20 shows overall good concurrent validity with the specular interview TSIA, the use of the interview may be more sensitive to detect alexithymia in adolescents, with particular usefulness in the use of macro-factors rather than factors, especially the Affective Awareness one, which along with the total score of alexithymia could provide an index of development of emotion regulation's ability of the young person (Balottin et al., 2014; Caretti et al. 2011, Montebanocci & Surcinelli, 2018).

### ***Prevalence of alexithymia in community adolescents.***

Despite such suggestions, the most research assessed alexithymia in development ages through the TAS-20, or eventually the AQC, overall reporting percentages of alexithymic classifications ranging 7.3% to 19.2% in non-clinical community adolescents, with national prevalence ranging 18-21%, as summarized reported in Table D (Honkalampi et al., 2009; Gatta et al., 2014; Mannarini, Balottin, Toldo & Gatta, 2016; Sayar, Kose, Grabe, & Topbas, 2005; Uzal, Yavuz, Akdeniz, Çalli & Bolat, 2018).

Table D. Percentage distribution of alexithymia classifications in the TAS-20 among larger samples of international (INT, <sup>b,c,d</sup>) and Italian (ITA, <sup>a</sup>) community adolescents.

	ITA <sup>(a)</sup>	INT		
		Finland <sup>(b)</sup>	Turkey <sup>(c)</sup>	New Zealand <sup>(d)</sup>
Classification %				
Not-alexithymic	82	92.7	88.8	91.2
Border-alexithymic or Alexithymic	18	7.3	19.2	8.8
<i>N</i>	3556	3936	570	325
<i>Age range (years)</i>	11-18	13-18	12-19	16-23

<sup>(a)</sup> Gatta et al., 2014; <sup>(b)</sup> Honkalampi et al., 2009; <sup>(c)</sup> Uzal, Yavuz, Akdeniz, Çalli & Bolat, 2018; <sup>(d)</sup> Garisch & Stewart Wilson, 2010.

### ***Prevalence of alexithymia in high-risk groups***

The theoretical reason to suppose greater vulnerability to alexithymia in high-risk adolescents came from findings that linked greater levels in such construct with childhood traumatic experiences, summarized in Schimmenti & Caretti (2018). Most of studies are retrospective, conducted in both clinical and community samples, on adults referring early experiences of abuse, neglect, or dysfunctional caregiving, which have been associated with greater alexithymia later in life, regardless of their levels of psychopathology (Berenbaum, 1996; Bermond et al., 2008; Carpenter & Chung, 2011; Frewen et al., 2008; Eichorn et al., 2014; Goldsmith & Freyd, 2005; Joukamaa et al., 2008; Terock et al., 2016; Van Dijke et al., 2011; Zou et al., 2016). Moreover, some studies reported higher rates of traumatic experiences as predictive of more alexithymia, especially in terms of difficulties in identifying and describing feelings (Evren et al., 2009; Gil et al., 2008; Güleç et al., 2013; Zlotnick, Mattia & Zimmerman, 2001).

Furthermore, according to Capraro et al. (2014), the earlier the traumatic experiences had occurred, the greater the alexithymia shown in later periods. Therefore, with preventive intent, some studies have investigated the links between alexithymia and traumatic experiences in community adolescents, supporting the association between greater self-reported experiences of parental abuse and more alexithymia, both in terms of TAS-20 classifications and higher scores, especially in DIF factor (Chen & Chung, 2016; Sayar et al., 2005; Schimmenti et al., 2017).

Thus, the assessment of alexithymia with a preventive utility could be particularly useful in high-risk adolescents with greater incidence of early traumatic experiences, but curiously only four international studies done it (summarized in Table E), all in residential contexts, while no studies involved late-adoptees (Erden, 2005; Manninen et al., 2011; Paull, 2013; Powell et al., 2011).

Table E. Prevalence of alexithymia (TAS--20) in RC international adolescents.

Country	United States <sup>(a)</sup>	Finland <sup>(b)</sup>	United Kingdom <sup>(c)</sup>
Classification %			
Not-alexithymic	48	50	54.8
Border-alexithymic	22	17	45.2
Alexithymic	30	21	
<i>N</i>	67	47	43
<i>Age range (years)</i>	12-17	15-18	16-22

<sup>(a)</sup>Powell et al. 2011; <sup>(b)</sup>Manninen et al., 2011; <sup>(c)</sup> Paull et al., 2013.

### ***Gender and age differences in alexithymia among community and high-risk adolescents.***

Studies in both community and residential-care samples reported girls as more alexithymic, with higher scores in DIF and DDF, while boys showed higher scores only in factor EOT (La Ferlita et al., 2007; Honkalampi et al., 2009; Howe-Martin et al., 2012; Karukivi et al., 2010a, 2010b; Mannarini et al., 2016; Manninen et al., 2011; Patwardhan et al., 2019; Paull, 2013; Powell et al., 2011; Sayar et al., 2005; van der Crujisen, Murphy & Bird, 2019; Zimmermann, Quartier, Bernard, Salamin & Maggiori, 2007). Moreover, such studies reported for both groups showed the same gender differences in the relationships between alexithymia and symptoms, as more alexithymic girls tend to show more internalizing problems, especially in case of higher DIF, while boys tend to show more externalizing problems along with higher scores in factor EOT.

Few community studies also found greater alexithymia in younger participants, not revealed in residential contexts (Allen et al., 2011; Erden, 2005; Gatta et al., 2014; Pellerone et al., 2016; Prino, Longobardi, Fabris, Parada & Settanni, 2019; Paull, 2013; Zimmerman et al., 2007).

### **3.2 Relations between alexithymia and internalizing-externalizing problems in community and high-risk adolescents.**

Early findings supporting the link between higher alexithymia and social and psychological problems during adolescence came from studies involving clinical groups, which reported associations between alexithymia and somatic complaints, depression and anxiety, as well as greater levels of alexithymia in case-control studies including adolescents with somatoform disorders, generalized anxiety disorder, eating disorders (anorexia and obese with loss of control eating), severe behavioral problems, juvenile delinquency, attention-deficit/hyperactivity Disorder, cannabis abuse, non-suicidal self-injury, psychotic and dissociative symptoms and Borderline Personality Disorder (Ballarotto et al., 2018; Balottin, et al., 2014; Basile, Quadriana & Monniello, 2009; Berger et al., 2014; Cerniglia, Cimino, Ballarotto & Tambelli, 2016; Debord et al., 2012; Donfrancesco et al., 2013; Dorard, Berthoz, Phan, Corcos & Bungener, 2008; Gatta et al., 2011, 2012, 2016a, 2017; Hadji-Michael, McAllister, Reilly, Heyman, & Bennett, 2019; Loas, Speranza, Pham-Scottez, Perez-Diaz & Corcos, 2012; Moriarty, Stough, Tidmarsh, Eger & Dennison, 2001; Paniccia et al., 2018; van Rijn et al., 2011; Zimmermann, 2006; Zonneville-Bender et al., 2004).

Therefore, further cross-sectional studies focused on community non-clinical populations in middle childhood and adolescence, confirming greater problems in more alexithymic adolescents and/or associations between alexithymia (and its factors) with both internalizing and externalizing problems (Di Trani et al., 2013; Honkalampi et al., 2009; Howe-Martin, Murrell & Guarnaccia, 2012; Garisch & Stewart Wilson, 2010; Gatta et al., 2014; Karukivi et al., 2010a, 2010b; Karukivi, Vahlberg, Pölönen, Filppu & Saarijärvi, 2014; La Ferlita et al., 2007; Lavaf, Ghanbari & Shokri, 2016; Mannarini, Balottin, Toldo, & Gatta, 2016; Meade et al., 2001; Pellerone, Formica, Hernandez Lopez, Migliorisi & Granà, 2017; Prino, Longobardi, Fabris, Parada & Settanni, 2019; Sayar & Kose, 2003; Uzal et al., 2018; Yearwood, Vliegen, Luyten, Chau & Corveleyn, 2017).

Among Italian studies, Prino et al. (2019), in a study with 1092 participants aged 8-14 years old, reported the predictive role of greater alexithymia at the AQC on their scores of internalizing-



externalizing problems. Using same measures in 935 pre-adolescents (age range 11-13y), Mannarini et al. (2016) revealing more internalizing problems in younger adolescents with greater DIF and DDF, as well as more externalizing problems (conduct problems, hyperactivity) along with lower scores in EOT. Also Di Trani and colleagues (2013), assessing 160 Italian pre-adolescents aged 11-14 years old in alexithymia with the AQC, reported positive correlations among either alexithymia total score and factors DIF and DDF with both YSR' scales for internalizing and externalizing problems, moreover revealing the DIF as unique significant predictor for internalizing, externalizing and obsessive-compulsive symptoms. In later ages, Gatta et al. (2016) assessed 227 adolescents (aged 12-19y), reporting that highest score in global alexithymia assessed with the TAS-20 were positively related to more internalizing and externalizing problems both self-reported by teenagers in the YSR and parent-referred the CBCL, revealing also associations with greater Non Suicidal Self Injury (NSSI). Also La Ferlita et al. (2007), found TAS-20 total score of a sub-sample of 160 adolescents (13-20y) as related to more total, internalizing and externalizing problems, highlighting also a link between greater alexithymia and more eating disorder symptoms in the whole sample of 360 adolescents, who had a borderline-alexithymic average score ( $M = 51.75$ ).

*Elective links between alexithymia and internalizing problems.*

Several cross-sectional studies revealed elective links between alexithymia with only internalizing problems, and eventually other problems such as NSSI, substance and alcohol abuse, addictions and/or co-morbid eating disorders, PTSD and dissociative symptoms (Chen & Chung, 2016; Haniye, Ghanbari & Shokri, 2016; Howe-Martin et al., 2012; Garisch & Stewart Wilson, 2010; Gatta et al., 2014,; Karukivi et al., 2010a, 2010b; La Ferlita et al., 2007; Parker, Wood, Bond & Shaughnessy, 2005; Patwardhan et al., 2019; Sayar & Kose, 2003; Sayar, Kose, Grabe, & Topbas, 2005; Shank et al., 2019; Uzal et al. 2018; van der Crujisen, Murphy & Bird, 2019).

In particular, three international studies reported predictive effects of global alexithymia, DIF and DDF on somatic complains, depression and dissociative symptoms (Allen, Lu, Tsao, Hayes & Zeltzer, 2011; Rieffe, Oosterveld & Meerum Terwogt, 2006; Rieffe et al., 2010; Sayar et al., 2005).

Focusing on national studies, Gatta et al. (2014) used the TAS-20 and the YSR in a large sample of 3556 participants aged 11-18 years old, reporting associations with more internalizing problems and, only in younger participants, with greater alcohol use, while Pellerone et al. (2016), using the TAS-20 on 389 participants aged 11-16 years, reported positive associations between alexithymia and anxiety.

Moreover, these findings found support also in a large cohort study with a total of 6963 Finnish participants in four groups from prenatal period to young adulthood (Patwardhan et al., 2019), in which greater adolescent's alexithymia was concurrently associated to both depression and substance abuse, being also predictive of depression diagnosis in adulthood, as well as of adult's anxiety in another Finnish longitudinal study from late-adolescence (M = 19y) to adulthood (Karukivi et al., 2014; N = 315).

#### ***Alexithymia and internalizing-externalizing problems in high-risk contexts.***

Three comparative studies have confirmed greater total, internalizing and externalizing problems in residential-care adolescents with higher scores of alexithymia, as well as with more DIF and DDF (Erden, 2005; Manninen et al., 2011; Paull, 2013).

More in detail, Manninen et al. (2011) used the TAS-20, the YSR and the CBCL on 47 Finnish adolescents (age range aged 15-18 years, 61% M) in residential-care due to severe behavioral problems, revealing associations between greater scores in total alexithymia and factor DIF with both internalizing problems and externalizing problems, while greater DDF was related only to internalizing problems. Paull (2013) used the TAS-20 and the SCL-90 in a comparative study with 43 adolescents and young adults grew up in residential-care, aged 16-22 years old (60% F), with 43 community peers, reported that alexithymia global scores and factor DIF and DDF predicted more total problems in both groups, RC and community adolescents. Instead, Erden (2005) used the TAS-20 in a Turkish comparative study with 30 RC adolescents with 30 community peers (age range 17-18y), revealing higher alexithymia as predictive of more depression only in RC group.

As unique contrast, Powell et al. (2011) involved 67 US adolescents aged 12-17 years (57% boys) placed in rural residential-care in a study with the TAS-20 and the Emotion Awareness Questionnaire (EAQ-26; Rieffe et al., 2007), reporting that greater alexithymia was related to social isolation, shame and difficulty in maintaining interpersonal relationships, but no relations with internalizing-externalizing problems were found.

#### **4. Mutual relationships between attachment and alexithymia on internalizing-externalizing problems.**

From the above, it can be noted that both insecure attachment and alexithymia are developmental vulnerabilities in the area of affective regulation, risk factors for internalizing-externalizing problems in adolescents and adults, and more common in individuals suffering for early adverse experiences (Schimmenti & Caretti, 2018).

Further, many studies on healthy and clinical adults highlighted greater alexithymia along with insecure attachments, both dismissing and preoccupied (Barbasio & Granieri, 2013; De Rick & Vanheule, 2006; Di Trani, Vari, Renzi, Zavattini & Solano, 2017; Koelen, Eurelings-Bontekoe, Stuke, & Luyten, 2015; Taylor, Bagby, Kushner, Benoit & Atkinson, 2014; Thorberg et al., 2011; Troisi, D'Argenio, Peracchio & Petti, 2001; Wearden, Crook & Vaughan-Jones, 2003; Wearden, Lamberton, Crook & Walsh, 2005). Some studies also found mutual relationships between attachment and alexithymia (reviewed in Schimmenti & Caretti, 2018), of which the direction is still unclear, as for instance in one study the unresolved attachment states of mind in the AAI predicted the global score of alexithymia in the TAS-20, while in another higher scores in the TAS-20 predicted lower narrative coherence in the AAI (Barbasio & Granieri, 2013; Taylor et al, 2014).

##### **4.1 Relationships between attachment and alexithymia in adolescents and youths.**

Several studies in non-clinical adolescents and youth, on average aged 19-23 years old, confirmed the positive associations between insecurity in attachment and alexithymia, in three studies reporting insecure dismissing and preoccupied attachment as predictive of greater alexithymia, while in one study higher alexithymia predicted higher insecure-dismissing scores (Besharat & Khajavi, 2014; Fossati et al., 2009; Montebanocci, Codispoti, Baldaro & Rosso, 2014; Pellerone et al., 2016; Picardi, Toni & Caroppo, 2005; Qaisy & Darwish, 2018; Wearden et al., 2003, 2005).

Also few studies with community and clinical children and adolescents (age range 9-19 years) have confirmed the relationships between insecurity in attachment and alexithymia, supporting the

predictive role of attachment insecurity on alexithymia, specifically of insecure-preoccupied on global alexithymia and DIF, of insecure-dismissing on DDF, while EOT was predicted only by general attachment insecurity (Boisjoli, Hébert, Gauthier-Duchesne, & Caron, 2019; Cerutti, Zuffianò & Spensieri, 2018; Deborde et al., 2012; Oskis et al., 2013; Yearwood et al., 2017).

With respect to the high-risk groups, only Paull (2013) explored this link, confirming that RC participants with both preoccupied and dismissing attachment showed higher levels of alexithymia, DIF and DDF than participants with secure attachment, while greater EOT was found only in preoccupied adolescents.

#### **4.2 Cumulative or mutual influences of attachment and alexithymia on internalizing-externalizing problems.**

Studies on adults at risk (or not) for childhood trauma have reported a cumulative effect of attachment insecurity and alexithymia in the prediction of higher PTSD symptoms (Gao et al., 2015; Wearden et al., 2003, 2005). Similar results were found with adolescents, for example by Deborde et al. (2012) in a case-control study with 52 girls with borderline personality disorder (BDP) and 51 non-clinical peers aged 13-19 years old, where greater alexithymia increased the negative impact of insecure-preoccupied attachment and decreasing the positive of the secure one on BDP symptoms. Also Boisjoli et al. (2019), in a study with 263 sexually-abused children aged 9-12 years old, reported higher predictive power for models inclusive of both attachment and alexithymia (47% on internalizing problems and 56% on externalizing ones), and alexithymia was also a mediator in the relationship between father-child attachment security and externalizing problems. Further, factors DIF and DDF mediated the effect of the attachment insecurity on NSSI and suicidal behavior showed by 709 community adolescents aged 10-15 years (Cerutti et al., 2018).

With respect to *high-risk adolescents*, there is empirical support for the cumulative effect of attachment insecure-dismissing and preoccupied pattern with alexithymia and all its factors on the total level of problems in RC participants, while there is no evidence of mutual relationships between these two risk factors (Paull, 2013).

## **SECTION II - RESEARCH**

## 5.1 Introduction and aims of the research.

As shown above, both insecure or disorganized attachment representations and higher levels of alexithymia can be considered risk factors for internalizing and externalizing problems during adolescence, also interacting each other in a way not yet clearly focused by the researchers (Madigan et al., 2016; Karukivi et al., 2010a; 2010b; Schimmenti & Caretti, 2018).

Moreover, it can be assumed that these risk factors are more widespread in adolescent populations that had been more exposed to early and potentially traumatic experiences, such as late adopted and institutionalized ones, but the scarcity of studies on these high-risk populations does not allow unambiguous answers, also considering the discrepancy between results obtained with narrative or self-report measures (Balottin et al., 2014; Barroso et al., 2018; Bifulco et al., 2016; Madigan et al. 2016; Manninen et al., 2011; McSherry et al., 2016; Pace et al., 2015, 2018; 2019b).

To the best of author's knowledge, this is the first Italian study that compare late-adopted, residential-care and community adolescents on attachment representations and alexithymia as risk-factors for internalizing and externalizing problems, using a multi-method approach. In order to identify similar or different risk pathways among three groups of adolescents (*i.e.* late-adopted, in residential-care and from the community), supposed to be differently exposed to the risk-factors considered, this study aimed to answer the following research questions:

**RQ<sub>1</sub>: are there significant group differences among adolescents in internalizing-externalizing problems, attachment and alexithymia?**

Hp<sub>1a</sub>: Higher levels of externalizing problems were expected in both high-risk groups compared to community peers, and more internalizing problems only in RC compared to both other groups.

Hp<sub>1b</sub>: little or no differences were expected between LA and C groups, while RC adolescents are hypothesized to be more insecure or disorganized than the other two groups, both in attachment classifications and scores in the FFI, showing also less security in the IPPA.

Hp<sub>1c</sub>: higher levels of alexithymia were expected in both high-risk groups, particularly in RC based on the literature.

**RQ<sub>2</sub>: are there relationships between the security, insecurity or disorganization in attachment and the levels of internalizing or externalizing problems?**

Hp<sub>2</sub>: in all groups, more internalizing-externalizing problems were expected along with less security or more insecurity and/or disorganization in attachment.

**RQ<sub>3</sub>: are there relationships between alexithymia levels and levels of internalizing or externalizing problems?**

Hp<sub>3</sub>: in all groups, more internalizing-externalizing problems were expected along with greater alexithymia, global and in the factors difficulty to identifying feelings (DIF) and difficulty to describing feelings (DDF).

**RQ<sub>4</sub>: are there mutual relationships between attachment and alexithymia in influencing internalizing or externalizing problems?**

Hp<sub>4a</sub>: in all groups, higher alexithymia was expected along with more insecurity in attachment, in terms of more dismissing and preoccupation in the FFI, and less attachment security in the IPPA.

Hp<sub>4b</sub>: in all groups, alexithymia and insecurity in attachment were expected to be either independent predictors of internalizing-externalizing problems and also to have a cumulative effect in predict them.

**RQ<sub>5</sub>: at exploratory level, are there differences among groups in FFI sub-scales? Are FFI sub-scales related to the adolescents' internalizing-externalizing problems ?**

Given the exploratory nature of this research question, no hypotheses have been done.



## 5.2 Method

### Research design

The research design is both comparative between-groups and correlational within-groups, because the groups were compared on the variables (RQ<sub>1</sub>), considering late-adopted (*Adoption Group*, AG) and residential-care (*Residential-care Group*, RG) participants as high-risk groups and the community peers as control group (*Community Group*, CG); then, the relationships between each potential risk factor and internalizing-externalizing problems were studied separately in each group of participants with a correlational approach (RQ<sub>2-5</sub>).

### Participants

A total of 174 participants (age range 10-19 years,  $M = 15.55$ ,  $SD = 2.02$ , 53% boys) from Liguria region of Italy took part in this study<sup>18</sup>. The inclusion criteria were that all teenagers: 1) had knowledge of Italian sufficient to respond to interviews and questionnaires, 2) not fulfilling criteria for severe cognitive or physical disabilities, nor did they suffer from severe psychotic or dissociative symptoms, 3) were between 10 and 19 years of age.

### *Late-adopted group*

33 late - adoptees were included in the study ( $M = 14.8$  years old,  $SD = 2.3$ ; 55% boys), placed for adoption on average at 5 years old ( $SD = 3.2$ , range 1-12 years) within an adoption long on average of 9.5 years ( $SD = 3.7$ , range 3-17 years). As shown in the detailed demographics and adoption features reported in Table 1a, which aligned with the wider national statistics (International Adoption Commission, 2017), most of participants came from international adoptions, but all adolescents were educated in Italy since the primary school, attending on average 8.8 years of education ( $SD = 2.5$ ).

All of them were placed for adoption because of pre-adoptive adverse experiences, most of the times being previously placed in other form of care (residential-care and/or foster-care) on average 2.5 years ( $SD = 1.3$ ), but few of them experienced also adoption breakdowns (15%).

<sup>18</sup> The original version of the project, submitted to the University Ethical Committee and to the Social Services, contemplated also the inclusion of teenagers in foster car, but there were too few potential participants in Liguria that met the inclusion criteria, therefore the target number of 30 participants could not be reached and in the end this group was excluded by the dissertation.

They were all living in Liguria, twenty in Genoa county (58%), six each in Savona (18 %) and Imperia (18%) counties and two in La Spezia (6%). All of them came from intact adoptive families (married or co-living partners, 100%) and mostly have one co-living adoptive sibling (52%), while 39% was placed for adoption with at least one biological sibling.

Mothers had on average 52 years old ( $SD = 3.8$ ) and they were all Italians, mostly employed (68%) particularly in scientific or intellectual jobs (26%), corresponding to upper-middle class<sup>19</sup>, while ten were housewives (32%). Most of them achieved BS degrees or more (52%), with on average 15.5 years of education ( $SD = 4.3$ ). Fathers had on average 53 years old ( $SD = 4.3$ ) and they were all Italians and employed (100%), mostly in technical professions (29%) or in artisans (16%) and self-employed jobs (12%), corresponding to middle class. Most of them (68%) achieved high-school diplomas (58%) or less, with on average 14.5 years of education ( $SD = 3.6$ ). 56% of the caregivers benefited from psychological support interventions, mostly groups of support for adoptive parents alone (16%) or in combination with couple and/or individual psychological support (28%).

Table 1a. Demographics and adoption features of late-adopted adolescents (N = 33).

<b>Demographics</b>				<b>Adoption features</b>			
	<b>Range</b>	<b>N</b>	<b>%</b>		<b>Range</b>	<b>N</b>	<b>%</b>
<b>Age*</b>	10-19	33	100	<b>Adoption type</b>	Domestic	7	21
					International	26	79
<b>Gender</b>	Boys	18	55	<b>Reason for adoption</b>	East-Europe	15	46
	Girls	15	45		Asia	7	21
					South-America	3	9
					Africa	1	3
<b>Education</b>	Primary school	1	3	<b>Reason for adoption</b>	Abandonment	11	33
	Middle-school	16	48.5		Abuse	15	45
	High-school	16	48.5		neglect	10	30
<b>Diagnosis***</b>	No	27	82	<b>Reason for adoption</b>	physical	2	6
	Yes	6	18		sexual	1	3
	ADHD	2	6		multiple	2	6
	Relational and though problems	2	6		Other difficulties**	4	12
	SPCD	2	6				
<b>Child intervention (special needs)</b>	No	22	67	<b>Pre-adoptive placement</b>	No	4	12
	Yes	11	33		Yes	29	88
	psychological	10	24	<b>Pre-adoptive placement</b>	Foster care	29	88
	educational	2	6		Residential care	7	21
	speech therapy	1	3		Adoption breakdown	5	15
				<b>Multiple placements</b>	No	24	73
					Yes	9	27

Note. \*in years; \*\*parental loss or psychopathology or drugs/alcohol abuse or incarceration or severe violence inside the family.  
 \*\*\*ADHD = Attention Deficit Hyperactivity Disorder; SPCD = Social Pragmatic Communication Disorder

### ***Residential-care group***

50 adolescents were included in the study ( $M = 15.6$  years old,  $SD = 2$ , 58% boys), placed in residential-care on average at 13.6 years old ( $SD = 3$ , range 6-17 years) for a period long on average 3.2 years ( $SD = 2.6$ , range 1-10 years). As shown in the detailed demographics and institutionalization features reported in Table 1b, which aligned with the wider national statistics (Autorità Garante dell'Infanzia e dell'Adolescenza, 2015), most of participants were Italians, and all of them were educated in Italy since the primary school, attending on average 8.4 years of school ( $SD = 2.7$ ), even if almost a third of participants did not attend any school at the time of data collection (28%). All of them were placed in residential-care because they lived adverse experiences in their family of origin, most of them being multiple placed before the current institutionalization. They were all living in Liguria, four-thirds Genoa County (86%), six in Imperia (12%) and one in Savona (2%).

From the fragmented information<sup>20</sup> available about the families of forty participants (80%), half came from intact families (married or co-living partners, 52%), while 37% of the mothers were single or abandoned by the partner (20%), or widowed (17%). Most of the teenagers had biological siblings (74%), one (37%) or more (37%), with whom they lived together in 48% of the cases.

With respect to the features of the professional care-givers, 98% of the educators benefited from psychological support interventions, mostly groups of supervision for residential professionals (71%), eventually in combination with individual psychotherapy (17%), while four of them attended only individual psychotherapy (9%) and for eight cases missed data (16%).

<sup>20</sup> Data on residential adolescent's families were protected by institutional privacy, mostly unknown by the educators who provided the information for this research

Table1b. Demographics and institutionalization features of residential-care adolescents (N = 50).

<b>Demographics</b>				<b>Residential-care features</b>			
	<b>Range</b>	<b>N</b>	<b>%</b>		<b>Range</b>	<b>N</b>	<b>%</b>
<b>Age*</b>	10-19	50	100	<b>Reason</b>	Abandonment	2	4
<b>Gender</b>	Boys	58			Abuse	38	76
	Girls	42			neglect	19	38
<b>Area of origin</b>	Italy	30	60		psychological	1	2
	East-Europe	11	40		physical	1	2
	Asia	1	2		sexual	2	4
	South-america	6	12		multiple	13	26
	Africa	2	4		Other **	10	20
<b>Education</b>	No school	14	28	<b>Contacts with the family of origin</b>	No	3	6
	Primary school	6	12		Yes	46	92
	Middle-school	13	26		Weekly	20	40
	High-school	17	34		Every 2 weeks	8	16
<b>Diagnosis***</b>	No	22	44		Monthly	5	10
	Yes	28	56		Every several months	4	8
	CD/ODD	10	20		Once a year	2	4
	BPD	4	8		Less than once a year	7	14
	ADHD	3	6	<b>Previous placement</b>	No	23	46
	Depressive	3	6		Yes	27	54
	Bipolar disorder	3	6		Residential care	13	26
	Substance abuse	2	4		Foster care	6	12
	Relational and though problems	2	4		Adoption breakdown	8	16
	Learning disability	1	2	<b>Multiple placements</b>	No	23	46
<b>Child intervention</b>	No	17	34		Yes	27	54
	Yes	33	66				
	combined****	18	36				
	psychological	6	12				
	educational	7	14				
	speech therapy	2	4				

Note. \*in years; \*\*parental loss or psychopathology or drugs/alcohol abuse or incarceration or severe intra-familial violence. \*\*\*CD/ODD = Conduct Disorder or Oppositional Defiant Disorder, BPD = Borderline Personality Disorder, ADHD = Attention Deficit Hyperactive Disorder. \*\*\*\* Individual psychotherapy combined with psychiatric medication or educational intervention.

### ***Community group***

91 community adolescents aged 10-19 years were included in the study ( $M = 15.8$ ,  $SD = 2.2$ , 50% boys), most Italians ( $n = 87$  or 96.7%) and school students (99%; seventy-three or 81% high-school, twelve or 14% middle-school and four or 4% primary-school). They were all living in Liguria, seventy-three or 82% in Genoa County, sixteen or 17% in Savona County and one, 1%, in La Spezia.

Sixty-six (73%) came from intact families (married or co-living partners), twenty-four had parents separated or divorced (26%) and one had only the mother because father was died (1%). Most of the teenagers have one or more biological siblings ( $n = 68$ , 75%; fifty or 55% one sibling, thirteen or 14% two siblings and five with three or more, 6%) and two of them has three step-siblings each one (2%). Eighty-seven had no diagnoses (96%), while four of them have mild forms of learning disabilities (4%). Twenty of them (22%) attended an intervention, in the aforementioned four cases speech therapy (4%), while sixteen adolescents benefited for psychological support, mostly individual (16%), after the separation or loss of the parents.

Mothers had on average 48.3 years ( $SD = 4.6$ ) and they were mostly Italians (97%), employed (81%) as office workers (26%), corresponding to middle class<sup>21</sup>. The majority of them 74% achieved high-school diplomas (55%) or less, with on average 13.8 years of education ( $SD = 3.5$ ). Fathers had on average 51.5 years ( $SD = 5.3$ ) and they were mostly Italians (89%), employed (98%) as office workers (20.3%) or in artisanal (16.5%) or intellectual and scientific jobs (13%), corresponding to middle class. Most of them (74%) achieved high-school diplomas (48%) or less, with on average 13.2 years of education ( $SD = 3.9$ ). 28% of the caregivers benefited from psychological support interventions, mostly individual psychotherapy (12%) or in combination with couple psychological support (8%), as well as only couple therapy (4%) or family therapy (4%).

<sup>21</sup> Parents were not asked about the income, therefore the correspondence to lower, middle or upper SES is not available.

## Variables and measures

### *Internalizing and externalizing problems*

Within a multi-informant approach, adolescents' internalizing and externalizing problems were collected with both a self-report and a parent-report questionnaire from the well-known *Achenbach System of Empirically Based Assessment* system (ASEBA; Achenbach & Rescorla, 2001), respectively:

- the Youth Self-Report 11-18 years (YSR 11-18; Achenbach & Rescorla, 2001; Frigerio et al., 2002), a self-report questionnaire for adolescents from 11 to 18 years old, composed of 112 item on a 3-point Likert scale (not true=0, somewhat true=1, often true= 2), that provide scores on eight syndrome sub-scales, summarized in a global score of Total Problems and grouped in three main scales: Internalizing Problems (sum of Withdrawn/depression, Somatic complains and Anxiety); Externalizing Problems (sum of Delinquent behavior and Aggressive behavior) and Other Problems (summed Social problems, Thought problems and Attentional Problems). The original version shows test-retest reliability values ranged .47 e .79. In this study, the Cronbach's  $\alpha$  was 0.86, ranging 0.70 for Externalizing Problems and 0.84 for Internalizing problems, and in the syndrome scales from 0.55 (delinquency) to 0.86 (anxiety).

- the Child Behavior Check List 6-18 years (CBCL; Achenbach & Rescorla, 2001; Frigerio et al., 2009) is a parent-report version of the YSR, suitable for age 6-18 years old, that ask the parent to rate of the child's behavior in the last 6 months. It is composed of 113-item on a 3-point Likert scale (not true=0, somewhat true=1, often true= 2), summarized in a score of Total Problems and clustered in eight syndrome sub-scales, some grouped in two indexed scales of Internalizing problems (*i.e.*, sum of sub-scales anxious/depressed, withdrawn/depressed and somatic complains), Externalizing problems (*i.e.*, sum of sub-scales rule-breaking behavior and aggressive behavior), while other sub-scales are not indexed, such as social problems, thought problems, attention problems and other problems. The original version of CBCL 6-18 has good internal consistency (Cronbach's  $\alpha$  range: 0.63-0.94) and test-retest reliability (Pearson's  $r$  ranged from 0.57 to 0.88). In

the Italian version, the Cronbach's  $\alpha$  is  $> 0.64$  for both the scales of Internalizing and Externalizing problems (D'Orlando, Grassi e Di Blas, 2010). In this study, the Cronbach's  $\alpha$  was 0.91, ranging 0.79 for Internalizing Problems and 0.82 for Externalizing problems, and in the syndrome scales from 0.62 (though problems) to 0.75 (rule-breaking behavior).

### ***Attachment***

Within a mixed-method approach, that consider discrepancies between data collected with narrative measures or questionnaires (Lionetti et al., 2015), the adolescent's attachment was assessed using:

- The Friends and Family Interview (FFI; Steele & Steele, 2005), a semi-structured interview to assess attachment representations during middle childhood and adolescence (Steele, Steele & Kriss, 2009), in the Italian version authorized by the author H. Steele (Pace et al., 2015b). The interview lasts around 45 minutes and it comprised 27 questions<sup>22</sup> that ask the adolescents about themselves and their relationships at school, with friends, parents and siblings, allowing rapid but deep access to the interviewee's unconscious as he/she is asked to tell and reflect on his own attachment experiences, while structuring at the same time a unitary, coherent and fluid discourse. The interviews are (video)-taped and transcribed verbatim, then coded with a double-coding system informed by the AAI (Main, et al., 2008), assigning a classification of attachment representations, but distinct, as FFI allows also a dimensional evaluation of attachment. The best-fit attachment classification of the person is given on basis on the higher dimensional score in the four scales related to the following patterns (Steele et al., 2009):

1. *Secure - autonomous* (S), when the narrative reflects easiness, flexibility and the ability of the young person to turn to others to search support when upset or distressed and give help to others in need.

<sup>22</sup> It is currently available an updated version (Steele, Steele and Kriss, 2015) that comprised 30 questions, in order to differentiate the investigation for safe-haven and secure-base and to deepen more the reflective functioning.



2. *Insecure - dismissing* (Ds), when the person's narrative reflects a restriction in acknowledgment or expression of distressing feelings and the tendency to use idealization or derogation in a defensive way;

3. *Insecure - preoccupied* (P) characterized narratives where passivity or anger predominates, along with unbalanced and indecisive oscillations in the evaluations of the attachment figures;

4. *Disoriented - disorganized* (D), as expression of insecurity, when the person's narrative reflects the presence of contradictory or incompatible strategies in attachment and the difficulty of the young person to monitoring or reasoning the discourse, along with references to frightening or traumatic experiences that seem unresolved.

The FFI is coded also in other eight dimensions on several scales: (1) *Coherence*, which includes four sub-scales according on Grice's conversational maxims (1975): truth, economy, relation, manner, summarized in the score for overall coherence; (2) *Reflective Functioning*, including the scales: developmental perspective, Theory of Mind (ToM; mother, father, friend, sibling(s) and teacher) and Diversity of Feelings (DoF; self, mother, father, friend and siblings); (3) *Secure Base/Safe Haven* (father, mother, and other significant figure); (4) *Self-Esteem*, including scales of social competence, school competence, and self-regard; (5) *Peer Relations*, in terms of frequency and quality of contact of the best friendship; (6) *Sibling Relations*, in terms of warmth, hostility and rivalry; (7) *Affective Regulation*, in the scales of idealization (self, mother, father), role-reversal and anger (both toward mother and father), derogation (self, mother, father), and adaptive response; (8) *Differentiation of parental representations*. Each scale is scored on a 7-point Likert scale with scores from 1 to 4, including mid-points (1 = no evidence; 2 = mild evidence; 3 = moderate evidence; 4 = marked evidence). The FFI has been used both with community and clinical samples (Esbjørn, Breinholst, Kriss, Hald & Steele, 2015; Psouni, Breinholst, Esbjørn & Steele, 2018), mostly with adoptive ones (Steele & Steele, 2005, 2009; Pace, 2014), showing inter-country invariance in internal consistency (Cronbach's  $\alpha = 0.83$ , Stievenart, Casonato, Muntean, & Van de

Schoot, 2012) and both convergent validity with the AAI, and discriminant validity with the WISC-VCI and CBCL in the Italian authorized translation used in this study (Pace et al., 2019a).

This is the first Italian research that use the FFI on residential-care adolescents (Muzi & Pace, 2020), and according to the guidelines (Steele et al., 2009), the FFIs have been administered with adolescents older than 17 years old, because they were supposed to have development delays due to their adverse backgrounds. The FFIs were audio-taped and all the transcripts made anonymous. All the FFI (N=173) were coded by three reliable FFI coders certified by H. Steele, the Ph.D candidate and C.S. Pace in the community group, while F. Bizzi was the second coder of the tutor supervisor for the high-risk groups, as the Ph.D candidate administered the interviews. 117 interviews (67%) were coded by one coder, while 56 interviews (32%) were coded by two independent coders that achieved 95% agreement on secure-insecure classifications ( $k = .89$ ), 96% agreement for the 4-way classification ( $k = .94$ ) and 100% on organized-disorganized classifications ( $k = 1$ ), all  $p < .001$ . Cronbach's  $\alpha$  for internal consistency was 0.88 and Pearson's correlations on coherence scale scores ranged between  $r = 0.33$  (manner) and  $r = 0.85$  (truth), while those on attachment patterns scale' scores ranged between  $r = .17$  (P) and  $r = .81$ , with all  $p < .000$ .

- The Inventory of Parent and Peer Attachment (IPPA, Armsden e Greenberg, 1987; Pace, San Martini & Zavattini, 2011), the most widely used self-report questionnaire to assess attachment during adolescence, with best psychometric proprieties (Jewell et al., 2019). It is composed of 75 item which ask to adolescents about their conscious affective and cognitive perception of the quality of their attachment relationships with mother, father and peers. The quality of relationships is evaluated separately for each figure (with the same 25 questions each one), in a global score of *Attachment security*, which is the average of the scores in three sub-scales: 1) *Trust*, *i.e.* mutual understanding and respect; 2) *Alienation*, *i.e.* feelings of disaffection and isolation; 3) *Communication*, *i.e.* perceived quality of the communication in the parent-child dyad. The original version has reliability (Cronbach's  $\alpha$ ) that range 0.87 (Mother attachment) to 0.92 (Peer attachment), showing good test-retest reliability in teenagers 16-20 years old and discriminant validity between

clinical and community samples (Armsden & Greenberg, 1987). In the Italian version (Pace et al., 2011), the Cronbach's  $\alpha$  for the reliability range 0.65 (Alienation Peers) to 0.93 (Trust toward both Father and Peers), while in this study, the Cronbach's  $\alpha$  was 0.61, ranging 0.55 for the scales of Father<sup>23</sup> and 0.92 for the scales of Peers.

### ***Alexythimia***

Within a mixed-method approach, the adolescent's levels of alexithymia were assessed using:

- the Toronto Structured Interview for Alexithymia (TSIA; Bagby et al., 2006; Caretti et al., 2011) is a structured clinical interview to evaluate the alexithymia that last about 45 minutes, developed to overtake the limits of TAS-20 (Bagby et al., 2006). It is composed of 24 questions, six each of the four factors reported by Bagby et al. (1994): 1) *Difficulty in Identifying Feelings* (DIF), which is the difficulty to identifying emotions and somatic sensations as personal and meaningful feelings; 2) *Difficulty in Describing Feelings* (DDF), which is the difficulty in find the words to describe the personal feelings to the others; 3) *Externally Oriented Thinking* (EOT), which is a tendency to pay attention to material aspects of the experience rather than to the inner world; 4) *Imaginative Processes* (IP), which define a poor use of the imagination or a lack of fantasy in the quality of the imaginative processes. Factors DIF and DDF are also grouped in the macro-factor *Affective Awareness* (AA), while factors EOT and IMP are grouped in the scale for the macro-factor *Operative Thinking* (OT). Scores are assigned by the interviewer during the interview on a 3-point Likert scale (scores 0 = no evidence, 1 = sometimes, 2 = marked evidence), ranging from 0-12 points in each factor, 0-24 points in each macro-factor and 0-48 in the total score of alexithymia. The Italian version, tested on a mixed typical and clinical sample of adults, showed good reliability (Caretti et al., 2011; Cronbach's  $\alpha = 0.86$ ) and convergent validity with the TAS-20 ( $r = 0.44$ ,  $p < .01$ ). On samples of adolescents the interview have been scarcely used, but it showed correlations with the findings obtained with the TAS-20 (Montebarocci & Surcinelli, 2018). In this study, the TSIA were audio-taped, transcribed and made anonymous, and all coded in group by five to seven

<sup>23</sup> Many residential adolescents never met their fathers and refused to fill the part of the questionnaire related to.

trained M.A. students plus the Ph.D candidate, reliable certified coder, as supervisor of the students. Cronbach's  $\alpha$  for internal consistency on raw scores was 0.78. This is the first Italian research that use the TSIA on late-adopted and residential-care adolescents.

- the Toronto Alexithymia Scale-20 (TAS-20; Bagby, Parker, & Taylor, 1994; Bressi et al., 1996) is a self-report 20-item questionnaire on a 5-point likert scale (range 0 = "completely not agree" to 5 = "completely agree"), designed to assess the levels of alexithymia in individual from 13 to 20 years old. Alexithymia levels are assessed in a total score and in three factors (see above) on correspondent scales: 1) *Difficulty in Identifying Feelings* (DIF); 2) *Difficulty in Describing Feelings* (DDF); 3) *Externally Oriented Thinking* (EOT). Subjects with scores less or equal to 50 are considered not alexithymic, from 51 to 60 border alexithymic and 61 or more are considered alexithymic. TAS-20 showed excellent internal consistency (Cronbach's  $\alpha = 0.81$ ) and good test-retest reliability over a three months period ( $r = .77$ ). The Italian version (Bressi et al., 1996) used with adults showed Cronbach's  $\alpha$  ranging between 0.52 (EOT) and 0.77 (DIF) in normative samples and between 0.54 (EOT) and 0.82 (total score) in clinical samples. Used on Italian early adolescents (12-13 years old, Craparo, Faraci & Gori, 2015), Cronbach's  $\alpha$  was good for factor DIF (0.69) and acceptable to factor DDF (0.52), while factor EOT showed poor consistency (0.40). In this study, the Cronbach's  $\alpha$  is 0.75, ranging 0.30 for the factor EOT to 0.68 for the factor DIF.

### ***Verbal skills (confounding variable)***

The Verbal Comprehension Index of Wechsler Intelligence Scale for Children - Fourth Edition (VCI-WISC-IV; Wechsler, 2003; Orsini, Pezzuti & Picone, 2012) was used to check the potential confounding effect of the cognitive-verbal skills of the adolescent, given that many participants in the high-risk groups were of foreign origin or came from families of low cultural and educational level. For the purpose of this study, were administered only the three sub-tests (6. Vocabulary, 2. Similarities and 9. Comprehension) fundamental to calculate the Verbal Comprehension Index (VCI). In the Italian version, Cronbach's  $\alpha$  for the VCI-WISC-IV is 0.96, ranging 0.69 for comprehension to 0.94 for vocabulary. In this study, the raw scores of 17 years old participants who

decided to optionally answer to the VCI (N = 27) were weighted using the table for 16 years and 11 months, as the test is suitable for age 11-16 years, and the Cronbach's  $\alpha$  is 0.76, ranging 0.53 for comprehension to 0.64 for similarities.

