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**REPERCUSSIONS OF  
TOBACCO, ALCOHOL AND  
DRUGS ON ADOLESCENTS'  
HEALTH**

MODALITIES OF INTERACTION AND RECIPROCAL  
INFLUENCE

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# I – THEORETICAL/EMPIRICAL FOUNDATIONS OF THE RESEARCH

## 1.1 INTRODUCTION

The interest of this research on somatic, psychological and relational repercussions of health risk behaviours in children and adolescents is based on four fundamental assumptions:

- 1 The importance attributable to the early detection of the first manifestations of avoidable medical pathologies both in terms of the social and emotional distortions which although “at an early stage” can have a striking impact on the structuring of the personality;
- 2 The apparent duality of the observable interaction between the consequences (somatic disease and/ or disturbance of adaptive behaviours) and the causes that are hierarchically attributable to them (use of psychoactive drugs, violent behaviour, changes in eating habits, among others) given that the former appear to be both a function and condition of the latter and vice-versa;
- 3 The way the screening of this phenomenon between the infant/juvenile population of a given community locus helps us take stock of the degree of local penetration of the measures of health promotion (primary health care logistics, time, mode and circumstances of resources to this care, articulation between primary care and specialised services);
- 4 The possibility of assessing the current health of the population under scrutiny, explaining, namely, up to what extent primary prevention strategies help reduce the incidence of health risk behaviours and alter the psychosocial variables which influence these behaviours.

## 1.2 OBJECT OF RESEARCH AND THEORETICAL SYNOPSIS

There is not a great deal of literature published on this topic, nor does it provide an explanation for the emotional-behavioural dimension of the somatic problems of children and adolescents, in particular in their association with the adoption of health risk behaviours.

As far as this is concerned, the results of the analysis conducted by Horwitz *et al.* (2002) on topics of research projects financed by the USA (researched from North American CRISP - Computer retrieval of information on scientific projects – data retrieved in April 2001) reveal that of a total of 66.749 scientific résumés consulted (45.022 of which concerned ongoing scientific projects) only 63 projects, i.e., approximately .1% of the total, corresponded to research work on children and adolescents in primary health care.

On the other hand, only 21 studies (.05% of the total) were geared towards the analysis of identifiable emotional and behavioural problems in young users of primary health care services. This is the case despite the growing importance that is attributed, from the preventive viewpoint of community public health, to the improvement of screening skills and preventive / therapeutic interventions on the subject of psychological and behavioural impact of health problems on children and adolescents.

Nevertheless, a number of research teams have developed reference studies in this area. In particular:

- Epidemiological studies led by Choquet *et col.* of an overall adolescent population in which is undertaken the critical analysis of data concerning the statistical cross-referencing of somatic problems, psychosomatic complaints and risk behaviours. The resource to primary and specialised health care is assessed within the context of the association between the state of somatic health and the quality of adaptive behaviours among the adolescents interviewed;
- Periodical surveys conducted in samples of the adolescent school population within the scope of the European project of epidemiological surveillance HBSAC (*Health Behaviour in School-Aged Children*) in order to determine the prevalence rates of alcohol use, smoking and psychotropic substances and to cross-refer these behaviours with other psychosocial variables (lifestyles, leisure, schooling and school environment, among others). In Portugal these surveys have been coordinated by Gaspar de Matos and her team;
- The study led by Elaine Francis *et al.* (1996) in a county of Florida concerning the distribution rates of prescribed drugs in a group of public and private schools of

different levels of education (primary, secondary, complementary, special education). During the week in which the survey among the school nurses took place, 3.6% of the school population under study (i.e., 1.016 from among the 28.134 children and adolescents evaluated) received a total of 5.411 doses of 31 different categories of medication, especially Methylphenidate (by far the most frequently used drug in any of the schools studied, as it represented 54% and 66% of the drugs distributed in private and public primary schools respectively). It should be noted that in statistical terms the prescription rate of this drug corresponds to the diagnosis of ADHD undertaken in 3% of the children in primary education of the sample. This medication was followed (in decreasing order) by analgesics, bronchodilators and anti-hypertensive drugs. Anti-depressants and SNC stimulating drugs had the lower prescription rates. It should be noted that the boys had a probability 2.5 higher than the girls of taking prescribed medications in this school sample;