***Socio-demographic and pre- adoption or institutionalization adverse past experiences data form.***

A form developed *ad hoc* for adoptive families (Pace et al., 2019), have been adapted to be used also with residential-care and community adolescents in this research. The questionnaire collects socio-demographic and anamnestic data on participants (age, gender, nationality, educational level, presence of diagnoses a/o current psychological or educational interventions) and on their family (family structure, educational level and employment status of each parent, presence of siblings, adverse experiences and risk-factors in the family, such parental or sibling's disability or death). In the high-risk groups, the form has been integrated with a specific part to collect data on the past history of the adolescent (placement's reasons, length and age; past adverse experiences, *i.e.* abandonment, neglect, abuse, multiple placements a/o breaking of relevant ties with friends, siblings or other care-givers). The form was compiled by a one parent for late-adoptees and community adolescents, and by the primary educator, considered the main care giver, for participants in residential-care.

**Procedure**

At first, the research project received the prior approval of the University of Genoa' Research Ethics Committee (CER), protocol n. 021. Then, institutional authorization was received from social and health services (protocol n. PG/2017/368220, APPENDIX A), which allowed formal contacts with local services for adoption and residential-care, finalized to the recruitment of late-adopted and residential-care teenagers. The community teenagers were recruited through schools, by seven M.A. students belonging with the research project, that contacted 1-6 potential participant(s) each grade, who in turn provided other contacts of peers available to participate in the research. All the participants and their legal caregivers were informed of the research goals, procedure and possible implications by the research team, which also emphasized the voluntary and

confidential nature of their participation before they agreed to participate, in line with the ethical requirements.

193 teenagers were contacted over two years, from June 2017, time of CER approval, to May 2019. Among those who participated, teenagers were eligible for this study if they provided at least one measure of the dependent variable (*i.e.* CBCL or YSR for internalizing-externalizing problems) and at least one measure of one of the two risk factors considered (*i.e.* FFI or IPPA for the attachment and TAS-20 or TSIA for the alexithymia), since the study was multi-method and included at least two measurements for each variable.

38 of those contacted were late-adoptees<sup>24</sup>, of which five adolescents did not participate, as one refused personally (2.6 %), two because the adoptive parents did not give the approval (5.2%) and two (5.2%) were impossible to contact at the moment of data collection, even if parents and the teenagers provided their approval. Of the rest, one adoptive mother did not provide the CBCL and one teenager did not return all self-report questionnaires, while two teenagers did not respond respectively to the YSR and to TSIA. Six participants refused the WISC-IV, four because of lack of time in a control measure, two because out of age range and lacked interest. However, all the participants were eligible and included in the final sample ( $N = 33$ ), that represented 87% of those contacted.

54 were contacted as placed in residential-care and four of them did not participate, two refused personally (3.7%) and two because the legal caregiver did not give the approval (3.7%). Of the rest, 21 (41%) did not responded to the TSIA for several reasons<sup>25</sup> related both to adolescents' refusal and to institution's changes, five teenagers did not turn the TAS-20 (10%) and eleven refused the WISC-IV (21%), eight because out of age range and lacked of interest in a control

<sup>24</sup> Compared to the other two groups, late-adoptees contacted were less because in Liguria most of adoptees fallen outside the range 10-19 years, as younger or older, or were adopted before 12months, *i.e.* early-adopted.

<sup>25</sup> 66% were placed in a residential house that underwent structural changes before the second agreed administration, following which adolescents were sorted elsewhere and no longer contactable for reasons of privacy.

measure, three because fatigued. All of them were eligible and were included in the final sample ( $N = 50$ ), that represented 93% of those contacted.

101 community teenagers were contacted for the control group and eleven of them did not participate (11%), one refused personally for lack of time (0.09%), three because the parents did not give the approval (3%), and five (5%) were impossible to contact at the moment of data collection, even if parents and the teenagers provided their approval. Of the rest, four teenagers did not answer at the TSIA (4%) and four did not returned the TAS-20 (4%) without provide a reason, while twenty-one refused the WISC-IV (23%), of which fourteen four because out of age range and lacked of interest in a control measure and seven because fatigued of lacked of time or interest.

However, all of these were eligible and have been included in the final sample ( $N = 91$ ), that represented 90% of those contacted.

According with the adolescent and the parent or legal caregiver, data collection took place in home-visiting, in two separate meetings, one each interview. The data collection in the the high-risk groups was conducted by the undersigned Ph.D candidate, while data in the community group were collected by seven clinically trained M.A. students, under continuous supervision of the Ph.D candidate and the tutor supervisor of the research, Professor C.S. Pace.

The first meeting was longer and lasted about two hours, because firstly the adolescent was reminded of the rights contained in the informed consent about the voluntary participation, the possibility of not answering and withdrawing at any time and without giving explanations, the confidentiality of the answers and their use only for the purposes of the research, in order to be sure that the participant had understood them. Then, the adolescent and all legal guardians (parents, legal guardians acting on behalf of, or in some cases, the delegated social services) signed the informed consent form to agree to participate in the research, in accordance with the Declaration of Helsinki, containing the rights that had been verbally recalled to them immediately before (APPENDIX B). After that, the adolescent answered to the FFI and filled the questionnaires (YSR, IPPA and TAS-20), while one legal caregiver (a biological or adoptive parent and the educator, *i.e.* primary

caregiver) filled the socio-demographic data form and the CBCL. In the second meeting, which occurred after about 7-10 days after the first one, lasting about one hour and a half, the adolescent answered to the TSIA and, optionally, to the three sub-tests of the WISC-IV Verbal Comprehension Index (VCI). At the end of the second meeting, each teenager received a certificate of participation and was asked if he/she wanted a CD containing the recording of his/her interviews. Also, each institution (residential-houses and local services for the adoption) received a certificate of collaboration in the research. The adolescents and legal caregivers were also reminded that they would be contacted at the end of the research to receive the report of the results in a collective form.

All interviews, FFI and TSIA, were audio-taped and transcribed verbatim, removing all contextual and personal information. All the questionnaires, the recordings and the transcriptions were saved named with an alphanumeric identification code assigned to the participant, that only him/her and research team known, storing the data of the research in physical locations locked by keys or protected by frequently changed passwords if saved in digital clouds.

### **Analytic plan**

Percentages of participants exceeding clinical cut-off T scores in CBCL and YSR (Achenbach & Rescorla, 2001; Frigerio et al., 2004) and raw scores' means and standard deviations were reported for all measures, also divided for gender.

All analyses were considered significant with  $p < .05$  and strongly significant with  $p < .01$ .

The effect of confounding variables on the main scales was checked with Pearson's correlations (*e.g.* current age, VCI-WISC-IV on interviews, age and length of placement in high-risk groups), chi-square on categorical variables (*e.g.* equality of participants internationally or domestic adopted in late-adoptees, parents together/not together in the community group) and t-test on mean scores.

Before to conduct the analyses for the comparative study, the homogeneity of variances across groups was checked through the Levene's test, as groups had different sizes. In scales with no variances' homogeneity, outliers have been detected, according to the criteria suggested by Hoaglin



and colleagues (1987)<sup>26</sup>, then “winsorized” (Winsor, 1941, as cited in Dixon, 1980) when the gap observed in the histogram of normal distribution of the variable exceeded 2.2 blocks. The score of the outlier in the variable have been transformed in the smallest or largest value of the distribution not suspected to be an outlier respectively minus or plus one, in order to maintain its lowest or highest than the smaller or larger value of the distribution even if transformed.

In the comparative study (RQ<sub>1,5ab</sub>), chi-squares have been used to investigate group differences in percentage distributions of prevalence in CBCL and YSR and of categories in FFI and TAS-20. For all variables, gender differences in scores have been preliminary checked, then group differences in the means of winsorized scores have been investigated through several one-way ANOVAs, with the Bonferroni’s correction test.

For correlational studies (RQ<sub>2,3,4a,5</sub>), one-sided Pearson’s correlations have been conducted among raw scores for all variables, separately in each group and controlling for age. For the purposes of the research, only the scales for total, internalizing and externalizing problems in both CBCL and YSR were considered, while correlations with syndrome’ scales are reported in Appendix C.

For RQ<sub>4b</sub>, models of risk prediction have been built through several general linear model (GLM), accounting the gender effect if statistically significant, separately each group on the basis of correlations in order to detect common and specific risk pathways. Given that there is no agreement in literature on what informant of problems (care-giver or adolescent) could be considered more reliable, both CBCL and YSR have been considered as dependent variables. With respect to possible predictors, FFI and IPPA have been both included as measures of different aspects of attachment, while for alexithymia only the TAS-20 was included, because of the pilot use of the TSIA with adolescents in this study.

<sup>26</sup> Considering outliers to winsorize values detected with a 2.2 to 3 multiplier.

## 5.3 Results

### Preliminary analyses

#### *Preliminary control for effect of confounding variables (age, verbal skills, gender, type of adoption, family structure and match of groups).*

The *current age* showed correlations only in the community group, with more internalizing Problems in the YSR ( $r = .22, p = .04$ ) and with less total alexithymia in the TAS-20 ( $r = -.26, p = .01$ ), in line with literature (Frigerio et al., 2009; Pellerone et al., 2016). The participant's *verbal skills* in the CVI-WISC-IV did not show correlations with FFI in any group, while only in LA there was a negative correlation with TSIA factor IP,  $r = -.26, p = .01$ , suggesting more imaginative thinking in late-adoptees with better verbal skills .

*Gender differences* have been found in all variables: as shown in Table Des1, girls in all groups showed higher scores of internalizing problems than boys (all  $p < .01$ ), and RC girls also self-reported more total problems ( $p = .006$ ) , fully in line with literature (Frigerio et al., 2009; Schmidt et al., 2008); in terms of attachment (see Table Des2), community and residential-care boys had more insecure-dismissing classifications in the FFI, receiving higher scores in the respective scale (all  $p < .01$ ), while community girls appeared more secure and RC girls showed more insecure-preoccupied classifications and scores in the FFI, being also more insecure in the IPPA (all  $p < .01$ ), overall confirming literature (Pace et al., 2019a; Schleiffer & Muller, 2003). Further, alexithymia was higher in girls than both high-risk groups (both  $p < .05$ , see Table Des3), and RC girls showed also more DIF, LA and C girls showed more DDF and only community boys showed more EOT (all  $p < .01$ ), overall supporting literature findings (La Ferlita et al., 2007; Honkalampi et al., 2009; Manninen et al., 2011).

Controlling the confounding effect of the *type of adoption* in LA group (Askeland et al., 2017; Bimmel et al., 2003), internationally ( $n = 26$ ) and domestically ( $n = 7$ ) adopted adolescents did not show differences neither in t-test on scores on all variables, nor in chi-square for attachment 2-way

distribution and alexithymia categories (all  $p > .05$ ), therefore in all the analyses they had been considered as a unique group ( $N = 33$ ).

Controlling the confounding effect of the family structure in the C group, there were no differences between adolescents with parents together ( $n = 67$ ) or divorced/separated/widowed ( $n = 24$ ) with respect to internalizing-externalizing problems in CBCL and YSR, (all  $p > .2$ ), or in the comparison on FFI's 2-way distribution and scales for pattern and coherence (all  $p > .2$ ) and neither on comparison on alexithymia classifications and scores on TAS-20 and TSIA (all  $p > .07$ ). The only exception was in the IPPA, where participants with parents not together had lower scores in the father' scales for attachment security, trust and communication ( $p < .05$ ), therefore the further analyses for the comparative study have been computed consider all the community adolescents in a unique, community group ( $N = 91$ ).

There were no differences among the three groups with respect of the age ( $p = 0.7$ ), CVI-WISC-IV ( $p = .06$ ) and gender distribution ( $\chi^2 = .74$ ,  $df = 2$ ,  $p = .69$ ).

#### ***Winsorization for the comparative study.***

The variances in CBCL 6-18 were not equal in all scales and syndrome' scales (all  $p < .05$ ), showing outliers only in highest scores, none in lowest scores.

In the main scales were found 15 outliers: two in Total problems and four in Externalizing Problems that did not respond to the criteria for the winsorization, while three of the six outliers found in the Internalizing Problems were winsorized, respectively from 48 to 34, from 49 to 35 and from 52 to 36, as the largest value of the distribution not suspected to be an outlier was 33.

10/53 outliers in the CBCL 6-18 syndrome' scales responded to the criteria for the winsorization in: somatic complains (the largest not-outlier was 14 and two outliers were transformed from 19 to 15, one from 20 to 16); though problems (the largest not-outlier was 11, then one was transformed from 13 to 12, two from 14 to 13 and one from 16 to 14); rule-breaking behavior (one outlier was transformed from 29 to 21, as the largest not-outlier was 20); other problems (two outliers were transformed from 22 to 13, as the largest not-outlier was 12).

In the YSR 11-18, variances were not equal in Externalizing Problems,  $p = .005$ , as well as in the syndrome' scales withdrawal, somatic complains, delinquency, thought problems and identity-related problems (all  $p < .05$ ): outliers detected were all highest scores, respectively 3, 6, 3, 2 and 7, but none responded to the criteria for the winsorization, therefore they were not transformed.

In the FFI, the variances were not equal in most of the scales (all  $p < .04$ ), except for: insecure-dismissing, relation and overall coherence, all RF scales except for ToM sibling and DoF self, social competence, friend relations, warmth sibling, idealization and role-reversal toward the father. Among the scales where variances were not equal, 24 outliers have been detected, of which 5 were lowest scores and 19 highest scores, but none of them responded to the criteria for the winsorization and they were not transformed.

In the IPPA, the variances were not equal in all the scales related to the mother (all  $p > .04$ ), in trust and attachment to father (both  $p < .006$ ), as well as in trust and alienation to peers (both  $p < .05$ ), while in the other scales  $p > .07$ . outliers identified were 22, 20 lower scores and 2 higher scores, of which two lowest score in the scale trust peers were winsorized from 15 to 23 and from 16 to 24, as the lowest not-outlier of the distribution was 25.

In the TSIA, the variances were not equal in the macro factors AA and OT (both  $p < .03$ ), as well as on the total Score,  $p = .002$ . Outliers detected were 10, all highest scores, two in OT and eight in the total Score, but none of them responded to the criteria for the winsorization, therefore they were not transformed, while in the TAS-20 the variances were equal in all the scales (all  $p > .12$ ), therefore no outliers were detected.

### ***Control for the effect of adoption and institutionalization's features in the high-risk groups.***

Both the age and length of placement were not related to internalizing-externalizing problems and with attachment, as in both LA and RC groups no correlations with CBCL, YSR, FFI or IPPA were found. Only in LA group there were correlations with the total score of alexithymia in the TSIA, a positive one with the age at adoption,  $r = .46$ ,  $p = .006$ , and one negative with its length,  $r = -.42$ ,  $p = .01$ , while no correlations with the TAS-20 were revealed in any group.

With respect of number of placements, no differences were revealed in any group in the YSR, IPPA TSIA, TAS-20 scales, or in chi-square on FFI categories. However, RC participants with multiple placements had higher scores than single placed in CBCL 6-18 internalizing problems,  $t=45.6, p=.04$ , showing also higher scores of FFI's disorganization and lower scores in security, truth, manner and coherence than single placed ones. Instead, single placed LA showed lower scores in FFI' scales for overall coherence and manner, being less likely to be classified as not alexithymic in the chi-square on TAS-20 classifications,  $\chi^2 = 7.9, p = .02, df = 1$ .

## Part I - Comparative study

**RQ<sub>1</sub>: Are there significant group differences among adolescents in internalizing-externalizing problems, attachment and alexithymia?**

As detailed below, results for RQ<sub>1</sub> have partially confirmed the hypothesized differences between both high-risk groups with the community one, given that only residential-care adolescents showed more problems, attachment insecurity and alexithymia than both the other two groups, while late-adopted and community peers mainly did not show each in these variables.

### *Group differences in internalizing and externalizing problems*

Table DesI-1 shows frequency and percentages of adolescents exceeding clinical cut-off T-scores in CBCL and YSR across groups, also divided for gender. Table DesI reports means and standard deviations for both measures' scores in each group, also divided for gender.

Overall, Hp<sub>1a</sub> was only partially confirmed, as only RC and not both high-risk groups showed more problems than community peers.

### *Group differences in percentage problems' prevalence.*

Contrary to the hypothesis, chi-square tests between groups (LA vs. C, LA vs. RC and RC vs. C) did not reveal statistically significant differences in the percentages of prevalence, despite Table DesI-1 shows that percentages of participants exceeding the clinical cut-scores were higher in the RC group for all the categories of problems assessed, both with CBCL and with YSR.

### *Group differences in problems' scores*

The ANOVA, shown in Table I-1a, revealed strongly significant group differences in the scores for internalizing and externalizing problems, both with the CBCL and the YSR (all  $p < .01$ ). The Bonferroni's post-hoc test (Table I-1b) did not reveal the expected differences between late-adopted and community adolescents, while residential-care adolescents showed hypothesized higher scores than both community and late-adopted peers, with both CBCL and YSR.

Table DesI-1. Frequency and percentages of adolescents (N = 174) exceeding the national clinical cut-off scores<sup>1</sup> for internalizing-externalizing problems (Child Behavior Checklist, CBCL 6-18, and Youth Self Report, YSR 11-18), grouped<sup>2</sup> in late-adopted, residential-care and community, also divided for gender.

	Frequency (%)								
	Late-adopted			Residential-care			Community		
	TOT	M (18)	F (15)	TOT	M (28)	F (22)	TOT	M (46)	F (45)
<b>CBCL 6-18</b>									
<b>Total score of problems</b>	9 (27)	4 (12)	5 (15)	<b>39 (78)</b>	21 (42)	18 (36)	16 (17)	6 (6)	10 (11)
<b>Internalizing problems</b>	7 (21)	3 (9)	4 (12)	<b>24 (48)</b>	9 (18)	15 (30)	10 (11)	3 (3)	7 (7)
I: Anxious/depressed	9 (27)	5 (15)	4 (12)	<b>24 (48)</b>	9 (18)	15 (30)	21 (23)	9 (10)	12 (13)
II: Withdrawn/depressed	5 (15)	4 (12)	1 (3)	<b>20 (40)</b>	13 (26)	7 (14)	4 (4)	2 (2)	2 (2)
III: Somatic complains	0	0	0	<b>6 (12)</b>	0	6 (12)	0	0	0
<b>Externalizing problems</b>	5 (15)	2 (6)	3 (9)	<b>36 (62)</b>	20 (40)	16 (32)	11 (12)	4 (4)	7 (7)
VII: Rule-breaking behaviors	5 (15)	2 (6)	3 (9)	<b>32 (64)</b>	16 (32)	16 (32)	6 (6)	3 (3)	3 (3)
VIII: Aggressive behavior	1 (3)	0	1 (3)	<b>7 (14)</b>	2 (4)	5 (10)	1 (1)	0	1 (1)
<b>Other syndrome' scales</b>									
IV: Social problems	4 (12)	1 (3)	3 (9)	<b>21 (42)</b>	5 (10)	16 (32)	5 (5)	1 (1)	4 (4)
V: Thought problems	16 (48)	14 (42)	2 (6)	<b>25 (50)</b>	12 (24)	13 (26)	17 (18)	10 (11)	7 (7)
VI: Attention problems	5 (15)	0	5 (15)	<b>15 (30)</b>	5 (10)	10 (20)	6 (6)	5 (5)	1 (1)
<b>YSR 11-18</b>									
<b>Total score of problems</b>	12 (36)	5 (15)	7 (21)	<b>42 (84)</b>	24 (48)	18 (36)	41 (45)	15 (16)	26 (28)
<b>Internalizing problems</b>	2 (6)	0	2 (6)	<b>14 (8)</b>	3 (2)	11 (6)	6 (6)	2 (2)	4 (4)
I: Withdrawn/depressed	1 (3)	0	1 (3)	<b>10 (20)</b>	4 (8)	6 (12)	5 (5)	2 (2)	3 (2)
II: Somatic complains	2 (6)	0	2 (6)	<b>8 (16)</b>	2 (4)	6 (12)	7 (7)	3 (3)	4 (4)
III: Anxiety	2 (6)	0	2 (6)	<b>13 (26)</b>	3 (6)	10 (20)	3 (3)	1 (1)	2 (2)
<b>Externalizing problems</b>	1 (3)	0	1 (3)	<b>11 (22)</b>	5 (10)	6 (12)	2 (2)	1 (1)	1 (1)
IV: Delinquency	4 (12)	2 (6)	2 (6)	<b>10 (20)</b>	5 (10)	5 (10)	1 (3)	1 (1)	0
V: Aggressive behavior	2 (6)	1 (3)	1 (3)	<b>7 (14)</b>	3 (6)	4 (8)	3 (3)	1 (1)	2 (2)
<b>Other syndrome'scales</b>									
<b>X: Other Problems</b>	3 (9)	0	3 (9)	11 (22)	1 (2)	10 (20)	10 (11)	6 (6)	4 (4)
VI: Social problems	1 (3)	0	1 (3)	<b>9 (18)</b>	1 (2)	8 (16)	3 (3)	0	3 (3)
VII: Thought problems	4 (12)	0	4 (12)	<b>5 (10)</b>	0	5 (10)	2 (2)	1 (1)	1 (1)
VIII: Attention problems	1 (3)	0	1 (3)	<b>6 (12)</b>	0	6 (12)	3 (3)	0	3 (3)
IX:Identity-related problems	2 (6)	1 (3)	1 (3)	<b>17 (34)</b>	5 (10)	12 (24)	7 (7)	3 (3)	4 (4)

Note: M = males, F = females. <sup>1</sup>Italian clinical cut-off scores 12-18 years (Frigerio et al., 2004), CBCL: TOT = M > 44 and F > 46; Internalizing = M > 15, F > 17; Externalizing = M > 16, F > 14; I = M > 6, F > 7; II = M > 5, F > 7; III = M > 11, F > 13; IV = M > 7, F > 5; V = M > 2, F > 3; VI = M > 12, F > 9; VII = M > 8, F > 4; VIII = M > 21, F > 17. YSR: Tot = M and F > 70; Internalizing = M > 29, F > 35; Externalizing = M > 31, F > 26; I = M > 8, F > 9; II = M > 7, F > 9; III = M > 16, F > 20; IV = M > 10, F > 7; V = M > 22, F > 20; VI = M > 8, F > 7; VII = M > 9, F > 6; VIII = M > 12, F > 11; IX = M/F > 8; X = M/F > 15. <sup>2</sup>late-adopted n = 33, residential-care n = 46, community n = 91. Higher % among groups are in **bold**.

Table Des1. Means and standard deviations in internalizing-externalizing problems' measures (Child Behavior Checklist, CBCL 6-18, and Youth Self Report, YSR 11-18) of adolescents (N = 174) grouped as late-adopted, residential-care and community<sup>1</sup>, also divided for gender.

	Mean (SD)								
	Late - adopted			Residential - care			Community		
	TOT	M <sub>(18)</sub>	F <sub>(15)</sub>	TOT	M <sub>(28)</sub>	F <sub>(22)</sub>	TOT	M <sub>(46)</sub>	F <sub>(45)</sub>
<b>CBCL 6-18</b>									
<b>Total score of problems</b>	32.38 (23.44)	30.78 (17.23)	34.43 (30.24)	<b>67.23</b> <b>(27.25)</b>	57.21 (21.89)	81.25 (28.31)	26.73 (17.89)	24.35 (18.48)	29.00 (17.20)
<b>Internalizing problems</b>	10.03 (7.10)	9.89 (5.43)	10.21 (9.02)	<b>19.40</b> <b>(12.32)</b>	13.18 (6.53)	28.10 (13.36)	9.31 (6.38)	7.53 (5.62)	11.00 (6.65)
Anxious/depressed	5.03 (3.79)	5.06 (3.00)	8.21 (9.46)	<b>8.17</b> <b>(5.46)</b>	5.43 (3.05)	12.00 (5.82)	4.39 (3.53)	3.47 (3.00)	5.27 (3.80)
Withdrawn/depressed	3.19 (2.42)	3.61 (2.28)	5.00 (4.74)	<b>6.02</b> <b>(3.66)</b>	5.57 (3.59)	6.65 (3.75)	2.52 (2.06)	2.2 (2.10)	2.84 (1.98)
Somatic complains	1.81 (2.29)	1.22 (1.77)	2.64 (2.56)	<b>5.21</b> <b>(5.70)</b>	2.18 (2.50)	9.45 (6.24)	2.24 (2.39)	1.61 (1.86)	2.89 (2.70)
<b>Externalizing problems</b>	7.81 (8.29)	7.50 (7.52)	8.21 (9.46)	<b>22.48</b> <b>(11.15)</b>	22.61 (11.15)	22.30 (11.43)	6.99 (6.08)	6.95 (6.27)	7.02 (5.97)
Rule-breaking behaviors	2.59 (3.25)	2.50 (3.03)	6.36 (5.51)	<b>10.06</b> <b>(6.41)</b>	10.29 (5.91)	9.75 (7.20)	2.14 (2.29)	2.35 (2.51)	1.93 (2.07)
Aggressive behaviors	5.22 (5.46)	5.00 (4.91)	2.71 (3.63)	<b>12.42</b> <b>(7.17)</b>	12.32 (7.54)	12.55 (6.81)	4.85 (4.42)	4.6 (4.35)	5.09 (4.52)
<b>Other syndrome scales</b>									
Social problems	2.97 (3.14)	2.89 (3.05)	2.57 (2.71)	<b>5.94</b> <b>(3.56)</b>	4.50 (2.98)	7.95 (3.38)	2.06 (2.22)	1.4 (1.98)	2.69 (2.27)
Thought problems	2.00 (2.95)	1.56 (1.54)	3.07 (3.35)	<b>4.08</b> <b>(3.90)</b>	3.32 (3.75)	5.15 (3.94)	1.78 (2.28)	1.79 (2.53)	1.78 (2.04)
Attention problems	6.47 (4.67)	6.56 (4.06)	2.57 (4.13)	<b>9.02</b> <b>(3.76)</b>	8.50 (3.82)	9.75 (3.63)	3.63 (3.42)	3.78 (3.91)	3.47 (2.88)
<b>YSR 11-18</b>									
<b>Total score of problems</b>	67.56 (27.35)	60.76 (17.00)	75.27 (34.74)	<b>96.13</b> <b>(23.57)</b>	87.74 (18.22)	108.05 (25.56)	69.88 (21.80)	66.5 (23.42)	73.18 (19.80)
<b>Internalizing problems</b>	14.75 (10.63)	11.06 (6.25)	18.93 (13.05)	<b>26.89</b> <b>(11.70)</b>	20.11 (6.91)	36.53 (10.30)	17.06 (9.61)	13.59 (8.33)	20.44 (9.65)
Withdrawn/depression	3.71 (2.10)	3.35 (1.87)	4.14 (2.35)	<b>6.70</b> <b>(3.12)</b>	5.30 (2.67)	8.68 (2.63)	4.19 (2.71)	3.82 (2.70)	4.56 (2.69)
Somatic complains	3.09 (2.94)	2.24 (1.68)	4.07 (3.75)	<b>5.24</b> <b>(3.83)</b>	3.89 (3.06)	7.16 (4.07)	4.29 (2.95)	3.5 (2.65)	5.07 (3.05)
Anxiety	7.41 (6.72)	5.06 (4.08)	10.07 (8.17)	<b>13.93</b> <b>(6.21)</b>	10.22 (3.78)	19.21 (5.08)	8.19 (5.27)	5.98 (4.31)	10.36 (5.26)
<b>Externalizing problems</b>	12.06 (8.29)	11.47 (7.87)	12.73 (8.97)	<b>20.59</b> <b>(8.54)</b>	21.96 (8.23)	18.63 (8.80)	12.31 (6.20)	13.05 (6.68)	11.60 (5.67)
Delinquency	3.28 (3.31)	3.47 (3.32)	3.07 (3.41)	<b>6.48</b> <b>(3.57)</b>	6.96 (3.49)	5.79 (3.66)	2.97 (2.25)	3.45 (2.70)	2.49 (1.60)
Aggressive behaviors	8.78 (5.95)	8.00 (6.10)	9.67 (5.85)	<b>14.11</b> <b>(5.75)</b>	15.00 (5.63)	12.84 (5.82)	9.35 (4.99)	9.59 (4.95)	9.11 (5.07)
<b>Other syndrome' scales</b>									
<b>Other problems</b>	8.06 (4.75)	7.00 (2.32)	9.27 (6.40)	<b>12.54</b> <b>(5.94)</b>	10.33 (4.05)	15.68 (6.85)	9.25 (4.41)	9.02 (4.67)	9.47 (4.19)



Social problems	2.69 (2.48)	2.06 (1.71)	3.40 (3.04)	<b>5.26</b> <b>(2.58)</b>	4.37 (2.20)	6.53 (2.59)	2.84 (2.32)	2.64 (2.01)	3.04 (2.58)
Thought problems	3.06 (2.83)	2.35 (2.06)	3.87 (3.40)	<b>4.35</b> <b>(3.03)</b>	3.67 (2.79)	5.32 (3.16)	2.03 (2.17)	2.02 (2.32)	2.04 (2.04)
Attention problems	5.88 (2.64)	5.12 (2.18)	6.73 (2.91)	<b>7.89</b> <b>(2.65)</b>	7.11 (2.21)	9.00 (2.89)	6.34 (2.89)	6.07 (2.95)	6.60 (2.84)
Identity-related problems	3.94 (4.15)	2.65 (2.42)	5.40 (5.21)	<b>7.89</b> <b>(5.21)</b>	5.63 (3.27)	11.11 (5.81)	3.83 (3.08)	2.68 (2.69)	4.96 (3.04)

<sup>1</sup>Groups: late-adopted (n =33), residential-care (n = 50), community (n = 91). M = males, F= females. Higher scores among groups are in **bold**.

Table I-1a. ANOVA on the effect of the group (late-adopted, residential-care and community) on the internalizing-externalizing problems of the adolescents (N= 174) at the parent-report Child Behavior Check List 6-18 (CBCL 6-18) and in the self-report Youth Self Report 11-18 (YSR 11-18).

	Source	df	SS	MS	F	<i>p</i>
<b>CBCL 6-18</b>						
<b>Total score of Problems</b>	Between Groups	2	52885.94	26442.97	54.69	<b>.000</b>
	Within Groups	165	79773.43	483.48		
	Total	167	132659.38			
<b>Internalizing Problems</b>	Between Groups	2	2776.62	1388.31	22.52	<b>.000</b>
	Within Groups	165	10171.66	61.65		
	Total	167	12948.28			
Anxious/Depressed	Between Groups	2	456.16	228.08	12.85	<b>.000</b>
	Within Groups	165	2928.50	17.75		
	Total	167	3384.66			
Withdrawn/Depressed	Between Groups	2	393.47	196.73	27.76	<b>.000</b>
	Within Groups	168	1190.58	7.09		
	Total	170	1584.05			
Somatic Complaints	Between Groups	2	280.54	140.27	12.35	<b>.000</b>
	Within Groups	168	1907.47	11.35		
	Total	170	2188.01			
<b>Externalizing Problems</b>	Between Groups	2	8011.30	4005.65	59.08	<b>.000</b>
	Within Groups	165	11187.84	67.81		
	Total	167	19199.14			
Rule-Breaking Behavior	Between Groups	2	2004.84	1002.42	66.84	<b>.000</b>
	Within Groups	165	2474.56	15.00		
	Total	167	4479.40			
Aggressive Behavior	Between Groups	2	1914.62	957.31	31.34	<b>.000</b>
	Within Groups	165	5040.21	30.55		
	Total	167	6954.83			
<b>Other syndrome scales</b>						
Social Problems	Between Groups	2	473.28	236.64	29.35	<b>.000</b>
	Within Groups	166	1338.50	8.06		
	Total	168	1811.78			
Thought Problems	Between Groups	2	170.37	85.19	10.61	<b>.000</b>
	Within Groups	165	1325.25	8.03		
	Total	167	1495.62			
Attention Problems	Between Groups	2	939.42	469.71	32.96	<b>.000</b>
	Within Groups	168	2394.24	14.25		
	Total	170	3333.66			

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**YSR 11-18**

<b>Total score of Problems</b>	Between Groups	2	24182.49	12091.24	22.03	<b>.000</b>
	Within Groups	164	90010.73	548.85		
	Total	166	114193.22			
<b>Internalizing Problems</b>	Between Groups	2	3761.36	1880.68	17.34	<b>.000</b>
	Within Groups	164	17785.18	108.45		
	Total	166	21546.54			
Withdrawn/depressed	Between Groups	2	235.16	117.58	15.76	<b>.000</b>
	Within Groups	163	1215.88	7.46		
	Total	165	1451.04			
Somatic Complains	Between Groups	2	87.05	43.52	4.21	<b>.016</b>
	Within Groups	164	1695.49	10.34		
	Total	166	1782.54			
Anxiety	Between Groups	2	1194.96	597.48	17.56	<b>.000</b>
	Within Groups	164	5580.28	34.03		
	Total	166	6775.23			
<b>Externalizing Problems</b>	Between Groups	2	2319.20	1159.60	21.63	<b>.000</b>
	Within Groups	164	8792.22	53.61		
	Total	166	11111.41			
Delinquency	Between Groups	2	394.15	197.07	23.75	<b>.000</b>
	Within Groups	164.00	1360.85	8.30		
	Total	166.00	1754.99			
Aggressive behavior	Between Groups	2.00	811.19	405.60	13.93	<b>.000</b>
	Within Groups	164	4776.13	29.12		
	Total	166	5587.32			
<b>Other syndrome scales</b>						
<b>Other Problems</b>	Between Groups	2	467.29	233.64	9.57	<b>.000</b>
	Within Groups	164	4003.85	24.41		
	Total	166	4471.14			
Social problems	Between Groups	2	202.13	101.07	17.24	<b>.000</b>
	Within Groups	164	961.54	5.86		
	Total	166	1163.68			
Thought problems	Between Groups	2	163.89	81.95	12.50	<b>.000</b>
	Within Groups	164	1075.21	6.56		
	Total	166	1239.10			
Attentional problems	Between Groups	2	98.70	49.35	6.38	<b>.002</b>
	Within Groups	164	1267.84	7.73		
	Total	166	1366.54			
Identity-related problems	Between Groups	2	542.05	271.02	17.17	<b>.000</b>
	Within Groups	164	2588.80	15.79		
	Total	166	3130.85			

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The mean difference is significant at the 0.05 level.

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Table I-1b. Bonferroni's post-doc test for the ANOVA on the internalizing-externalizing problems (CBCL 6-18 and YSR 11-18) between groups of late-adopted, residential-care and community adolescents (N=170).

Dependent Variable	Group	Comparison group	Mean Difference	SE	p	95% CI	
						LB	UB
<b>CBCL 6-18</b>							
<b>Total problems</b>	late-adopted	community	5.65	4.54	.646	-5.33	16.63
	<b>late-adopted</b>	<b>residential-care</b>	<b>-34.85*</b>	<b>5.02</b>	<b>.000</b>	-46.99	-22.72
	<b>residential-care</b>	<b>community</b>	<b>40.50*</b>	<b>3.95</b>	<b>.000</b>	30.96	50.04
<b>Internalizing problems</b>	late-adopted	community	0.72	1.62	1	-3.2	4.64
	<b>late-adopted</b>	<b>residential-care</b>	<b>-8.45*</b>	<b>1.79</b>	<b>.000</b>	-12.78	-4.11
	<b>residential-care</b>	<b>community</b>	<b>9.17*</b>	<b>1.41</b>	<b>.000</b>	5.76	12.58
Anxious/Depressed	late-adopted	community	0.64	0.87	1	-1.46	2.75
	late-adopted	residential-care	-3.14*	0.96	.004	-5.46	-0.81
	residential-care	community	3.78*	0.76	.000	1.95	5.61
Withdrawn/Depressed	late-adopted	community	0.67	0.55	.665	-0.65	1.99
	late-adopted	residential-care	-2.83*	0.61	.000	-4.3	-1.36
	residential-care	community	3.50*	0.47	.000	2.36	4.65
Somatic Complaints	late-adopted	community	-0.43	0.69	1	-2.1	1.25
	late-adopted	residential-care	-3.15*	0.77	.000	-5.01	-1.29
	residential-care	community	2.72*	0.6	.000	1.26	4.17
<b>Externalizing problems</b>	late-adopted	community	0.82	1.7	1	-3.29	4.94
	<b>late-adopted</b>	<b>residential-care</b>	<b>-14.67*</b>	<b>1.88</b>	<b>.000</b>	-19.21	-10.12
	<b>residential-care</b>	<b>community</b>	<b>15.49*</b>	<b>1.48</b>	<b>.000</b>	11.92	19.06
Rule-breaking Behavior	late-adopted	community	0.46	0.8	1	-1.48	2.39
	late-adopted	residential-care	-7.30*	0.88	.000	-9.44	-5.16
	residential-care	community	7.76*	0.69	.000	6.08	9.44
Aggressive Behavior	late-adopted	community	0.37	1.14	1	-2.39	3.13
	late-adopted	residential-care	-7.20*	1.26	.000	-10.25	-4.15
	residential-care	community	7.56*	0.99	.000	5.17	9.96
<b>Other syndrome scales</b>							
Social Problems	late-adopted	community	0.91	0.58	.352	-0.49	2.31
	late-adopted	residential-care	-2.97*	0.64	.000	-4.52	-1.41
	residential-care	community	3.88*	0.51	.000	2.65	5.11
Thought Problems	late-adopted	community	0.16	0.59	1	-1.25	1.58
	late-adopted	residential-care	-2.10*	0.65	.004	-3.67	-0.54
	residential-care	community	2.27*	0.51	.000	1.04	3.5
Attention Problems	late-adopted	community	2.84*	0.78	.001	0.97	4.72
	late-adopted	residential-care	-2.55*	0.86	.010	-4.64	-0.47
	residential-care	community	5.39*	0.67	.000	3.77	7.02
<b>YSR 11-18</b>							
<b>Total score</b>	late-adopted	community	-2.31	4.83	1	-13.99	9.37
	<b>late-adopted</b>	<b>residential-care</b>	<b>-28.57*</b>	<b>5.39</b>	<b>.000</b>	-41.61	-15.52
	<b>residential-care</b>	<b>community</b>	<b>26.25*</b>	<b>4.25</b>	<b>.000</b>	15.96	36.54
<b>Internalizing problems</b>	late-adopted	community	-2.31	2.15	.853	-7.50	2.89
	<b>late-adopted</b>	<b>residential-care</b>	<b>-12.14*</b>	<b>2.40</b>	<b>.000</b>	-17.94	-6.34

	<b>residential-care</b>	<b>community</b>	<b>9.84*</b>	<b>1.89</b>	<b>.000</b>	5.26	14.41
Withdrawn/depressed	late-adopted	community	-.48	.57	1	-1.86	.90
	late-adopted	residential-care	-2.99*	.63	.000	-4.52	-1.45
	residential-care	community	2.50*	.50	.000	1.30	3.70
Somatic Complains	late-adopted	community	-1.20	.66	.217	-2.80	.40
	late-adopted	residential-care	-2.15*	.74	.013	-3.94	-.36
	residential-care	community	.95	.58	.320	-.47	2.36
Anxiety	late-adopted	community	-.78	1.20	1	-3.69	2.12
	late-adopted	residential-care	-6.53*	1.34	.000	-9.78	-3.28
	residential-care	community	5.74*	1.06	.000	3.18	8.31
<b>Externalizing problems</b>	late-adopted	community	-.25	1.51	1	-3.90	3.40
	<b>late-adopted</b>	<b>residential-care</b>	<b>-8.52*</b>	<b>1.69</b>	<b>.000</b>	-12.60	-4.45
	<b>residential-care</b>	<b>community</b>	<b>8.27*</b>	<b>1.33</b>	<b>.000</b>	5.06	11.49
Delinquency	late-adopted	community	.31	.59	1	-1.12	1.75
	late-adopted	residential-care	-3.20*	.66	.000	-4.80	-1.59
	residential-care	community	3.51*	.52	.000	2.25	4.78
Aggressive behavior	late-adopted	community	-.57	1.11	1	-3.26	2.12
	late-adopted	residential-care	-5.33*	1.24	.000	-8.33	-2.32
	residential-care	community	4.76*	.98	.000	2.39	7.13
<b>Other syndrome scales</b>							
<b>Other Problems</b>	late-adopted	community	.11	.82	1	-1.87	2.09
	late-adopted	residential-care	-3.95*	.91	.000	-6.17	-1.74
	residential-care	community	4.06*	.72	.000	2.31	5.80
Social problems	late-adopted	community	-.16	.50	1	-1.36	1.05
	late-adopted	residential-care	-2.57*	.56	.000	-3.92	-1.23
	residential-care	community	2.42*	.44	.000	1.35	3.48
Thought problems	late-adopted	community	1.03	.53	.159	-.25	2.31
	late-adopted	residential-care	-1.29	.59	.092	-2.71	.14
	residential-care	community	2.31*	.46	.000	1.19	3.44
Attentional problems	late-adopted	community	-.46	.57	1	-1.85	.92
	late-adopted	residential-care	-2.02*	.64	.006	-3.56	-.47
	residential-care	community	1.55*	.50	.007	.33	2.78
Identity-related problems	late-adopted	community	-1.18	1.02	.739	-3.65	1.28
	late-adopted	residential-care	-4.48*	1.14	.000	-7.23	-1.73
	residential-care	community	3.30*	.90	.001	1.13	5.47

\* the mean difference is significant at the 0.05 level.

### ***Group differences in attachment***

Table DesI-2 reports frequency and percentage distribution of FFI's categories across groups, both 2-way and 4-way. Table Des2 reported means and standard deviations for the scores of the FFI's pattern scales and for all IPPA' scales, in all groups and also divided for gender. Results are presented altogether, followed by all tables.

Overall,  $H_{p1b}$  has been confirmed, as with both measures RC adolescents showed more attachment insecurity than both LA and C groups, which showed little or no differences each other.

#### *Group differences in percentage distribution of attachment categories in the FFI.*

As shown in Table DesI-2, the chi-square test revealed significant group differences in the percentage distribution of attachment categories with both the 2-way and 4-way systems, which overall confirmed the hypotheses. With the 2-way system, adolescents in RC received less secure classifications than both C ( $\chi^2 = 27.9$ ,  $df = 1$ ,  $p < .001$ ) and LA ( $\chi^2 = 12.6$ ,  $df = 1$ ,  $p < .001$ ) peers, while no differences between LA and C adolescents were revealed ( $\chi^2 = 0.7$ ,  $df = 1$ ,  $p = .4$ , n.s.).

Also with the 4-way system, RC adolescents received less secure and more insecure classifications than community peers ( $\chi^2 = 34.9$ ,  $df = 3$ ,  $p < .001$ ), with strong statistical significance in all categories (all  $p < .01$ ), while no significant differences in the percentage distributions of late-adopted and community teenagers were found ( $\chi^2 = 0.7$ ,  $df = 1$ ,  $p = .4$ ).

Comparing high-risk groups, LA had more secure classifications ( $\chi^2 = 17.3$ ,  $df = 3$ ,  $p < .001$ ) and less insecure-preoccupied and disorganized ones than RC, while groups did not differ in percentages of dismissing categories (39% vs. 23%,  $\chi^2 = 2.5$ ,  $df = 3$ ,  $p > .08$ ).

#### *Group differences in attachment scores in FFI's patterns and IPPA' scales.*

As shown in in Table I-2a (below), the ANOVA highlighted that the effect of the group was strongly significant on all FFI' s attachment patterns, except for insecure-preoccupied [ $F(2, 169) = 2.2$ ,  $p = .12$ ], as well as on self-reported attachment at the IPPA, in all the scales for mother, in attachment security and trust toward the father and in terms of alienation to peers.

The Bonferroni's post-doc test, reported in Table I-2b, confirmed little or no difference among LA and C groups, and RC one as more insecure than both the other two either with FFI and IPPA. Indeed, in FFI's attachment patterns, LA were only more dismissing than C adolescents, while RC were less secure and more disorganized than both LA and C groups, being more dismissing only compared to the community peers. In the IPPA, no differences were revealed between late-adoptees and community peers, while residential-care adolescents showed less attachment security and trust toward both parents than both late-adopted and community peers, and compared to the latter RC reporting also poorest communication and higher alienation to mother.

Table DesI-2. Comparison on distribution of attachment classifications in the Friends and Family Interview among late-adopted, residential-care and community adolescents (N = 170).

	Frequency (%)			N*	$\chi^2$ (p)
	Late-adopted	Residential - care	Community		
<b>2-way</b>					
Secure	21 (64)	9 (20)	65 (71)	95 (56)	33.9 (.000)
Insecure	12 (36)	37 (80)	26 (28)	75 (44)	
<b>4-way</b>					
Secure-autonomous	21 (64)	9 (20)	65 (71)	95 (56)	45.8 (.000)
Insecure-dismissing	8 (23)	18 (39)	14 (15)	40 (23)	
Insecure-preoccupied	1 (3)	10 (21)	9 (10)	20 (12)	
Disorganized	3 (9)	9 (20)	3 (4)	15 (9)	
N	33	46	91	170	

\*percentages in this column are intended on the total sample of 170 adolescents.

Table Des2. Means and standard deviations in the attachment measures (Friends and Family Interview, FFI, and Inventory for Parent and Peer Attachment, IPPA), of adolescents (N = 171) grouped as late-adopted, residential-care and community<sup>1</sup>, also divided for gender.

		Mean (SD)								
		Late - adopted			Residential - care			Community		
		TOT	M (18)	F (15)	TOT	M (26)	F (21)	TOT	M (46)	F (45)
<b>FFI patterns</b>										
Secure-autonomous		2.69 (0.72)	2.61 (0.81)	2.79 (0.61)	1.70 (0.74)	1.77 (0.75)	1.58 (0.73)	2.91 (0.95)	2.73 (0.93)	3.09 (0.94)
Insecure-Dismissing		1.94 (0.81)	2.08 (0.90)	1.77 (0.68)	<b>2.36</b> <b>(0.87)</b>	2.71 (0.76)	1.81 (0.73)	1.52 (0.75)	1.68 (0.80)	1.36 (0.65)
Insecure-Preoccupied		1.48 (0.58)	1.44 (0.57)	1.52 (0.61)	<b>1.76</b> <b>(0.83)</b>	1.34 (0.49)	2.42 (0.84)	1.52 (0.67)	1.52 (0.70)	1.52 (0.64)
Disorganized		1.37 (0.63)	1.25 (0.55)	1.51 (0.71)	<b>1.79</b> <b>(0.83)</b>	1.80 (0.85)	1.78 (0.83)	1.21 (0.47)	1.29 (0.57)	1.13 (0.31)
<b>IPPA</b>										
<b>Mother</b>	<b>Attachment</b>	87.31 (16.09)	87.41 (17.4)	87.2 (15.1)	76.24 (21.74)	84.44 (18.59)	65.89 (21.42)	<b>90.35</b> <b>(16.79)</b>	88.02 (17.06)	92.63 (16.38)
	Trust	40.25 (7.78)	40.76 (8.36)	39.67 (7.33)	33.85 (10.54)	38.02 (8.75)	28.57 (10.42)	<b>41.21</b> <b>(7.00)</b>	40.66 (6.81)	41.75 (7.22)
	Communication	31.28 (6.75)	30.29 (7.78)	32.4 (5.42)	28.51 (8.38)	30.67 (8.27)	25.79 (7.91)	<b>32.12</b> <b>(7.75)</b>	30.20 (7.74)	34.00 (7.37)
	Alienation	14.22 (5.40)	13.65 (4.77)	14.87 (6.14)	<b>16.12</b> <b>(5.55)</b>	14.25 (5.16)	18.47 (5.24)	12.98 (4.45)	12.84 (4.69)	13.12 (4.26)
<b>Father</b>	<b>Attachment</b>	<b>88.10</b> <b>(18.26)</b>	93.47 (14.48)	81.57 (20.68)	72.35 (26.76)	81.88 (21.53)	57.37 (27.99)	83.83 (19.44)	80.38 (17.93)	86.90 (20.39)
	Trust	<b>41.48</b> <b>(7.74)</b>	43.47 (5.59)	39.07 (9.40)	32.44 (12.71)	36.09 (11.03)	26.71 (13.44)	38.63 (7.96)	37.15 (7.09)	39.96 (8.52)
	Communication	<b>29.13</b> <b>(8.89)</b>	30.47 (9.12)	27.5 (8.64)	25.61 (10.66)	30.09 (9.31)	18.57 (8.86)	29.06 (8.49)	27.53 (8.22)	30.42 (8.59)
	Alienation	12.52 (4.88)	10.47 (3.61)	15 (5.17)	<b>15.71</b> <b>(6.82)</b>	14.30 (5.79)	17.91 (7.91)	13.86 (5.31)	14.29 (4.99)	13.48 (5.61)
<b>Peers</b>	<b>Attachment</b>	88.09 (15.85)	92.47 (10.1)	82.76 (19.9)	84.01 (16.27)	86.01 (15.53)	81.12 (17.31)	<b>90.42</b> <b>(14.73)</b>	87.46 (14.38)	93.32 (14.65)
	Trust	40.58 (7.96)	42.53 (6.24)	38.22 (9.35)	38.27 (8.22)	39.08 (7.50)	37.11 (9.27)	<b>41.50</b> <b>(6.36)</b>	40.25 (6.69)	42.73 (5.83)
	Communication	28.47 (6.81)	29.65 (5.18)	27.04 (8.36)	28.73 (6.51)	29.15 (6.21)	28.11 (7.07)	<b>29.49</b> <b>(6.82)</b>	27.59 (6.37)	31.36 (6.79)
	Alienation	15.97 (4.32)	14.71 (3.96)	17.5 (4.36)	<b>17.99</b> <b>(3.99)</b>	17.22 (4.02)	19.1 (3.78)	15.58 (4.42)	15.38 (4.23)	15.77 (4.65)

<sup>1</sup> Groups: late-adopted (n =33), residential-care (n = 47), community (n =91). M = males, F= females. Highest scores among groups in **bold**.

Table I-2a. ANOVA for the effect of the group (late-adopted, residential-care, community) on the attachment of the adolescents (N= 171), assessed with the Friends and Family Interview (FFI) and the Inventory for Parent and Peer Attachment (IPPA).

		Source	df	SS	MS	F	p
<b>FFI (patterns)</b>							
Secure-autonomous	Between Groups		2	45.77	22.89	31.36	<b>.000</b>
	Within Groups		167	121.88	0.73		
	Total		169	167.66			
Insecure-dismissing	Between Groups		2	21.89	10.94	17.46	<b>.000</b>
	Within Groups		167	104.67	0.63		
	Total		169	126.55			
Insecure-preoccupied	Between Groups		2	2.15	1.07	2.19	.116
	Within Groups		167	82.10	0.49		
	Total		169	84.25			
Disorganized	Between Groups		2	10.30	5.15	13.51	<b>.000</b>
	Within Groups		167	63.65	0.38		
	Total		169	73.95			
<b>IPPA (scales)</b>							
Mother	Attachment security	Between Groups	2	5835.23	2917.62	8.92	<b>.000</b>
		Within Groups	161	52677.16	327.19		
		Total	163	58512.40			
	Trust	Between Groups	2	1625.70	812.85	12.06	<b>.000</b>
		Within Groups	161	10854.82	67.42		
		Total	163	12480.52			
	Communication	Between Groups	2	381.12	190.56	3.18	<b>.044</b>
		Within Groups	161	9648.41	59.93		
		Total	163	10029.53			
	Alienation	Between Groups	2	286.01	143.00	5.84	<b>.004</b>
		Within Groups	161	3942.90	24.49		
		Total	163	4228.91			
Father	Attachment security	Between Groups	2	4789.70	2394.85	5.34	<b>.006</b>
		Within Groups	149	66790.15	448.26		
		Total	151	71579.85			
	Trust	Between Groups	2	1511.92	755.96	8.82	<b>.000</b>
		Within Groups	149	12774.53	85.74		
		Total	151	14286.45			
	Communication	Between Groups	2	330.25	165.12	1.98	.141
		Within Groups	149	12399.11	83.22		
		Total	151	12729.36			
	Alienation	Between Groups	2	174.53	87.27	2.76	.067
		Within Groups	149	4712.10	31.62		
		Total	151	4886.63			
Peers	Attachment security	Between Groups	2	1212.55	606.27	2.57	.080



	Within Groups	161	38011.44	236.10		
	Total	163	39223.99			
Trust	Between Groups	2	276.88	138.44	2.88	.059
	Within Groups	161	7728.95	48.01		
	Total	163	8005.83			
Communication	Between Groups	2	32.26	16.13	.36	.701
	Within Groups	161	7306.45	45.38		
	Total	163	7338.71			
Alienation	Between Groups	2	176.01	88.01	4.78	<b>.010</b>
	Within Groups	161	2965.94	18.42		
	Total	163	3141.96			

The mean difference is significant at the **0.05** or **0.01** level.

Table I-2b. Bonferroni's post-hoc test for the ANOVA on the attachment at the Friends and Family Interview (FFI) and at the Inventory for Parent and Peer Attachment (IPPA) among groups of late-adopted, residential-care and community adolescents (N=170).

Dependent Variable	Group	Comparison group	Mean difference	SE	p	95% CI	
						LB	UB
<b>FFI (patterns)</b>							
Secure-autonomous	late-adopted	community	-0.22	0.17	.647	-0.6	0.2
	<b>late-adopted</b>	<b>residential-care</b>	<b>1.00*</b>	0.19	<b>.000</b>	0.5	1.5
	<b>residential-care</b>	<b>community</b>	<b>-1.21*</b>	0.15	<b>.000</b>	-1.6	-0.8
<b>Insecure-dismissing</b>	<b>late-adopted</b>	<b>community</b>	<b>.42*</b>	0.16	<b>.031</b>	0.0	0.8
	late-adopted	residential-care	-0.42	0.18	.064	-0.9	0.0
	<b>residential-care</b>	<b>community</b>	<b>.84*</b>	0.14	<b>.000</b>	0.5	1.2
Insecure-preoccupied	late-adopted	community	-0.04	0.14	1	-0.4	0.3
	late-adopted	residential-care	-0.28	0.16	.239	-0.7	0.1
	residential-care	community	0.24	0.13	.184	-0.1	0.5
Disorganized	late-adopted	community	0.15	0.13	.679	-0.1	0.5
	<b>late-adopted</b>	<b>residential-care</b>	<b>-.43*</b>	0.14	<b>.008</b>	-0.8	-0.1
	<b>residential-care</b>	<b>community</b>	<b>.58*</b>	0.11	<b>.000</b>	0.3	0.8
<b>IPPA (scales)</b>							
Mother Attachment security	late-adopted	community	3.73	-3.04	1	-12.1	5.9
	<b>late-adopted</b>	<b>residential-care</b>	<b>4.22</b>	11.07*	<b>.029</b>	.8	21.3
	<b>residential-care</b>	<b>community</b>	<b>3.36</b>	-14.11*	<b>.000</b>	-22.2	-5.9
Trust	late-adopted	community	1.69	-.96	1	-5.1	3.1
	late-adopted	residential-care	1.92	6.40*	.003	1.8	11.0
	residential-care	community	1.52	-7.36*	.000	-11.0	-3.7
Communication	late-adopted	community	1.60	-.84	1	-4.7	3.0
	late-adopted	residential-care	1.81	2.77	.382	-1.6	7.1
	residential-care	community	1.44	-3.61*	.039	-7.1	-1
Alienation	late-adopted	community	1.02	1.24	.681	-1.2	3.7
	late-adopted	residential-care	1.16	-1.90	.307	-4.7	.9

Father	Attachment security	residential-care	community	.92	3.13*	.002	.9	5.4
		late-adopted	community	4.44	4.27	1	-6.5	15.0
		<b>late-adopted</b>	<b>residential-care</b>	<b>5.19</b>	<b>15.75*</b>	<b>.009</b>	3.2	28.3
		residential-care	community	4.21	-11.48*	.021	-21.7	-1.3
	Trust	late-adopted	community	1.94	2.85	.433	-1.8	7.5
		late-adopted	residential-care	2.27	9.04*	.000	3.5	14.5
		residential-care	community	1.84	-6.19*	.003	-10.6	-1.7
	Communication	late-adopted	community	1.91	.07	1	-4.6	4.7
		late-adopted	residential-care	2.24	3.52	.353	-1.9	8.9
		residential-care	community	1.81	-3.45	.178	-7.8	.9
	Alienation	late-adopted	community	1.18	-1.35	.768	-4.2	1.5
		late-adopted	residential-care	1.38	-3.19	.066	-6.5	.15
residential-care		community	1.12	1.84	.304	-.9	4.5	
Peer	Attachment security	late-adopted	community	3.20	-2.33	1	-10.1	5.4
		late-adopted	residential-care	3.60	4.08	.778	-4.6	12.8
		residential-care	community	2.83	-6.41	.075	-13.3	.4
	Trust	late-adopted	community	1.44	-.66	1	-4.2	2.8
		late-adopted	residential-care	1.62	2.39	.431	-1.5	6.3
		residential-care	community	1.28	-3.05	.054	-6.1	.0
	Communication	late-adopted	community	1.40	-1.02	1	-4.4	2.4
		late-adopted	residential-care	1.58	-.26	1	-4.1	3.6
		residential-care	community	1.24	-.77	1	-3.8	2.2
	Alienation	late-adopted	community	.90	.39	1	-1.8	2.6
		late-adopted	residential-care	1.01	-2.02	.138	-4.5	.4
		residential-care	community	.79	2.42*	.008	.5	4.3

\* the mean difference is significant at the 0.05 level.

### ***Group differences in alexithymia***

Table DesI-3 reports frequency and percentage distribution of categories in the TAS-20 (alexithymic, border alexithymic and not alexithymic). Table Des3 reports means and standard deviations of the scores in the TSIA and the TAS-20, in all groups, also divided for gender. Results have been presented altogether, followed by all tables.

As detailed below, overall  $H_{p1c}$  has been partially confirmed, as only RC adolescents showed more alexithymia than community peers, and not both high-risk groups as hypothesized.

#### *Group differences in percentage distribution of alexithymia's classifications in the TAS-20.*

The chi-square test revealed significant differences among groups in the distribution of alexithymia classifications at the TAS-20 (as defined by Bagby et al., 1994),  $\chi^2 = 26.6, p = .000, df = 2$ . Contrary to the expectation, the distribution of late-adopted and community adolescents did not show differences,  $\chi^2 = 2, p = .4, df = 2$ , while as expected residential-care adolescents received more border-alexithymic and alexithymic classifications than community ones ( $\chi^2 = 22, p < .001, df = 2$ ).

Comparing high-risk groups, late-adoptees received less alexithymic classifications than RC peers ( $\chi^2 = 32, p < .001, df = 1$ ), while the two high-risk groups did not differ in percentage of border-alexithymic classifications,  $\chi^2 = 0.4, p = .5, df = 1$ .

#### *Group differences in alexithymia scores at the Toronto Structured Interview for Alexithymia (TSIA) and at the Toronto Alexithymia Scale (TAS-20).*

The one-way ANOVA on the TSIA and TAS-20 scores, reported in Table I-3a, revealed a significant effect of the group on the total score of alexythimia, as well as on factors DIF and EOT, with both measures.

The multiple comparison with the Bonferroni's post-hoc test, reported in Table I-3b, highlighted results consistent with those of the chi-square, as residential-care adolescents showed significantly higher scores of alexithymia than both late-adopted and community peers, which did not differ in any scale of the TSIA and the TAS-20 (all  $p > .1$ ). Specifically, RC showed higher scores of total alexithymia and DIF and lower Affective Awareness than both groups in the TSIA

(all  $p < .01$ ), referring also higher DIF and EOT in the TAS-20, where RC also referred higher difficulty to describing feeling (DDF,  $p = .015$ ) than community peers.

Table DesI-3. Chi-square on percentage of alexithymia classifications in Toronto Alexithymia Scale (TAS-20) among late-adopted, residential-care and community adolescents (N = 166).

TAS-20 classifications <sup>1</sup>	Frequency (%)			N*	$\chi^2$ (p)
	Late-adopted	Residential-care	Community		
Not alexithymic	9 (28)	8 (18)	33 (37)	50 (30)	26.6 (.000)
Border alexithymic	18 (56)	13 (28)	41 (47)	72 (44)	
Alexithymic	5 (16)	25 (54)	14 (16)	44 (26)	
N	32	46	88	166	

<sup>1</sup> cut-off scores >51= not alexythimic, 51-60= border alexithymic, >60 = alexithymic (Bagby et al., 1994). \*percentages in this column are intended on the total sample of 166 adolescents.

Table Des3. Means and standard deviations in alexithymia measures (Toronto Structured Interview for Alexithymia, TSIA, and Toronto Alexithymia Scale, TAS-20), of adolescents (N = 165) grouped as late-adopted, residential-care and community<sup>1</sup>, also divided for gender.

TSIA	Mean (SD)								
	Late - adopted			Residential - care			Community		
	TOT	M <sub>(17)</sub>	F <sub>(15)</sub>	TOT	M <sub>(27)</sub>	F <sub>(19)</sub>	TOT	M <sub>(44)</sub>	F <sub>(44)</sub>
Total score	7.91 (4.37)	6.56 (4.60)	9.53 (3.56)	<b>22.97</b> <b>(7.52)</b>	24.19 (5.91)	21.57 (9.04)	8.78 (4.21)	9.02 (4.63)	8.53 (3.79)
Factors									
DIF	3.35 (2.14)	3.19 (2.20)	3.53 (2.13)	<b>5.13</b> <b>(2.54)</b>	5.00 (1.97)	5.29 (3.15)	3.56 (2.26)	3.72 (2.37)	3.40 (2.16)
DDF	5.06 (3.15)	4.19 (2.86)	6.00 (3.27)	4.87 (2.61)	4.88 (2.00)	4.86 (3.25)	<b>5.22</b> <b>(2.66)</b>	5.30 (2.92)	5.14 (2.42)
EOT	7.29 (2.44)	6.63 (2.42)	8.00 (2.33)	<b>7.43</b> <b>(2.69)</b>	7.63 (2.31)	7.21 (3.14)	6.24 (2.68)	6.60 (2.75)	5.88 (2.58)
IP	4.94 (2.21)	4.94 (2.52)	4.93 (1.91)	5.03 (3.09)	5.63 (3.27)	4.21 (2.72)	<b>5.16</b> <b>(2.91)</b>	5.47 (2.78)	4.86 (3.03)
Macro-factors									
AA	<b>12.23</b> <b>(3.25)</b>	11.56 (3.74)	12.93 (2.58)	9.68 (4.52)	9.29 (4.16)	10.14 (5.04)	11.41 (4.76)	12.07 (4.72)	10.74 (4.77)
OT	<b>20.65</b> <b>(5.51)</b>	18.94 (5.70)	22.47 (4.84)	12.55 (5.24)	13.47 (5.12)	11.43 (5.35)	20.19 (7.61)	21.09 (7.50)	19.28 (7.69)
<b>TAS-20</b>									
Total score	53.53 (8.93)	52.59 (7.58)	54.60 (10.41)	<b>61.04</b> <b>(10.94)</b>	57.70 (10.29)	65.79 (10.29)	51.70 (9.52)	51.07 (9.72)	52.34 (9.38)
Factors									
DIF	16.75 (5.09)	16.35 (4.73)	17.20 (5.61)	<b>21.57</b> <b>(5.98)</b>	19.11 (5.77)	25.05 (4.43)	15.97 (5.98)	14.86 (5.70)	17.07 (6.11)
DDF	14.94 (4.68)	14.53 (4.65)	15.40 (4.82)	<b>16.24</b> <b>(4.29)</b>	14.78 (3.72)	18.32 (4.26)	14.99 (3.93)	14.16 (3.53)	15.82 (4.18)
EOT	21.84 (4.81)	21.71 (4.03)	22.00 (5.72)	<b>23.24</b> <b>(5.22)</b>	23.81 (4.42)	22.42 (6.23)	20.75 (4.60)	22.05 (4.73)	19.45 (4.12)

<sup>1</sup>Groups: late-adopted (n =31), residential-care (n = 46), community (n =88). Scales TSIA and TAS-20: DIF = Difficulty Identifying Feelings; DDF= Difficulty Describing Feelings, EOT = Externally Oriented Thinking; IP= Imaginative Processes; AA= Affective Awareness (DIF+DDF); OT= Operative Thinking (EOT+IP). M = males, F= females. Higher scores among groups in **bold**.

Table Des3. Means and standard deviations in alexithymia measures (Toronto Structured Interview for Alexithymia, TSIA, and Toronto Alexithymia Scale, TAS-20), of adolescents (N = 165) grouped as late-adopted, residential-care and community<sup>1</sup>, also divided for gender.

TSIA	Mean (SD)								
	Late - adopted			Residential - care			Community		
	TOT	M <sub>(17)</sub>	F <sub>(15)</sub>	TOT	M <sub>(27)</sub>	F <sub>(19)</sub>	TOT	M <sub>(44)</sub>	F <sub>(44)</sub>
Total score	7.91 (4.37)	6.56 (4.60)	9.53 (3.56)	<b>22.97</b> <b>(7.52)</b>	24.19 (5.91)	21.57 (9.04)	8.78 (4.21)	9.02 (4.63)	8.53 (3.79)
Factors									
DIF	3.35 (2.14)	3.19 (2.20)	3.53 (2.13)	<b>5.13</b> <b>(2.54)</b>	5.00 (1.97)	5.29 (3.15)	3.56 (2.26)	3.72 (2.37)	3.40 (2.16)
DDF	5.06 (3.15)	4.19 (2.86)	6.00 (3.27)	4.87 (2.61)	4.88 (2.00)	4.86 (3.25)	<b>5.22</b> <b>(2.66)</b>	5.30 (2.92)	5.14 (2.42)
EOT	7.29 (2.44)	6.63 (2.42)	8.00 (2.33)	<b>7.43</b> <b>(2.69)</b>	7.63 (2.31)	7.21 (3.14)	6.24 (2.68)	6.60 (2.75)	5.88 (2.58)
IP	4.94 (2.21)	4.94 (2.52)	4.93 (1.91)	5.03 (3.09)	5.63 (3.27)	4.21 (2.72)	<b>5.16</b> <b>(2.91)</b>	5.47 (2.78)	4.86 (3.03)
Macro-factors									
AA	<b>12.23</b> <b>(3.25)</b>	11.56 (3.74)	12.93 (2.58)	9.68 (4.52)	9.29 (4.16)	10.14 (5.04)	11.41 (4.76)	12.07 (4.72)	10.74 (4.77)
OT	<b>20.65</b> <b>(5.51)</b>	18.94 (5.70)	22.47 (4.84)	12.55 (5.24)	13.47 (5.12)	11.43 (5.35)	20.19 (7.61)	21.09 (7.50)	19.28 (7.69)
<b>TAS-20</b>									
Total score	53.53 (8.93)	52.59 (7.58)	54.60 (10.41)	<b>61.04</b> <b>(10.94)</b>	57.70 (10.29)	65.79 (10.29)	51.70 (9.52)	51.07 (9.72)	52.34 (9.38)
Factors									
DIF	16.75 (5.09)	16.35 (4.73)	17.20 (5.61)	<b>21.57</b> <b>(5.98)</b>	19.11 (5.77)	25.05 (4.43)	15.97 (5.98)	14.86 (5.70)	17.07 (6.11)
DDF	14.94 (4.68)	14.53 (4.65)	15.40 (4.82)	<b>16.24</b> <b>(4.29)</b>	14.78 (3.72)	18.32 (4.26)	14.99 (3.93)	14.16 (3.53)	15.82 (4.18)
EOT	21.84 (4.81)	21.71 (4.03)	22.00 (5.72)	<b>23.24</b> <b>(5.22)</b>	23.81 (4.42)	22.42 (6.23)	20.75 (4.60)	22.05 (4.73)	19.45 (4.12)

<sup>1</sup>Groups: late-adopted (n =31), residential-care (n = 46), community (n =88). Scales TSIA and TAS-20: DIF = Difficulty Identifying Feelings; DDF= Difficulty Describing Feelings, EOT = Externally Oriented Thinking; IP= Imaginative Processes; AA= Affective Awareness (DIF+DDF); OT= Operative Thinking (EOT+IP). M = males, F= females. Higher scores among groups in **bold**.

Table I-3a. ANOVA for the effect of the group (late-adopted, residential-care, community) on adolescents' alexithymia assessed with the Toronto Structured Interview for Alexythimia (TSIA, N = 147) and the Toronto Alexithymia Scale 20 item (TAS-20, N = 166).

		Source	df	SS	MS	F	p
<b>TSIA</b>							
Total score of alexithymia		Between Groups	2	5006.27	2503.13	97.24	<b>.000</b>
		Within Groups	146	3758.50	25.74		
		Total	148	8764.77			
Factors	DIF	Between Groups	2	64.31	32.15	6.09	<b>.003</b>
		Within Groups	144	759.77	5.28		
		Total	146	824.08			
	DDF	Between Groups	2	2.89	1.45	0.19	.827
		Within Groups	144	1098.14	7.63		
		Total	146	1101.03			
	EOT	Between Groups	2	44.80	22.40	3.23	<b>.042</b>
		Within Groups	144	997.63	6.93		
		Total	146	1042.42			
	IP	Between Groups	2	1.31	0.66	0.08	.921
		Within Groups	147	1168.56	7.95		
		Total	149	1169.87			
Macro-factors	Affective Awareness	Between Groups	2	108.13	54.07	2.74	.068
		Within Groups	145	2856.95	19.70		
		Total	147	2965.08			
	Operative Thinking	Between Groups	2	1480.28	740.14	16.12	<b>.000</b>
		Within Groups	145	6655.80	45.90		
		Total	147	8136.07			
<b>TAS-20</b>							
Total score of alexithymia		Between Groups	2.00	2683.83	1341.92	13.89	<b>.000</b>
		Within Groups	163.00	15744.20	96.59		
		Total	165.00	18428.03			
Factors	DIF	Between Groups	2.00	980.58	490.29	14.47	<b>.000</b>
		Within Groups	163.00	5524.20	33.89		
		Total	165.00	6504.78			
	DDF	Between Groups	2.00	53.20	26.60	1.52	.222
		Within Groups	163.00	2851.23	17.49		
		Total	165.00	2904.43			
	EOT	Between Groups	2.00	188.65	94.32	4.06	<b>.019</b>
		Within Groups	163.00	3787.09	23.23		
		Total	165.00	3975.73			

Note. Scales, factors: DIF = Difficulty in Identifying Feelings, DDF = Difficulty in Describing Feelings; EOT = Externally Oriented Thinking; IP = Imaginative Processes; macro-factors Affective Awareness (DIF+DDF) and Operative Thinking (EOT+IP).

Table I-3b. Bonferroni's post-hoc test for the ANOVA on the alexithymia scales at the Toronto Structured Interview for Alexithymia (TSIA, N = 147) and at the Toronto Alexithymia Scale 20 item (TAS-20, N=166) among groups of late-adopted, residential-care and community adolescents.

Dependent Variable	Group	Comparison group	Mean Difference	SE	p	95% CI	
						LB	UB
<b>TSIA</b>							
Total score	late-adopted	community	0.46	1.42	1	-3.39	1.65
	<b>late-adopted</b>	<b>residential-care</b>	<b>8.10</b>	<b>1.72*</b>	<b>.000</b>	-18.16	-11.96
	<b>residential-care</b>	<b>community</b>	<b>-7.64</b>	<b>1.42*</b>	<b>.000</b>	11.58	16.79
Factors							
DIF	late-adopted	community	-0.20	0.48	1	-1.37	0.96
	<b>late-adopted</b>	<b>residential-care</b>	<b>-1.78*</b>	0.59	<b>.009</b>	-3.20	-0.35
	<b>residential-care</b>	<b>community</b>	<b>1.58*</b>	0.49	<b>.005</b>	0.40	2.76
DDF	late-adopted	community	-0.16	0.58	1	-1.56	1.24
	late-adopted	residential-care	0.20	0.71	1	-1.52	1.91
	residential-care	community	-0.35	0.59	1	-1.77	1.06
EOT	late-adopted	community	1.05	0.55	.179	-0.29	2.38
	late-adopted	residential-care	-0.14	0.67	1	-1.78	1.49
	residential-care	community	1.19	0.56	.104	-0.16	2.54
IP	late-adopted	community	-0.23	0.59	1	-1.66	1.20
	late-adopted	residential-care	-0.09	0.71	1	-1.80	1.61
	residential-care	community	-0.13	0.58	1	-1.53	1.27
Macro-factors							
AA	late-adopted	community	-0.87	1.04	1	-1.43	3.07
	<b>late-adopted</b>	<b>residential-care</b>	<b>-15.06</b>	<b>1.28*</b>	<b>.000</b>	-0.18	5.28
	<b>residential-care</b>	<b>community</b>	<b>-14.19</b>	<b>1.08*</b>	<b>.000</b>	-3.98	0.52
OT	late-adopted	community	0.82	0.93	1	-2.98	3.90
	late-adopted	residential-care	2.55	1.13	.076	3.93	12.26
	residential-care	community	-1.73	0.93	.195	-11.08	-4.20
<b>TAS-20</b>							
Total score	late-adopted	community	-0.05	0.86	1	-2.14	2.04
	late-adopted	residential-care	-1.3	0.96	.535	-3.63	1.03
	residential-care	community	1.25	0.76	.307	-0.59	3.09
Factors							
DIF	late-adopted	community	0.78	1.2	1	-2.12	3.69
	<b>late-adopted</b>	<b>residential-care</b>	<b>-4.82*</b>	<b>1.34</b>	<b>.001</b>	-8.06	-1.57
	<b>residential-care</b>	<b>community</b>	<b>5.60*</b>	<b>1.06</b>	<b>.000</b>	3.04	8.16
DDF	late-adopted	community	1.09	1	.82	-1.31	3.5
	late-adopted	residential-care	-1.4	1.11	.631	-4.08	1.29
	residential-care	community	2.49*	0.88	.015	0.37	4.61
EOT	late-adopted	community	1.83	2.03	1	-3.08	6.73
	<b>late-adopted</b>	<b>residential-care</b>	<b>-7.51*</b>	<b>2.26</b>	<b>.003</b>	-12.98	-2.04
	<b>residential-care</b>	<b>community</b>	<b>9.34**</b>	<b>1.79</b>	<b>.000</b>	5.01	13.66

\*The mean difference is significant at the 0.05 level. Scales: DIF = Difficulty in Identifying Feelings, DDF = Difficulty in Describing Feelings; EOT = Externally Oriented Thinking; IP = (lack of) Imaginative Processes; AA =Affective Awareness (DIF+DDF) and OT = Operative Thinking (EOT+IP).



## Part II – Correlational study (RQ<sub>2/3/4</sub>)

### **RQ<sub>2</sub>: are there relationships between the security, insecurity or disorganization in attachment and the levels of internalizing or externalizing problems?**

Table II-1 reports all the correlations among attachment and measures for internalizing-externalizing problems<sup>27</sup> in the three groups.

As detailed below, overall H<sub>p2</sub> has been mainly confirmed: more total, internalizing or externalizing problems have been found in all groups along with less security or more insecurity (both type) and disorganization at the FFI, as well as with less perceived security in attachment toward parents and peer in the IPPA in the high-risk groups.

#### ***Relations between attachment and parent-reported internalizing-externalizing problems (CBCL).***

As shown in Table II-1, more total problems have been related to FFI, with less security in both RC and C adolescents, with more disorganization only in RC group and with greater preoccupation only in the C group. Parent-reported total problems showed also correlations with less IPPA/attachment security to all figures in late-adoptees.

Internalizing problems showed positive correlations with the insecure-preoccupied pattern in the FFI in both RC and C adolescents, and with less FFI/security only in the residential-care group, in which there were also correlations less attachment security toward the mother in the IPPA.

Externalizing problems showed correlations with the FFI, with less security in the residential-care group, and with greater preoccupation in the community one. In late-adoptees, more externalizing problems have been referred by adoptive parents along with less self-reported attachment security toward mother and father in the IPPA.

#### ***Relations between attachment and self-reported internalizing-externalizing problems (YSR).***

Table II-1 also shows that YSR/total problems showed expected relations with the FFI, with the disorganized pattern in late-adoptees and with the insecure-preoccupied pattern in RC.

<sup>27</sup> Correlations with syndrome' scales are reported in appendix C.

YSR/internalizing problems showed expected correlations with the FFI's disorganized pattern in LA group and with more preoccupation in the RC group. Further, more YSR/internalizing problems in all groups showed correlations with less parental and peer attachment security in the IPPA and, only in RC group, also with less security toward the mother.

YSR/externalizing problems showed expected correlations with FFI in high-risk groups, with greater disorganization in LA and more dismissing in RC, being also related to less IPPA/attachment to peers only in late-adoptees.

Table II-1. Correlations among internalizing-externalizing problems (Child Behavior Checklist, CBCL 6-18, and Youth Self Report, YSR 11-18) with the attachment representations (Friends and Family Interview, FFI and Inventory of Parent and Peer Attachment, IPPA) in adolescents from three groups<sup>1</sup> (N=167).

Group	CBCL-18									YSR 11-18									
	TOT.			INT.			EXT.			TOT.			INT.			EXT.			
	LA	RC	C	LA	RC	C	LA	RC	C	LA	RC	C	LA	RC	C	LA	RC	C	
<b>FFI (patterns)</b>																			
Secure-autonomous	-.183	<b>-.414**</b>	-.093	-.086	<b>-.389**</b>	-.092	-.295	<b>-.296*</b>	-.071	.014	-.196	-.004	.084	-.210	-.015	.055	-.041	.034	
Insecure-Dismissing	.079	-.108	-.021	-.058	-.203	-.020	.226	.247	-.038	-.178	-.250	-.118	-.226	<b>-.487**</b>	-.123	-.123	<b>.284*</b>	-.005	
Insecure-Preoccupied	.235	<b>.255*</b>	<b>.239*</b>	.293	<b>.395**</b>	<b>.247*</b>	.222	-.102	<b>.189*</b>	.236	<b>.355**</b>	.150	.278	<b>.579**</b>	.142	.049	-.239	.000	
Disorganized	.138	<b>.321*</b>	.053	.078	.246	.110	.090	.287	-.022	<b>.377*</b>	.016	.132	<b>.310*</b>	.027	.108	<b>.315*</b>	.021	.009	
<b>IPPA</b>																			
<b>Mother</b>	Attachment	<b>-.341*</b>	-.211	-.052	-.188	<b>-.290*</b>	-.003	<b>-.484**</b>	-.084	-.083	-.210	-.231	-.080	-.250	<b>-.371*</b>	.022	-.221	-.084	-.160
	Trust	<b>-.428*</b>	-.284	-.063	-.178	<b>-.417**</b>	.015	<b>-.624**</b>	-.081	-.098	-.071	-.226	.013	-.089	<b>-.398**</b>	.078	-.175	-.038	-.081
	Communication	-.227	-.115	.072	-.148	-.131	.101	<b>-.356*</b>	-.119	.025	.001	-.004	.049	-.057	-.163	.151	-.034	-.022	-.063
	Alienation	.112	.126	<b>.233*</b>	.116	.219	.210	.092	.001	.205	<b>.525**</b>	<b>.470**</b>	<b>.407**</b>	<b>.545**</b>	<b>.450**</b>	<b>.304**</b>	<b>.365*</b>	.223	<b>.365**</b>
<b>Father</b>	Attachment	<b>-.313*</b>	-.127	-.084	-.262	-.229	-.002	<b>-.352*</b>	.049	-.107	<b>-.365*</b>	<b>-.401*</b>	-.011	<b>-.410*</b>	<b>-.443**</b>	.041	-.293	-.137	-.008
	Trust	-.341	-.166	-.115	-.241	-.227	.020	<b>-.405*</b>	-.073	-.152	-.320	-.328	.025	<b>-.367*</b>	<b>-.369*</b>	.059	-.319	-.134	-.010
	Communication	-.262	-.096	.058	-.231	-.244	.084	-.303	.078	.047	-.202	-.306	.136	-.235	<b>-.380*</b>	.173	-.164	-.010	.127
	Alienation	.156	.041	<b>.234*</b>	.183	.112	.170	.123	-.206	<b>.238*</b>	<b>.490**</b>	<b>.483**</b>	<b>.295**</b>	<b>.524**</b>	<b>.459**</b>	<b>.215*</b>	.292	.271	<b>.216*</b>
<b>Peers</b>	Attachment	<b>-.310*</b>	.009	-.130	-.023	-.173	-.055	-.020	.160	-.120	<b>-.402*</b>	-.064	.046	<b>-.412*</b>	<b>-.399**</b>	-.019	<b>-.332*</b>	.209	.058
	Trust	-.019	.045	-.127	.044	-.175	-.061	.044	.168	-.140	-.273	-.077	.123	-.265	<b>-.383*</b>	.044	-.265	.182	.084
	Communication	-.030	.018	-.007	.050	-.178	.083	-.058	.119	-.023	-.205	.120	<b>.234*</b>	-.226	-.192	.179	-.149	.242	.187
	Alienation	.236	.010	<b>.251*</b>	.277	.225	<b>.224*</b>	.086	-.179	.162	<b>.619**</b>	<b>.332*</b>	<b>.385**</b>	<b>.626**</b>	<b>.521**</b>	<b>.402**</b>	<b>.461**</b>	-.045	<b>.215*</b>

Note: significance level with  $p < *.05$  and  $** .01$ . <sup>1</sup>Groups: LA = late-adopted (n = 33), RC = residential-care (n = 46), C = community (n = 88). Scales: CBCL and YSR, TOT= Total score of problems, INT = Internalizing Problems, EXT= Externalizing Problems.

**RQ<sub>3</sub>: are there relationships between the alexithymia and the levels of internalizing or externalizing problems?**

Table II-2 (below) reports all the correlations among all measures for alexithymia and internalizing-externalizing measures in the three groups. As detailed below, taking together results confirmed H<sub>3</sub>, as more internalizing and externalizing problems have been found along with greater alexithymia and DIF, being related also to DDF only among residential-care adolescents.

***Relations between alexithymia and parent-reported internalizing-externalizing problems (CBCL).***

As shown in Table II-2, as expected more total problems have been referred for residential-care and community adolescents with higher scores of total alexithymia, DIF and DDF: in RC group only using the TAS-20, while in C group with both TSIA and TAS-20.

CBCL/internalizing problems showed expected correlations with less TSIA/affective awareness in late-adoptees, and with higher alexithymia, DIF and DDF referred by both RC and C adolescents in the TAS-20.

CBCL/externalizing problems showed expected correlations with more TSIA/total alexithymia in community adolescents, and with higher TAS-20/ EOT in RC group.

***Relations between alexithymia and self-reported internalizing-externalizing problems (YSR).***

Table II-2 also reported correlations with self-reported problems in YSR, that confirmed the hypothesis in all groups. Indeed, LA and C adolescents that self-reported more total problems showed also higher DIF in the TSIA, and in all groups higher total problems showed relations with more alexithymia and DIF in the TAS-20.

YSR/internalizing problems showed relations with higher TSIA/DIF of late-adoptees, and, in all groups, with more self-reported alexithymia and DIF at the TAS-20.

YSR/externalizing problems showed relations with more total alexithymia and DIF in LA and C adolescents, with both TSIA and TAS-20.

Only in the RC group, TAS-20/DDF showed expected correlations with total and internalizing problems. Moreover, community adolescents self-reported more total and internalizing problems with more imaginative processes, i.e. negative correlations with TSIA/IP.

Table II-2. Correlations among internalizing-externalizing problems (Child Behavior Checklist, CBCL 6-18, and Youth Self Report, YSR 11-18) with the alexithymia (Toronto Structured Interview for Alexithymia, TSIA, and Toronto Alexithymia Scale, TAS-20) in adolescents (N=170) late-adopted, in residential-care and from the community<sup>1</sup>.

	CBCL-18									YSR 11-18								
	TOT.			INT.			EXT.			TOT.			INT.			EXT.		
TSIA	LA	RC	C	LA	RC	C	LA	RC	C	LA	RC	C	LA	RC	C	LA	RC	C
DIF	.359	-.083	<b>.258*</b>	.271	-.050	.133	.356	.153	.201	<b>.458*</b>	.089	<b>.227*</b>	<b>.365*</b>	.177	.070	<b>.515**</b>	.077	<b>.287**</b>
DDF	-.085	.299	<b>.227*</b>	-.113	.259	.144	-.052	.323	.185	.035	.086	.061	.141	.307	-.036	-.107	-.005	.138
EOT	-.185	.079	-.018	-.229	-.075	-.004	-.257	.125	-.035	.024	-.136	-.111	.082	-.034	<b>-.238*</b>	-.053	.168	-.005
IP	-.296	-.119	-.113	-.337	-.231	-.074	-.196	-.084	-.067	-.090	-.137	<b>-.223*</b>	-.090	-.239	<b>-.320**</b>	-.072	.101	.005
AA	-.334	.008	-.079	<b>-.394*</b>	.140	-.048	-.320	.128	-.061	-.043	.102	-.199	.002	.324	<b>-.331**</b>	-.090	-.057	.000
OT	-.109	.113	.108	-.192	-.216	.061	-.083	-.135	.087	.172	-.254	-.033	.222	-.193	-.195	.087	.038	.134
Total	.098	-.111	<b>.282**</b>	.137	-.093	.163	-.003	.166	<b>.225*</b>	.272	-.118	.160	.310	-.015	.015	.189	.126	<b>.241*</b>
TAS-20	LA	RC	C	LA	RC	C	LA	RC	C	LA	RC	C	LA	RC	C	LA	RC	C
F1:DIF	.090	<b>.352*</b>	<b>.253*</b>	.173	<b>.503**</b>	<b>.240*</b>	-.058	.107	.116	<b>.636**</b>	<b>.515**</b>	<b>.543**</b>	<b>.656**</b>	<b>.652**</b>	<b>.546**</b>	<b>.499**</b>	.135	<b>.326**</b>
F2: DDF	-.159	<b>.318*</b>	<b>.278**</b>	-.066	<b>.449**</b>	<b>.273*</b>	-.257	.039	.174	.015	<b>.418**</b>	.350**	.115	<b>.627**</b>	.478**	.018	.026	.043
F3: EOT	-.074	.083	.030	-.102	-.079	-.099	-.020	<b>.361*</b>	.058	.218	.094	-.067	.250	-.005	-.186	.113	<b>.306*</b>	.071
Total	-.066	<b>.360**</b>	<b>.283**</b>	.011	<b>.399**</b>	<b>.216*</b>	-.168	.244	.172	<b>.489**</b>	<b>.490**</b>	<b>.454**</b>	<b>.570**</b>	<b>.600**</b>	<b>.451**</b>	<b>.355*</b>	.230	<b>.257*</b>

Note: significance level with  $p < *.05$  and  $** .01$ . <sup>1</sup>Groups: LA = late-adopted (n = 33), RC = residential-care (n = 46), C = community (n = 90). Scales: CBCL and YSR, TOT= Total score of problems, INT = Internalizing Problems, EXT= Externalizing Problems; TSIA and TAS-20: DIF = Difficulty Identifying Feelings; DDF: Difficulty Describing Feelings, EOT: Externally Oriented Thinking; IP: Imaginative Processes; AA= Affective Awareness; OT= Operative Thinking.

**RQ4: are there mutual relationships between attachment and alexithymia in influencing internalizing or externalizing problems?**

Correlations between both the attachment measures (FFI and IPPA) and the alexithymia are reported in Table II-3 (TSIA) and Table II-4 (TAS-20), below. Overall,  $H_{p4a}$  has been confirmed in residential-care and community adolescents, as greater alexithymia showed relations with more insecurity in attachment, while hypothesis has not been confirmed in late-adoptees.

***Relations between attachment patterns in the FFI and alexithymia.***

As shown in Table II-3 and Table II-4, hypotheses have been partially confirmed: on one side, higher alexithymia in both measures showed relations with lower security and greater dismissing in the FFI only in the community group, showing also correlations with the TSIA, with higher DDF, EOT, operative thinking (OT, respectively  $r = -.425$  and  $r = .417$ , both  $p < .01$ ) and less affective awareness (AA, respectively  $r = -.403$  and  $r = .477$ ). On the other side, expected positive correlations between FFI/insecure-preoccupied and greater alexithymia have been found only in the residential-care group, using the TAS-20.

***Relations between self-reported attachment security in the IPPA and alexithymia.***

Table II-3 and Table II-4 also show that less IPPA/attachment security to parents and peers showed expected relations with higher scores of total alexithymia and DIF at the TAS-20 in the RC and C groups, being also related to greater TAS-20/DDF only in RC.

Furthermore, higher alienation to parents and peer in the IPPA was related to greater alexithymia and DIF in all groups, and more DDF in RC and C adolescents.

Relationships with the TSIA have been found only in the community group, in which less parental and peer attachment security showed relations with higher DIF and EOT.

Table II – 3. Correlations among attachment representations (Friends and Family Interview, FFI, and Inventory of Parent and Peer Attachment, IPPA) and alexithymia (Toronto Structured Interview for Alexithymia, TSIA) in adolescents (N=170) late-adopted, in residential-care and from the community<sup>1</sup>.

	TSIA														
	TOT.			DIF			DDF			EOT			IP		
	LA	RC	C	LA	RC	C	LA	RC	C	LA	RC	C	LA	RC	C
<b>FFI (patterns)</b>															
Secure-autonomous	.120	-.006	<b>-.313**</b>	.037	-.242	-.124	.049	-.345	<b>-.389**</b>	.093	.160	<b>-.377**</b>	-.234	.337	<b>-.313**</b>
Insecure-dismissing	-.126	.135	<b>.214*</b>	.034	-.211	.127	-.092	.001	<b>.231*</b>	.045	.014	<b>.405**</b>	<b>.445*</b>	.329	<b>.409**</b>
Insecure-preoccupied	.182	-.048	.119	-.055	.356	.010	.310	.233	.179	-.219	-.072	.075	<b>-.497**</b>	<b>-.501**</b>	.015
Disorganized	.033	.043	.153	.177	.094	.103	-.035	.180	.154	-.039	-.078	.060	-.146	-.122	.024
<b>IPPA</b>	<b>LA</b>	<b>RC</b>	<b>C</b>	<b>LA</b>	<b>RC</b>	<b>C</b>	<b>LA</b>	<b>RC</b>	<b>C</b>	<b>LA</b>	<b>RC</b>	<b>C</b>	<b>LA</b>	<b>RC</b>	<b>C</b>
<b>Mother Attachment</b>	.080	-.015	-.206	-.005	-.126	-.096	-.078	.028	<b>-.246*</b>	.098	-.144	<b>-.304**</b>	.057	.060	-.170
Trust	.089	.031	<b>-.247*</b>	-.090	-.078	-.109	-.025	.047	<b>-.300**</b>	.202	-.096	<b>-.298**</b>	-.033	.101	-.153
Communication	.063	-.140	-.119	.064	-.135	-.034	-.083	-.042	-.160	.047	-.362	<b>-.317**</b>	-.046	.014	-.189
Alienation	-.030	-.079	.185	-.023	.147	.133	.081	-.074	.179	.038	-.148	.131	-.243	-.009	.072
<b>Father Attachment</b>	-.138	.031	-.096	-.084	-.030	.004	-.127	-.026	-.154	-.099	-.056	<b>-.232*</b>	-.043	.048	<b>-.225*</b>
Trust	-.259	-.005	-.139	-.190	-.058	-.048	-.224	-.028	-.177	.033	-.093	-.209	-.091	.041	-.218
Communication	.022	.037	-.013	.016	-.021	.084	-.002	-.032	-.091	-.165	-.099	<b>-.331**</b>	-.048	.090	-.213
Alienation	.146	-.073	.121	.043	-.027	.048	.117	.000	.150	.122	-.109	.005	-.074	.028	.156
<b>Peer Attachment</b>	-.205	-.210	-.169	-.220	-.179	-.165	-.063	-.296	-.128	<b>-.374*</b>	-.127	<b>-.237*</b>	.145	.082	-.152
Trust	-.162	-.038	-.108	-.199	-.091	-.097	.041	-.127	-.088	-.324	-.016	-.183	.051	.215	-.095
Communication	-.107	-.330	-.169	-.077	-.169	-.152	-.080	-.305	-.139	-.430*	-.248	<b>-.362**</b>	.030	-.040	<b>-.251*</b>
Alienation	.225	.237	.147	.249	.239	.175	.125	<b>.409*</b>	.085	.080	.095	-.030	<b>-.437*</b>	.056	-.018

Note: significance level with  $p < .05$  and  $**.01$ . <sup>1</sup>Groups: LA = late-adopted (n = 33), RC = residential-care (n = 46), C = community (n = 90). Scales TSIA: DIF = Difficulty Identifying Feelings; DDF: Difficulty Describing Feelings, EOT: Externally Oriented Thinking; IP: Imaginative Processes.



Table II – 4. Correlations among attachment (Friends and Family Interview, FFI, and Inventory of Parent and Peer Attachment, IPPA) and alexithymia (Toronto Alexithymia Scale 20 item, TAS-20) in adolescents (N=170) late-adopted, in residential-care and from the community<sup>1</sup>.

	TAS-20											
	TOT.			DIF			DDF			EOT		
	LA	RC	C	LA	RC	C	LA	RC	C	LA	RC	C
<b>FFI (patterns)</b>												
Secure-autonomous	.192	-.044	<b>-.232*</b>	.387*	-.097	-.090	.209	-.161	-.207	-.257	.159	-.187
Insecure-dismissing	-.154	-.070	<b>.225*</b>	<b>-.417*</b>	-.012	.067	-.169	-.220	.163	.320	.187	<b>.240*</b>
Insecure-preoccupied	.145	<b>.339*</b>	.113	.296	.297	.093	.151	<b>.483**</b>	.203	-.191	-.119	-.061
Disorganized	.044	-.113	.105	.095	.089	.089	-.029	-.073	.061	.008	-.231	.048
<b>IPPA</b>	<b>LA</b>	<b>RC</b>	<b>C</b>	<b>LA</b>	<b>RC</b>	<b>C</b>	<b>LA</b>	<b>RC</b>	<b>C</b>	<b>LA</b>	<b>RC</b>	<b>C</b>
<b>Mother Attachment</b>												
Mother Attachment	-.078	<b>-.291*</b>	<b>-.262*</b>	-.050	<b>-.314*</b>	<b>-.267*</b>	.089	-.208	-.026	-.179	-.079	-.172
Trust	.068	-.274	-.179	.071	<b>-.318*</b>	-.202	.220	-.222	.033	-.163	-.027	-.136
Communication	.066	-.148	-.127	.194	-.081	-.078	.001	-.078	.057	-.083	-.152	<b>-.211*</b>
Alienation	<b>.415*</b>	<b>.395**</b>	<b>.481**</b>	<b>.494**</b>	<b>.503**</b>	<b>.550**</b>	.054	.274	<b>.248*</b>	.195	.026	.070
<b>Father Attachment</b>												
Father Attachment	-.070	<b>-.391*</b>	-.140	-.118	-.304	-.075	-.072	<b>-.371*</b>	-.014	.063	-.167	-.176
Trust	-.021	<b>-.341*</b>	-.106	-.128	-.234	-.069	-.058	-.288	.030	.150	-.216	-.153
Communication	.047	-.281	-.036	.067	-.199	.064	-.051	-.293	.048	.065	-.119	-.198
Alienation	.315	<b>.460**</b>	<b>.297**</b>	<b>.361*</b>	<b>.447**</b>	<b>.275*</b>	.086	<b>.460**</b>	.174	.120	.067	.097
<b>Peer Attachment</b>												
Peer Attachment	-.242	<b>-.365**</b>	<b>-.241*</b>	-.344	<b>-.379*</b>	-.179	.081	<b>-.395**</b>	-.162	-.160	-.014	-.127
Trust	-.112	-.292	-.146	-.238	<b>-.342*</b>	-.084	.166	<b>-.327*</b>	-.110	-.112	.042	-.100
Communication	-.096	-.241	-.097	-.126	-.278	.040	.112	-.248	-.035	-.150	.012	<b>-.223*</b>
Alienation	<b>.441*</b>	<b>.466**</b>	<b>.446**</b>	<b>.590**</b>	<b>.366*</b>	<b>.540**</b>	.140	<b>.557**</b>	<b>.332**</b>	.060	.108	-.063

Note: significance level with  $p < .05$  and  $** .01$ . <sup>1</sup>Groups: LA = late-adopted (n = 33), RC = residential-care (n = 46), C = community (n = 90). Scales TAS-20: DIF = Difficulty Identifying Feelings; DDF: Difficulty Describing Feelings, EOT: Externally Oriented Thinking.

### *Models of risk prediction.*

Main models for total and internalizing problems, *i.e.* with more predictors or interactions, are synthesized for each group in Table II-5a (late-adopted group), Table II-5b (residential-care group) and Table II-5c (community group), while the others are reported in-text. Models for externalizing problems are reported in-text as mainly with single predictors a/o not significant.

As detailed below,  $H_{p4b}$  has been partially confirmed: as expected, attachment and alexithymia were independent predictors for total, internalizing and externalizing problems, with different fashion across the groups. However, contrary to expectations, attachment and alexithymia did not show interactive effects in the prediction of adolescents' problems.

#### *Preliminary correlations with gender.*

Gender showed correlations with the score for total problems only in the residential-care group, with the CBCL,  $r = .439$ ,  $p = .001$  and the YSR,  $r = .429$ ,  $p = .001$ . With respect to internalizing problems, gender was entered as possible predictor in all groups, as correlations have been found with the CBCL in RC and C groups (respectively  $r_{RC} = .439$ ,  $p_{RC} = .001$  and  $r_C = .273$ ,  $p_C = .005$ ), and with the YSR in all groups (respectively  $r_{LA} = .376$ ,  $p_{LA} = .017$ ;  $r_{RC} = .699$ ,  $p_{RC} = .000$  and  $r_C = .359$ ,  $p_C = .000$ ). No correlations between gender and externalizing problems' scores have been found, in any group.

Interactive effects with the gender have been calculated considering the following correlations:

- in the LA group, with the IPPA/attachment security to father and peers (respectively and  $r = -.330$ ,  $p = .035$  and  $r = -.310$ ,  $p = .045$ ).

- In the RC group, the gender showed correlations with the insecure-dismissing and insecure-preoccupied patterns in the FFI (respectively  $r = -.536$ ,  $p = .000$  and  $r = .650$ ,  $p = .000$ ), the attachment security to mother and father in the IPPA (respectively and  $r = -.429$ ,  $p = .002$  and  $r = -.453$ ,  $p = .003$ ) and the total score of the alexithymia in the TAS-20,  $r = .399$ ,  $p = .004$ .

- In the C group, no interactive effect could be calculated, as the gender showed correlations with the patterns secure-autonomous and insecure dismissing in the FFI (respectively and  $r = .192$ ,  $p$

= .034 and  $r = -.222, p = .017$ ) and with the attachment to peers in the IPPA ( $r = .200, p = .03$ ), which did not show correlations with the dependent variables.

*Models of prediction in the late-adopted group.*

Table II-5a. Main models to predict total and internalizing problems (YSR<sup>a</sup>) in *late-adopted* adolescents (N= 30), with predictors: attachment patterns (FFI<sup>a</sup>), perceived attachment security (IPPA<sup>a</sup>) and alexithymia (TAS-20<sup>a</sup>).

Predictors			B	SE	$\beta$	$p$	R <sup>2</sup> (adj. R <sup>2</sup> )	F ( $p$ )	95%		
									LB	UB	
<i>Dependent variable: YSR total problems</i>											
attachment	FFI	disorganized	11.47	6.89	0.27	.108				-2.7	25.65
	IPPA	father + peer attachment	-0.35	0.24	-0.23	.157	.44 (.35)	<b>5.10**</b> <b>(.004)</b>		-0.85	0.14
alexithymia	TAS-20	total score	-1.32	0.46	.043	<b>.009</b>				0.36	2.27
<i>Dependent variable: YSR internalizing problems</i>											
gender <sup>b</sup>			-10.13	11.9		.404				-34.67	14.42
attachment	FFI	disorganized	2.45	2.53		.343				-2.77	7.67
	IPPA	father+peer attachment	-0.00	0.00		.135	.55 (.43)	<b>5.46**</b> <b>(.002)</b>		-0.00	-0.00
alexithymia	TAS-20	total score	0.58	.017		<b>.002</b>				-0.93	0.24
interaction	gender*	IPPA/father+peer attachment	0.00	0.00		.612				-0.00	0.00

Notes: <sup>a</sup>YSR= Youth Self Report 11-18 years; FFI = Friends and Family Interview; IPPA= Inventory for Parent and Peer Attachment, TAS-20 = Toronto Alexithymia Scale 20 item. <sup>b</sup> boy = 1, girl = 2. Significance with  $p < *.05$ ,  $** < .01$ , **highlighted in bold for the stronger predictor.**

Considering the CBCL/*total problems* as dependent variable, a unique block including attachment to mother and father was entered as predictor, but the model was not significant  $F(1, 29) = 2.65, adjusted R^2 = .10, p = .089$  (95% CI 38.36 - 142.21). Considering the YSR/*total problems* as dependent variable, predictors entered were: disorganized pattern in the FFI, attachment security to father and peers in the IPPA (in a unique block) and the total score of alexithymia in the TAS-20. The interactive effect between attachment and alexithymia could be not calculate due to absence of correlations. At the first step, FFI disorganized pattern was entered as unique predictor and the model was moderately significant, explaining 12% of variance in total problems,  $F(1, 29) = 5.08, adjusted R^2 = .12, p = .032$  (95% CI 21.2 - 67.3). Once introduced the IPPA' security in attachment to parent and peers in the second step, the change in F was not significant anymore ( $p = 0.1$ ), nor

any predictor (all  $\beta$  with  $p > 0.1$ ). As shown in Table II-5a, adding the alexithymia in the third step, the final model became strongly significant and explained 35% of variance in the total problems' scores (*adjusted R*<sup>2</sup> = .354,  $p = .004$ ), and the analysis of  $\beta$  coefficients revealed the alexithymia total score in the TAS-20 as unique significant predictor ( $p = .009$ ).

CBCL/ *internalizing problems* of LA did not show correlations with predictor's measures, thus the YSR/internalizing problems was the only dependent variable considered, with predictors: gender, disorganized pattern in the FFI, the attachment to father and peers (in a unique block) in the IPPA, the alexithymia total score in the TAS-20 plus the interactive effect gender\* attachment in the IPPA. The final model was strongly significant, explaining 43% of variance in self-reported internalizing problems' scores of late-adoptees,  $F(1, 30) = 5.46$ , *adjusted R*<sup>2</sup> = .426,  $p = .002$ , 95% CI -34.61 -19.31 (Observed Power = .969), and the analysis of coefficients revealed alexithymia as unique significant predictor ( $p = .002$ ).

Considering CBCL/*externalizing problems* as dependent variable, the only predictor entered was a block of attachment security to mother and father in the IPPA, and the final model was significant and explained 23% of variance in externalizing problems' score as referred by adoptive parents,  $F(2, 29) = 5.34$ , *adjusted R*<sup>2</sup> = .23,  $p = .011$  (95% CI 17.25 -51.22). The lower attachment security to mother was the unique significant predictor ( $\beta = -.46$ ,  $p = .02$ , CI -0.45 to -0.04), because the paternal one was not significant ( $p = .56$ ). Considering YSR/externalizing problems as dependent variable, predictors entered were: FFI's disorganized pattern, attachment to peers in the IPPA and the alexithymia total score in the TAS-20, but the model was not significant,  $F(2,29) = 3.05$ , *adjusted R*<sup>2</sup> = .15,  $p = .092$  (95% CI -30.34 -31.45).

*Models of prediction in residential-care group.*

Table II-5b. Models to predict total and internalizing problems (CBCL and YSR<sup>a</sup>) in *residential-care* adolescents (N= 50), with predictors: gender, attachment patterns (FFI<sup>a</sup>), attachment security (IPPA<sup>a</sup>) and alexithymia (TAS-20<sup>a</sup>).

Predictors	B	SE	p	R <sup>2</sup> (R <sup>2</sup> adj.)	F(p)	95%		
						LB	UB	
<b>Dependent variable: total problems (CBCL)</b>								
gender <sup>b</sup>	10.38	84.96	0.90			-162.7	183.4	
attachment	FFI	secure	-13.03	7.91	0.11	<b>3.23**</b> (.008)	-29.15	3.08
		insecure -preoccupied	-27.89	52.43	0.59		-134.69	78.9
		disorganized	5.31	6.49	0.42		-7.09	18.53
alexithymia	TAS-20	total score	0.31	2.29	0.89	.45 (.31)	-4.37	4.98
interaction	gender * FFI/ins.-preoccupied		-1.25	12.81	0.92		-27.33	24.84
	gender * alexithymia		-0.52	1.40	0.71		-3.37	2.33
	FFI/ins-preoccupied* alexithymia		0.37	0.43	0.67		-1.35	2.09
<b>Dependent variable: total problems (YSR)</b>								
gender <sup>b</sup>	-101.32	82.95	0.23			-272.17	69.52	
attachment	FFI	insecure -preoccupied	-29.67	45.84	0.52	<b>3.59**</b> (.007)	-124.09	64.74
		IPPA	father's attachment	-1.90	0.87		<b>0.04</b>	0.10
alexithymia	TAS-20	total score	-1.05	2.09	0.62	.53 (.39)	-3.26	5.37
interaction	gender * FFI/ins.-preoccupied		3.58	14.76	0.81		-26.81	33.98
	gender * alexithymia		1.48	1.33	0.27		-1.26	4.22
	FFI/ins-preoccupied* alexithymia		0.56	0.72	0.44		-0.93	2.05
	IPPA/father * alexithymia		-0.03	.014	<b>0.39</b>		-0.06	-0.00
<b>Dependent variable: internalizing problems (CBCL)</b>								
gender <sup>b</sup>	3.92	39.8	0.92			-77.06	85.46	
attachment	FFI	insecure -preoccupied	8.9	23.70	0.71	<b>3.707 *</b> (.004)	-36.62	57.46
		IPPA	mother's attachment	0.62	1.24		0.37	-0.76
alexithymia	TAS-20	total score	1.89	7.56	0.14	.544 (.397)	-0.65	4.42
interaction	gender * FFI/ins.-preoccupied		9.09	0.67	0.24		-6.4	24.6
	gender * IPPA/mother's attach.		0.46	0.20	0.82		-0.37	0.46
	gender*alexithymia		-0.72	0.61	-1.98		-1.98	0.53
	FFI/ins-preoccupied* alexithymia		-0.25	0.37	-1.01		0.51	0.02
IPPA/mother * alexithymia		-0.01	0.01	-0.03		0.01	0.02	
<b>Dependent variable: internalizing problems (YSR)</b>								
gender <sup>b</sup>	13.86	35.64	0.70			-193.85	88.21	
attachment	FFI	insecure-dismissing	-0.59	18.63	0.97	<b>6.105 **</b> (.000)	-60.49	38.28
		insecure -preoccupied	8.79	31.90	0.79		.786 (.657)	-39.46
IPPA	Mother+father+peer's attachment (cumulative)		-4.58	3.01	0.14		-57.75	1.69

Notes: <sup>a</sup> CBCL= Child Behavior Checklist; FFI = Friends and Family Interview; TAS-20 = Toronto Alexithymia Scale 20 item. <sup>b</sup> boy = 1, girl = 2. Significance with  $p < .05$ ,  $** < .01$ . The  $p$  of stronger predictor is in bold.

In the residential-care group, insecure-preoccupied pattern in the FFI and parental scales in the IPPA showed correlations with the TAS-20, allowing to calculate the interactive effect(s) between attachment and alexithymia. Considering *CBCL/total problems* as dependent variable, predictors entered were: gender, FFI secure, insecure-preoccupied and disorganized patterns, the total score of the alexithymia in the TAS-20 plus the interaction effects of gender with both variables and between attachment and alexithymia. The final model, reported in Table II-5b, was strongly significant and explained 31% of variance in the scores of total problems as referred by the educators,  $F= 3.226$ ,  $adjusted R^2 = .308$ ,  $p = .008$ ,  $df = 8$  (Observed Power = .922). However, the analysis of coefficients did not reveal independent significant predictors nor interactive effects among variables (all B with  $p > 0.4$ ), therefore only the set of variables had a predictive role.

Considering the *YSR/total problems* as dependent variable, predictors entered were: gender, FFI/insecure-preoccupied, the paternal attachment security in the IPPA, the alexithymia in the TAS-20 plus the interaction effects of gender with all variables and between both attachment measures with alexithymia. As shown in Table II-5b, the final model was strongly significant and explained 39% of total problems self-reported by residential-care adolescents,  $F= 3.598$ ,  $adjusted R^2 = .386$ ,  $p = .007$ ,  $df = 7$  (Observed Power = .936). In this case, lower perceived attachment security to father in the IPPA was a significant independent predictor ( $p = .04$ ) and it showed also an interactive effect with the level of alexithymia ( $p = .04$ ).

Considering *CBCL/internalizing problems* as dependent variable, predictors entered were: gender, the pattern insecure-preoccupied in the FFI, the attachment to mother in the IPPA and the alexithymia total score in the TAS-20, plus the interaction effects of gender with all variables and between attachment and alexithymia. The final model, reported in Table II-5b, was significant and explained 40% of variance in the scores of internalizing problems as referred by the educators,  $F= 3.707$ ,  $adjusted R^2 = .397$ ,  $p = .004$ ,  $df = 9$  (Observed Power = .962). However, the analysis of coefficients did not reveal independent significant predictors nor interactive effects among variables (all B with  $p > 0.2$ ), therefore only the set of these variables had a predictive role.

Considering YSR/internalizing problems score as dependent variable, predictors entered were: gender, the insecure-dismissing and insecure-preoccupied pattern in the FFI, a block with the attachment to mother, father and peers in the IPPA, the alexithymia total score in the TAS-20, plus the interaction effects of gender with all variables and between all attachment' scales and alexithymia. As shown in Table II-5b, the final model was strongly significant and explained 66% of variance in scores of internalizing problems as self-reported by residential-care adolescents,  $F=6.105$ ,  $adjusted R^2 = .657$ ,  $p = .000$ ,  $df = 9$  (Observed Power = .999). However, the analysis of coefficients did not reveal independent significant predictors nor interactive effects among variables (all B with  $p > 0.2$ ), again suggesting a cumulative effect of all the variables altogether.

Considering the CBCL/*externalizing problems* as dependent variable, only the pattern secure-autonomous in the FFI could be entered as possible predictor, and the final model was significant, explaining 6% of variance in the scores of externalizing problems as referred by the educators,  $F(1,44) = 4.13$ ,  $adjusted R^2 = .066$ ,  $p = .048$  (95% CI - 9.30 - 0.35).

Instead, considering the YSR/*externalizing problems* as dependent variable, the pattern insecure-dismissing in the FFI could be entered as predictor, but the model was not significant,  $F(1,42) = 3.59$ ,  $adjusted R^2 = .06$ ,  $p = .06$  (95% CI - 0.18 -5.73).

*Models of prediction in the community group.*

Table II-5c. Main models to predict total and internalizing problems (CBCL<sup>a</sup>) in *community* adolescents (N= 87), with predictors: attachment patterns (FFI<sup>b</sup>) and the total score of alexithymia (TAS-20<sup>a</sup>).

Predictors	B	SE	$\beta$	p	R <sup>2</sup> (R <sup>2</sup> adj.)	F (p)	95%	
							LB	UB
<i>Dependent variable: CBCL total problems</i>								
attachment FFI insecure-preoccupied	5.56	2.80	.20	<b>.05</b>	.12(.10)	<b>5.64**</b> (.005)	-11	11.23
alexithymia TAS-20 total score	.49	.02	.26	<b>.02</b>				
<i>Dependent variable: CBCL internalizing problems</i>								
gender <sup>b</sup>	3.3	1.30		<b>.013</b>	.16 (.13)	<b>5.32**</b> (.002)	.729	5.89
FFI insecure-preoccupied	2.11	0.99		<b>.036</b>			0.144	4.07
gender* insecure-preoccupied	0.12	0.07		.086			-0.02	0.255

Notes: <sup>a</sup> CBCL= Child Behavior Checklist; FFI = Friends and Family Interview; TAS-20 = Toronto Alexithymia Scale 20 item. <sup>b</sup> boy = 1, girl = 2. Significance with  $p < .05$ ,  $** < .01$ . The  $p$  of stronger predictor is in bold.

Considering CBCL/*total problems* as dependent variable, the pattern insecure-preoccupied at the FFI and the total score of alexithymia in the TAS-20 were entered as predictors. The first model, with the pattern insecure-preoccupied as unique predictor, was significant and explained 4.5% of the variance in parent-reported scores of total problems,  $F(1,84) = 4.95$ , *adjusted R*<sup>2</sup> = .045,  $p = .029$  (95% CI 7.32 - 26.49). Once entered also the alexithymia, the model gain significance (Sig. F change = .016) and the final model explained 10% of variance in the total problems' scores, (*adjusted R*<sup>2</sup> = .10,  $p = .005$ ), with the analysis of  $\beta$  coefficients indicating both as significant predictors and the strongest one was the alexithymia total score ( $p = .02$ ).

Considering YSR/*total problems* as dependent variable, only the alexithymia could be entered as predictor, and the model explained 20% of variance in the self-reported level of total problems,  $F(1,87) = 22.3$ , *adjusted R*<sup>2</sup> = .196,  $p = .000$  (95% CI -5.4 - 39.96).

Considering CBCL/*internalizing problems* as dependent variable, predictors entered were: gender, the pattern insecure-preoccupied in the FFI and the alexithymia total score in the TAS-20. As shown in Table II-5c, the final model was significant and explained 13% of variance in parent reported internalizing problems' scores,  $F(1,82) = 5.316$ , *adjusted R*<sup>2</sup> = .132,  $p = .002$ , 95% CI -



13.19 - 3.22 . The analysis of  $\beta$  coefficients revealed as independent predictors the female gender ( $p = .01$ ) and the insecure-preoccupied pattern ( $p = .02$ ), while alexithymia was not significant.

Considering YSR/*internalizing problems* as dependent variable, only the alexithymia could be entered as predictor, and the model explained 19% of variance in the self-reported level of internalizing problems,  $F(1,86) = 21.9$ , *adjusted R*<sup>2</sup> = .194,  $p = .000$  (95% CI -16.29 - 3.9).

Considering CBCL/*externalizing problems* as dependent variable, the unique predictor entered was the insecure-preoccupied pattern in the FFI, and the model was not significant,  $F(1,87) = 3.198$ , *adjusted R*<sup>2</sup> = .027,  $p = .077$  (95% CI 1.16 -7.55).

Considering YSR/*externalizing problems* as dependent variable, only the alexithymia could be entered as predictor: the final model was significant and explained 5% of variance in the externalizing problems as self-reported by community adolescents,  $F(1,86) = 6.06$ , *adjusted R*<sup>2</sup> =0.05,  $p = .016$  (95% CI -3.34 - 10.84).

\*\*\*\*\*

#### *Synthesis of common and specific risk factors across groups.*

In the prediction of *total problems*, the higher alexithymia was a common significant predictor in late-adopted and community groups. As specific risk factors, a disorganized attachment pattern was a significant predictor among late-adoptees, while the pattern insecure-preoccupied predicted the risk of total problems among community adolescents. In the residential-care group, only the perceived less security in the attachment toward the father was a significant predictor, which showed also an interactive effect to higher alexithymia.

The higher alexithymia was a common predictor also for self-reported *internalizing problems* among late-adopted and community adolescents, while the female gender and the insecure-preoccupied attachment pattern were revealed as specific risk factors in the community group. In the residential-care group, models were all strongly significant but no independent predictors were not detected.

With respect to *externalizing problems*, no common risk factors have been identified, but high-risk groups and the community one showed reverse pathways: in high-risk groups, the poor attachment was a predictor and the alexithymia was not, while the alexithymia was the unique predictor among community adolescents, in which attachment was not significant.

### Part III – Exploratory study

**RQ5: at explorative level, are there differences among groups in FFI' sub-scales? Are FFI' subscales related to the adolescents' internalizing-externalizing problems?**

Means and standard deviations for all groups in FFI sub-scales are shown in Table Des4, which is reported below, after text, together with the tables for the comparison (III-1a and III-1b) and of correlations (III-2).

Overall, both high-risk groups showed lower reflective functioning and worst friend and sibling relationships than the community peers, but only residential-care adolescents showed less narrative coherence and poorest parental representations, self-esteem and affective regulation than the other two groups.

Further, FFI' subscales revealed correlations with all types of problems, with both shared and specific pathways across groups.

#### ***Group differences in FFI domains.***

As shown below in Table III-1a and III-1b, the effect of the group was strongly significant in almost all FFI' sub-scales.

In *coherence*' scales, RC had lowest scores than the other two groups in all scales except for manner, while no differences were revealed between LA and C.

In terms of *reflective functioning*, both high-risk groups lacked in developmental perspective and ToM toward the friend and the teacher compared to the community group, being also both less able to recognize diverse feelings toward the self, the mother and the friend. Instead, only residential-care adolescents showed less ToM toward both parents and less diversity of feelings toward the father and the sibling than other two groups.

The representations of maternal and paternal availability as *secure base/safe haven*, the *social competence*, the *school competence* and the *self-regard* were worst in the residential-care adolescents compared to the peers belonging with the other two groups, which did not differ each other in these domains.

Instead, both high-risk groups showed worst *quality of friend contact* and less warmth and more hostility in the relationships with *siblings* compared to the community peers.

In terms of *affective regulation*, residential-care adolescents showed greater anger and derogation toward the mother, self-derogation and lower adaptive response than both late-adoptees and community peers, which did not show differences each other in any scale.

Lastly, the RC group showed less *differentiation of parental representations* than both the other two groups, not different each other.

### ***Correlations among FFI' subscales and internalizing-externalizing problems.***

Correlations with both CBCL and YSR for the three groups are reported in Table III-2, and commented considered the results altogether.

In terms of *RF*, among late-adoptees, lower diversity of feelings toward the sibling was related to more total and externalizing problems, while lower scores in developmental perspective were related to more total, internalizing and externalizing problems in residential-care adolescents. In this group, more externalizing problems were revealed also along with lower theory of mind toward the mother, which unexpectedly showed positive relations with more total and internalizing problems in the community group, i.e. more adolescent's problems along with greater mentalization toward the mother.

A poorest representation of the father as *secure-base/safe-haven* was related to more externalizing problems in high-risk groups and, only in residential-care adolescents, also with more total problems.

The lower *social competence* was related to more internalizing problems in both high-risk groups, and in late-adoptees also with more total problems. Also poorest *self-regard* was related to more total problems in both high-risk groups, with more internalizing problems in residential-care and community adolescents and with more externalizing ones among late-adoptees.

Less warmth in *sibling relationships* was related to more total problems in RC and to less in community ones, while greater rivalry toward the sibling showed relations to more problems of all types in both late-adopted and community adolescents.

In terms of *affective regulation*, greater idealization toward the self and the mother were related to less problems of all types in the residential-care group. Late-adopees with higher paternal role-reversal showed more externalizing problems, while in the community adolescents it was the contrary, and community adolescents also showed more internalizing problems along with higher maternal role-reversal. Greater derogation of self, mother and father showed relations to more problems of all types among late-adoptees, while only greater self-derogation was related to more internalizing problems among RC adolescents. Moreover, lower adaptive response was related to more total problems in both high-risk groups and to more internalizing ones only among RC adolescents.

Lastly, greater differentiation of parental representation was related to more problems of all types only among community adolescents.

Table Des4. Means and standard deviations in attachment domains, as assessed by the sub-scales of the Friends and Family Interview (FFI), in adolescents (N = 171) grouped as late-adopted, residential-care and community<sup>1</sup>, also divided for gender.

FFI		Mean (SD)								
		Late - adopted			Residential - care			Community		
		TOT	M <sub>(18)</sub>	F <sub>(15)</sub>	TOT	M <sub>(26)</sub>	F <sub>(21)</sub>	TOT	M <sub>(46)</sub>	F <sub>(45)</sub>
<b>Coherence</b>										
	Truth	2.90 (0.61)	2.83 (0.59)	2.97 (0.65)	2.16 (0.57)	2.16 (0.62)	2.16 (0.50)	<b>3.10</b> <b>(0.76)</b>	2.95 (0.75)	3.27 (0.74)
	Economy	2.63 (0.87)	2.56 (0.92)	2.72 (0.82)	2.03 (0.63)	2.04 (0.62)	2.03 (0.66)	<b>2.86</b> <b>(0.98)</b>	2.68 (0.96)	3.04 (0.98)
	Relation	2.60 (0.70)	2.64 (0.78)	2.55 (0.60)	2.06 (0.66)	2.11 (0.74)	2 (0.53)	<b>2.93</b> <b>(0.78)</b>	2.84 (0.83)	3.03 (0.71)
	Manner	3.61 (0.52)	3.54 (0.57)	3.69 (0.45)	3.33 (0.74)	3.25 (0.78)	3.45 (0.69)	<b>3.76</b> <b>(0.46)</b>	3.65 (0.49)	3.87 (0.39)
	Overall Coherence	2.87 (0.51)	2.85 (0.58)	2.89 (0.42)	2.34 (0.44)	2.32 (0.49)	2.37 (0.37)	<b>3.04</b> <b>(0.62)</b>	2.89 (0.64)	3.19 (0.57)
<b>Reflective functioning</b>										
	Developmental. perspective	2.48 (0.77)	2.43 (0.82)	2.53 (0.72)	2.20 (0.78)	2.14 (0.74)	2.29 (0.84)	<b>2.87</b> <b>(0.76)</b>	2.89 (0.71)	2.84 (0.80)
Theory of Mind	Mother	2.32 (0.82)	2.14 (0.89)	2.54 (0.69)	1.80 (0.89)	1.52 (0.80)	2.22 (0.88)	<b>2.60</b> <b>(0.95)</b>	2.40 (0.83)	2.80 (1.02)
	Father	2.28 (0.86)	2.21 (0.82)	2.36 (0.92)	1.52 (0.95)	1.50 (0.71)	1.56 (1.28)	<b>2.37</b> <b>(1.07)</b>	2.27 (1.04)	2.46 (1.10)
	Friend	2.04 (0.84)	2.11 (0.87)	1.95 (0.83)	1.80 (1.00)	1.59 (0.91)	2.11 (1.06)	<b>2.72</b> <b>(0.98)</b>	2.50 (0.97)	2.94 (0.95)
	Sibling	<b>2.08</b> <b>(0.79)</b>	2.18 (0.88)	1.95 (0.69)	1.55 (0.74)	1.40 (0.66)	1.72 (0.80)	1.81 (1.44)	1.70 (1.26)	1.92 (1.61)
	Teacher	2.26 (0.97)	2.5 (0.77)	2.01 (1.11)	1.79 (1.04)	1.80 (1.08)	1.78 (1.02)	<b>2.83</b> <b>(1.12)</b>	2.74 (1.10)	2.91 (1.15)
Diversity of Feelings	Self	2.98 (0.67)	2.99 (0.66)	2.97 (0.72)	2.42 (0.93)	2.26 (0.96)	2.65 (0.86)	<b>3.36</b> <b>(0.60)</b>	3.38 (0.57)	3.33 (0.63)
	Mother	2.66 (0.78)	2.46 (0.79)	2.91 (0.71)	1.98 (0.86)	1.93 (0.83)	2.05 (0.93)	<b>3.09</b> <b>(0.79)</b>	2.89 (0.82)	3.29 (0.71)
	Father	2.72 (0.82)	2.77 (0.82)	2.65 (0.84)	1.76 (0.89)	1.75 (0.81)	1.77 (1.05)	<b>2.87</b> <b>(1.00)</b>	2.71 (1.08)	3.02 (0.89)
	Friend	2.53 (0.69)	2.57 (0.68)	2.47 (0.72)	2.19 (0.73)	2.16 (0.79)	2.24 (0.65)	<b>3.12</b> <b>(0.69)</b>	2.96 (0.69)	3.29 (0.65)
	Sibling	2.61 (0.95)	2.38 (0.68)	2.82 (1.14)	1.91 (0.79)	1.84 (0.76)	2 (0.83)	<b>3.00</b> <b>(0.80)</b>	2.96 (0.79)	3.05 (0.82)
<b>Secure Base/ Safe Haven</b>										
	Mother	<b>2.63</b> <b>(0.79)</b>	2.54 (0.78)	2.74 (0.82)	1.60 (0.70)	1.66 (0.79)	1.5 (0.53)	2.57 (1.04)	2.24 (1.06)	2.91 (0.90)
	Father	<b>2.55</b> <b>(0.95)</b>	2.71 (1.02)	2.35 (0.84)	1.53 (0.65)	1.63 (0.66)	1.38 (0.63)	2.31 (1.04)	2.16 (1.06)	2.47 (1.00)
<b>Self-esteem</b>										
	Social competence	3.06 (0.65)	3.08 (0.58)	3.03 (0.74)	2.51 (0.83)	2.64 (0.82)	2.32 (0.82)	<b>3.16</b> <b>(0.74)</b>	3.13 (0.78)	3.20 (0.71)

School competence		<b>3.27</b> (0.61)	3.28 (0.60)	3.27 (0.65)	2.74 (1.08)	2.81 (1.02)	2.63 (1.19)	3.14 (0.78)	3.15 (0.79)	3.12 (0.78)
Self-regard		<b>2.95</b> (0.59)	3 (0.54)	2.9 (0.66)	2.43 (0.88)	2.75 (0.78)	1.97 (0.82)	2.76 (0.55)	2.84 (0.57)	2.68 (0.53)
<b>Peer relations (friend)</b>										
Frequency of contact		<b>3.31</b> (0.99)	3.49 (0.82)	3.09 (1.15)	3.12 (1.06)	3.34 (0.87)	2.83 (1.23)	3.30 (1.09)	3.41 (1.00)	3.18 (1.18)
Quality of contact		2.72 (0.62)	2.72 (0.52)	2.72 (0.74)	2.53 (0.62)	2.46 (0.53)	2.63 (0.74)	<b>3.12</b> (0.77)	3.03 (0.83)	3.21 (0.69)
<b>Sibling relations</b>										
Warmth		2.34 (1.19)	2.15 (1.12)	2.54 (1.26)	2.22 (0.93)	2.22 (0.99)	2.22 (0.87)	<b>2.89</b> (0.89)	2.78 (0.96)	3.00 (0.79)
Hostility		<b>1.91</b> (1.17)	1.88 (1.26)	1.95 (1.12)	1.42 (0.76)	1.46 (0.82)	1.37 (0.68)	1.46 (0.66)	1.46 (0.67)	1.45 (0.67)
Rivalry		1.36 (0.86)	1.43 (0.92)	1.29 (0.83)	<b>1.41</b> (0.83)	1.37 (0.74)	1.47 (0.95)	1.19 (0.48)	1.14 (0.33)	1.24 (0.61)
<b>Affective regulation</b>										
Idealization	Self	1.54 (0.67)	1.75 (0.73)	1.29 (0.49)	<b>2.18</b> (3.54)	2.53 (4.47)	1.64 (0.97)	1.36 (0.67)	1.58 (0.80)	1.13 (0.40)
	Mother	1.85 (0.90)	2.08 (1.02)	1.57 (0.65)	<b>1.92</b> (1.03)	2.00 (1.04)	1.81 (1.05)	1.58 (0.81)	1.65 (0.92)	1.51 (0.68)
	Father	1.77 (0.91)	1.87 (0.89)	1.65 (0.95)	<b>1.88</b> (0.97)	2.04 (0.99)	1.6 (0.91)	1.65 (0.78)	1.64 (0.88)	1.66 (0.69)
Role reversal	Mother	1.27 (0.41)	1.31 (0.42)	1.22 (0.39)	<b>1.67</b> (0.82)	1.53 (0.66)	1.89 (1.01)	1.59 (0.84)	1.59 (0.85)	1.59 (0.83)
	Father	1.21 (0.51)	1.36 (0.66)	1.02 (0.08)	<b>1.38</b> (0.71)	1.42 (0.67)	1.3 (0.80)	1.35 (0.77)	1.32 (0.73)	1.38 (0.82)
Anger	Mother	1.41 (0.73)	1.25 (0.52)	1.61 (0.90)	<b>1.99</b> (1.08)	1.64 (0.94)	2.53 (1.08)	1.31 (0.72)	1.41 (0.85)	1.21 (0.55)
	Father	1.33 (0.68)	1.44 (0.76)	1.2 (0.56)	<b>1.59</b> (1.15)	1.42 (1.00)	1.87 (1.36)	1.43 (0.83)	1.26 (0.62)	1.61 (0.98)
Derogation	Self	1.30 (0.58)	1.28 (0.52)	1.32 (0.67)	<b>1.68</b> (0.89)	1.54 (0.83)	1.91 (0.96)	1.30 (0.59)	1.23 (0.40)	1.37 (0.73)
	Mother	1.32 (0.61)	1.22 (0.55)	1.43 (0.68)	<b>1.81</b> (1.10)	1.61 (0.93)	2.11 (1.29)	1.41 (0.76)	1.49 (0.79)	1.32 (0.73)
	Father	1.33 (0.66)	1.33 (0.75)	1.33 (0.56)	<b>1.55</b> (1.05)	1.44 (0.86)	1.73 (1.33)	1.43 (0.76)	1.49 (0.84)	1.38 (0.68)
Adaptive response		2.74 (0.76)	2.66 (0.74)	2.84 (0.80)	2.14 (0.82)	2.23 (0.86)	2 (0.77)	<b>2.92</b> (0.99)	2.72 (0.94)	3.13 (1.00)
<b>Differentiation of parental representations</b>										
		3.09 (0.80)	2.94 (0.91)	3.27 (0.62)	2.67 (1.10)	2.52 (1.09)	2.92 (1.09)	<b>3.34</b> (0.78)	3.12 (0.88)	3.57 (0.60)

<sup>1</sup> Groups: late-adopted (n =33), residential-care (n = 47), community (n =91). M = males, F= females. Highest scores among groups in **bold**.

Table III-1a. ANOVA on the effect of the group (late-adopted, residential-care, community) on the attachment sub-scales in the Friends and Family Interview (FFI) of 171 adolescents.

FFI		Source	df	SS	MS	F	p	
<b>Coherence</b>	Truth	Between Groups	2	28.02	14.01	29.85	.000	
		Within Groups	168	78.84	0.47			
		Total	170	106.86				
	Economy	Between Groups	2	21.46	10.73	14.05	.000	
		Within Groups	168	128.26	0.76			
		Total	170	149.72				
	Relation	Between Groups	2	23.51	11.75	22.07	.000	
		Within Groups	168	89.47	0.53			
		Total	170	112.98				
	Manner	Between Groups	2	5.69	2.84	9.14	.000	
		Within Groups	168	52.31	0.31			
		Total	170	58.00				
	Overall Coherence	Between Groups	2	15.22	7.61	24.64	<b>.000</b>	
		Within Groups	168	51.88	0.31			
		Total	170	67.10				
<b>Reflective Functioning</b>	Developmental perspective	Between Groups	2	14.45	7.23	12.37	.000	
		Within Groups	168	98.12	0.58			
		Total	170	112.57				
	ToM	Mother	Between Groups	2	19.22	9.61	11.63	.000
			Within Groups	166	137.19	0.83		
			Total	168	156.41			
	Father	Between Groups	2	20.68	10.34	10.31	.000	
		Within Groups	160	160.45	1.00			
		Total	162	181.14				
	Friend	Between Groups	2	28.83	14.42	15.59	.000	
		Within Groups	165	152.60	0.92			
		Total	167	181.44				
	Sibling	Between Groups	2	4.58	2.29	1.60	.206	
		Within Groups	156	223.60	1.43			
		Total	158	228.17				
	Teacher	Between Groups	2	31.90	15.95	13.87	.000	
		Within Groups	157	180.51	1.15			
		Total	159	212.42				
	DoF	Self	Between Groups	2	27.51	13.75	26.59	.000
			Within Groups	169	87.42	0.52		
			Total	171	114.93			
Mother	Between Groups	2	37.69	18.85	28.87	.000		
	Within Groups	167	109.01	0.65				
	Total	169	146.71					
Father	Between Groups	2	35.02	17.51	19.86	.000		
	Within Groups	160	141.04	0.88				
	Total	162	176.06					



		Friend	Between Groups	2	28.81	14.41	29.27	.000	
			Within Groups	168	82.69	0.49			
			Total	170	111.51				
		Sibling	Between Groups	2	32.33	16.17	23.78	.000	
			Within Groups	138	93.81	0.68			
			Total	140	126.14				
<b>Secure Base/Safe Haven</b>		Mother	Between Groups	2	33.64	16.82	20.30	.000	
			Within Groups	168	139.24	0.83			
			Total	170	172.88				
		Father	Between Groups	2	23.84	11.92	13.66	.000	
			Within Groups	163	142.19	0.87			
			Total	165	166.03				
<b>Self-esteem</b>		Social Competence	Between Groups	2	13.82	6.91	12.29	.000	
			Within Groups	168	94.49	0.56			
			Total	170	108.32				
		School Competence	Between Groups	2	6.77	3.39	4.71	.010	
			Within Groups	167	119.95	0.72			
			Total	169	126.72				
		Self Regard	Between Groups	2	6.02	3.01	6.80	.001	
			Within Groups	169	74.86	0.44			
			Total	171	80.88				
<b>Friend relations</b>		Frequency of contact	Between Groups	2	1.08	0.54	0.48	.621	
			Within Groups	167	189.16	1.13			
			Total	169	190.24				
		Quality of contact	Between Groups	2	11.95	5.98	12.07	.000	
			Within Groups	169	83.65	0.49			
			Total	171	95.60				
<b>Sibling relations</b>		Warmth	Between Groups	2	13.93	6.97	7.51	.001	
			Within Groups	141	130.76	0.93			
			Total	143	144.69				
		Hostility	Between Groups	2	5.02	2.51	3.79	.025	
			Within Groups	140	92.82	0.66			
			Total	142	97.85				
		Rivalry	Between Groups	2	1.55	0.77	1.64	.198	
<b>Affective regulation</b>		Idealization	Self	Between Groups	2	20.95	10.47	2.83	.062
				Within Groups	167	618.97	3.71		
				Total	169	639.92			
			Mother	Between Groups	2	4.17	2.09	2.62	.076
				Within Groups	167	132.86	0.80		
				Total	169	137.03			
			Father	Between Groups	2	1.53	0.76	1.03	.359
				Within Groups	161	119.08	0.74		
				Total	163	120.61			
		Role Reversal	Mother	Between Groups	2	3.44	1.72	2.90	.058
				Within Groups	167	98.91	0.59		

		Total	169	102.34			
	Father	Between Groups	2	0.62	0.31	0.61	.544
		Within Groups	160	81.54	0.51		
		Total	162	82.16			
Anger	Mother	Between Groups	2	14.40	7.20	10.35	.000
		Within Groups	167	116.14	0.70		
		Total	169	130.54			
	Father	Between Groups	2	1.22	0.61	0.76	.468
		Within Groups	162	129.89	0.80		
		Total	164	131.11			
Derogation	Self	Between Groups	2	4.94	2.47	5.28	.006
		Within Groups	167	78.11	0.47		
		Total	169	83.05			
	Mother	Between Groups	2	6.36	3.18	4.45	.013
		Within Groups	168	120.14	0.72		
		Total	170	126.50			
	Father	Between Groups	2	0.86	0.43	0.63	.532
		Within Groups	160	108.83	0.68		
		Total	162	109.70			
	Adaptive Response	Between Groups	2	19.05	9.53	11.62	.000
		Within Groups	167	136.97	0.82		
		Total	169	156.02			
<b>Differentiation of Parental Representations</b>		Between Groups	2	13.60	6.80	8.75	.000
		Within Groups	167	129.78	0.78		
		Total	169	143.38			

\*The mean difference is significant at the 0.05 level. Scales: ToM = Theory of Mind; DoF = Diversity of Feelings.

Table III-1b. Bonferroni's post-hoc test for the ANOVA on sub-scales of the Friends and Family Interview (FFI) among groups of late-adopted, residential-care and community adolescents (N=170).

Dependent Variable		Group	Comparison group	Mean difference	SE	p	95% CI	
							LB	UB
<b>Coherence</b>	Truth	late-adopted	community	-0.21	0.14	.414	-0.54	0.13
		late-adopted	residential-care	.74*	0.16	.000	0.36	1.11
		residential-care	community	-.94*	0.12	.000	-1.24	-0.65
	Economy	late-adopted	community	-0.23	0.18	.577	-0.66	0.2
		late-adopted	residential-care	.60*	0.2	.009	0.12	1.08
		residential-care	community	-.83*	0.16	.000	-1.21	-0.45
	Relation	late-adopted	community	-0.33	0.15	.077	-0.69	0.02
		late-adopted	residential-care	.54*	0.17	.004	0.14	0.94
		residential-care	community	-.87*	0.13	.000	-1.19	-0.55
	Manner	late-adopted	community	-0.15	0.11	.570	-0.42	0.13
		late-adopted	residential-care	0.28	0.13	.087	-0.03	0.59
		residential-care	community	-.43*	0.1	.000	-0.67	-0.19
	Overall coherence	late-adopted	community	-0.17	0.11	.390	-0.44	0.1
<b>late-adopted</b>		<b>residential-care</b>	<b>.53*</b>	<b>0.13</b>	<b>.000</b>	0.22	0.83	
<b>residential-care</b>		<b>community</b>	<b>-.70*</b>	<b>0.1</b>	<b>.000</b>	-0.94	-0.46	
<b>Reflective Functioning</b>								
Developmental Perspective		late-adopted	community	-.39*	0.16	.039	-0.76	-0.01
		late-adopted	residential-care	0.28	0.17	.338	-0.14	0.7
		residential-care	community	-.67*	0.14	.000	-1	-0.33
Theory of Mind	Mother	late-adopted	community	-0.28	0.18	.404	-0.72	0.17
		late-adopted	residential-care	.52*	0.21	.040	0.02	1.03
		residential-care	community	-.80*	0.17	.000	-1.2	-0.4
	Father	late-adopted	community	-0.09	0.2	1	-0.58	0.41
		late-adopted	residential-care	.75*	0.23	.005	0.19	1.32
		residential-care	community	-.84*	0.19	.000	-1.3	-0.38
	Friend	late-adopted	community	-.68*	0.2	.002	-1.15	-0.2
		late-adopted	residential-care	0.24	0.22	.862	-0.3	0.77
		residential-care	community	-.91*	0.17	.000	-1.33	-0.49
	Sibling	late-adopted	community	0.27	0.27	.996	-0.4	0.93
		late-adopted	residential-care	0.53	0.3	.250	-0.21	1.26
		residential-care	community	-0.26	0.22	.704	-0.79	0.27
	Teacher	late-adopted	community	-.56*	0.22	.039	-1.11	-0.02
		late-adopted	residential-care	0.47	0.25	.193	-0.14	1.08
		residential-care	community	-1.03*	0.2	.000	-1.52	-0.55
Diversity of Feelings	Self	late-adopted	community	-.38*	0.15	.031	-0.73	-0.02
		late-adopted	residential-care	.56*	0.16	.002	0.16	0.95
		residential-care	community	-.93*	0.13	.000	-1.24	-0.62
	Mother	late-adopted	community	-.42*	0.16	.032	-0.82	-0.03
		late-adopted	residential-care	.69*	0.18	.001	0.24	1.13
		residential-care	community	-1.11*	0.15	.000	-1.46	-0.76
	Father	late-adopted	community	-0.15	0.19	1	-0.61	0.31
		late-adopted	residential-care	.96*	0.22	.000	0.42	1.49

		residential-care	community	-1.11*	0.18	.000	-1.54	-0.68
	Friend	late-adopted	community	-.59*	0.14	.000	-0.94	-0.25
		late-adopted	residential-care	0.34	0.16	.110	-0.05	0.72
		residential-care	community	-.93*	0.13	.000	-1.23	-0.62
	Sibling	late-adopted	community	-0.39	0.19	.119	-0.84	0.06
		late-adopted	residential-care	.70*	0.2	.002	0.21	1.19
		residential-care	community	-1.09*	0.16	.000	-1.47	-0.71
<b>Secure base/Safe haven</b>	Mother	late-adopted	community	0.06	0.18	1	-0.39	0.51
		late-adopted	residential-care	1.04*	0.21	.000	0.54	1.54
		residential-care	community	-.98*	0.16	.000	-1.37	-0.58
	Father	late-adopted	community	0.24	0.19	.641	-0.22	0.7
		late-adopted	residential-care	1.01*	0.22	.000	0.49	1.54
		residential-care	community	-.78*	0.17	.000	-1.2	-0.36
<b>Self-esteem</b>								
	Social	late-adopted	community	-0.1	0.15	1	-0.47	0.26
Competence		late-adopted	residential-care	.55*	0.17	.004	0.14	0.97
		residential-care	community	-.66*	0.13	.000	-0.98	-0.33
	School	late-adopted	community	0.14	0.17	1	-0.28	0.55
Competence		late-adopted	residential-care	.53*	0.19	.019	0.07	1
		residential-care	community	-.40*	0.15	.031	-0.77	-0.03
	Self	late-adopted	community	0.2	0.14	.445	-0.13	0.52
Regard		late-adopted	residential-care	.53*	0.15	.002	0.16	0.89
		residential-care	community	-.33*	0.12	.018	-0.62	-0.04
<b>Friend relations</b>								
	Frequency of contact	late-adopted	community	0.01	0.22	1	-0.52	0.53
		late-adopted	residential-care	0.18	0.24	1	-0.4	0.77
		residential-care	community	-0.18	0.19	1	-0.64	0.29
	Quality of contact	late-adopted	community	-.40*	0.14	.017	-0.75	-0.05
		late-adopted	residential-care	0.19	0.16	.702	-0.19	0.57
		residential-care	community	-.59*	0.13	.000	-0.89	-0.29
<b>Sibling relations</b>	Warmth	late-adopted	community	-.54*	0.22	.038	-1.06	-0.02
		late-adopted	residential-care	0.12	0.23	1	-0.44	0.68
		residential-care	community	-.66*	0.18	.001	-1.1	-0.22
	Hostility	late-adopted	community	.46*	0.18	.040	0.02	0.9
		late-adopted	residential-care	.49*	0.2	.040	0.02	0.97
		residential-care	community	-0.03	0.16	1	-0.41	0.34
	Rivalry	late-adopted	community	0.17	0.15	.800	-0.2	0.54
		late-adopted	residential-care	-0.05	0.17	1	-0.45	0.35
		residential-care	community	0.23	0.13	.265	-0.09	0.54
<b>Affective regulation</b>								
	Idealization	Self	late-adopted	0.18	0.39	1	-0.76	1.13
			late-adopted	-0.64	0.44	.439	-1.7	0.42
			residential-care	0.82	0.35	.058	-0.02	1.67
		Mother	late-adopted	0.27	0.18	.432	-0.17	0.7

		late-adopted	residential-care	-0.08	0.2	1	-0.57	0.42
		residential-care	community	0.34	0.16	.107	-0.05	0.73
	Father	late-adopted	community	0.12	0.18	1	-0.3	0.54
		late-adopted	residential-care	-0.11	0.2	1	-0.59	0.38
		residential-care	community	0.23	0.16	.484	-0.16	0.62
Role Reversal	Mother	late-adopted	community	-0.32	0.16	.125	-0.7	0.06
		late-adopted	residential-care	-0.4	0.18	.069	-0.83	0.02
		residential-care	community	0.08	0.14	1	-0.26	0.42
	Father	late-adopted	community	-0.14	0.15	.970	-0.5	0.21
		late-adopted	residential-care	-0.17	0.17	.947	-0.58	0.24
		residential-care	community	0.02	0.14	1	-0.3	0.35
Anger	Mother	late-adopted	community	0.1	0.17	1	-0.31	0.51
		late-adopted	residential-care	-.58*	0.19	.008	-1.04	-0.12
		residential-care	community	.68*	0.15	.000	0.31	1.04
	Father	late-adopted	community	-0.1	0.18	1	-0.54	0.34
		late-adopted	residential-care	-0.25	0.21	.692	-0.76	0.25
		residential-care	community	0.15	0.17	1	-0.26	0.56
Derogation	Self	late-adopted	community	0	0.14	1	-0.34	0.34
		late-adopted	residential-care	-.38*	0.16	.045	-0.76	-0.01
		residential-care	community	.38*	0.12	.007	0.08	0.68
	Mother	late-adopted	community	-0.09	0.17	1	-0.5	0.33
		late-adopted	residential-care	-.49*	0.19	.035	-0.95	-0.03
		residential-care	community	.40*	0.15	.027	0.03	0.77
	Father	late-adopted	community	-0.1	0.17	1	-0.51	0.31
		late-adopted	residential-care	-0.22	0.19	.797	-0.69	0.25
		residential-care	community	0.12	0.16	1	-0.26	0.5
Adaptive Response		late-adopted	community	-0.18	0.18	.959	-0.63	0.26
		late-adopted	residential-care	.60*	0.21	.012	0.1	1.1
		residential-care	community	-.79*	0.16	.000	-1.18	-0.39
<b>Differentiation parental representations</b>		late-adopted	community	-0.18	0.18	.959	-0.63	0.26
		late-adopted	residential-care	.60*	0.21	.012	0.1	1.1
		residential-care	community	-.79*	0.16	.000	-1.18	-0.39

\*the mean difference is significant at the 0.05 level.

Table III–2 Correlations among internalizing-externalizing problems (Child Behavior Checklist, CBCL 6-18, and Youth Self Report, YSR 11-18) and attachment dimensions (sub-scales Friends and Family Interview, FFI) in adolescents (N =126) grouped as late-adopted, in residential-care and community<sup>1</sup>.

FFI	group	CBCL-18									YSR 11-18								
		TOT.			INT.			EXT.			TOT.			INT.			EXT.		
		LA	RC	C	LA	RC	C	LA	RC	C	LA	RC	C	LA	RC	C	LA	RC	C
<b>Coherence</b>																			
	Truth	.104	-.283	-.167	.134	-.284	-.108	.015	-.249	-.109	-.216	-.108	.018	-.138	-.206	.014	-.163	-.212	.037
	Economy	-.084	-.083	-.073	-.104	.006	-.029	-.091	-.053	-.059	-.104	-.097	-.044	-.114	-.108	.023	.018	-.087	-.018
	Relation	.037	-.177	.052	.113	-.116	.051	-.194	-.113	.052	-.139	-.094	-.034	-.168	-.178	-.006	-.062	-.105	.010
	Manner	-.099	-.220	-.170	.028	-.106	-.142	-.306	-.181	-.140	-.188	.002	-.031	-.067	-.137	.029	-.199	-.196	-.148
	Overall Coherence	-.072	-.213	-.126	.064	-.194	-.070	-.257	-.248	-.119	-.199	.028	-.026	-.142	-.182	.034	-.114	-.235	-.030
<b>Reflective Functioning</b>																			
	Developmental perspective	.325	<b>-.381**</b>	-.082	<b>.368*</b>	<b>-.327*</b>	-.060	.166	<b>-.326*</b>	-.024	.136	-.172	.100	.036	-.290	.105	.142	-.289	.046
ToM	Mother	.083	-.197	.014	.189	.018	.149	.038	<b>-.348*</b>	-.026	.114	-.008	<b>.210*</b>	.208	-.061	<b>.283**</b>	.042	<b>-.322*</b>	.000
	Father	-.178	-.109	-.081	-.038	.076	.098	-.240	-.210	-.134	.103	.087	.195	.188	.039	<b>.269*</b>	-.023	-.230	.008
	Friend	.012	-.167	-.028	.063	-.120	.026	.046	-.246	.000	-.149	.115	.210*	-.105	-.108	.194	-.060	-.206	.100
	Sibling	-.177	.011	.049	-.017	-.005	.102	-.207	-.019	.036	.022	.091	.073	.122	.085	.051	-.005	-.008	.126
	Teacher	-.014	-.327*	-.073	.015	-.304	.002	.105	-.092	-.089	.291	-.084	.039	.139	<b>-.317*</b>	.103	.217	-.186	-.057
DoF	Self	.327	-.114	-.061	.299	-.021	.032	.188	-.088	-.055	-.211	.020	-.031	-.210	-.092	-.110	-.154	-.142	.018
	Mother	-.063	-.142	-.102	.065	.020	-.104	-.188	-.224	-.095	.163	-.001	.023	.275	.025	.085	.138	-.292	-.015
	Father	-.140	-.156	.133	-.118	.004	.105	-.217	-.255	.143	-.207	-.196	.034	-.156	-.104	.049	-.164	-.271	.034
	Friend	.070	-.165	.209	.019	-.001	.178	.035	-.081	.168	-.019	-.236	.156	-.077	-.124	<b>.210*</b>	.062	-.160	.082
	Sibling	-.052	.021	.013	-.006	-.122	-.090	-.088	.186	.027	<b>-.467*</b>	.121	.182	-.256	-.087	.115	<b>-.417*</b>	.152	.135
<b>Secure Base /Safe Haven</b>	Mother	.037	-.081	-.098	.165	-.179	-.068	-.135	-.020	-.116	.215	.030	.041	.250	-.153	.138	.212	-.064	-.080
	Father	-.298	<b>-.352*</b>	.028	-.212	-.176	-.027	<b>-.363*</b>	-.312	.032	-.187	-.140	.103	-.089	-.196	.084	-.286	<b>-.357*</b>	.129
<b>Self-esteem</b>	Social com.	-.057	-.057	-.170	-.117	<b>-.359*</b>	-.136	-.024	-.073	-.147	<b>-.471**</b>	-.123	-.137	<b>-.476**</b>	<b>-.403**</b>	-.157	-.220	-.084	-.098

Table III–2 Correlations among internalizing-externalizing problems (Child Behavior Checklist, CBCL 6-18, and Youth Self Report, YSR 11-18) and attachment dimensions (subscales Friends and Family Interview, FFI) in adolescents (N =126) grouped as late-adopted, in residential-care and community<sup>1</sup>.

FFI	group	CBCL-18									YSR 11-18								
		TOT.			INT.			EXT.			TOT.			INT.			EXT.		
		LA	RC	C	LA	RC	C	LA	RC	C	LA	RC	C	LA	RC	C	LA	RC	C
	School com.	.300	.300	.099	.349	-.136	.108	.176	-.129	.075	.299	-.180	.181	.267	-.179	.144	.206	-.180	.139
	Self-regard	<b>-.361*</b>	<b>-.361*</b>	-.084	-.333	<b>-.422**</b>	-.196	<b>-.362*</b>	-.153	.023	-.280	-.155	-.113	-.328	<b>-.494**</b>	<b>-.243*</b>	-.184	-.181	.098
<b>Friends' relations</b>	Frequency	.242	-.164	-.044	.230	-.209	-.035	.265	-.085	-.036	-.291	-.140	.003	-.307	-.162	.038	-.158	-.065	.003
	Quality	.082	-.008	.076	.061	-.048	.060	.134	-.043	.095	-.190	.063	.110	-.119	-.049	.084	-.137	-.062	.166
<b>Sibling relations</b>	Warmth	-.218	-.145	.161	-.204	-.231	.150	-.224	-.063	.110	-.300	<b>-.371*</b>	<b>.255*</b>	-.167	-.253	.108	-.291	-.067	.235
	Hostility	.185	.010	.096	.214	-.036	.117	.113	.140	.047	-.132	.060	-.095	.006	.074	-.079	-.286	.069	-.003
	Rivalry	<b>.433*</b>	.081	<b>.322**</b>	<b>.395*</b>	-.019	<b>.264*</b>	<b>.426*</b>	-.034	<b>.411**</b>	.115	.018	.109	.098	.039	.124	.207	.027	.140
<b>Affective regulation</b>																			
Idealization	Self	.282	<b>-.387**</b>	-.064	.316	<b>-.363*</b>	-.024	.232	-.237	-.071	.116	<b>-.363*</b>	-.085	-.050	<b>-.389**</b>	-.187	.240	<b>-.300*</b>	.028
	Mother	-.073	<b>-.321*</b>	<b>.217*</b>	-.174	-.246	<b>.217*</b>	.007	-.232	.144	-.145	<b>-.325*</b>	.058	-.228	-.219	-.022	-.135	-.203	.084
	Father	.125	.061	.054	.163	-.144	.098	.126	.206	-.021	-.093	-.159	.029	-.082	-.053	.082	-.063	.221	-.086
Role reversal	Mother	-.260	-.090	.098	-.214	-.003	<b>.214*</b>	-.298	-.076	.044	-.114	-.072	.150	-.166	-.008	.144	.001	-.073	-.004
	Father	.101	-.146	.002	.077	-.109	.174	.065	-.065	-.086	.198	.016	.037	.006	-.017	.202	<b>.492**</b>	-.073	<b>-.235*</b>
Anger	Mother	.225	.072	.178	.116	.183	.134	.308	-.072	.155	.060	.040	.139	-.024	.081	.162	.061	-.106	.076
	Father	.148	-.025	<b>.343**</b>	.077	-.108	<b>.302**</b>	.192	-.030	<b>.320**</b>	.097	.211	.099	-.050	-.037	.126	.304	.005	.063
Derogation	Self	<b>.419*</b>	.285	.173	<b>.449**</b>	.153	.182	<b>.402*</b>	-.003	.123	<b>.396*</b>	-.062	.188	<b>.497**</b>	<b>.465**</b>	.162	.162	.169	.186
	Mother	<b>.378*</b>	.152	.098	.248	.220	.110	<b>.441*</b>	.092	.133	.059	.188	.028	-.022	.150	.060	.198	-.038	.091
	Father	.129	.055	<b>.241*</b>	.022	.084	.187	.240	.049	.198	.204	.036	.028	.049	.022	.075	<b>.367*</b>	-.016	.057
Adaptive response		-.141	-.141	.036	-.097	<b>-.386*</b>	.118	-.219	-.267	-.049	<b>-.363*</b>	<b>-.465**</b>	.092	-.283	<b>-.419**</b>	.136	-.235	-.257	.008
<b>Diff. parental repr.</b>		-.125	-.125	<b>.259*</b>	-.071	-.077	<b>.265*</b>	-.079	.015	<b>.267*</b>	.268	-.064	.031	.314	-.080	.073	.292	-.013	.048

Note: significance level with p < \*.05 and \*\*.01. <sup>1</sup>Groups: LA = late-adopted (n = 33), RC = residential-care (n = 46), C = community (n = 88). Scales: CBCL and YSR, TOT= Total score of problems, INT = Internalizing Problems, EXT= Externalizing Problems; FFI: ToM = Theory of Mind, DoF = Diversity of Feelings, Social com. = Social competence, School com = School competence, Diff. parental repr. = Differentiation parental representations

## Discussion

This research paper compares adolescents from high-risk contexts, *i.e.* late-adopted teens and those in residential care, with their community peers in terms of internalizing and externalizing problems and potential risk factors, *i.e.* attachment and alexithymia. The relationships between these variables have been explored in order to detect common or specific risk pathways across the groups.

As detailed below, overall these results have confirmed attachment insecurity and alexithymia as risk factors for total and internalizing problems in adolescents, with stronger effects in the residential-care group, who resulted more vulnerable than the other two groups to psychopathological problems, insecurity in attachment and alexithymia (Barroso et al., 2017; Bimmel et al., 2003; Di Trani et al., 2013; Manninen et al., 2011; Schleiffer & Muller, 2006; Zaccagnino et al., 2015).

### **Part I - Comparative study on internalizing and externalizing problems, attachment and alexithymia in high-risk and community adolescents (RQ<sub>1</sub>).**

The first aim of this research was to compare groups<sup>28</sup> as regards the levels of the problems, attachment and alexithymia in order to verify that Italian late-adopted and residential-care adolescents were really at higher risk in such variables when compared to their community peers, as suggested by literature (Barroso et al., 2017; Bifulco et al., 2016; Campos et al., 2019; Layne et al., 2014; Manninen et al., 2011; Paull, 2013).

#### ***Comparative study on internalizing and externalizing problems (RQ<sub>1a</sub>).***

Overall, the hypotheses were partially confirmed, as late adoptees did not show more externalizing problems than community peers, but RC adolescents showed more internalizing and externalizing problems than both the other two groups, regardless of current age, age at placement for adoption or in institution, length of placement, and type of adoption in the LA group (Barroso et al., 2017; Bimmel et al., 2003; Campos et al., 2019; Frigerio et al., 2004, 2009; Molina et al., 2014).

<sup>28</sup> Influence of demographic variables and gender differences across the groups will be discussed in Part II.



*Prevalence of internalizing and externalizing problems across groups.*

Preliminary, it should be noted that the CBCL percentage prevalence of total (17%), internalizing (11%) and externalizing problems (12%) were higher in community participants in this research compared to national epidemiological data, respectively 8.2%, 9.8% and 1.2% (Frigerio et al., 2009), due to high rates of externalizing symptoms among participants, which also exceeded the international prevalence range (4-7%; Rescorla et al., 2007a). The larger prevalence of internalizing problems was to be expected because these tend to increase with age, indeed greater scores in this scale were found in older community participants. The national rate is based mainly on data of those aged up to 14 years old, as those regarding over-15s were more fragmented, therefore older participants in this study may have raised the group prevalence, which was, however, only 1.2% over the national rate.

Instead, the prevalence of externalizing problems exceeded the national figure ten times. This is unexpected considering that more internalizing problems were found in Italian samples compared to international peers, while prevalence of externalizing was expected to be lower than the international rate, especially because this type of problem tend to decrease with age. Previous studies with Italians under 12 years old showed low rates, therefore, even lower rates were expected as a result of extending the age range up to 19 years old (Frigerio et al., 2009; Rescorla et al., 2007a). This could be due to informant bias, due to parents that tend to report more externalizing problems in adolescents, especially in girls, who indeed had higher prevalence than boys in reference to the CBCL. Conversely, both genders self-reported very low rates of externalizing problems in the YSR, 1-2%, in line with national prevalence (Frigerio et al., 2009; Rescorla et al., 2012; Handwerk et al., 2006).

With respect to high-risk groups, data on prevalence in late adoptees are largely absent in studies, preventing a substantial comparison, but overall differences with community peers in percentages prevalence were modest as regards the CBCL and weak for the YSR, also supporting the greater incidence of externalizing problems in adoptees when the informant is the adoptive

parent, as parent-reported prevalence was five times that of self-reported, 15% vs. 3% (Askeland, 2017; Barroso et al., 2017). Further, internalizing problems were prevalent with respect to externalizing. This is contrary to adoption literature, but it may reflect the general increase of internalization in 21<sup>st</sup> century generations (Bor et al., 2014). On the other hand, in residential-care adolescents externalizing problems were more prevalent than internalizing ones, regardless of the informant, confirming the prevalence of rule-breaking behaviors (64%) and anxious-depressive symptoms (40%) within the two problem syndromes. The rates of total problems, which were confirmed as very high in this group are more concerning, with 78% caregiver-reported and 84% self-reported, falling within both the Italian (60-91%) and international (40-86%) ranges (Attar-Schwartz & Fridman-Teutsch, 2018; Baker et al., 2007; Erol et al., 2010; Gearing et al., 2013; Jozefiak et al., 2016; Melkman, 2015; Morgado & Vale Dias, 2017; Pumariega et al., 1996; Rodrigues et al., 2019; Schmid et al., 2008; Segura et al., 2017; Sempik et al., 2008; Vinnakota & Kaur, 2018).

Further, adolescents showed a tendency to refer more total problems than their parents all groups, while both internalizing and externalizing problems were referred higher by the caregiver than by the adolescent (Askeland, 2017; Behle & Piquart, 2016; Bosnard et al., 2016; Gearing et al., 2014; Rescorla et al., 2007b; White, 2016). This could be due to high rates of other type of problems (not indexed in internalizing or externalizing scales), which in the ASEBA system are widely assessed with the self-report YSR but not in the parent questionnaire CBCL, for instance the identity-related problems, i.e. identity diffusion and difficulties in defining their own gender and sexual preferences, and an overall score for Other problems, inclusive of common but very salient problems such as binge drinking, which should to be prevented as they may lead to negative outcomes such as suicidality, psychiatric comorbidity and identity development. According to these results, the use of a multi-informant approach appeared beneficial, allowing to detect problems which could not have been detected using only the parent-report questionnaire (Achenbach et al., 2017; Ivarsson, Gillberg, Arvidsson, & Broberg, 2002; Kaltiala-Heino, Bergman, Työlajärvi, &

Frisén, 2018; Laghi, Liga, Baumgartner & Baiocco, 2012). In particular, 34% of residential-care adolescents referred identity problems, suggesting interventions should be developed in residential contexts with an aim to support teenagers in identity development and in topics related to sexuality, such as the *Safeguarding Young People in Care* program (Boendermaker & Walpot, 2018; Schofield, Larsson & Ward, 2016).

Lastly, it could be clinically relevant that the syndrome scale with higher prevalence in high-risk teenagers was thought problems as referred by both adoptive mothers and professional caregivers (respectively 48% and 50%). Teenagers also self-reported modest incidence (12%<sub>LA</sub> and 10%<sub>RC</sub>). This scale measures symptoms for obsessive-compulsive disorder, or psychotic ones such as hallucinations, strange thoughts, self-harm and suicidal idealization, which together with high scores of rule-breaking behaviours may increase vulnerability to further schizophrenia, therefore practitioners should design their preventive or clinical interventions taking into account high referred scores on this scale, especially in residential-care contexts where rates of rule-breaking are particularly high (Abdellaoui et al., 2012).

*Group differences in internalizing and externalizing problem scores.*

The comparison of scores partially confirmed the hypothesis for RQ<sub>1</sub>.

Contrary to expectations, late-adoptees did not show more externalizing problems than community peers, while, as expected, residential-care adolescents showed more problems than both the other two groups in all the main CBCL and YSR scales. These results therefore align with adoption studies that claimed no differences in well-being and adjustment between adoptees and community peers during adolescence, also suggesting a stable vulnerability to internalizing and externalizing problems in institutionalized minors, whether adolescents or children (Altinoğlu-dikmeer et al., 2014; Campos et al., 2019; Datta et al., 2018; Escobar et al., 2014; Groza et al., 2012; Janssens & Deboutte, 2009; Molina et al., 2014; Padmaja et al., 2014; Palacios & Broadzinsky, 2010; Schleiffer & Muller, 2003; Schimd et al., 2008; Shechory & Sommerfeld, 2007; Simsek et al., 2007; Surugiu & Moşoiu, 2013). Moreover, it is noteworthy that late-adoptees self-referred fewer

total problems than community adolescents. This seems to support the high level of perceived well-being in adoptees suggested by several national studies (Ferrari et al., 2015a, 2015b).. It may otherwise indicate defensive denial acted by the adoptee, who may reject the idea of having problems, of being "defective", due to a possible fear associated with being abandoned also by their adoptive parents (Baxter, 2001).

As regard syndrome scales, two exceptions to the general trend stand out. The first concerns higher rates of attention problems in LA compared to community peers, which can be expected as a consequence of early deprivation also common in late-adoptees, who often display special needs (Mullin & Johnson, 1999). The second is the absence of differences between RC and community teenagers in terms of anxiety, for which two possible explanations could be provided: on one hand, RC adolescents participating in this study may be more resilient in the face of anxiety symptoms, being more able to manage them, perhaps due to the positive effect of psychological or educational interventions, which 74% of them are involved in versus only 22% of community peers. On the other hand, the anxiety of the RC could find different forms of expression other than traditional anxiety symptoms. For example, anxiety may be expressed through the rule-breaking behaviors prevalent in this group, whose anxious basis is recognized by a growing number of studies (Bubier & Drabick, 2009).

In any case, all group differences were independent of other variables considered relevant in literature on high-risk groups, such as younger or older age at placement, timing of adoption or length of institutionalization and type of adoption, i.e. IA or DA, which were not influential in this study, in line with findings from a small amount of literature (Barker et al., 2007; Gearing et al. 2014; Jozefiak et al., 2016; Pace et al. 2015, 2019). Among those variables, only multiple placements have confirmed a risk factor for more problems in RC group, suggesting the preventive benefit of ensuring stable living conditions for institutionalized minors (Bollinger, 2017; Simsek et al., 2007).

***Comparative study on attachment (RQ<sub>1b</sub>).***

Overall, the multi-method comparison on attachment fully confirmed the hypotheses because late adoptees did not differ from community peers in terms of attachment in the FFI nor in the IPPA, while RC adolescents were more insecure than both the other groups, supporting the positive effect of adoption on adoptee's attachment security, while residential contexts do not seem beneficial as to improving attachment, as insecurity strongly prevails in both children and adolescents (Barroso et al., 2014; Lionetti et al., 2015; Pace et al., 2019b; Quiroga et al., 2017; Schleiffer & Muller, 2003; Steele, Hillman, Henderson, & Kaniuk, 2003; van den Dries et al., 2009; Van Ijzendoorn & Juffer, 2006; Vorria et al., 2015; Zegers, 2006). These results were regardless of the adolescent's age and verbal skills, or adoption and institutional features, with the exception of multiple placement (Lionetti et al., 2015; Pace et al., 2019a; van der Dries et al., 2009).

*Group differences in attachment distribution of categories and scores in the FFI.*

The comparison on FFI categories' distribution confirmed the overlap between late-adopted and community adolescents, and RC adolescents as more insecure and disorganized than both the other groups, as hypothesized (Pace et al., 2019b; Schleiffer & Muller, 2003; Zaccagnino et al., 2015).

More in detail, both late-adoptees and community adolescents showed percentage distributions similar to other national and international studies, with slightly higher percentages of secure classifications than in other FFI studies in similar age ranges, suggesting further comparative studies would be beneficial to the ends of testing the effective existence of such differences (Molina et al., 2015; Pace et al., 2018, 2019a).

With respect to residential-care adolescents, as hypothesized, they had mainly insecure classifications (80%), especially dismissing ones (39%), and the percentage of disorganized classifications (20%) was fivefold that of community peers and twice that of late adoptees, confirming the presence of contradictory strategies, or an absence of strategy, guiding the behavior of institutionalized children within meaningful relationships (Wallis & Steele, 2001). The positive side is that rates of security in RC participants (20%) were higher than in all cited studies with

narrative interviews in residential contexts, suggesting that the staff of the residential homes collaborating in this study may respond effectively to the attachment needs of adolescents, following national guidelines (Ministero del Lavoro e delle Politiche Sociali, 2017). The hypothesis that staff in Italian residential homes could be particularly careful in providing sensitive caregiving could be further supported by the fact that the other national study by Zaccagino et al. (2014) also found higher rates of security than international ones, in line with an apparent general tendency in Italian society to foster attachment security (Cassibba et al., 2013). However, in agreement with Pace et al. (2019b), further studies on child attachment should be performed to test this hypothesis. Otherwise, there could be a methodological explanation, as the FFI could be particularly sensitive in detecting adolescent security, given the wider range of attachment relationships inquired about compared to other attachment interviews (Pace et al., 2019b).

A comparison of FFI scores confirmed the above-mentioned results on category distribution, ratifying the expected lower security, narrative coherence and greater disorganization in RC than both the other two groups (Bifulco et al., 2016; Lionetti et al., 2015; van der Dries et al., 2009).

It also provided further information about insecurity distribution across groups: indeed, RC were more insecure and dismissing than community peers but no differences were revealed in comparison with late adoptees. In other words, late adoptees were not more dismissing than community peers, or less dismissing than residential-care ones, suggesting that traces of avoidance strategies may have remained in adopted adolescents with adverse pre-adoptive histories, although they were classified mostly as secure. From a clinical perspective, this could indicate vulnerability in late-adopted adolescents, with possible continued attachment insecurities that, if undetected, may lead to negative outcomes in adulthood, such as “emotional breakdown” observed during transitional periods in individuals who have “earned” or “developed security”, *i.e.* originally insecure during childhood, becoming secure later in life, as many late adoptees are supposed to be (Hesse & Main, 2000; Pace et al., 2019a).

Another significant result is the absence of differences among groups in the insecure-preoccupied pattern,, further supporting the hypothesis that insecurity in high-risk groups is expressed through avoidance or disorganized strategies rather than through anger, role-reversal or passivity in attachment relationships. This remains in line with population studies but also with the community trend during adolescence (Allen & Tan, 2016; Bifulco et al., 2016; Escobar et al., 2014; Groza & Muntean, 2015; Molina et al., 2015; Pace et al., 2015a; Riva Crugnola et al., 2009; Schleiffer & Muller, 2003; Simonelli & Viziello, 2009; Zegers, 2009). Perhaps, high-risk teens may also have benefited from other factors which have been helpful in managing their anger within relationships, for example, the above-mentioned involvement in interventions, or greater participation in social and sport activities promoted by both adoptive parents and residential homes, as well as the potential influence of adoptive parents and professional caregivers, due to their attachment states of mind, parental reflective functioning and levels of psychopathology and stress, which could be investigated in future studies (Campos et al., 2019; Eime, Young, Harvey, Charity & Pain, 2013; Gibson, 2009; Groza et al., 2012, 2015; Hamilton, Cheng, & Powell, 2007, Pace et al., 2015a, 2019b; Mota & Matos, 2016; Vantieghem et al., 2017; Zegers et al. 2006, 2008).

Lastly, among institutionalization variables related to attachment security, multiple placements were related to greater attachment disorganization in RC adolescents, providing further evidence of negative outcomes as a result of unstable living conditions in this group (Lionetti et al., 2015; van der Dries et al., 2009).

*Group differences in the self-reported opinions of attachment relationships with mother, father and peers, assessed with the IPPA.*

The differences found with the FFI were reflected in the conscious opinions reported by adolescents about their attachment relationships with mother, father and peers, assessed with the IPPA. Indeed, late-adopted and community adolescents did not show differences, while teenagers in residential care claimed less security, trust and communication toward their parents than both the other groups, in line with other studies with IPPA and other self-report questionnaires (Barroso et al.,

2014; 2018; McGinn, 2001; Shechory & Sommerfeld, 2007). Moreover, institutionalized adolescents reported the worst opinions of their relationships with parents despite their regular contact with them, supporting the hypothesis that some dimensions of RC experience may affect teenager satisfaction in significant relationships with parents, rather than adoption which appears to be more functional for this purpose (Barroso et al., 2014; Pace et al., 2019b; Román & Palacios, 2011; Rosnati, Iafrate, & Scabini, 2007; Van Ijzendoorn & Juffer, 2006; Vorria et al., 2015). Further, RC adolescents also reported greater alienation from peers, suggesting that they feel less involved with their peers than their counterparts, which could be a consequence of the fewer opportunities that RC teenagers have to share activities with their pre-institutionalization friends, due to curfew and control over telephone contacts to which they are subjected, usually stricter than the rules their non-institutionalized peers have to follow. This should be further investigated as linked to an increased perception of loneliness, with negative outcomes in terms of internalizing and externalizing problems and social adaptation (Han & Choi, 2006; Rather & Margoob, 2006). Otherwise, adolescents could have used the questionnaire as an opportunity to express discomfort in relation to the other children in the residential home, where cases of peer victimization are sometimes referred (Indias et al., 2019; Pinchover & Attar-Schwartz, 2014; Rather & Margoob, 2006). The IPPA did not allow us to investigate which “peers” the RC adolescents referred to in answering the questionnaire, but this should be explored in further studies because it could have different implications in practice, for example, in designing more flexible rules in residential homes, allowing residents to spend the night out with friends or friends to come over for the night, discouraging adolescents to self-stigmatize because they feel “different” because they are in RC. This, in turn, could be associated to a perception of alienation, and they could feel they do not have anything in common with friends from back home, relatives and school or work mates (Dickens, 2018; Emond, 2014; Pinchover & Attar-Schwartz, 2014; Rather & Margoob, 2006). From this perspective, the results may support the improving institutions' consideration of teenager needs regarding remaining in contact with both their parents and friends from back home, necessarily



making an effort to balance the institutional requirements of control and security with the adolescent's need for normality and social inclusion (Manful & Manful, 2014; Rather & Margoob, 2006; Rodrigues et al., 2014).

### ***Comparative study on alexithymia (RQ<sub>1c</sub>).***

Overall, the multi-method comparison on alexithymia only partially confirmed the hypotheses, as late adoptees did not differ from community peers in terms of alexithymia, while, as expected, RC adolescents showed more alexithymia than both other two groups, regardless of the assessment method (Erden, 2005; Manninen et al., 2011; Paull, 2013; Powell et al., 2011; Schimmenti & Caretti, 2018)

### ***Group differences in alexithymia TAS-20 classifications and TAS-20 and TSIA scores.***

Percentages of alexithymic classifications in the TAS-20 were higher in the residential-care group compared to the other two, and higher than all the other studies with RC adolescents (54% vs. a range of 21-45%; Manninen et al., 2011; Paull et al., 2013; Powell et al., 2011), whereas the percentage prevalence in both the late-adopted and the community group, both 16%, aligned with the national rate (18%; Gatta et al., 2014). However, considering the pooled prevalence of border alexithymic and alexithymic classifications, the prevalence in all groups is significantly higher than the literature figures (7.3 - 19.2%; Honkalampi et al., 2009; Garish et al., 2010; Uzal et al., 2018), ranging between 63% in the community group and 82% in the residential-care one, with greater prevalence of border classifications in C and LA. In other words, even if only residential-care adolescents self-referring difficulties in identifying and expressing emotions exceeded the cut-off for alexithymia, the other two groups of adolescents also self-reported emotional recognition problems. In particular, late-adoptees were not less border-alexithymic than RC, which may further enrich previous observations on attachment, as early adverse experiences in the period of interpersonal development of affective regulation may have left traces that do not allow for complete absence of alexithymia in this group (Krystal, 1988; Mauder & Hunter, 2008; Carpenter & Chung, 2011). In particular, late adoptees placed at older ages, who have, thus, spent longer time in

possible unfavourable conditions prior to adoption, showed more alexithymia, suggesting that a longer exposure to adverse environments may affect ability to recognize personal feelings, while a longer, more stable and affective care-giving during adoption may foster an adoptee's emotional understanding, as suggested by Barone & Lionetti (2011). However, given the lack of studies on alexithymia in adoptees, further studies should be performed to explore factors related to the absence of differences between late adopted and community adolescents, and the greater incidence in residential contexts with both TAS-20 and TSIA, as institutionalization features were not related to alexithymia scores, and higher levels of alexithymia at a younger age were confirmed only in the community group, in line with literature (Allen et al., 2011; Gatta et al., 2014; Pellerone et al., 2016; Prino et al., 2019; Zimmerman et al., 2007).

***Overview of gender differences: the vulnerability of girls.***

Results of comparative study suggest greater vulnerability in girls regarding all variables, and, in residential-care, girls were the sub-group most at risk.

Indeed, as hypothesized based on literature, female gender was a risk factor for internalizing problems across groups, confirming that girls are more likely to express their difficulties through anxious-depressive symptoms and somatic complains while, contrary to expectations, boys did not show more externalizing problems, probably due to the high scores showed by girls in this scale both in YSR and CBCL, as reflected also in prevalence rates, which should have levelled out the differences in all groups. Overall, this suggest that Italian adolescent girls may be more problematic than boys in different ways, showing more comorbidity regardless of the informant and other variables (Campos et al., 2019; Frigerio et al., 2004, 2009; Molina et al., 2014; Pace & Muzi, 2019a; Simsek et al., 2007). Further, only in the RC group did girls show more total problems than boys, confirming the hypothesis and supporting the observations made by Rodrigues et al. (2009), that residential contexts might not respond adequately to girls' needs, and they consequently express their discomfort through substance abuse, binge-drinking and other problems.

In terms of *attachment*, as expected, boys were more insecure-dismissing among community and residential-care adolescents, but, contrary to expectations, girls were more secure and coherent in FFI only in the community group, in line with community literature (Borelli et al., 2016; Pace et al., 2019a). Instead, high-risk girls appeared more insecure in attachment, as RC girls were more insecure-preoccupied in the FFI, being more insecure than boys also in the IPPA, and late-adopted girls showed more alienation than their male counterparts in the IPPA .

*Alexithymia* was also higher in girls of all groups, confirming the literature and completing a picture in which the female gender appears to be a factor of vulnerability in adolescents, as girls seem less able than boys to regulate their feelings and express their difficulties through channels other than psychopathological symptoms (La Ferlita et al., 2007; Manninen et al., 2011; van der Crujisen et al., 2019).

## **Part II- Independent and mutual relationships between attachment, alexithymia and the levels of internalizing or externalizing problems across groups (RQ<sub>2-4</sub>).**

The second aim of the study was to investigate shared and specific risk pathways across groups, analysing the role of attachment insecurity and alexithymia as risk predictors. As detailed below, both variables were related to adolescent problems in residential-care and community groups. Several regression models have confirmed their cumulative effect in the prediction for total (48%) and internalizing (28%) problems, with stronger negative outcomes in residential-care adolescents.

### ***Exclusive relations between attachment and internalizing problems and lack of relations in late-adopted group (RQ<sub>2</sub>).***

The relations found with the FFI only partially confirmed the hypothesis (Hp<sub>2</sub>), because attachment was differently related to internalizing and total problems in residential-care and community adolescents. Contrary to expectations, in late adoptees only the total score of self-reported problems was positively related to greater disorganization, and there was no relation with externalizing problems in any group (Escobar et al., 2014; Madigan et al., 2016; Pace et al., 2018; Vantieghem et al., 2017).

More in detail, more total and internalizing problems were referred along with greater preoccupation in both community and residential-care groups, while lower security was strongly related to more problems only in institutionalized adolescents, confirming greater psychopathological vulnerability in more preoccupied adolescents regardless of their living conditions or background, in line with meta-analytical evidence in Madigan et al. (2016), while security could act as a resilience factor in more psychologically-fragile adolescents, when adverse living conditions threaten their adaptation. In particular, lower attachment security in RC was related to caregiver and self-reported anxious-depressive symptoms and somatic complaints, in line with population literature (Bowlby, 1980; Suzuki & Tomoda, 2015). To support this hypothesis, lower scores of attachment security, trust and communication with parents and peers in the IPPA were related to more internalizing and externalizing problems in both high-risk groups but not in community adolescents.

A similar mechanism could also support the role of disorganization, which appeared along with more problems only in high-risk groups and not in all adolescents as hypothesized. Particularly, there were relations when the symptoms were self-reported, given that it was the only report also found in the adopted group (Madigan et al., 2016; Pace et al., 2018). Given the exclusive link with total problems, disorganization may be related to symptoms which are not included in internalizing and externalizing scales of CBCL and YSR, such as dissociative ones, i.e. thought problems, as bizarre contents are frequently observed along with disorganized IWMs in groups suffering for adverse childhood experiences, and coherently this type of problems was largely diffused in late adopted and institutionalized participants, but further studies on syndrome scales should be performed to substantiate this hypothesis (Pace, Zavattini & Tambelli, 2015b; Pace et al., 2018; Steele Hodges, Kaniuk, Hillman & Henderson, 2003; Vorria et al., 2006).

Instead, the levels of internalizing problems were not related to greater insecurity, in terms of dismissing, in any group, contrasting the hypothesis based on the meta-analysis of Madigan et al. (2016). However, such meta-analysis was performed in a large age range 0-17 years old and, as

regards adolescent studies, only Suzuki & Tomoda (2015) found the insecure-dismissing pattern to be a risk factor. Therefore, it could be suggested that the use of avoidant strategies of attachment does not increase (or decrease) the levels of psychopathological problems in adolescence, supporting the hypothesis that idealization or derogation of significant bonds, as well as minimization of one's own attachment needs and the insistence on the idea of being strong and independent, could be normal during adolescence, as a non-dangerous expression of a developmental separation-individuation task (Ammaniti et al., 2000; Pace et al., 2019a). Coherence was not related to adolescent problems either, contrasting findings of several community and population studies, that however employed interviews such the AAI and the CAI in which, unlike the FFI, narrative coherence is practically the only indicator of attachment security, therefore their results may have reflected the reverse relation between attachment security and psychopathology, which, moreover, was relatively weak in this study, as present in only one of three groups (Lind, Vanwoerden, Penner, & Sharp, 2019; Steele & Steele, 2005; Zegers, 2006).

With respect to the absence of links with externalizing problems, it may be observed that in the unique study (Shechory & Sommerfeld, 2007) that report links with insecure dismissing and preoccupied patterns, attachment was assessed through a self-report questionnaire, which, according to meta-analytical findings, may lead to over-estimated relations with symptoms, while other meta-analytical and population findings reported relations only with disorganization, which was very low in both late-adopted and community participants in this study, therefore, the only questionable result is the lack of relations in institutionalized adolescents (Madigan et al., 2016; Schleiffer & Muller, 2003). Considering that Zegers (2008) reported that residential-care adolescents classified as disorganized showed the lowest rates of externalizing problems, less even than secure participants, it could be suggested that aggressive and rule-breaking behaviors displayed by residential-care adolescents in this study were not due to the absence of an attachment strategy, or to the presence of incompatible and contradictory IWMs, and, in general, that attachment was not a risk factor for externalizing problems in adolescents participants in this research. Moreover, contrary to

expectations, overall attachment patterns and coherence were not related to late-adopter's problems, suggesting that other factors within significant relationships may have been related to psychopathology in this group of participants, such as perceived lower quality of relations with parents and peers, as seems to be suggested by the greater levels of total, internalizing and externalizing problems found in late-adopted participants who reported less attachment security and more alienation from mother, father and peers in the IPPA (Ferrari et al., 2015a). Another possible explanation is that the small size of the adoptee group reduced the statistical power of the analyses, reducing the possibility of finding relationships with attachment. Considering that adoptees did not differ from the larger community group, it could be hypothesized that there could be correlations similar to those found for non-adopted peers, but further studies with larger samples should be performed to support this hypothesis.

In any case, taken together the results suggest that insecurity in terms of preoccupation and the perception of alienation from parents and peers are common risk factors for total and internalizing problems in community and high-risk groups, while lower attachment security, both unconsciously reflected in FFI narratives and consciously referred in the IPPA, negatively affects levels of psychopathological symptoms only in adolescents who are already vulnerable due to early adverse relational experiences (Hesse, 2016; Mikulincer & Shaver, 2012).

***Alexithymia as related to all type of problems across the groups and the variability due to the assessment method (RQ<sub>3</sub>).***

Overall, the results of the multi-method study confirmed the hypothesis that higher levels of alexithymia are linked to more total and internalizing problems in all groups, in particular in community and residential-care adolescents, probably because there are more of them compared to adoptees, supporting the psychometric explanation mentioned above. Therefore, more alexithymic adolescents displayed more psychopathological difficulties regardless of their past living conditions, and, in particular, results confirmed elective links between alexithymia and internalizing problems (Di Trani et al., 2013; Erden, 2005; Honkalampi et al., 2009; Karukivi et al., 2010b; Gatta et al.,

2014; Paull, 2013; Pellerone et al., 2017). Moreover, as hypothesized the DIF factor also related to all types of problems in all groups, while DDF showed relations with total and internalizing problems in residential-care and community adolescents, in which the EOT factor was also related to more externalizing problems. Therefore, the results support the hypothesis that adolescents have difficulties in labelling personal emotions and somatic sensations as biographically meaningful feelings, i.e. DIF, are generally related to greater psychopathological vulnerability during adolescence (Di Trani et al., 2013; Honkalampi et al., 2009; Howe-Martin et al., 2012; Manninen et al., 2011; Paull, 2013). Specifically, when DIF co-occur with lower capacity to verbally describe feelings, which they may struggle to communicate to others, i.e. DDF, adolescents may be more prone to express their unrecognised disease through anxious-depressive symptoms and somatic complaints, or other problems such as dissociative and identity-related symptoms (Allen et al., 2011; Mannarini et al., 2016; Manninen et al., 2011; Rieffe et al., 2006, 2010; Sayar et al., 2005). Instead, when adolescents showed DIF along with a general tendency to pay attention to concrete and external aspects of experience, i.e. EOT, they may be more prone to externally express their disease through acting out, in the form of aggressive and rulebreaking behaviors, displaying a co-occurrence which is poorly reported in existing literature (e.g. Don Francesco et al., 2013; Gatta et al., 2016a, La Ferlita et al., 2007). These considerations concern all groups, suggesting alexithymia is a common risk factor despite the fact that alexithymia rates were higher in institutionalized adolescents. Indeed, relations were not stronger in high-risk groups, contradicting the hypothesis based on Schimmenti & Caretti (2018).

However, it is note-worthy that much variability has been found with the assessment method of the variables, since the majority of the relationships have been found using the TAS-20 more than the TSIA, in particular when the problems were self-reported by the adolescent in the YSR. This confirms the benefit of a mixed method approach when this construct is investigated in adolescents, in order to discourage the risk of over-estimating prevalence and relationships with psychopathology, apparently more frequent when exclusively self-report measures are used (Caretti

et al., 2011; Montebanocci & Surcinelli, 2018; Parker et al., 2010; Seleký et al., 2018). On the other hand, considering that TSIA uses particularly difficult language since it is intended for adults, and the majority of studies with adolescents used the TAS-20, showing strong concurrent validity with the TSIA, the results obtained with the self-report have been considered reliable in this study. However, the reliability of these results could be verified with future studies on TAS-20 and TSIA associations in these groups. We did not proceed as such, considering it off course.

***Mutual relationships and the cumulative effect of attachment and alexithymia in the prediction of total and internalizing problems in community and residential-care adolescents (RQ4).***

The hypothesized relations between attachment IWMs and alexithymia were confirmed only in the community group, in which lower security and coherence in attachment and greater dismissing scores in the FFI were related to higher global scores of alexithymia, as assessed with both TAS-20 and TSIA, confirming existing findings (Besharat & Khajavi, 2014; Oskis et al., 2013; Wearden et al., 2003, 2005). However, considering the wider results with both attachment measures, lower parental and peer attachment security of residential-care adolescents in the IPPA was related to higher alexithymia as well, in line with community and population studies with self-report measures, while relations with dismissal strategies were not confirmed in this group (Boisjoli et al., 2019; Cerutti et al., 2019; Paull, 2013). Focusing on factors of alexithymia, there were fragmented associations across groups and measures, preventing substantial conclusions from being reached, but overall relations suggested by literature did not seem confirmed by this study (Boisjoli et al., 2019; Cerutti et al., 2019; Oskis et al., 2013; Paull, 2013; Yearwood et al., 2017).

The lack of overlapping relations between supposed risk factors and participant problems did not allow for the hypothesizing of an interactive effect of attachment and alexithymia on internalizing and externalizing problems, while the hypothesized independent and cumulative effects on the total levels of problems and on internalizing ones were confirmed for both RC and C groups (Boisjoli et al., 2019; Wearden et al., 2003, 2005; Paull, 2013).



*Attachment disorganization and alexithymia as risk factors for the total level of problems.*

Specifically, both disorganization in attachment and alexithymia were independent predictors with moderate impact on the total level of problems, and cumulatively explained 48% of variability in problems once the effect of the group was also accounted for: in other words, both moderately increased vulnerability to psychological problems in all adolescents, but belonging to the residential-care group was the strongest risk factor, alone accounting for almost half of variability. This result may build on previous observations, supporting the idea that disorganization in attachment and difficulties in recognizing and/or communicating feelings may be more or less dangerous depending on the underlying psychological vulnerability. In low-risk contexts like the community, the risk associated with the combination of disorganization in attachment and greater alexithymia may be mitigated by a supposed larger number of resilience factors, such as the stability of the living environment and satisfactory quality of relationships with parents, as well as fewer limits on contact with peers and frequency of the same (Ferrari et al., 2015a). In contrast, as showed by literature, residential care is itself a stressful context for adolescents, as after removal from the family of origin, i.e. attachment disruption, the adolescent is supposed to seek comfort from significant adults, which is unavailable in both the family and in institutional environments because contact with family is often restricted and adolescents have difficulty relying on professional staff and creating new significant, protective relationships with them. Moreover, institutions are unstable environments with a high turnover of professional staff members. This makes the development of new attachment relationships more complex, potentially increasing adolescent psychological distress and their sense of loneliness (Bowlby, 1973; Humphreys et al., 2017; van Ijzendoorn et al., 2011; Zegers et al., 2006, 2008). The sense of alienation can further increase given that even the frequency of peer contact, which could help to restore a sense of normality, is also limited in these contexts (Han & Choi, 2006). Faced with an environment that does not provide enough protective factors and can, indeed, increase stressors, the negative impact of the aforementioned risk factors can more easily result in psychopathological onset in more

psychologically-vulnerable adolescents and, looking at the prevalence, largely in the form of dissociative symptoms, which is consistent with the vulnerability found for this type of symptoms in disorganized and/or alexithymic individuals (Capraro et al., 2014; Chen & Chung, 2016; Pace et al., 2015b; Steele et al., 2003; Vorria et al., 2006).

*Preoccupied attachment and alexithymia as risk factors for internalizing problems.*

Belonging in the residential-care group was the strongest predictor also for internalizing problems, but in this case its impact was only slightly greater than that of insecure-preoccupied attachment, another very strong predictor, while the presence of alexithymia alone had a moderate impact which was barely significant. Altogether, such variables may predict 28% of internalizing problems, suggesting that their cumulative impact could be less salient in predicting internalizing problems than other types included in the CBCL total problem scale. However, the model confirmed that involving anger, or parental role-reversal (a wish to care for the injured caregiver) or an excessive passivity within significant relationships may increase the likelihood to express disease through anxious-depressive symptoms and somatic complains, and this tendency appears favoured in adolescents with greater difficulties in identifying somatic sensations and emotions as feelings, communicating them to others in an effective way, especially when they belong to a high-risk context like residential care (Madigan et al., 2016; Zagers, 2008). From another point of view, considering that greater preoccupation in attachment was also related to greater difficulty in describing feelings in this study, we may suppose that preoccupied participants express their disease under internalizing forms, their negative emotions detrimental to the self, because their attachment IWMs set them up to focus rapidly on the almost certain belief that they know the other's feelings (often deemed to be malevolent) in the relationships, showing higher use of role reversal, thus they could have difficulties in slowing down sufficiently to calmly identify and describe their own feelings and needs.

### **Part III - The exploration of multiple dimensions assessed with the FFI (RQ5).**

A third aim of the research was to explore group differences in the dimensions investigated with the FFI subscales and their relationships with internalizing and externalizing problems. Overall, both high-risk groups have revealed difficulties in reflective functioning, friendships and sibling relationships, while only residential-care adolescents displayed difficulties in affect regulation.

All these dimensions were also related to higher levels of psychopathological problems in all groups though with different pathways, suggesting the benefit of investigating their specific contributions as possible risk factors in adolescents belonging to different contexts.

#### ***Group differences in FFI sub-scales: high-risk adolescents are vulnerable in RC, friendships and sibling relationships (RQ<sub>5a/b</sub>).***

Hypotheses of lower social skills in late-adoptees were only partially confirmed, because, as expected, late adoptees had worse representations of friendships than both the other two groups, also showing less warmth and more hostility and rivalry in sibling relationships, while they did not show less social competence and self-esteem than community peers, supporting meta-analytical evidence from studies with children (Barroso et al., 2019; Julian & McCall, 2016; Linares, 2006; Loehlin, Horn, & Ernst, 2010; Juffer & Van Ijzendoorn, 2007). Given that friendships and sibling relationships have been confirmed as vulnerable areas for late adoptees, professionals in the adoption field should offer continuous support to adoptive families in managing such relationships which, if positive, will have beneficial effects on adoptee adjustment up to adulthood (Farr, Flood, & Grotevant, 2016; Julian & McCall, 2016; Meakings, Coffey, & Shelton, 2017).

With respect to residential-care adolescents, as expected, their representations of mother and father as a secure base/safe haven were poorer than in the other two groups, which is consistent with their greater insecurity in attachment representations (Schleiffer & Muller, 2006; Zaccagnino et al., 2015; Zegers, 2008). Moreover, only this group showed the hypothesized greater use of affect regulation strategies, i.e. idealization, role-reversal, derogation and anger, and worse adaptive

responses, while late adoptees did not differ from community peers, consistent with the absence of a difference in attachment patterns (Pace et al., 2018; Riva Crugnola et al., 2009; Vorria et al., 2015).

Specifically, RC adolescents displayed more anger and derogation toward themselves and their mother, which, as regards derogation, is not surprising given the high rates of dismissing patterns, while the presence of greater anger is unexpected, as it is prerogative of the insecure-preoccupied pattern, the only pattern where there were no differences among the groups. Given that this regarded only anger directed towards the mother figure, perhaps high scores in this subscale alone were not enough to make the difference among groups significant in the wider preoccupied pattern. However, it may be helpful to focus on the relationship that residential-care adolescents have with their mothers, apparently the source (or recipient) of negative feelings which this group may alternatively express through internalizing problems, as shown by prediction models. Further, these results, along with the low level of differentiation in the parental representations in this group, seem to suggest that affect regulation strategies in RC adolescents are not directed towards the father, who could scarcely be seen as a secure base since often absent, rather than a source of negative feelings.

The effort to restore parental IWMs appears relevant because they have proved influential to peer relationships, which could be salient in residential-care like participants, who showed worse social competence, and worse representations of friendships and sibling relationships compared to community peers, similar to late-adoptees (Mota & Matos, 2013; Pallini, Baiocco, Schneider, Madigan, & Atkinson, 2018 ). Therefore, residential-care professionals may also support teenage ability to make and maintain good friends, especially considering that Mota & Matos (2013) have highlighted that friends become more relevant when there are less opportunities to rely on significant adults in residential care, and better peer relationships support teenager coping abilities and self-esteem. Instead, results on sibling relationships are more puzzling, as few studies that address the topic stressed the importance of safeguarding contact between siblings in residential-care and possibly placing them together, as it appears to lead to better outcomes for children

(Campos et al., 2019; Cavalcante, Costa, & Magalhães, 2012; Lundström & Sallnäs, 2012; Mota & Matos, 2015). However, when asked about their co-living brothers and sister, many RC participants spoke about their siblings who still lived with parents, who they saw when back home during formal visits. It could therefore be supposed that they may feel jealous about their sibling being able to stay at home, suggesting that the reasons behind such rivalry may be helpful in identifying the possible mental attributions of RC adolescents in relation to the reasons for their placement, especially when their siblings remain with the family.

Lastly, results in reflective functioning scales confirmed the hypotheses: compared to community peers, as expected, both high-risk groups lacked developmental perspective and showed less mentalization ability and ability to recognize diverse and ambivalent feelings towards the self, the mother and, confirming previously observed areas of vulnerability, the friend and the sibling(s). Comprehensively, these results support the assumption that adverse environments of origin, along with a lack of reflective parents, may inhibit the development of reflective functioning, limiting the adolescent's ability to reflect on their own states of mind, and those of others, perhaps because considering the other's perspective could be dangerous for adolescents who have often been frightened by abusive caregivers in early stages of life (Ensink et al., 2015; Fonagy & Bateman, 2016; Pace, 2014; Rosso & Airoldi, 2016). Within this framework, it is not surprising that teenagers in high-risk groups showed limited ability *“to contrast his or her current thoughts and feelings on a matter of substance [...] with past attitudes or styles of response”* (Kriss et al., 2012, p. 91), since it is probable that they reflected little or nothing on their past ways of functioning within attachment relationships, and are struggling to recognize present ones. Moreover, a lack of reflective functioning is common along with dismissing strategies, shared by LA and RC, due to defensive mechanisms, such as, lack of recall, parent idealization and attention to concrete aspects of the experience, rather than emotional ones, which could further prevent taking a developmental perspective (Rosso & Airoldi, 2016).

*Beyond attachment patterns: exploring relations among multiple domains in the FFI and adolescent internalizing and externalizing problems.*

The detection of group differences in FFI domains appears clinically relevant since links have been observed with levels of psychopathological problems in adolescents in all groups, particularly high-risk ones.

Indeed, it has been found that greater rivalry in sibling relationships is connected to all types of problems in both late-adopted and community adolescents, suggesting this vulnerability area should be afforded greater attention in the adoptive context rather than in residential care. For instance, literature has suggested different triggers for aggressive behaviors in adoptees, depending on sibling status: if biological siblings are placed for adoption together, they can be aggressive with each other as a consequence of early adverse experiences and a lack of pro-social modelling in original environments, while placement for adoption in a family with existing biological children may lead to hostility and, more probably, rivalry between adoptive siblings, as the biological child could feel displaced while the adopted child may feel inferior (Linares, 2006; Loehlin et al., 2010). Another point of view considers the same relations within the community group, according to Pace et al. (2019a), where symptoms could generally emerge due to the perception that the parent prefers the sibling(s).

Another domain of shared vulnerability in high-risk groups related to their symptoms was the RF, as the lower developmental perspective was related to more problems of all types in residential-care adolescents, while, interestingly, in late adoptees this appeared as a possible resilient factor. In other words, in RC adolescents the lack of flexibility in self-view and in one's point of view is associated with symptoms, as one might expect, while in late adoptees this seems protective against illness, possibly due to this group' identity exploration difficulties (Grotevant, 1997).

With respect to the domains of specific vulnerability in RC, the worse (or absent) representation of the father as a secure base was related to more total problems in this group, also in relation to externalizing problems in late adoptees, suggesting the benefit of addressing paternal

issues with both high-risk groups. Further, the lower the self-regard, the greater the total levels of symptoms in high-risk adolescents, assuming internalizing forms in RC, and externalizing ones in late adoptees. These results appear in line with existing population studies, suggesting that a lack of self-esteem is more likely to co-occur with psychopathological problems in high-risk groups that have been through early adverse experiences, in the form of depressive symptoms in residential contexts, while behavioral problems have been observed in adoption literature, even if adoptees do not show differences compared to community peers in this domain, as found in this study and in meta-analytical evidence (Jozefiak et al., 2017; Juffer & Van Ijzendoorn, 2007; Smith, Howard & Monroe, 2000; Suzuki & Tomoda, 2015).

Lastly, relations with scales for affect regulation substantially differ across groups: at first, maternal idealization, a prerogative of insecure-dismissing individuals where the parent is described positively without experiential memory to support the description, appeared to increase problems, particularly internalizing, in community adolescents, while in combination with the idealization of the self, this appears somehow protective for residential-care adolescents. Perhaps, in harsh environments the self-conviction of being strong, independent and normal may help dismissing individuals to keep the self integrated, preventing discomfort from coming out through internalization, while parental idealization has been considered a defensive mechanism for individuals with traumatic backgrounds (Bernstein, Laurent, Musser, Measelle, & Ablow, 2013; Muzi, Pace & Steele, *under review*). Second, albeit greater anger toward the father was found in RC compared to the other two groups, it was not related to symptoms in them, but to all types of problems in community group, together with maternal role-reversal and lower differentiation of parental representations, suggesting more problems for adolescents involved in affect regulation mechanisms as regards limiting the normative separation from parents, especially if they do not have a clear mental separation of parental figures, which could allow them to rely on one in case of conflict with the other. Also, the derogation of self and mother was related to more problems only in late-adoptees, although the group that displayed higher scores was the residential-care one. Taken

together, these results suggest that greater use of affect regulation strategies, which is a prerogative of insecurely-attached individuals, is not necessarily related to poor adjustment. Indeed, albeit used more by residential-care teens, these strategies were related to more problems mainly in the other two groups, suggesting that, in more harsh contexts, their use could be effective in regulating negative emotions and preventing the internalization or externalization of the disease. However, further studies should be performed to test this hypothesis, as few research papers seem to have addressed this topic (Abraham & Stein, 2013; bin Yaacob, 2006; Konishi & Himel, 2014).

### **Strengths, limitations and future directions**

The main strengths of this research were the use of a mixed-method and multi-informant approach, with both narrative and self-report measures, involving two high-risk groups for whom research in adolescence is scarce, as well as the development of models of risk prediction which accounted simultaneously for the role of attachment IWMs and alexithymia, the latter never having been studied in late adoptees.

However, it also has many limitations, due to the complexity of the research design and the multitude of data, resulting in the need to focus on defined objectives, favouring certain results to the detriment of others, which could provide directions for future research. The first limit was the heterogeneity of groups, as late-adoptees were mainly IA and, albeit not to a statistically-significant extent, younger than in the other two groups, while statistics in the residential-care group did not completely overlap national ones. Further, group sizes were different, with a particularly small number in the late-adopted group that may have influenced the statistical power of analyses, therefore, further studies should be performed with larger and more numerically-balanced and representative groups. Institutions could promote regional collaborations through universities, schools and social services, in order to obtain a more representative national framework of both high and low risk adolescents, as suggested by the World Mental Health [WHO] and national guidelines (Ministero del Lavoro e delle Politiche Sociali, 2017; WHO, 2013). To date, the latest data of prevalence on internalizing and externalizing problems among Italian adolescents, covering



the full range 12-18 years old, are a decade old (Frigerio et al., 2009), whereas prevalence in this study seems to support international findings suggesting an increase of internalizing and externalizing problems in adolescents over the last years, including European Mediterranean countries such as Italy, Portugal and Spain, therefore, new epidemiological studies that also consider low or high risk groups seem to be necessary (Bor et al., 2014; Gaspar de Matos, Tomé, Gaspar, Cicognani & Moreno, 2015; Sánchez-García, Lucas-Molino, Fonseca-Pedrero, Pérez-Albeniz & Paino, 2018).

Another limitation was not having investigated gender differences in the prediction of risk factors, as gender was controlled in the correlations given the preliminary nature of the study, but the higher rates of internalizing problems in girls across the groups suggest gender should be considered in future risk-assessment studies. Moreover, given the correlational design, further longitudinal studies should be performed to test the applicability of models of risk prediction developed. Further, future multi-method studies may develop the model of risk prediction also taking into account the informant effect and the method of assessment, both of which are suggested as influential according to the results and literature but have not been investigated in this study which is already dense in data, where preliminarily the use of only one measure for each variable was chosen, neglecting part of the information provided by the multi-method assessment (Rescorla et al., 2007). Lastly, the paucity of adolescence literature on alexithymia and dimensions assessed by the FFI sub-scales did not allow for a thorough, empirically-grounded discussion of the results. For instance, despite findings on the direct and indirect influence of RF on levels of internalizing and externalizing problems in both clinical and community adolescents, few studies have investigated RF in late-adopted and institutionalized children, although their vulnerability has been recognized in this area (Chow, Nolte, Cohen, Fearon, & Shmueli-Goetz, 2017; Ensink et al., 2015; McGee, Wolfe, & Olson, 2001; Taubner, White, Zimmermann, Fonagy, & Nolte, 2013; Zaccagnino et al., 2015). Future research could therefore investigate the role of these variables in high-risk groups, as the results of this study seem to suggest that it could have useful clinical implications.

## Conclusions

The general aim of this research was to explore common and specific risk trajectories for psychopathological problems in adolescents belonging to different contexts of risk, trying to outline an overall picture starting from the fragmented results of comparative, population and risk-assessment studies during adolescence.

Overall, results have confirmed that high-risk children who have been through adverse childhood experiences may show good adjustment during adolescence, without displaying differences in comparison with their community peers, if placed for adoption in stable, low-risk environments, supporting the effectiveness of adoption as an institutional form of child-care (Palacios & Broadzinsky, 2010; Molina et al., 2014; Pace et al., 2019b; Van Ijzendoorn & Juffer, 2006). Instead, placement in residential care appears related to greater vulnerability under the form of symptoms and affect regulation difficulties, despite aiming to protect the well-being of the child from the potential negative effects of dysfunctional family environments (Gearing et al., 2013; Jozefiak et al., 2016; Melkman, 2015; Rodrigues et al., 2019). According to Rodrigues et al. (2014), this measure of child-care should be redesigned, and the results suggest in a direction of greater stability, which should be ensured for the adolescents without limiting their developmental needs in relation to separation, exploration and peer contact (Dickens, 2018; Emond, 2014; Han & Choi, 2006; Manful & Manful, 2014; Pinchover & Attar-Schwartz, 2014; Rather & Margoob, 2006).

Further, the results supported the benefit of investigating adolescent attachment insecurity and alexithymia in order to design more effective assessment and intervention regarding their internalizing and externalizing problems, given that these two factors may increase risk and may also affect treatment outcomes (Terock et al., 2015; Shumaker, Deutsch & Brenninkmeyer, 2009; Zegers et al., 2008).

Over the last two decades, several interventions have been developed targeting attachment or alexithymia. For instance, the brief evidence-based attachment-oriented CONNECT© Parenting Program (CPG©; Moretti, Holland, Moore & McKay, 2004; Moretti & Braber, 2013; Moretti &

Obsuth, 2009), recently adapted for parents and professionals working with foster-care children (Moretti, Ostling & Pasalich, 2015), was effective in reducing adolescent internalizing and externalizing problems by improving their attachment with significant adults (Ozturk, Moretti & Barone, 2019), while available interventions on alexithymia targeted the construct, for example, with those with personality disorders and sex offenders, in order to indirectly reduce related symptoms, although more studies implementing alexithymia-based interventions will probably be performed (McMurrin & Jinks, 2011; Samur et al., 2013). Clinicians and professionals may try to adapt these interventions for use with adolescents from both low-risk and high-risk groups, after initial assessment which helps to establish whether these interventions are useful for their intended objectives.

Indeed, beyond the stronger specific major impact that attachment and alexithymia have shown in the residential care group, and apparently more so in girls, the combined evaluation of these dimensions can be clinically useful in every teenager. Let us look at an example, based on results: a teenager driven by a preoccupied IWM with low levels of alexithymia might not communicate personal feelings within meaningful relationships because hyperactivated in attachment contexts, but he/she might be able to identify personal feelings and communicate them verbally to a competent adult outside of an attachment relationship, for example a teacher. This situation would be less worrying than if the same teenager had both a preoccupied attachment and alexithymia: in the first case, a clinician could explore the negative affects at the base of insecurity, for instance, looking at the domains assessed in FFI sub-scales, and designing the intervention to improve the adolescent's ability to calm down in response to attachment-related triggers, enabling him/her to share the feelings in different relational situation. In the second case, it may be necessary, first of all, to support the teenager's ability to recognize and label their own emotional states, so that if he/she decide to communicate these states, possibly outside of attachment relationships, the adolescent would know how to do so, without have to express the nameless discomfort through internalizing symptoms.

For this purpose, this research has highlighted that a dimensional assessment, possibly with a multi-informant and mixed-method approach, can be very useful to get a lot of information in a short time, avoiding the possible bias deriving from the method and the source, in order to plan targeted, highly cost-effective preventive and clinical interventions. In particular, interviews may be particularly helpful in creating a relationship based on trust and collaboration with the adolescent, as well as detecting hidden vulnerabilities that, as shown by the results of the exploration in part III, may be dangerous only in certain groups and not in others, e.g. rivalry in sibling relationships and anger towards the father, suggesting the benefit of observing even groups labelled “non-clinical” through a clinical lens (Hesse & Main, 2000; Pace et al., 2019a).

## References

- Abdellaoui, A., de Moor, M. H., Geels, L. M., Van Beek, J. H., Willemsen, G., & Boomsma, D. I. (2012). Thought problems from adolescence to adulthood: Measurement invariance and longitudinal heritability. *Behavior genetics, 42*(1), 19-29. <https://doi.org/10.1007/s10519-011-9478-x>
- Abraham, K. M., & Stein, C. H. (2013). When mom has a mental illness: Role reversal and psychosocial adjustment among emerging adults. *Journal of clinical psychology, 69*(6), 600-615. <https://doi.org/10.1002/jclp.21950>.
- Achenbach, T. M. (1966). The classification of children's psychiatric symptoms: A factor-analytic study. *Psychological Monographs: General and Applied, 80*(7), 1-37. <https://doi.org/0.1037/h0093906>.
- Achenbach, T. M. (2019). International findings with the Achenbach System of Empirically Based Assessment (ASEBA): applications to clinical services, research, and training. *Child and adolescent psychiatry and mental health, 13*(1), 30. <https://doi.org/10.1186/s13034-019-0291-2>.
- Achenbach, T. M., Ivanova, M. Y., & Rescorla, L. A. (2017). Empirically based assessment and taxonomy of psychopathology for ages 1½-90+ years: Developmental, multi-informant, and multicultural findings. *Comprehensive Psychiatry, 79*, 4-18. <https://doi.org/10.1016/j.comppsy.2017.03.006>.
- Achenbach, T. M., & Rescorla, L. A. (2001). *Manual for the ASEBA school—age forms and profiles*. Burlington: University of Vermont, Research Center for Children Youth and Families.
- Ainsworth, M. D. S. (1990). Some considerations regarding theory and assessment relevant to attachments beyond infancy. In M. T., Cicchetti, D., & Cummings, E. M. (Eds.). *Attachment in the preschool years: Theory, research, and intervention*. Greenberg, (1990). University of Chicago Press. Pp. 463-488.
- Ainsworth, M. D. S., Blehar, M. C., In Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the strange situation*. Oxford, England: Lawrence Erlbaum.
- Akpunne, B. (2017). Domestic Violence Influence on Psychological Distress among Institutionalized Adolescents. *International Journal of Research in Economics and Social Sciences (7)*, 28 -44. <https://www.researchgate.net/publication/320173403> ISSN(o): 2249-7382
- Allen, J. P., & Tan, J. (2016). The multiple facets of attachment in adolescence. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment, third edition: theory, research, and clinical applications* (pp. 399-415). New York, NY: Guilford press.
- Allen, L. B., Lu, Q., Tsao, J. C., Hayes, L. P., & Zeltzer, L. K. (2011). Depression partially mediates the relationship between alexithymia and somatization in a sample of healthy children. *Journal of Health Psychology, 16*(8), 1177-1186. <https://doi.org/10.1177/1359105311402407>.
- Alloy, L. B., Hamilton, J. L., Hamlat, E. J., & Abramson, L. Y. (2016). Pubertal development, emotion regulatory styles, and the emergence of sex differences in internalizing disorders and symptoms in adolescence. *Clinical Psychological Science, 4*(5), 867-881. <https://doi.org/10.1177/2167702616643008>.
- Altinoglu-dikmeer, I., Erol, N., & Gencoz, T. (2014). Emotional and behavioral problems associated with attachment security and parenting style in adopted and non-adopted children. *Turk psikiyatri dergisi, 25*. 234-43. <https://doi.org/10.5080/u7587>.

Ammaniti, M., van IJzendoorn, M. H., Speranza, A. M., & Tambelli, R. (2000). Internal working models of attachment during late childhood and early adolescence: an exploration of stability and change. *Attachment & Human Development, 2*(3), 328-346. <https://doi.org/10.1080/14616730010001587>.

Armsden, G. C., & Greenberg, M. T. (1987). The inventory of parent and peer attachment: individual differences and their relationship to psychological well-being in adolescence. *Journal of Youth and Adolescence, 16*(5), 427–454. <https://doi.org/10.1007/BF02202939>.

Askeland, K. G., Hysing, M., La Greca, A. M., Aarø, L. E., Tell, G. S., & Sivertsen, B. (2017). Mental health in internationally adopted adolescents: A meta-analysis. *Journal of the American Academy of Child & Adolescent Psychiatry, 56*(3), 203-213. <https://doi.org/10.1016/j.jaac.2016.12.009>.

Attar-Schwartz, S., & Fridman-Teutsch, A. (2018). Father support and adjustment difficulties among youth in residential care: The moderating role of peer victimization and gender. *American Journal of Orthopsychiatry, 88*(6), 701. <https://doi.org/10.1037/ort0000287>

Autorità Garante dell'Infanzia e l'Adolescenza (2015). *La tutela dei minorenni in comunità*. Retrieved from <https://www.garanteinfanzia.org/sites/default/files>

Bagby, R. M., Parker, J. D., & Taylor, G. J. (1994). The twenty-item Toronto Alexithymia Scale—I. Item selection and cross-validation of the factor structure. *Journal of psychosomatic research, 38*(1), 23-32. [https://doi.org/10.1016/0022-3999\(94\)90005-1](https://doi.org/10.1016/0022-3999(94)90005-1)

Bagby, R. M., Taylor, G. J., Parker, J. D., & Dickens, S. E. (2006). The development of the Toronto Structured Interview for Alexithymia: item selection, factor structure, reliability and concurrent validity. *Psychotherapy and psychosomatics, 75*(1), 25-39. <https://doi.org/10.1159/000089224>.

Baker, A. J. L., Archer, M., & Curtis, P. (2007). Youth Characteristics Associated with Behavioral and Mental Health Problems During the Transition to Residential Treatment Centers: The Odyssey Project Population. *Child Welfare, 86*(6), 5–29.

Bakermans-Kranenburg, M. J., & van IJzendoorn, M. H. (2009a). The first 10,000 Adult Attachment Interviews: distributions of adult attachment representations in clinical and non-clinical groups. *Attachment & Human Development, 11*(3), 223–263. <https://doi.org/10.1080/14616730902814762>.

Bakermans-Kranenburg, M., & Van IJzendoorn, M. (2009b). No reliable gender differences in attachment across the lifespan. *Behavioral and Brain Sciences, 32*(1), 22–23. <https://doi.org/10.1017/S0140525X0900003X>.

Ballarotto, G., Porreca, A., Erriu, M., Ronconi, L., Cimino, S., Cerniglia, L., & Tambelli, R. (2017). Does alexithymia have a mediating effect between impulsivity and emotional-behavioural functioning in adolescents with binge eating disorder?. *Clinical Neuropsychiatry, 14*(4) 247-256.(Giovanni Fioriti Eds).

Balottin, L., Nacinovich, R., Bomba, M., & Mannarini, S. (2014). Alexithymia in parents and adolescent anorexic daughters: comparing the responses to TSIA and TAS-20 scales. *Neuropsychiatric disease and treatment, 10*, 1941. <https://doi.org/10.2147/NDT.S67642>.

Barbasio, C., & Granieri, A. (2013). Emotion regulation and mental representation of attachment in patients with systemic lupus erythematosus: a study using the Adult Attachment Interview. *The Journal of nervous and mental disease, 201*(4), 304-310. <https://doi.org/doi:10.1097/NMD.0b013e318288e215>

Barcons, N., Abrines, N., Brun, C., Sartini, C., Fumadó, V., & Marre, D. (2012). Social relationships in children from intercountry adoption. *Children and Youth Services Review*, 34(5), 955–961. <https://doi.org/10.1016/j.childyouth.2012.01.028>.

Barcons, N., Abrines, N., Brun, C., Sartini, C., Fumadó, V., & Marre, D. (2014). Attachment and adaptive skills in children of international adoption. *Child and Family Social Work*. <https://doi.org/10.1111/j.1365-2206.2012.00883.x>.

Barone, L., & Lionetti, F. (2012). Attachment and emotional understanding: a study on late-adopted pre-schoolers and their parents. *Child: care, health and development*, 38(5), 690-696. <https://doi.org/10.1111/j.1365-2214.2011.01296.x>

Barroso, R., Barbosa-Ducharme, M., Coelho, V., Costa, I. S., & Silva, A. (2017). Psychological adjustment in intercountry and domestic adopted adolescents: A systematic review. *Child and Adolescent Social Work Journal*, 34(5), 399-418. <https://doi.org/10.1007/s10560-016-0485-x>.

Barroso, R., Barbosa-Ducharme, M., & Coelho, V. (2018). Portuguese adopted adolescents' perception of attachment relationships to parents. *Child & Family Social Work*, 23(2), 204-211. <https://doi.org/10.1111/cfs.12401>.

Basile, G., Monniello, G., & Quadrana, L. (2009). Alessitimia e disturbi di personalità in adolescenza. *Psichiatria dell'infanzia e dell'adolescenza*, 76(3), 1000-1019. <https://doi.org/10.1400/164458>.

Batki, A. (2017). The impact of early institutional care on emotion regulation: studying the play narratives of post-institutionalized and early adopted children. *Early Child Development and Care*, 188(12), 1801-1815. <https://doi.org/10.1080/03004430.2017.1289190>.

Baxter, C. (2001). Understanding adoption: A developmental approach (2001). *Paediatrics & child health*, 6(5), 281–291. <https://doi.org/10.1093/pch/6.5.281>.

Behle, A. E., & Pinquart, M. (2016). Psychiatric disorders and treatment in adoptees: A meta-analytic comparison with non-adoptees. *Adoption Quarterly*, 19(4), 284-306. <https://doi.org/10.1080/10926755.2016.1201708>.

Belsky, J., & Fearon, R. M. P. (2008). Precursors of attachment security. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 295-316). New York, NY, US: The Guilford Press.

Berenbaum, H. (1996). Childhood abuse, alexithymia and personality disorder. *Journal of psychosomatic research*, 41(6), 585-595. [https://doi.org/10.1016/S0022-3999\(96\)00225-5](https://doi.org/10.1016/S0022-3999(96)00225-5).

Berenbaum, H., & Irvin, S. (1996). Alexithymia, anger, and interpersonal behaviour *Psychotherapy and psychosomatics*, 65(4), 203-208. <https://doi.org/10.1159/000289076>.

Berger, S. S., Elliott, C., Ranzenhofer, L. M., Shomaker, L. B., Hannallah, L., Field, S. E., & Tanofsky-Kraff, M. (2014). Interpersonal problem areas and alexithymia in adolescent girls with loss of control eating. *Comprehensive psychiatry*, 55(1), 170-178. <https://doi.org/10.1016/j.comppsycho.2013.08.005>.

Bermond, B., Bierman, D. J., Cladder, M. A., Moormann, P. P., & Vorst, H. C. (2010). The cognitive and affective alexithymia dimensions in the regulation of sympathetic responses. *International Journal of Psychophysiology*, 75(3), 227-233. <https://doi.org/10.1016/j.ijpsycho.2009.11.004>.

- Bermond, B., Moormann, P.P., Albach, F., et al. (2008). Impact of severe childhood sexual abuse on the development of alexithymia in adulthood. *Psychotherapy and Psychosomatics*, 77, 260–262. <https://doi.org/10.1159/000128167>.
- Bernstein, R. E., Laurent, H. K., Musser, E. D., Measelle, J. R., & Ablow, J. C. (2013). In an idealized world: Can discrepancies across self-reported parental care and high betrayal trauma during childhood predict infant attachment avoidance in the next generation?. *Journal of Trauma & Dissociation*, 14(5), 529-545. <https://doi.org/10.1080/15299732.2013.773476>.
- Bick, J., Luyster, R., Fox, N. A., Zeanah, C. H., & Nelson, C. A. (2017). Effects of early institutionalization on emotion processing in 12-year-old youth. *Development and Psychopathology* 29(5):1749-1761. <https://doi.org/10.1017/S0954579417001377>.
- Bifulco, A., Jacobs, C., Ilan-Clarke, Y., Spence, R., & Oskis, A. (2016). Adolescent attachment style in residential care: the attachment style interview and vulnerable attachment style questionnaire. *British Journal of Social Work*, 47(7), 1870-1883. <https://doi.org/10.1093/bjsw/bcw117>.
- Bifulco, A., Moran, P. M., Ball, C., & Bernazzani, O. (2002). Adult attachment style. I: Its relationship to clinical depression. *Social psychiatry and psychiatric epidemiology*, 37(2), 50-59. <https://doi.org/10.1007/s127-002-8215-0>,
- Bimmel, N., Juffer, F., Van IJzendoorn, M. H., & Bakermans-Kranenburg, M. J. (2003). Problem behavior of internationally adopted adolescents: A review and meta-analysis *Harvard Review of Psychiatry*, 11(2), 64-77. <https://doi.org/10.1080/10673220303955>.
- bin Yaacob, M. J. (2006). Parent-adolescent relationships and its association to adolescents' self-esteem. *The Malaysian journal of medical sciences* 13(1), 21.
- Blaze, J., Asok, A., & Roth, T. L. (2015). The long-term impact of adverse caregiving environments on epigenetic modifications and telomeres. *Frontiers in Behavioral Neuroscience* 8 (9), 79. <https://doi.org/10.3389/fnbeh.2015.00079>.
- Boisjoli, C., Hébert, M., Gauthier-Duchesne, A., & Caron, P. O. (2019). A mediational model linking perceptions of security, alexithymia and behavior problems of sexually abused children. *Child abuse & neglect*, 92, 66-76. <https://doi.org/10.1016/j.chiabu.2019.03.017>.
- Bollinger, J. (2017). Examining the complexity of Placement Stability in Residential Out of Home Care in Australia: How important is it for facilitating good outcomes for young people?. *Scottish Journal of Residential Child Care*, 16(2). ISSN 1478 - 1840
- Bor, W., Dean, A. J., Najman, J., & Hayatbakhsh, R. (2014). Are child and adolescent mental health problems increasing in the 21st century? A systematic review. *Australian & New Zealand journal of psychiatry*, 48(7), 606-616. <https://doi.org/10.1177/0004867414533834>
- Borelli, J. L., Somers, J., West, J. L., Coffey, J. K., De Los Reyes, A., & Shmueli-Goetz, Y. (2016). Associations between attachment narratives and self-report measures of attachment in middle childhood: extending evidence for the validity of the child attachment interview. *Journal of Child and Family Studies*, 25(4), 1235–1246. <https://doi.org/10.1007/s10826-015-0310-8>.
- Bowlby, J. (1944) Fourty-four juvenile thieves: their characters and home-life (II). *International Journal of Psycho-Analysis*, 25, 107–128.



Bowlby, J. (1951). Maternal care and mental health. *Bulletin of the World Health Organization*. <https://doi.org/10.2307/3348276>

Bowlby, J. (1958). The nature of the child's tie to his mother. *International Journal of Psychoanalysis*, 39, 350-371.

Bowlby, J. (1969). *Attachment and loss. Vol.1 : attachment* . New York, NY: Basic Books.

Bowlby, J. (1973). *Attachment and loss. Vol.2 : Separation, anxiety and anger*. New York, NY: Basic Books.

Bowlby, J. (1980). *Attachment and loss. Vol.3: loss, sadness and depression* . New York, NY: Basic Books.

Bowlby, J. (1982). Attachment and loss: retrospect and prospect. *American Journal of Orthopsychiatry*, 52(4), 664. <https://doi.org/10.1111/j.1939-0025.1982.tb01456.x>.

Bowlby, J., (1988). *A secure base. Parent-child attachment and healthy human development*. New York, NY: Basic Books.

Bressi, C., Taylor, G., Parker, J., Bressi, S., Brambilla, V., Aguglia, E., ... & Todarello, O. (1996). Cross validation of the factor structure of the 20-item Toronto Alexithymia Scale: an Italian multicenter study. *Journal of psychosomatic research*, 41(6), 551-559.

Bronsard, G., Alessandrini, M., Fond, G., Loundou, A., Auquier, P., Tordjman, S., & Boyer, L. (2016). The prevalence of mental disorders among children and adolescents in the child welfare system: A systematic review and meta-analysis. *Medicine*, 95(7). <https://doi.org/10.1097/MD.0000000000002622>.

Calaresi, D., & Barberis, N. (2019). The Relationship between Reflective Functioning and Alexithymia. *Journal of Clinical & Developmental Psychology*, 1(2). <http://dx.doi.org/10.6092/2612-4033/0110-2107>

Campos, J., Barbosa-Ducharne, M., Dias, P., Rodrigues, S., Martins, A. C., & Leal, M. (2019). Emotional and Behavioral Problems and Psychosocial Skills in Adolescents in Residential Care. *Child and Adolescent Social Work Journal*, 36(3), 237–246. <https://doi.org/10.1007/s10560-018-0594-9>

Craparo, G., Faraci, P., & Gori, A. (2015). Psychometric properties of the 20-item Toronto Alexithymia Scale in a group of Italian younger adolescents. *Psychiatry investigation*, 12(4), 500. <https://doi.org/10.4306/pi.2015.12.4.500>

Craparo, G., Gori, A., Petruccioli, I., Cannella, V., & Simonelli, C. (2014). Intimate partner violence: relationships between alexithymia, depression, attachment styles, and coping strategies of battered women. *The journal of sexual medicine*, 11(6), 1484-1494. <https://doi.org/10.1111/jsm.12505>.

Caretti, V., Porcelli, P., Solano, L., Schimmenti, A., Bagby, R. M., & Taylor, G. J. (2011). Reliability and validity of the Toronto Structured Interview for Alexithymia in a mixed clinical and nonclinical sample from Italy. *Psychiatry research*, 187(3), 432-436. <https://doi.org/10.1016/j.psychres.2011.02.015>

Carpenter, L. & Chung, M. C. (2011). Childhood trauma in obsessive compulsive disorder: The roles of alexithymia and attachment. *Psychology and Psychotherapy: Theory, Research and Practice*, 84 367-388. <https://doi.org/10.1111/j.2044-8341.2010.02003.x>

Cassibba, R., Sette, G., Bakermans-Kranenburg, M. J., & van IJzendoorn, M. H. (2013). Attachment the Italian way. *European Psychologist*, 18(1), 47–58. <https://doi.org/10.1027/1016-9040/a000128>.

Castelli, M., Di Lorenzo, M., Maggiolini, A., & Ricci, L. (2016). L'efficacia delle comunità di accoglienza. *Minorigiustizia*, 4, 214-222. <https://doi.org/10.3280/MG2016-004021>

Cavalcante, L. I. C., Costa, L. N., & Magalhães, C. M. C. (2012). Caretaking Behavior among Siblings in Children's Shelters. *Psychology: Reflection and Criticism*, 25, 165-173. <http://dx.doi.org/10.1590/s0102-79722012000100020>

Cavallo, F., Lemma, P., Dalmaso, P., Vieno, A., Lazzeri, G., Galeone, D. & the Italian HBSC group (2014). *Report nazionale dati HBSC Italia 2014*. Retrieved from: [http://www.hbsc.unito.it/it/images/pdf/hbsc/report\\_nazionale\\_2014.comp.pdf](http://www.hbsc.unito.it/it/images/pdf/hbsc/report_nazionale_2014.comp.pdf)

Cavallo, F., Zambon, A., Borraccino, A., Raven-Sieberer, U., Torsheim, T., & Lemma, P. (2006). Girls growing through adolescence have a higher risk of poor health. *Quality of Life Research*, 15(10), 1577-1585. doi: 10.1007/s11136-006-0037-5

Cavanna, D., Bizzi, F., San Martini, P., & Castellano, R. (2018). La Child Attachment Interview: un'indagine psicometrica su un campione italiano. *Psicologia clinica dello sviluppo*, 22(1), 115-142. <https://doi.org/10.1449/89588>

Cerniglia, L., Silvia, C., Giulia, B., & Renata, T. (2016). Do parental traumatic experiences have a role in the psychological functioning of early adolescents with binge eating disorder?. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity*, 21(4), 635-644. <https://doi.org/10.1007/s40519-016-0303-7>

Cerutti, R., Zuffianò, A., & Spensieri, V. (2018). The Role of Difficulty in Identifying and Describing Feelings in Non-Suicidal Self-Injury Behavior (NSSI): Associations With Perceived Attachment Quality, Stressful Life Events, and Suicidal Ideation. *Frontiers in psychology*, 9, 318. <https://doi.org/10.3389/fpsyg.2018.00318>

Chaplin, T. M., & Aldao, A. (2013). Gender differences in emotion expression in children: a meta-analytic review. *Psychological bulletin*, 139(4), 735. <https://doi.org/10.1037/a0030737>

Chen, Z. S., & Chung, M. C. (2016). The relationship between gender, posttraumatic stress disorder from past trauma, alexithymia and psychiatric co-morbidity in Chinese adolescents: a moderated mediational analysis. *Psychiatric Quarterly*, 87(4), 689-701. <https://doi.org/10.1007/s11126-016-9419-1>

Chow, C. C., Nolte, T., Cohen, D., Fearon, R. M., & Shmueli-Goetz, Y. (2017). Reflective functioning and adolescent psychological adaptation: The validity of the Reflective Functioning Scale-Adolescent Version. *Psychoanalytic Psychology*, 34(4), 404. <https://psycnet.apa.org/doi/10.1037/pap0000148>

Chistolini M., a cura di (2006). *Scuola e adozione: linee guida e strumenti per operatori, insegnanti, genitori* (Vol. 207). FrancoAngeli, Milano.

Cohen, P., Cohen, J., Kasen, S., Velez, C. N., Hartmark, C., Johnson, J., ... & Streuning, E. L. (1993). An epidemiological study of disorders in late childhood and adolescence—I. Age- and gender-specific prevalence. *Journal of child psychology and psychiatry*, 34(6), 851-867.

Costello, E. J., Mustillo, S., Erkanli, A., Keeler, G., & Angold, A. (2003). Prevalence and development of psychiatric disorders in childhood and adolescence. *Archives of general psychiatry*, 60(8), 837-844. <https://doi.org/10.1001/archpsyc.60.8.837>

Craparo, G., Gori, A., Petruccioli, I., Cannella, V. & Simonelli, C. (2014). Intimate partner violence: Relationships between alexithymia, depression, attachment styles, and coping strategies of battered women. *Journal of Sexual Medicine*, 11, 1484-1494. <https://doi.org/10.1111/jsm.12505>

Crijnen, A.A.M., Achenbach, T.M., & Verhulst, F.C. (1997). Comparisons of problem reported by parents of children in 12 cultures: Total problems, externalizing, and internalizing. *Journal of the American Academy of Child and Adolescent Psychiatry*, 36, 1269–1277.

Crijnen, A.A.M., Achenbach, T.M., & Verhulst, F.C. (1999). Problems reported by parents of children in multiple cultures: The Child Behavior Checklist syndrome constructs. *American Journal of Psychiatry*, 156, 569–574.

De Rick, A., & Vanheule, S. (2006). The relationship between perceived parenting, adult attachment style and alexithymia in alcoholic inpatients. *Addictive behaviors*, 31(7), 1265-1270. <https://doi.org/10.1016/j.addbeh.2005.08.010>

Di Trani, M., Presaghib, F., Renzia, A., Greenmanc, P. S., & Solano, L. (2018). The Italian Version of the Alexithymia Questionnaire for Children (AQC): factor structure and reliability La versione italiana dell'Alexithymia Questionnaire for Children (AQC): struttura fattoriale e attendibilità. *Rassegna di Psicologia*, 35(2), 47-60.

Di Trani, M., Renzi, A., Vari, C., Zavattini, G. C., & Solano, L. (2017). Gambling disorder and affect regulation: The role of alexithymia and attachment style. *Journal of gambling studies*, 33(2), 649-659. <https://doi.org/10.1007/s10899-016-9637-3>

Di Trani, M., Tomassetti, N., Capozzi, F., Solano, L., Romani, M., & Levi, G. (2013). Alessitimia, sintomatologia internalizzante, esternalizzante ed ossessivo-compulsiva in pre-adolescenza: studio empirico su 160 soggetti. *Rassegna Di Psicologia*, 30(3), 77-94. <https://doi.org/10.7379/75666>

D'Orlando, F., Grassi, M., & Di Blas, L. (2010). Uno studio di validazione del CBCL/6-18 e del TRF/6-18 nella tarda infanzia. *Giornale Italiano Di Psicologia*, 37(4), 919–944. <https://doi.org/10.1421/33434>

Darwin, C. (1859). *On The Origin of Species by Means of Natural Selection, or Preservation of Favoured Races in the Struggle for Life*. London : John Murray.

Datta, P., Ganguly, S., & Roy, B. N. (2018). The prevalence of behavioral disorders among children under parental care and out of parental care: A comparative study in India. *International Journal of Pediatrics and Adolescent Medicine*, 5(4), 145-151. <https://doi.org/10.1016/j.ijpam.2018.12.001>.

Deborde, A. S., Miljkovitch, R., Roy, C., Dugré-Le Bigre, C., Pham-Scottez, A., Speranza, M., & Corcos, M. (2012). Alexithymia as a mediator between attachment and the development of borderline personality disorder in adolescence. *Journal of Personality Disorders*, 26(5), 676-688. <https://doi.org/10.1521/pedi.2012.26.5.676>

Dipartimento Giustizia minorile e di comunità, servizio statistica (2019). *Dati statistici relativi all'adozione negli anni dal 2000 al 2018*. Retrived from: [http://www.centrostudinisida.it/Statistica/Analisi/adozione\\_serie\\_storiche.pdf](http://www.centrostudinisida.it/Statistica/Analisi/adozione_serie_storiche.pdf)

Doyle, C., & Cicchetti, D. (2017). From the Cradle to the Grave: The Effect of Adverse Caregiving Environments on Attachment and Relationships Throughout the Lifespan. *Clinical psychology : a publication of the Division of Clinical Psychology of the American Psychological Association*, 24(2), 203–217. <https://doi.org/10.1111/cpsp.12192>

Donfrancesco, R., Di Trani, M., Gregori, P., Auguanno, G., Melegari, M. G., Zaninotto, S., & Luby, J. (2013). Attention-deficit/hyperactivity disorder and alexithymia: a pilot study. *ADHD Attention Deficit and Hyperactivity Disorders*, 5(4), 361-367. <https://doi.org/10.1007/s12402-013-0115-9>.

Dorard, G., Berthoz, S., Haviland, M. G., Phan, O., Corcos, M., & Bungener, C. (2008). Multimethod alexithymia assessment in adolescents and young adults with a cannabis use disorder. *Comprehensive Psychiatry*, 49(6), 585-592. <https://doi.org/10.1016/j.comppsy.2008.05.001>.

Dozier, M., & Rutter, M. (2016). Challenges to the development of attachment relationships faced by young children in foster and adoptive care. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of Attachment; Theory, research and clinical applications* (3rd ed., pp. 698–717). New York: The Guildford Press.

Dixon, W. J. (1980). Efficient analysis of experimental observations. *Annual review of pharmacology and toxicology*, 20(1), 441-462.10. <https://doi.org/1146/annurev.pa.20.040180.002301>

Eastabrook, J. (2013). *Emotional awareness and alexithymia: Emotional processing and regulation in adolescence* (Doctoral dissertation, Queen's University, Kingston, Canada). Retrieved from: [https://qspace.library.queensu.ca/bitstream/handle/1974/8061/Eastabrook\\_Jennifer\\_M\\_201305\\_PHD.pdf?sequence=1&isAllowed=y](https://qspace.library.queensu.ca/bitstream/handle/1974/8061/Eastabrook_Jennifer_M_201305_PHD.pdf?sequence=1&isAllowed=y)

Eichhorn, S., Brähler, E., Franz, M., et al. (2014). Traumatic experiences, alexithymia, and posttraumatic symptomatology: A cross-sectional population-based study in Germany. *European Journal of Psychotraumatology*, 5. <https://doi.org/10.3402/ejpt.v5.23870>

Ensink, K., Normandin, L., Target, M., Fonagy, P., Sabourin, S., & Berthelot, N. (2015). Mentalization in children and mothers in the context of trauma: An initial study of the validity of the Child Reflective Functioning Scale. *British Journal of Developmental Psychology*, 33(2), 203-217. <https://doi.org/10.1111/bjdp.12074>

Erden, D. (2005). Relationship Between Unlike Grow up Conditions and Alexithymia, Depression, Psychopathology. *Journal of Clinical Psychiatry*, 8(2), 60-66.

Erol, N., Simsek, Z., & Münir, K. (2010). Mental health of adolescents reared in institutional care in Turkey: challenges and hope in the twenty-first century. *European child & adolescent psychiatry*, 19(2), 113-124. <https://doi.org/10.1007/s00787-009-0047-2>

Erskine, H. E., Baxter, A. J., Patton, G., Moffitt, T. E., Patel, V., Whiteford, H. A., & Scott, J. G. (2017). The global coverage of prevalence data for mental disorders in children and adolescents. *Epidemiology and psychiatric sciences*, 26(4), 395-402. <https://doi.org/10.1017/S2045796015001158>

Esbjørn, B. H., Breinholst, S., Kriss, A., Hald, H. H., & Steele, H. (2015). Can attachment and peer relation constructs predict anxiety in ethnic minority youths? A longitudinal exploratory study. *Attachment & Human Development*, 17(6), 599-614. <https://doi.org/10.1080/14616734.2015.1093699>

Escobar, M. J., Pereira, X., & Santelices, M. P. (2014). Behavior problems and attachment in adopted and non-adopted adolescents. *Children and Youth Services Review*, 42, 59–66. <https://doi.org/10.1016/j.childyouth.2014.04.001>.

Escobar, M. J., & Santelices, M. P. (2013). Attachment in adopted adolescents. National adoption in Chile. *Children and Youth Services Review*, 35(3), 488–492. <https://doi.org/10.1016/j.childyouth.2012.12.011>

Evren, C., Evren, B., Dalbudak, E., Ozcelik, B., & Oncu, F. (2009). Childhood abuse and neglect as a risk factor for alexithymia in adult male substance dependent inpatients. *Journal of Psychoactive Drugs*, 41(1), 85-92.

Faber, A. J., Edwards, A. E., Bauer, K. S., & Wetchler, J. L. (2003). Family structure: Its effects on adolescent attachment and identity formation. *The American Journal of Family Therapy*, 31(4), 243-255. <https://doi.org/10.1080/01926180390201945>

Fagan, M. (2011). Relational trauma and its impact on late-adopted children. *Journal of Child Psychotherapy*, 37(2), 129-146. <https://doi.org/10.1080/0075417X.2011.581467>

- Farr, R. H., Flood, M. E., & Grotevant, H. D. (2016). The role of siblings in adoption outcomes and experiences from adolescence to emerging adulthood. *Journal of Family Psychology, 30*(3), 386. <https://doi.org/10.1037/fam0000173>
- Feeney, J., Noller, P., & Hanrahan, M. (1994). Assessing adult attachment. In M. B. Sperling, & W. H. Berman (Eds.), *Attachment in adults* (pp. 128-151). New York: The Guilford Press.
- Ferrari, L., Ranieri, S., Barni, D., & Rosnati, R. (2015a). Parent-child relationship and adoptees' psychological well-being in adolescence and emerging adulthood: Disentangling maternal and paternal contribution. *Family Science, 6*(1), 77-86. <https://doi.org/10.1080/19424620.2015.1081005>
- Ferrari, L., Rosnati, R., Manzi, C., & Benet-Martínez, V. (2015b). Ethnic identity, bicultural identity integration, and psychological well-being among transracial adoptees: A longitudinal study. *New directions for child and adolescent development, 2015*(150), 63-76. <https://doi.org/10.1002/cad.20122>.
- Fonagy, P., & Bateman, A. W. (2016). Adversity, attachment, and mentalizing. *Comprehensive psychiatry, 64*, 59-66. <https://doi.org/10.1016/j.comppsy.2015.11.006>
- Fonagy, P., Gergely, G., Jurist, E.L., Target, M. (2002). *Affect Regulation, Mentalization, and the Development of the Self*. New York: Other Press.
- Fonagy, P., & Target, M. (1997). Attachment and reflective function: Their role in self-organization. *Development and psychopathology, 9*(4), 679-700.
- Fonagy, P., Target, M., Steele, H., & Steele, M. (1998). Reflective-functioning manual, version 5.0, for application to adult attachment interviews. London: University College London, 161-2.
- Ford, T., Goodman, R., & Meltzer, H. (2003). The British child and adolescent mental health survey 1999: the prevalence of DSM-IV disorders. *Journal of the American academy of child & adolescent psychiatry, 42*(10), 1203-1211. <https://doi.org/10.1097/00004583-200310000-00011>
- Fossati, A., Acquarini, E., Feeney, J. A., Borroni, S., Grazioli, F., Giarolli, L. E., ... & Maffei, C. (2009). Alexithymia and attachment insecurities in impulsive aggression. *Attachment & Human Development, 11*(2), 165-182. <https://doi.org/10.1080/14616730802625235>
- Frewen, P. A., Dozois, D. J., Neufeld, R. W., & Lanius, R. A. (2008). Meta-analysis of alexithymia in posttraumatic stress disorder. *J. Traum. Stress, 21*. 243-246. <https://doi.org/10.1002/jts.20320>
- Frigerio, A., & Montirosso, R. (2002). La valutazione su base empirica dei problemi emotivo-comportamentali in età evolutiva. *Infanzia e adolescenza, 1*(1), 38-48.
- Frigerio, A., Cattaneo, C., Cataldo, M., Schiatti, A., Molteni, M., & Battaglia, M. (2004). Behavioral and emotional problems among Italian children and adolescents aged 4 to 18 years as reported by parents and teachers. *European Journal of Psychological Assessment, 20*(2), 124-133. <https://doi.org/10.1027/1015-5759.20.2.124>
- Frigerio, A., Rucci, P., Goodman, R., Ammaniti, M., Carlet, O., Cavolina, P., ... & Martinuzzi, A. (2009). Prevalence and correlates of mental disorders among adolescents in Italy: the PrISMA study. *European child & adolescent psychiatry, 18*(4), 217-226. <https://doi.org/10.1007/s00787-008-0720-x>

- Gao, W., Zhao, J., Li, Y., & Cao, F. L. (2015). Post-traumatic stress disorder symptoms in first-time myocardial infarction patients: roles of attachment and alexithymia. *Journal of advanced nursing*, *71*(11), 2575-2584. <https://doi.org/10.1111/jan.12726>
- Garisch, J. A. and Wilson, M. S. (2010), Vulnerabilities to deliberate self-harm among adolescents: The role of alexithymia and victimization. *British Journal of Clinical Psychology*, *49*, 151-162. <https://doi.org/10.1348/014466509X441709>
- Gatta, M., Canetta, E., Zordan, M., Spoto, A., Ferruzza, E., Manco, I., ... Battistella, P. A. (2011). Alexithymia in juvenile primary headache sufferers: a pilot study. *The journal of headache and pain*, *12*(1), 71–80. <https://doi.org/10.1007/s10194-010-0248-6>
- Gatta, M., Impollino, N., Del Col, L., Testa, P. C., & Svanellini, L. (2012). Alessitimia e psicopatologia in adolescenza: studio caso-controllo. *Psichiatria dell'infanzia e dell'adolescenza*, *79*(3), 547-567. <http://digital.casalini.it/10.1400/214848>
- Gatta, M., Facca, I., Colombo, E., Svanellini, L., Montagnese, S., & Schiff, S. (2014). Alexithymia, psychopathology and alcohol misuse in adolescence: a population based study on 3556 teenagers. *Neuroscience and Medicine*, *5*(01), 60. <https://doi.org/10.4236/nm.2014.51009>.
- Gatta, M., Dal Santo, F., Rago, A., Spoto, A., & Battistella, P. A. (2016a). Alexithymia, impulsiveness, and psychopathology in nonsuicidal self-injured adolescents. *Neuropsychiatric disease and treatment*, *12*, 2307. <https://doi.org/10.2147/NDT.S106433>
- Gatta, M., Balottin, L., Mannarini, S., Chesani, G., Del Col, L., Spoto, A., & Battistella, P. A. (2017). Familial factors relating to alexithymic traits in adolescents with psychiatric disorders. *Clinical psychologist*, *21*(3), 252-262. <https://doi.org/10.1111/cp.12098>
- Gearing, R. E., MacKenzie, M. J., Schwalbe, C. S., Brewer, K. B., & Ibrahim, R. W. (2013). Prevalence of mental health and behavioral problems among adolescents in institutional care in Jordan. *Psychiatric services*, *64*(2), 196-200. <https://doi.org/10.1176/appi.ps.201200093>.
- George, C., Kaplan, N., & Main, M. (1985). *The Adult Attachment Interview*. Berkeley: University of California at Berkeley.
- Gil, F. P., Scheidt, C. E., Hoeger, D., & Nickel, M. (2008). Relationship between attachment style, parental bonding and alexithymia in adults with somatoform disorders. *The International Journal of Psychiatry in Medicine*, *38*(4), 437-451.
- Goldsmith, R.E. & Freyd, J.J. (2005). Awareness for emotional abuse. *Journal of Emotional Abuse*, *5*, 95–123. [https://doi.org/10.1300/J135v05n01\\_04](https://doi.org/10.1300/J135v05n01_04)
- Granqvist, P., Sroufe, L. A., Dozier, M., Hesse, E., Steele, M., van Ijzendoorn, M., ... & Steele, H. (2017). Disorganized attachment in infancy: a review of the phenomenon and its implications for clinicians and policy-makers. *Attachment & human development*, *19*(6), 534-558. <https://doi.org/10.1080/14616734.2017.1354040>.
- Grice, H. P. (1975). Logic and conversation. In: P. Cole & J. Morgan (Eds.) *Studies in syntax and semantics III: Speech acts* (pp. 183–198). New York: Academic Press.
- Grotevant, H. D. (1997). Coming to terms with adoption: The construction of identity from adolescence into adulthood. *Adoption Quarterly*, *1*(1), 3-27. [https://doi.org/10.1300/J145v01n01\\_02](https://doi.org/10.1300/J145v01n01_02)

Grotevant H.D., Lo A.Y.H., Fiorenzo L. & Dunbar N.D. (2017). Adoptive identity and adjustment from adolescence to emerging adulthood: A person-centered approach. *Developmental Psychology* (53)11, 2195-2204. <https://doi.org/10.1037/dev0000352>

Groza V. & Muntean A. (2016). A description of attachment in adoptive parents and adoptees in Romania during early adolescence. *Child and adolescent social work journal*, 33(2), 163-174. <https://doi.org/10.1007/s10560-015-0408-2>

Groza V., Muntean A., & Ungureanu R. (2012).The adoptive family within the romanian cultural context: an exploratory study. *Adoption Quarterly*, 15(1), 1-17. <https://doi.org/10.1080/10926755.2012.661327>

Güleç, M. Y., Altıntaş, M., İnanç, L., Bezgin, Ç. H., Koca, E. K., & Güleç, H. (2013). Effects of childhood trauma on somatization in major depressive disorder: The role of alexithymia. *Journal of Affective Disorders*, 146(1), 137-141. <https://doi.org/10.1016/j.jad.2012.06.033>

Hadji-Michael, M., McAllister, E., Reilly, C., Heyman, I., & Bennett, S. (2019). Alexithymia in children with medically unexplained symptoms: a systematic review. *Journal of psychosomatic research*, 109736. <https://doi.org/10.1016/j.jpsychores.2019.109736>

Han, E., & Choi, N. (2006). Korean institutionalized adolescents' attributions of success and failure in interpersonal relations and perceived loneliness. *Children and Youth Services Review*, 28(5), 535-547. <https://doi.org/10.1016/j.childyouth.2005.06.002>

Handwerk, M. L., Huefner, J. C., Smith, G. L., Clopton, K., Hoff, K. E., & Lucas, C. P. (2006). Gender differences in adolescents in residential treatment. *American Journal of Orthopsychiatry*, 76(3), 312-324. <https://doi.org/10.1037/0002-9432.76.3.312>

Gramaglia, C., Ressico, F., Gambaro, E., Palazzolo, A., Mazzarino, M., Bert, F., ... & Zeppegno, P. (2016). Alexithymia, empathy, emotion identification and social inference in anorexia nervosa: A case-control study. *Eating behaviors*, 22, 46-50. <https://doi.org/10.1016/j.eatbeh.2016.03.028>

Hawk, B. N., & McCall, R. B. (2011). Specific extreme behaviors of postinstitutionalized Russian adoptees. *Developmental psychology*, 47(3), 732. doi: 10.1037/a0021108.

Harlow, H. F., & Zimmermann, R. R. (1959). Affectional responses in the infant monkey. *Science*, 130, 421–432. <https://doi.org/10.1126/science.130.3373>.

Hodel, A. S., Hunt, R. H., Cowell, R. A., Van Den Heuvel, S. E., Gunnar, M. R., & Thomas, K. M. (2015). Duration of early adversity and structural brain development in post-institutionalized adolescents. *Neuroimage*, 105, 112-119. <https://doi.org/10.1016/j.neuroimage.2014.10.020>

Hesse, E. (2016). The Adult Attachment Interview Protocol, method of analysis, and selected empirical studies: 1985–2015. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of Attachment Third Edition Theory, Research, and Clinical Applications* (pp. 553–597). New York, NY: Guildford press.

Honkalampi, K., De Berardis, D., Vellante, F., & Viinamäki, H. (2018). Relations between Alexithymia and Depressive and Anxiety Disorders and Personality. In O. Luminet, R. Bagby, & G. Taylor (Eds.), *Alexithymia: Advances in Research, Theory, and Clinical Practice* (pp. 142-157). Cambridge: Cambridge University Press. <https://doi.org/10.1017/9781108241595.011>

Honkalampi, K., Tolmunen, T., Hintikka, J., Rissanen, M. L., Kylmä, J., & Laukkanen, E. (2009). The prevalence of alexithymia and its relationship with Youth Self-Report problem scales among Finnish adolescents. *Comprehensive psychiatry*, *50*(3), 263-268. <https://doi.org/10.1016/j.comppsy.2008.08.007>.

Howe-Martin, L. S., Murrell, A. R., & Guarnaccia, C. A. (2012). Repetitive nonsuicidal self-injury as experiential avoidance among a community sample of adolescents. *Journal of Clinical Psychology*, *68*(7), 809-829. <https://doi.org/10.1002/jclp.21868>

Hughes, K., Bellis, M. A., Hardcastle, K. A., Sethi, D., Butchart, A., Mikton, C., ... & Dunne, M. P. (2017). The effect of multiple adverse childhood experiences on health: a systematic review and meta-analysis. *The Lancet Public Health*, *2*(8), e356-e366. [https://doi.org/10.1016/S2468-2667\(17\)30118-4](https://doi.org/10.1016/S2468-2667(17)30118-4)

Humphreys, K. L., Nelson, C. A., Fox, N. A., & Zeanah, C. H. (2017). Signs of reactive attachment disorder and disinhibited social engagement disorder at age 12 years: Effects of institutional care history and high-quality foster care. *Development and Psychopathology*, *29*(2). <https://doi.org/10.1017/s0954579417000256>

Indias, S., Arruabarrena, I., & De Paúl, J. (2019). Child maltreatment, sexual and peer victimization experiences among adolescents in residential care. *Children and Youth Services Review*, *100*, 267-273. <https://doi.org/10.1016/j.childyouth.2019.03.014>

Istituto nazionale di Statistica [ISTAT] (2018). *Report: la salute mentale nelle varie fasi della vita anni 2015-2017*. Retrieved from: [https://www.istat.it/it/files//2018/07/Report\\_Salute\\_mentale.pdf](https://www.istat.it/it/files//2018/07/Report_Salute_mentale.pdf)

Istituto nazionale di Statistica [ISTAT] (2019) Indicatori demografici: stime per l'anno 2018. Retrieved from: <https://www.istat.it/it/files//2019/02/Report-Stime-indicatori-demografici.pdf>

International Adoption Commission [Commissione Adozioni Internazionali, CAI] (2018). *Dati e prospettive nelle Adozioni Internazionali. Rapporto sui fascicoli dal 1° gennaio al 31 dicembre 2018*. Retrieved from: <http://www.commissioneadozioni.it/media/1619/report-annuale-cai-2018.pdf>

International Adoption Commission [Commissione Adozioni Internazionali, CAI] (2013). *Dati e prospettive nelle Adozioni Internazionali. Rapporto sui fascicoli dal 1° gennaio al 31 dicembre 2018*. Retrieved from: [http://www.sitiarcheologici.palazzochigi.it/www.commissioneadozioni.it/dicembre%202018/media/143019/report\\_statico\\_2013.pdf](http://www.sitiarcheologici.palazzochigi.it/www.commissioneadozioni.it/dicembre%202018/media/143019/report_statico_2013.pdf)

Ivarsson, T., Gillberg, C., Arvidsson, T., & Broberg, A. G. (2002). The Youth Self-Report (YSR) and the Depression Self-Rating Scale (DSRS) as measures of depression and suicidality among adolescents. *European Child & Adolescent Psychiatry*, *11*(1), 31-37. <https://doi.org/10.1007/s007870200005>

Janssens, A., & Deboutte, D. (2009). Screening for psychopathology in child welfare: the Strengths and Difficulties Questionnaire (SDQ) compared with the Achenbach System of Empirically Based Assessment (ASEBA). *European child & adolescent psychiatry*, *18*(11), 691. <https://doi.org/10.1007/s00787-009-0030-y>

Joukamaa, M., Luutonen, S., von Reventlow, H., et al. (2008). Alexithymia and childhood abuse among patients attending primary and psychiatric care: Results of the RADEP study. *Psychosomatics*, *49*, 317-325. <https://doi.org/10.1176/appi.psy.49.4.317>.

Jozefiak, T., Kaye, N. S., Rimehaug, T., Wormdal, A. K., Brubakk, A. M., & Wichstrøm, L. (2016). Prevalence and comorbidity of mental disorders among adolescents living in residential youth care. *European child & adolescent psychiatry*, *25*(1), 33-47. <https://doi.org/10.1007/s00787-015-0700-x>.



- Juffer F., Palacios J., Le Mare L., Sonuga-Barke E.J.S., Tieman W., Bakermans-Kranenburg M.J., *et al.* (2011). Development of adopted children with histories of early adversity. *Monographs of the Society for Research in Child Development*, (76) 4, 31–61. <https://doi.org/10.1111/j.1540-5834.2011.00627.x>
- Juffer, F., & Van IJzendoorn, M. H. (2005). Behavior problems and mental health referrals of international adoptees: A meta-analysis. *Jama*, 293(20), 2501-2515. <https://doi.org/10.1001/jama.293.20.2501>
- Juffer, F., & Van IJzendoorn, M. H. (2007). Adoptees do not lack self-esteem: A meta-analysis of studies on self-esteem of transracial, international, and domestic adoptees. *Psychological bulletin*, 133(6), 1067. <https://doi.org/10.1037/0033-2909.133.6.1067>.
- Julian, M. M., & McCall, R. B. (2016). Social skills in children adopted from socially-emotionally depriving institutions. *Adoption quarterly*, 19(1), 44-62. <https://doi.org/10.1080/10926755.2015.1088106>
- Kaltiala-Heino, R., Bergman, H., Työlajärvi, M., & Frisé, L. (2018). Gender dysphoria in adolescence: current perspectives. *Adolescent health, medicine and therapeutics*, 9, 31. <https://doi.org/10.2147/AHMT.S135432>
- Karukivi, M., Hautala, L., Korpelainen, J., Haapasalo-Pesu, K. M., Liuksila, P. R., Joukamaa, M., & Saarijärvi, S. (2010a). Alexithymia and eating disorder symptoms in adolescents. *Eating Disorders*, 18(3), 226-238. <https://doi.org/10.1080/10640261003719518>.
- Karukivi, M., Hautala, L., Kaleva, O., Haapasalo-Pesu, K. M., Liuksila, P. R., Joukamaa, M., & Saarijärvi, S. (2010b). Alexithymia is associated with anxiety among adolescents. *Journal of affective disorders*, 125(1-3), 383-387. <https://doi.org/10.1016/j.jad.2010.02.126>
- Karukivi, M., Vahlberg, T., Pölönen, T., Filppu, T., & Saarijärvi, S. (2014). Does alexithymia expose to mental disorder symptoms in late adolescence? A 4-year follow-up study. *General hospital psychiatry*, 36(6), 748-752. <https://doi.org/10.1016/j.genhosppsych.2014.09.012>.
- Kerns, K. A., Aspelmeier, J. E., Gentzler, A. L., & Grabill, C. M. (2001). Parent-child attachment and monitoring in middle childhood. *Journal of Family Psychology*, 15(1), 69–81. <https://doi.org/10.1037/0893-3200.15.1.69>.
- Kerns, K. A., Mathews, B. L., Koehn, A. J., Williams, C. T., & Siener-Ciesla, S. (2015). Assessing both safe haven and secure base support in parent-child relationships. *Attachment & Human Development*, 17(4), 337–353. <https://doi.org/10.1080/14616734.2015.1042487>.
- Koelen, J.A., Eurelings-Bontekoe, E.H., Stuke, F., & Luyten (2015). Insecure attachment strategies are associated with cognitive alexithymia in patients with severe somatoform disorder. *International Journal of Psychiatry in Medicine*, 49, 264–278. <https://doi.org/10.1177/0091217415589303>.
- Konishi, C., & Hymel, S. (2014). An attachment perspective on anger among adolescents. *Merrill-Palmer Quarterly* (1982-), 60(1), 53-79. <https://doi.org/10.13110/merrpalmquar1982.60.1.0053>
- Koponen, S., Taiminen, T., Honkalampi, K., Joukamaa, M., Viinamäki, H., Kurki, T., ... & Tenovu, O. (2005). Alexithymia after traumatic brain injury: its relation to magnetic resonance imaging findings and psychiatric disorders. *Psychosomatic Medicine*, 67(5), 807-812.
- Kranzler, A., Young, J. F., Hankin, B. L., Abela, J. R., Elias, M. J., & Selby, E. A. (2016). Emotional Awareness: A Transdiagnostic Risk Factor for Internalizing Symptoms in Children and Adolescents?. *Journal of clinical child and adolescent psychology: the official journal for the Society of Clinical Child and Adolescent Psychology, American Psychological Association, Division 53*, 45(3), 262. <https://doi.org/10.1080/15374416.2014.987379>

Kriss, A., Steele, H., & Steele, M. (2012). Measuring attachment and reflective functioning in early adolescence: an introduction to the friends and family interview. *Research in Psychotherapy: Psychopathology, Process and Outcome*, 15(2), 87–95. <https://doi.org/10.7411/RP.2012.009>.

Krystal, H. (1988). *Integration and Selfhealing: Affect, Trauma, Alexithymia*. Hillsdale, NJ: Analytic Press.

La Ferlita, V., Bonadies, M., Solano, L., De Gennaro, L., & Gonini, P. (2007). Alessitimia e adolescenza: studio preliminare di validazione della TAS-20 su un campione di 360 adolescenti italiani. *Infanzia e adolescenza*, 6(3), 131-144. <http://dx.doi.org/10.1710/324.3814>

Lavaf, H., Ghanbari, S., & Shokri, O. (2016). The mediating role of internalizing problems in the relationship between alexithymia and externalizing problems. *Developmental Psychology: Journal of Iranian Psychologists*.

Laghi, F., Liga, F., Baumgartner, E., & Baiocco, R. (2012). Identity and conformism among Italian adolescents who binge eat and drink. *Health, risk & society*, 14(4), 361-376. <https://doi.org/10.1080/13698575.2012.680952>

Lesser, I. M. (1981). A review of the alexithymia concept. *Psychosomatic Medicine*, 43(6), 531-543. <https://doi.org/10.1097/00006842-198112000-00009>

Linares, L. O. (2006). An understudied form of intra-family violence: Sibling-to-sibling aggression among foster children. *Aggression and violent behavior*, 11(1), 95-109. <https://doi.org/10.1016/j.avb.2005.07.001>

Lind, M., Vanwoerden, S., Penner, F., & Sharp, C. (2019). Narrative Coherence in Adolescence: Relations With Attachment, Mentalization, and Psychopathology. *Journal of Personality Assessment*, 16, 1-10. <https://doi.org/10.1080/00223891.2019.1574805>.

Lionetti, F., Pastore, M., & Barone, L. (2015). Attachment in institutionalized children: A review and meta-analysis. *Child Abuse & Neglect*, 42, 135–145. <https://doi.org/10.1016/j.chiabu.2015.02.013>

Loas, G., Speranza, M., Pham-Scottet, A., Perez-Diaz, F., & Corcos, M. (2012). Alexithymia in adolescents with borderline personality disorder. *Journal of psychosomatic research*, 72(2), 147-152. <https://doi.org/10.1016/j.jpsychores.2011.11.006>

Loehlin, J. C., Horn, J. M., & Ernst, J. L. (2010). Parent–child closeness studied in adoptive families. *Personality and Individual Differences*, 48(2), 149-154. <https://doi.org/10.1016/j.paid.2009.09.012>

Lyons-Ruth, K., & Jacobvitz, D. (2008). Attachment disorganization: Genetic factors, parenting contexts, and developmental transformation from infancy to adulthood. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment, third edition: theory, research, and clinical applications*. New York, NY: Guildford press.

Luminet, O., Rimé, B., Bagby, R. M., & Taylor, G. (2004). A multimodal investigation of emotional responding in alexithymia. *Cognition and emotion*, 18(6), 741-766. <https://doi.org/10.1080/02699930341000275>

Lundström, Tommy, and Marie Sallnäs. "Sibling contact among Swedish children in foster and residential care—Out of home care in a family service system." *Children and Youth Services Review* 34 (2) 396-402. <https://doi.org/10.1016/j.childyouth.2011.11.008>

Madigan, S., Brumariu, L. E., Villani, V., Atkinson, L., & Lyons-Ruth, K. (2016). Representational and questionnaire measures of attachment: a meta-analysis of relations to child internalizing and externalizing problems. *Psychological Bulletin*, 142(4), 367. <https://doi.org/10.1037/bul0000029>.

Main, M., & Hesse, E. (1990). Parents' unresolved traumatic experiences are related to infant disorganized attachment status: Is frightened and/or frightening parental behavior the linking mechanism?. In: Greenberg M, Cicchetti D, Cummings, E.M., (Eds.). *Attachment in the preschool years: theory, research and intervention* (pp. 161–184). Chicago: University of Chicago Press.

Main, M., Kaplan, N., & Cassidy, J. (1985). Security in infancy, childhood, and adulthood: a move to the level of representation. *Monographs of the Society for Research in Child Development*, 50(1–2), 66–104. <https://doi.org/10.2307/3333827>.

Main, M., Goldwyn, R., & Hesse, E. (2008). *Adult attachment scoring and classification system*. Berkeley: Department of Psychology, University of California at Berkeley.

Main, M., & Solomon, J. (1986). Discovery of an insecure-disorganized/disoriented attachment pattern: Procedures, findings and implications for the classification of behavior. In T. B. Brazelton, & M. Yogman (Eds.), *Affective development in infancy* (pp. 95-124).

Main, M., & Solomon, J. (1990). Procedures for identifying infants as disorganized/disoriented during the Ainsworth Strange Situation. In M. T. Greenberg, D. Cicchetti, & E. M. Cummings (Eds.), *The John D. and Catherine T. MacArthur Foundation series on mental health and development. Attachment in the preschool years: Theory, research, and intervention* (p. 121–160). University of Chicago Press.

Maggiolini A., Ciceri A., Pisa C., Belli S. (2010) Disturbi psicopatologici negli adolescenti sottoposti a procedimenti penali, *Infanzia e adolescenza*, 8(3) 139-150. <https://doi.org/10.1710/470.5553>

Mannarini, S., Balottin, L., Toldo, I., & Gatta, M. (2016). Alexithymia and psychosocial problems among Italian preadolescents. A latent class analysis approach. *Scandinavian journal of psychology*, 57(5), 473-481. <https://doi.org/10.1111/sjop.12300>.

Manninen, M., Therman, S., Suvisaari, J., Ebeling, H., Moilanen, I., Huttunen, M., & Joukamaa, M. (2011). Alexithymia is common among adolescents with severe disruptive behavior. *The Journal of nervous and mental disease*, 199(7), 506-509. <https://doi.org/10.1097/NMD.0b013e3182214281>

Maroti, D., Lilliengren, P., & Bileviciute-Ljungar, I. (2018). The relationship between alexithymia and emotional awareness: A meta-analytic review of the correlation between TAS-20 and LEAS. *Frontiers in psychology*, 9, 453. <https://doi.org/10.3389/fpsyg.2018.00453>

Matos, M. G. D., Tomé, G., Gaspar, T., Cicognani, E., & Moreno Rodríguez, M. D. C. (2016). Youth mental health in Portugal, Italy and Spain: Key challenges for improving well-being. *European Health Psychologist*, 18 (3), 128-133.

Maunder, R. G., & Hunter, J. J. (2008). Attachment relationships as determinants of physical health. *Journal of the American Academy of Psychoanalysis and Dynamic Psychiatry*, 36(1), 11-32. <https://doi.org/10.1521/jaap.2008.36.1.11>

McGee, R., Wolfe, D., & Olson, J. (2001). Multiple maltreatment, attribution of blame, and adjustment among adolescents. *Development and psychopathology*, 13(4), 827-846.

McGinn, M. F. (2002). *Attachment and psychological separation in adopted and non-adopted adolescents*. (Doctoral dissertation, Pace University, Florence, Denmark). Retrieved from <https://elibrary.ru/item.asp?id=5347835>

McKay K., Ross L.E., & Goldberg, A.E. (2010). Adaptation to parenthood during the post-adoption period: A review of the literature. *Adoption Quarterly*, (13) 2, 125-144. <https://doi.org/10.1080/10926755.2010.481040>

- McSherry, D., Malet, M. F., & Weatherall, K. (2016). Comparing long-term placements for young children in care: Does placement type really matter?. *Children and Youth Services Review*, 69, 56-66. <https://doi.org/10.1016/j.chilyouth.2016.07.021>
- Meade, J. A., Lumley, M. A., & Casey, R. J. (2001). Stress, emotional skill, and illness in children: the importance of distinguishing between children's and parents' reports of illness. *The Journal of Child Psychology and Psychiatry and Allied Disciplines*, 42(3), 405-412. <https://doi.org/10.1017/S0021963001007053>
- Meakings, S., Coffey, A., & Shelton, K. H. (2017). The influence of adoption on sibling relationships: experiences and support needs of newly formed adoptive families. *The British Journal of Social Work*, 47(6), 1781-1799. <https://doi.org/10.1093/bjsw/bcx097>
- Melkman, E. (2015). Risk and protective factors for problem behaviors among youth in residential care. *Children and youth services review*, 51, 117-124. <https://doi.org/10.1016/j.chilyouth.2015.02.004>
- Messina, A., Beadle, J. N., & Paradiso, S. (2014). Towards a classification of alexithymia: primary, secondary and organic. *Journal of psychopathology*, 20, 38-49.
- Mikulincer, M., & Shaver, P. R. (2012). An attachment perspective on psychopathology. *World Psychiatry*, 11(1), 11-15. <https://doi.org/10.1016/j.wpsyc.2012.01.003>.
- Ministero del Lavoro e delle Politiche Sociali(2019). *Bambini e ragazzi in accoglienza in Italia. Esiti dell'Indagine Campionaria sull'affidamento familiare e i servizi residenziali*. Retrieved from: [https://www.minori.gov.it/sites/default/files/quaderno\\_66.pdf](https://www.minori.gov.it/sites/default/files/quaderno_66.pdf)
- Ministero del Lavoro e delle Politiche Sociali (2017). *Linee di indirizzo per l'accoglienza nei Servizi residenziali per minorenni*. Retrieved from: <http://www.lavoro.gov.it/temi-e-priorita/infanzia-e-adolescenza/focus-on/minorenni-fuori-famiglia/Documents/Linee-guida-accoglienza-minorenni-2017.pdf>
- Modafferi, C., Fiaschi, M.D., & Cacia, L. (2018). *Il Benessere Psicologico nella Popolazione Ligure. Report a cura dell'Ordine degli Psicologi della Liguria*. Retrieved from: <https://www.ordinepsicologi-liguria.it/wp-content/uploads/2018/01/Rapporto-Salute-Liguri.pdf>
- Molina, P., Casonato, M., Ongari, B., & Decarli, A., (2014). Early deprivation and behavioural adaptation in a sample of Italian adopted adolescents. *Today's Children are Tomorrow's Parents*, 37, pp. 24-32.
- Molina, P., Casonato, M., Ongari, B., & Decarli, A., (2015). Les représentations d'attachement chez les adolescents adoptés et leurs parents. *Neuropsychiatrie de l'Enfance et de l'Adolescence*, 63 (6), 376-384. <https://doi.org/10.1016/j.neurenf.2015.04.004>
- Montebarocci, O., Codispoti, M., Baldaro, B., et al. (2004). Adult attachment style and alexithymia. *Personality and Individual Differences*, 36, 499-507. [https://doi.org/10.1016/S0191-8869\(03\)00110-7](https://doi.org/10.1016/S0191-8869(03)00110-7)
- Montebarocci, O., & Surcinelli, P. (2018). Correlations between TSIA and TAS-20 and their relation to self-reported negative affect: A study using a multi-method approach in the assessment of alexithymia in a nonclinical sample from Italy. *Psychiatry research*, 270, 187-193. doi: 10.1016/j.psychres.2018.09.036.
- Moretti, M. M. & Braber, K. (2013). *Connect: An Attachment Based Treatment Manual. Adolescent Version, Second Edition*. ©Simon Fraser University:Vancouver.

Moretti, M., Holland, R., Moore, K., & McKay, S. (2004). An Attachment-based Parenting Program for Caregivers of Severely Conduct-disordered Adolescents: Preliminary Findings (Vol. 19). Retrieved from <http://www.adolescenthealth.ca/wpcontent/uploads/2014/10/Moretti-M.-M.-Holland-R.-Moore-K.-McKay-S.-2004..pdf>

Moretti, M. M., & Obsuth, I. (2009). Effectiveness of an attachment-focused manualized intervention for parents of teens at risk for aggressive behaviour: The Connect Program. *Journal of Adolescence*, 32 (6), 1347-1357. <https://doi.org/10.1016/j.adolescence.2009.07.013>

Moretti, M. M., Ostling, O., Pasalich, D. (2015). *Connect for Foster Parents: An Attachment Model and Parent Group Handbook, Consultation Edition*. ©Simon Fraser University: Vancouver.

Morgado, A. M., & Vale Dias, M. D. L. (2017). Portuguese juvenile delinquents: An exploratory study from a sample of institutionalized young offenders. *Análise Psicológica*, 35(2), 157-170. <https://doi.org/10.14417/ap.1219>

Moriarty, N., Stough, C., Tidmarsh, P., Eger, D., & Dennison, S. (2001). Deficits in emotional intelligence underlying adolescent sex offending. *Journal of Adolescence*, 24(6), 743-751. <https://doi.org/10.1006/jado.2001.0441>

Morie, K. P., & Ridout, N. (2018). Alexithymia and Maladaptive Regulatory Behaviors in Substance Use Disorders and Eating Disorders. In Luminet, O., Bagby, R.M., Taylor, G.J. (Eds), *Alexithymia: Advances in Research, Theory, and Clinical Practice* (pp. 158-173).

Moriguchi, Y., Ohnishi, T., Lane, R. D., Maeda, M., Mori, T., Nemoto, K., ... & Komaki, G. (2006). Impaired self-awareness and theory of mind: an fMRI study of mentalizing in alexithymia. *Neuroimage*, 32(3), 1472-1482. <https://doi.org/10.1016/j.neuroimage.2006.04.186>

Mota, C., & Matos, P. (2013). Peer attachment, coping, and self-esteem in institutionalized adolescents: The mediating role of social skills. *European Journal of Psychology of Education*, 28(1), 87-100. Retrieved from [www.jstor.org/stable/23421707](http://www.jstor.org/stable/23421707)

Mullin E.S. & Johnson L. (1999). The role of birth/previously adopted children in families choosing to adopt children with special needs. *Child Welfare*, 78, 579–591.

Murphy, A., Steele, M., Dube, S. R., Bate, J., Bonuck, K., Meissner, P., ... & Steele, H. (2014). Adverse childhood experiences (ACEs) questionnaire and adult attachment interview (AAI): Implications for parent child relationships. *Child Abuse & Neglect*, 38(2), 224-233. <https://doi.org/10.1016/j.chiabu.2013.09.004>.

Muzi, S., Pace, C.S., & Steele, H. (2020). Convergent validity between questionnaire and interview measures of attachment in community but not institutionalized adolescents. *Journal of Personality Assessment*, under review.

Nemiah, J. C., Freyberger, H., & Sifneos, P. E. (1976). Alexithymia: A view of the psychosomatic process. In O. W. Hill (Ed.), *Modern trends in psychosomatic medicine* (Vol. 3; pp. 430-439). London: Butterworths.

Orsini, A., Pezzuti, L., & Picone, L. (2012). *WISC-IV: Contributo alla taratura italiana*. Firenze: Giunti O.S.

Oskis, A., et al. (2013). Understanding alexithymia in female adolescents: The role of attachment style. *Personality and Individual Differences*, 54, 97–102. <https://doi.org/10.1016/j.paid.2012.08.023>

Ozturk, Y., Moretti, M., & Barone, L. (2019). Addressing parental stress and adolescents' behavioral problems through an attachment-based program: An intervention study. *International Journal of Psychology & Psychological Therapy*, 19(1).

Pace, C. S. (2014). Assessing attachment representations among adoptees during middle childhood and adolescence with the Friend and Family Interview (FFI): clinical and research perspectives. *Frontiers in Psychology*, *5*, 1114. <https://doi.org/10.3389/fpsyg.2014.01114>.

Pace, C. S., Di Folco, S., Guerriero, V., Santona, A., & Terrone, G. (2015a). Adoptive parenting and attachment: association of the internal working models between adoptive mothers and their late-adopted children during adolescence. *Frontiers in psychology*, *6*, 1433. <https://doi.org/10.3389/fpsyg.2015.01433>.

Pace, C. S., Di Folco, S., & Guerriero, V. (2018). Late-adoptions in adolescence: can attachment and emotion regulation influence behaviour problems? A controlled study using a moderation approach. *Clinical psychology & psychotherapy*, *25*(2), 250–262. <https://doi.org/10.1002/cpp.2158>.

Pace, C. S., Di Folco, S., Guerriero, V., & Muzi, S. (2019b). Late-adopted children grown up: a long-term longitudinal study on attachment patterns of adolescent adoptees and their adoptive mothers. *Attachment & Human development*, *21*(4), 372–388. <https://doi.org/10.1080/14616734.2019.1571519>.

Pace, C. S., & Muzi, S. (2019). Binge-Eating Symptoms, Emotional-Behavioral Problems and Gender Differences among Adolescents: A Brief Report. *Mediterranean Journal of Clinical Psychology*, *7*(2).<http://dx.doi.org/10.6092/2282-1619/2019.7.2161>

Pace, C.S., & Muzi, S. (2017). Adolescenza in famiglie adottive e biologiche: sintomi psicopatologici e strategie di regolazione emotiva. *Giornale italiano di psicologia*, *44* (3), 783-791. <https://www.rivisteweb.it/doi/10.1421/88386>

Pace, C. S., Muzi, S., & Steele, H. (2019a). Adolescents' Attachment: Content and Discriminant Validity of the Friends and Family Interview. *Journal of Child and Family Studies*, 1-14. <https://doi.org/10.1007/s10826-019-01654-8>

Pace, C. S., San Martini, P., & Zavattini, G. C. (2011). The factor structure of the Inventory of Parent and Peer Attachment (IPPA): A survey of Italian adolescents. *Personality and Individual differences*, *51*(2), 83-88. <https://doi.org/10.1016/j.paid.2011.03.006>

Pace, C. S., Santona, A., Zavattini, G. C., & Di Folco, S. (2015b). Attachment states of mind and couple relationships in couples seeking to adopt. *Journal of Child and Family Studies*, *24*(11), 3318-3330. <https://doi.org/10.1007/s10826-015-0134-6>

Pace, C. S., & Zavattini, G. C. (2011). 'Adoption and attachment theory' the attachment models of adoptive mothers and the revision of attachment patterns of their late-adopted children. *Child: care, health and development*, *37*(1), 82-88. <https://doi.org/10.1111/j.1365-2214.2010.01135.x>.

Pace C.S., Zavattini G.C. & D'Alessio M. (2012). Continuity and discontinuity of attachment patterns: A short-term longitudinal pilot study using a sample of late-adopted children and their adoptive mothers. *Attachment and Human Development*, *14*(1), 45-61. <https://doi.org/10.1080/14616734.2012.636658>

Pace, C. S., Zavattini, G. C., & Tambelli, R. (2015a). Does family drawing assess attachment representations of late-adopted children? A preliminary report. *Child and Adolescent Mental Health*, *20*(1), 26-33. <https://doi.org/10.1111/camh.12042>

Padmaja, G., Sushma, B., & Agarwal, S. (2014). Psychosocial problems and well being in institutionalized and non institutionalized children. *IOSR Journal of Humanities and Social Science*. <https://doi.org/10.9790/0837-191025964>

Palacios, J., & Brodzinsky, D. (2010). Review: Adoption research: Trends, topics, outcomes. *International Journal of Behavioral Development*, *34*(3), 270–284. <https://doi.org/10.1177/0165025410362837>

Pallini, S., Baiocco, R., Schneider, B. H., Madigan, S., & Atkinson, L. (2014). Early child–parent attachment and peer relations: A meta-analysis of recent research. *Journal of Family Psychology*, 28(1), 118. <https://doi.org/10.1037/a0035736>.

Paniccia, M. F., Gaudio, S., Puddu, A., Di Trani, M., Dakanalis, A., Gentile, S. and Di Ciommo, V. (2018), Alexithymia in parents and adolescents with generalised anxiety disorder. *Clin Psychol*, 22, 336-343. <https://doi.org/10.1111/cp.12134>

Panksepp, J. and Biven, L. (2012). *The Archaeology of Mind: Neuroevolutionary Origins of Human Emotions*. New York: W.W. Norton & Company.

Parker, J. D., Eastabrook, J. M., Keefer, K. V., & Wood, L. M. (2010). Can alexithymia be assessed in adolescents? Psychometric properties of the 20-item Toronto Alexithymia Scale in younger, middle, and older adolescents. *Psychological assessment*, 22(4), 798.

Parker, J. D., Keefer, K. V., Taylor, G. J., & Bagby, R. M. (2008). Latent structure of the alexithymia construct: a taxometric investigation. *Psychological assessment*, 20(4), 385.

Parker, J. D., Wood, L. M., Bond, B. J., & Shaughnessy, P. (2005). Alexithymia in young adulthood: a risk factor for pathological gambling. *Psychotherapy and Psychosomatics*, 74(1), 51-55.

Patwardhan, I., Mason, W. A., Chmelka, M. B., Savolainen, J., Miettunen, J., & Järvelin, M. R. (2019). Prospective relations between alexithymia, substance use and depression: findings from a National Birth Cohort. *Nordic journal of psychiatry*, 73(6), 340-348. <https://doi.org/10.1080/08039488.2019.1634758>

Paull, K. (2013) Alexithymia, attachment and psychological wellbeing in young adults leaving care. (Doctoral dissertation, Cardiff University, Cardiff, UK). Retrieved from <https://pdfs.semanticscholar.org/6a43/74e561c89154cce4fbd482a308cbc102a351.pdf>

Pellerone, M., Formica, I., Lopez, M. H., Migliorisi, S., & Granà, R. (2017). Relationship between parenting, alexithymia and adult attachment styles: a cross-national study in Sicilian and Andalusian young adults. *Mediterranean Journal of Clinical Psychology*, 5(2). <http://dx.doi.org/10.6092/2282-1619/2017.5.1557>

Petrowski, N., Cappa, C., & Gross, P. (2017). Estimating the number of children in formal alternative care: Challenges and results. *Child abuse & neglect*, 70, 388-398. <https://doi.org/10.1016/j.chiabu.2016.11.026>

Pinchover, S., & Attar-Schwartz, S. (2014). Institutional social climate and adjustment difficulties of adolescents in residential care: The mediating role of victimization by peers. *Children and Youth Services Review*, 44, 393-399. <https://doi.org/10.1016/j.childyouth.2014.07.005>

Picardi, A., Toni, A., & Caroppo, E. (2005). Stability of alexithymia and its relationships with the ‘big five’ factors, temperament, character, and attachment style. *Psychotherapy and psychosomatics*, 74(6), 371-378. <https://doi.org/10.1159/000087785>

Porcelli P., & Taylor G. J. (2018). Alexithymia and physical illness: a psychosomatic approach. In Luminet O., Bagby R. M., Taylor G. J., (Eds). *Alexithymia: Advances in Research, Theory, and Clinical Practice* (pp.105–126). Cambridge: Cambridge University Press. <https://doi.org/10.1017/9781108241595.009>

Porges, S.W. (2011). *The Polyvagal Theory: Neurophysiological Foundations of Emotions, Attachment, Communication, and Self-regulation*. New York, NY: W.W. Norton & Company.

Powell, S., Coll, K. M., Trotter, A., Thobro, P., & Haas, R. (2011). Psychosocial correlates of alexithymia in a rural adolescent residential population. *Residential Treatment for Children & Youth*, 28(4), 327-344. <https://doi.org/10.1080/0886571X.2011.625284>

Prino, L. E., Longobardi, C., Fabris, M. A., Parada, R. H., & Settanni, M. (2019). Effects of bullying victimization on internalizing and externalizing symptoms: the mediating role of alexithymia. *Journal of Child and Family Studies*, 28(9), 2586-2593. <https://doi.org/10.1007/s10826-019-01484-8>

Psouni, E., Breinholst, S., Esbjørn, B.H. & Steele, H. (2019). Factor structure of the Friends and Family Interview. *Scandinavian Journal of Psychology*. <https://doi.org/10.1111/sjop.12604>

Pumariega, A. J., Johnson, N. P., Sheridan, D., & Cuffe, S. P. (1996). The influence of race and gender on depressive and substance abuse symptoms in high-risk adolescents. *Cultural diversity and mental health*, 2(2), 115.

Qaisy, L. M., & Darwish, M. A. A. (2018). The Relationship between Alexithymia and Attachment Styles among University Students. *World Journal of Education*, 8(5), 104-111. <https://doi.org/10.5430/wje.v8n5p104>

Ranieri S., Ferrari L., Barni D. and Rosnati R. (2017). Launching adoptees into adulthood: Mothers' and fathers' promotion of volitional functioning. *Journal of prevention and intervention in the community*, 45(3), 168-179. <https://doi.org/10.1080/10852352.2016.1198124>

Rescorla, L., Achenbach, T., Ivanova, M. Y., Dumenci, L., Almqvist, F., Bilenberg, N., ... & Erol, N. (2007a). Behavioral and emotional problems reported by parents of children ages 6 to 16 in 31 societies. *Journal of Emotional and Behavioral Disorders*, 15(3), 130-142. <https://doi.org/10.1177/10634266070150030101>

Rescorla, L., Achenbach, T. M., Ivanova, M. Y., Dumenci, L., Almqvist, F., Bilenberg, N., ... & Erol, N. (2007b). Epidemiological comparisons of problems and positive qualities reported by adolescents in 24 countries. *Journal of consulting and clinical psychology*, 75(2), 351. <https://doi.org/10.1037/0022-006X.75.2.351>

Rescorla, L., Ivanova, M. Y., Achenbach, T. M., Begovac, I., Chahed, M., Drugli, M. B., ... & Hewitt, N. (2012). International epidemiology of child and adolescent psychopathology II: integration and applications of dimensional findings from 44 societies. *Journal of the American Academy of Child & Adolescent Psychiatry*, 51(12), 1273-1283. <https://doi.org/10.1016/j.jaac.2012.09.012>

Rieffe, C., Oosterveld, P., & Terwogt, M. M. (2006). An alexithymia questionnaire for children: Factorial and concurrent validation results. *Personality and Individual Differences*, 40(1), 123-133. <https://doi.org/10.1016/j.paid.2005.05.013>

Rieffe, C., Terwogt, M. M., Petrides, K. V., Cowan, R., Miers, A. C., & Tolland, A. (2007). Psychometric properties of the Emotion Awareness Questionnaire for children. *Personality and Individual Differences*, 43(1), 95-105. <https://doi.org/10.1016/j.paid.2006.11.015>

Rieffe, C., Oosterveld, P., Terwogt, M. M., Novin, S., Nasiri, H., & Latifian, M. (2010). Relationship between alexithymia, mood and internalizing symptoms in children and young adolescents: Evidence from an Iranian sample. *Personality and Individual Differences*, 48(4), 425-430. <https://doi.org/10.1016/j.paid.2009.11.010>

Rimehaug, T., Undheim, A. M., & Ingul, J. M. (2018). Learning Problems among Adolescents in Residential Youth Care. *Residential Treatment for Children & Youth*, 35(1), 24-46. <https://doi.org/10.1080/0886571X.2018.1455557>



- Riva Crugnola, C., Sagliaschi, S., & Rancati, I. (2009). Qualità dell'attaccamento ed elaborazione delle esperienze infantili avverse in preadolescenti adottati. *Psicologia clinica dello sviluppo*, 13(3), 515-542. <https://www.rivisteweb.it/doi/10.1449/30785>
- Robinson, M., Doherty, D. A., Cannon, J., Hickey, M., Rosenthal, S. L., Marino, J. L., & Skinner, S. R. (2019). Comparing adolescent and parent reports of externalizing problems: A longitudinal population-based study. *British Journal of Developmental Psychology*, 37(2), 247-268. <https://doi.org/10.1111/bjdp.12270>.
- Rodrigues, S., Barbosa-Ducharme, M., Del Valle, J. F., & Campos, J. (2019). Psychological adjustment of adolescents in residential care: Comparative analysis of youth self-report/strengths and difficulties questionnaire. *Child and Adolescent Social Work Journal*, 36(3), 247-258. <https://doi.org/10.1007/s10560-019-00614-x>
- Rosnati, R., & Marta, E. (1997). Parent-child relationships as a protective factor in preventing adolescents' psychosocial risk in interracial adoptive and nonadoptive families. *Journal of Adolescence*, 20, 617-631.
- Rosso, A. M., & Airaldi, C. (2016). Intergenerational transmission of reflective functioning. *Frontiers in psychology*, 7, 1903. <https://doi.org/10.3389/fpsyg.2016.01903>
- Sayar, K., & Kose, S. (2003). The Relationship Between Alexithymia and Dissociation in an Adolescent Sample. *Klinik Psikofarmakoloji Bülteni / Bulletin of Clinical Psychopharmacology*, 13(4), 167-173.
- Sayar, K., Kose, S., Grabe, H. J., & Topbas, M. (2005). Alexithymia and dissociative tendencies in an adolescent sample from Eastern Turkey. *Psychiatry and clinical neurosciences*, 59(2), 127-134.
- Samur, D., Tops, M., Schlinkert, C., Quirin, M., Cuijpers, P., & Koole, S. L. (2013). Four decades of research on alexithymia: moving toward clinical applications. *Frontiers in psychology*, 4, 861. <https://doi.org/10.3389/fpsyg.2013.00861>
- Sánchez-García, M. A., Lucas-Molina, B., Fonseca-Pedrero, E., Pérez-Albéniz, A., & Paino, M. (2018). Dificultades emocionales y comportamentales en la adolescencia: relación con bienestar emocional, afecto y rendimiento académico. *Anales de Psicología/Annals of Psychology*, 34(3), 482-489. <https://doi.org/10.6018/analesps.34.3.296631>
- Schimmenti, A., & Caretti, V. (2018). Attachment, Trauma, and Alexithymia. In O. Luminet, R. Bagby, & G. Taylor (Eds.), *Alexithymia: Advances in Research, Theory, and Clinical Practice* (pp. 127-141). Cambridge: Cambridge University Press. <https://doi.org/10.1017/9781108241595.010>
- Schimmenti, A., & Caretti, V. (2016). Linking the overwhelming with the unbearable: Developmental trauma, dissociation, and the disconnected self. *Psychoanalytic Psychology*, 33(1), 106. <https://doi.org/10.1037/a0038019>
- Schimmenti, A., Passanisi, A., Caretti, V., La Marca, L., Granieri, A., Iacolino, C., ... & Billieux, J. (2017). Traumatic experiences, alexithymia, and Internet addiction symptoms among late adolescents: A moderated mediation analysis. *Addictive Behaviors*, 64, 314-320. <https://doi.org/10.1016/j.addbeh.2015.11.002>.
- Schleiffer, R., & Muller, S. (2004). [Attachment representations of adolescents in institutional care]. *International journal of Child and Family welfare*, 7(1), 60-77.
- Schmid, M., Goldbeck, L., Nuetzel, J., & Fegert, J. M. (2008). Prevalence of mental disorders among adolescents in German youth welfare institutions. *Child and Adolescent Psychiatry and Mental Health*, 2(1), 2. <https://doi.org/10.1186/1753-2000-2-2>.

- Schofield, G., Larsson, B., & Ward, E. (2017). Risk, resilience and identity construction in the life narratives of young people leaving residential care. *Child & Family Social Work, 22*(2), 782-791. <https://doi.org/10.1111/cfs.12295>
- Segura, A., Pereda, N., Guilera, G., & Abad, J. (2016). Poly-victimization and psychopathology among Spanish adolescents in residential care. *Child abuse & neglect, 55*, 40-51. <https://doi.org/10.1016/j.chiabu.2016.03.009>
- Sempik, J., Ward, H., & Darker, I. (2008). Emotional and behavioural difficulties of children and young people at entry into care. *Clinical child psychology and psychiatry, 13*(2), 221-233. <https://doi.org/10.1177/1359104507088344>
- Sen, R., & Broadhurst, K. (2011). Contact between children in out-of-home placements and their family and friends networks: A research review. *Child & Family Social Work, 16*(3), 298-309. <https://doi.org/10.1111/j.1365-2206.2010.00741.x>
- Shechory, M., & Sommerfeld, E. (2007). Attachment style, home-leaving age and behavioral problems among residential care children. *Child psychiatry and human development, 37*(4), 361-373.
- Shmueli-Goetz, Y., Target, M., Fonagy, P., & Datta, A. (2008). The Child Attachment Interview: a psychometric study of reliability and discriminant validity. *Developmental Psychology, 44*(4), 939. <https://doi.org/10.1037/0012-1649.44.4.939>.
- Shumaker, D. M., Deutsch, R. M., & Brenninkmeyer, L. (2009). How do I connect? Attachment issues in adolescence. *Journal of Child Custody, 6*(1-2), 91-112. <https://doi.org/10.1080/15379410902894866>
- Sifneos, P. E. (1988). Alexithymia and its relationship to hemispheric specialization, affect, and creativity. *Psychiatric Clinics, 11*(3), 287-292.
- Simonelli, A., & Vizziello, G. M. (2009). Ri-costruire gli attaccamenti dopo l'adozione. La qualità delle rappresentazioni delle relazioni nelle famiglie adottive. *Psicologia clinica dello sviluppo, 13*(3), 543-562. <https://www.rivisteweb.it/doi/10.1449/30786>
- Simsek, Z., Erol, N., Öztop, D., & Münir, K. (2007). Prevalence and predictors of emotional and behavioral problems reported by teachers among institutionally reared children and adolescents in Turkish orphanages compared with community controls. *Children and youth services review, 29*(7), 883-899. <https://dx.doi.org/10.1016/j.chilyouth.2007.01.004>
- Smith, S. L., Howard, J. A., & Monroe, A. D. (2000). Issues underlying behavior problems in at-risk adopted children. *Children and Youth Services Review, 22*(7), 539-562. [https://doi.org/10.1016/S0190-7409\(00\)00102-X](https://doi.org/10.1016/S0190-7409(00)00102-X)
- Spitz, R. A. (1945). Hospitalism: An inquiry into the genesis of psychiatric conditions in early childhood. *Psychoanalytic Study of the Child, 1*, 53-74.
- Steele, M., Bate, J., Nikitiades, A., & Buhl-Nielsen, B. (2015). Attachment in adolescence and borderline personality disorder. *Journal of Infant, Child, and Adolescent Psychotherapy, 14*(1), 16-32. <https://doi.org/10.1080/15289168.2015.1004882>
- Steele, M., Hodges, J., Kaniuk, J., Steele, H., Hillman, S. & Asquith, K. (2008). Forecasting outcomes in previously maltreated children. The use of the AAI in a longitudinal adoption study. In H. Steele and M. Steele (Eds.), *Clinical applications of the adult attachment interview* (pp. 427-451), Guilford Press, New York (US).

Steele M., Hodges J., Kaniuk J., Hillman S. & Henderson K. (2003). Attachment representations and adoption: Associations between maternal states of mind and emotion narratives in previously maltreated children. *Journal of Child Psychotherapy*, 29(2), 187-205. <https://doi.org/10.1080/0075417031000138442>

Steele, H., & Steele, M. (2005). The Construct of Coherence as an Indicator of attachment security in middle childhood: the Friends and Family Interview. *Attachment in middle childhood* (pp. 137–160). New York, NY, US: Guilford Press.

Steele, H., Steele, M., & Kriss, A. (2009). *FFI Scoring System*. New York, NY: Center for Attachment Research at New School University. Unpublished document.

Stievenart, M., Casonato, M., Muntean, A., & Van de Schoot, R. (2012). The friends and family interview: measurement invariance across Belgium and Romania. *European Journal of Developmental Psychology*, 9(6), 737–743. <https://doi.org/10.1080/17405629.2012.689822>.

Stovall-McClough, K.C., & Dozier, M., (2016). Attachment States of Mind and Psychopathology in Adulthood. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment, third edition: theory, research, and clinical applications* (pp. 653-676). New York, NY: Guilford press.

Sroufe, L. A. (2005). Attachment and development: A prospective, longitudinal study from birth to adulthood. *Attachment & human development*, 7(4), 349-367. <https://doi.org/10.1080/14616730500365928>

Surugiu, S. I., & Moşoiu, C. (2013). The aggressive behavior of adolescents in institutionalized system. *Procedia-Social and Behavioral Sciences*, 78, 546-550. <https://doi.org/10.1016/j.sbspro.2013.04.348>

Suzuki, H., & Tomoda, A. (2015). Roles of attachment and self-esteem: impact of early life stress on depressive symptoms among Japanese institutionalized children. *BMC psychiatry*, 15(1), 8. <https://doi.org/10.1186/s12888-015-0385-1>.

Taylor, G. J. (1994). The alexithymia construct: Conceptualization, validation, and relationship with basic dimensions of personality. *New Trends in Experimental & Clinical Psychiatry*, 10(2), 61–74.

Taylor, G. J. (2010). Affects, trauma, and mechanisms of symptom formation: a tribute to John C. Nemiah, MD (1918–2009). *Psychotherapy and Psychosomatics*, 79(6), 339-349. <https://doi.org/10.1159/000320119>

Taylor, G. J., & Bagby, R. M. (2012). The alexithymia personality dimension. In T. A. Widiger (Ed.), *Oxford library of psychology. The Oxford handbook of personality disorders* (pp. 648-673). New York, NY, US: Oxford University Press.

Taylor, G. J., & Bagby, R. M. (2013). Psychoanalysis and empirical research: The example of alexithymia. *Journal of the american psychoanalytic association*, 61(1), 99-133. <https://doi.org/10.1177/0003065112474066>

Taylor, G.J., Bagby, R.M., Kushner, S.C., et al. (2014). Alexithymia and adult attachment representations: Associations with the five-factor model of personality and perceived relationship adjustment. *Comprehensive Psychiatry*, 55, 1258–1268.

Taylor, G. J., Bagby, R. M., & Parker, J. D. (1999). *Disorders of affect regulation: Alexithymia in medical and psychiatric illness*. Cambridge (UK): Cambridge University Press.

Taubner, S., White, L. O., Zimmermann, J., Fonagy, P., & Nolte, T. (2013). Attachment-related mentalization moderates the relationship between psychopathic traits and proactive aggression in adolescence. *Journal of abnormal child psychology*, *41*(6), 929-938. <https://doi.org/10.1007/s10802-013-9736-x>

Terock, J., Janowitz, D., Spitzer, C., Miertsch, M., Freyberger, H. J., & Grabe, H. J. (2015). Alexithymia and self-directedness as predictors of psychopathology and psychotherapeutic treatment outcome. *Comprehensive psychiatry*, *62*, 34-41. <https://doi.org/10.1016/j.comppsy.2015.06.007>

Terock, J., Van der Auwera, S., Janowitz, D., et al. (2016). From childhood trauma to adult dissociation: The role of PTSD and alexithymia. *Psychopathology*, *49*, 374-382.

Thorberg, F. A., Young, R. M., Sullivan, K. A., Lyvers, M., Connor, J. P., & Feeney, G. F. (2011). Alexithymia, craving and attachment in a heavy drinking population. *Addictive Behaviors*, *36*(4), 427-430. <https://doi.org/10.1016/j.addbeh.2010.12.016>

Tottenham, N., Hare, T. A., Quinn, B. T., McCarry, T. W., Nurse, M., Gilhooly, T., ... & Thomas, K. M. (2010). Prolonged institutional rearing is associated with atypically large amygdala volume and difficulties in emotion regulation. *Developmental science*, *13*(1), 46-61. <https://doi.org/10.1111/j.1467-7687.2009.00852.x>

Trentacosta, C. J., & Fine, S. E. (2010). Emotion knowledge, social competence, and behavior problems in childhood and adolescence: A meta-analytic review. *Social Development*, *19*(1), 1-29. <https://doi.org/10.1111/j.1467-9507.2009.00543.x>

Troisi, A., D'Argenio, A., Peracchio, F., & Petti, P. (2001). Insecure attachment and alexithymia in young men with mood symptoms. *The Journal of nervous and mental disease*, *189*(5), 311-316.

United Nations General Assembly. (2009). Guidelines for the Alternative Care of Children, UN document A/RES/64/142 (2009). Retrieved from [http://www.unicef.org/protection/alternative\\_care\\_Guidelines-English.pdf](http://www.unicef.org/protection/alternative_care_Guidelines-English.pdf)

Uzal, G., Yavuz, M., Akdeniz, B., Calli, S., & Bolat, N. (2018). Investigating the relationships between alexithymia characteristics, meta-cognitive features and mental problems in high school students in Istanbul/Istanbul ilinde ogrenim goren lise ogrencilerinde aleksitimi karakter ozellikleri ile ust bilis ozellikleri ve ruhsal sorunlar arasindaki iliskinin incelenmesi. *Anadolu Psikiyatri Dergisi*, *19*(5), 478-485. <https://doi.org/10.5455/apd.289804>

van der Crujisen, R., Murphy, J., & Bird, G. (2019). Alexithymic traits can explain the association between puberty and symptoms of depression and anxiety in adolescent females. *PloS one*, *14*(1), e0210519. <https://doi.org/10.1371/journal.pone.0210519>

Van der Velde, J., Gromann, P. M., Swart, M., Wiersma, D., De Haan, L., Bruggeman, R., ... Aleman, A. (2015). Alexithymia influences brain activation during emotion perception but not regulation. *Social Cognitive and Affective Neuroscience*, *10* (2), 285-293. <https://doi.org/10.1093/scan/nsu056>

van Dijke, A., Ford, J.D., van der Hart, O., et al. (2011). Childhood traumatization by primary caretaker and affect dysregulation in patients with borderline personality disorder and somatoform disorder. *European Journal of Psychotraumatology*, *2* (10). <https://doi.org/10.3402/ejpt.v2i0.5628>

Van Ijzendoorn, M. H., Juffer, F., & Poelhuis, C. W. K. (2005). Adoption and cognitive development: a meta-analytic comparison of adopted and nonadopted children's IQ and school performance. *Psychological bulletin*, *131*(2), 301. <https://doi.org/10.1037/0033-2909.131.2.301>

- Van IJzendoorn, M. H., & Juffer, F. (2006). The Emanuel Miller Memorial Lecture 2006: Adoption as intervention. Meta-analytic evidence for massive catch-up and plasticity in physical, socio-emotional, and cognitive development. *Journal of Child Psychology and Psychiatry*, 47(12), 1228–1245. <https://doi.org/10.1111/j.1469-7610.2006.01675.x>
- van IJzendoorn, M. H., Palacios, J., Sonuga-Barke, E. J., Gunnar, M. R., Vorria, P., McCall, R. B., ... & Juffer, F. (2011). I. Children in institutional care: Delayed development and resilience. *Monographs of the Society for Research in Child Development*, 76(4), 8-30. <https://doi.org/10.1111/j.1540-5834.2011.00626.x>
- van Rijn, S., Schothorst, P., van't Wout, M., Sprong, M., Ziermans, T., van Engeland, H., ... & Swaab, H. (2011). Affective dysfunctions in adolescents at risk for psychosis: emotion awareness and social functioning. *Psychiatry research*, 187(1-2), 100-105. <https://doi.org/10.1016/j.psychres.2010.10.007>
- Vantighem, M. R., Gabard-Durnam, L., Goff, B., Flannery, J., Humphreys, K. L., Telzer, E. H., ... & Tottenham, N. (2017). Positive valence bias and parent–child relationship security moderate the association between early institutional caregiving and internalizing symptoms. *Development and psychopathology*, 29(2), 519-533. <https://doi.org/10.1017/S0954579417000153>
- Verhage, M. L., Schuengel, C., Madigan, S., Fearon, P., Oosterman, M., Cassibba, R., & Van IJzendoorn, M. H. (2016). Narrowing the transmission gap: a synthesis of three decades of research on intergenerational transmission of attachment. *Psychological Bulletin*, 142(4), 337–366. <https://doi.org/10.1037/bul0000038>.
- Vinnakota, A., & Kaur, R. (2018). A study of depression, externalizing, and internalizing behaviors among adolescents living in institutional homes. *International Journal of Applied and Basic Medical Research*, 8(2), 89. [https://doi.org/10.4103/ijabmr.IJABMR\\_333\\_17](https://doi.org/10.4103/ijabmr.IJABMR_333_17)
- Villodas, M. T., Cromer, K. D., Moses, J. O., Litrownik, A. J., Newton, R. R., & Davis, I. P. (2016). Unstable child welfare permanent placements and early adolescent physical and mental health: The roles of adverse childhood experiences and post-traumatic stress. *Child abuse & neglect*, 62, 76-88. <https://doi.org/10.1016/j.chiabu.2016.10.014>
- Vorria, P., Ntouma, M., & Rutter, M. (2015). Vulnerability and resilience after early institutional care: The Greek Metera study. *Development and psychopathology*, 27(3), 859-866. <https://doi.org/10.1017/S0954579415000243>
- Vorria, P., Papaligoura, Z., Sarafidou, J., Kopakaki, M., Dunn, J., Van IJzendoorn, M. H., & Kontopoulou, A. (2006). The development of adopted children after institutional care: a follow-up study. *Journal of Child Psychology and psychiatry*, 47(12), 1246-1253. <https://onlinelibrary.wiley.com/doi/full/10.1111/j.1469-7610.2006.01666.x>
- Wallis, P., & Steele, H. (2001) Attachment representations in adolescence: Further evidence from psychiatric residential settings. *Attachment & Human Development*, 3 (3), 259-268. <https://doi.org/10.1080/14616730110096870>
- Waters, E., Merrick, S., Treboux, D., Crowell, J., & Albersheim, L. (2000). Attachment security in infancy and early adulthood: A twenty-year longitudinal study. *Child development*, 71(3), 684-689.
- Wearden, A., Cook, L., and VaughanJones, J. (2003). Adult attachment, alexithymia, symptom reporting, and health-related coping. *Journal of Psychosomatic Research*, 55, 341–347.
- Wearden, A.J., Lambertson, N., Crook, N., et al. (2005). Adult attachment, alexithymia, and symptom reporting: An extension to the four category model of attachment. *Journal of Psychosomatic Research*, 58, 279–288.
- Wechsler, D. (2003). *Wechsler intelligence scale for children—Fourth edition (WISC-IV)*. San Antonio, TX: The Psychological Corporation.

White, K. R. (2016). Placement discontinuity for older children and adolescents who exit foster care through adoption or guardianship: A systematic review. *Child and Adolescent Social Work Journal*, 33(4), 377-394. <https://doi.org/10.1007/s10560-015-0425-1>

Wilson, J., & Wilkinson, R. (2012). The Self-Report Assessment of Adolescent Attachment: A Systematic Review and Critique. *Journal of Relationships Research*, 3, 81-94. <https://doi.org/10.1017/jrr.2012.7>

Woodward, L., Fergusson, D. M., & Belsky, J. (2000). Timing of parental separation and attachment to parents in adolescence: Results of a prospective study from birth to age 16. *Journal of Marriage and Family*, 62(1), 162-174. <https://doi.org/10.1111/j.1741-3737.2000.00162.x>

World Mental Health (2013). *Action plan for Mental Health 2013-2020* (italian version). Retrieved from: [http://www.salute.gov.it/imgs/C\\_17\\_pubblicazioni\\_2448\\_allegato.pdf](http://www.salute.gov.it/imgs/C_17_pubblicazioni_2448_allegato.pdf)

Yearwood, K., Vliegen, N., Chau, C., Corveleyn, J., & Luyten, P. (2017). Prevalence of exposure to complex trauma and community violence and their associations with internalizing and externalizing symptoms. *Journal of interpersonal violence*, 1 (0886260517731788). <https://doi.org/10.1177/0886260517731788>.

Zaccagnino, M., Cussino, M., Preziosa, A., Veglia, F. & Carassa, A. (2015), Attachment Representation in Institutionalized Children: A Preliminary Study Using the Child Attachment Interview. *Clin. Psychol. Psychother.*, 22.165– 175. doi: 10.1002/cpp.1882.

Zaheer, I. (2015). The Role of Psychological Flexibility on Mental Health and School Functioning of Adolescents with Social, Emotional and Behavioral Problems. *Theses and Dissertations*, 2900. Retrieved from: <https://preserve.lehigh.edu/etd/290>

Zegers, M. A., Schuengel, C., van IJzendoorn, M. H., & Janssens, J. M. (2006). Attachment representations of institutionalized adolescents and their professional caregivers: Predicting the development of therapeutic relationships. *American Journal of Orthopsychiatry*, 76(3), 325-334. <https://doi.org/10.1037/0002-9432.76.3.325>.

Zegers, M. A., Schuengel, C., Van IJzendoorn, M. H., & Janssens, J. M. (2008). Attachment and problem behavior of adolescents during residential treatment. *Attachment & human development*, 10(1), 91-103. <https://doi.org/10.1080/14616730701868621>.

Zimmermann, G. (2006). Delinquency in male adolescents: The role of alexithymia and family structure. *Journal of adolescence*, 29(3), 321-332.

Zlotnick, C., Mattia, J. I., & Zimmerman, M. (2001). The relationship between posttraumatic stress disorder, childhood trauma and alexithymia in an outpatient sample. *Journal of Traumatic Stress*, 14(1), 177-188. <https://doi.org/10.1023/A:1007899918410>

Zonneville-Bender, M. J., Van Goozen, S. H., Cohen-Kettenis, P. T., van Elburg, T. A., & Van Engeland, H. (2004). Emotional functioning in adolescent anorexia nervosa patients. *European child & adolescent psychiatry*, 13(1), 28-34. <https://doi.org/10.1007/s00787-004-0351-9>

Zou, Z., Huang, Y., Wang, J., et al. (2016). Association of childhood trauma and panic symptom severity in panic disorder: Exploring the mediating role of alexithymia. *Journal of Affective Disorders*, 206, 133–139. doi: 10.1016/j.jad.2016.07.027