- The studies on the psychopathological dimension of health risk behaviours, carried out in samples of adolescents of the general population within the scope of community-based cohort projects or in the context of epidemiological surveillance projects (cross-sectional or longitudinal) carried out on school population samples. As to the first type of studies, Zwaigenbaum *et al.* (1999) identify an added probability of evolving towards emotionally disturbing situations, in this case *major* depression and panic attacks (diagnosed according to DSM-IV criteria), after 4 years among the adolescents from the cohort studied which, between the ages of 13-16, reported high levels of somatisation, especially when the somatic complaints were not associated with the expression of correlative emotional disturbances. It should also be noted that for this group of adolescents, the relative risk of developing abuse/dependence of psychoactive drugs is not significantly different from adolescents which somatise little or who do not somatise at all. This study does not confirm however the association between the antecedents of medical diseases in childhood and the tendency towards higher levels of somatisation during adolescence which was detected in the studies carried out by Livingston *et al.* (1988) and Fritz *et al.* (1997). As far as basic school studies are concerned it should be mentioned that Simon *et al.* (2003) found an association between an advanced stage of puberty development, high levels of emotional *stress* and the adoption of health risk behaviours among pre-adolescents (11-12 years old) of both sexes in a 5-year longitudinal study on health and social behaviours of adolescents (HABITS). In addition to the (expected) identification of an average lower level of



puberty development among the boys in the sample, the analyses made on the results of the 1st year of the study permit to conclude that boys and girls with a higher level of pubertal development try-out tobacco smoking at an earlier age. On the other hand, even if it is possible to identify a tendency towards a fatty food diet and higher levels of physical exercise among boys, the girls seem to be more sensitive to higher levels of emotional stress with the emergence of pubertal transformations. The authors have not managed to prove the hypothesis according to which the interaction between puberty stage and health behaviours would be mediated by the youngster's stress levels and psychological difficulties. Finally, Fulkerson *et al.* (2004) identified a significant association between depressive symptoms (measured through a dimensional psychometric instrument) and a set of health risk attitudes and behaviours (preoccupations about weight associated with resistance to a balanced diet, disordered eating behaviour and substance use) among the secondary students of both sexes enrolled in their study (which average age is 14.9 for boys and 14.7 for girls). It should be pointed out that among girls there is a proportional correlation between the levels of depressiveness and health risk behaviours whereas among boys the authors identify a "threshold effect" which separates, for the same variables, the adolescents who belong to the subgroups with a moderate/high level of depressive symptoms from those who belong to the subgroup with a low level of depressive symptoms;

- Another set of studies undertake an analysis of the impact that the exposure to particularly unfavourable new material and emotional conditions in the family environment (parental or family violence, negligence and/or physical or psychological ill-treatment, physical or sexual abuse during childhood) can exert on the quality of social behaviours and in particular the health behaviours of children coming from these families. For Graham-Bergmann & Seng (2005) this adverse family setting can still be worsened in the case of children with traumatic stress symptoms. Therefore in a cross-sectional analysis undertaken on data from the 2nd wave of a longitudinal study on the impact of systemic violence on children's development, they verified that all pre-school aged children in the sample presented a high rate of somatic and behavioural problems (in particular, asthma, frequent gastro-intestinal problems, allergies, repetitive headaches, ADHD or a combination of asthma, allergies and ADHD) and that these rates of somatic problems were significantly higher than those observed in children of the same age group (0-4 years old) coming from poor family environments and included in the North-American study NHISH (*National Health Survey of Child*

*Health*). The authors also concluded that the inclusion of children's traumatic stress symptoms and poor maternal health in the hierarchical risk model, which they constructed for this study, increased its predictive power, since it was associated with a greater number of health problems among children. On their side, Connors *et al.* (2004) undertook a prospective analysis on data from drug-addicted mothers and their children who between the years 1993 and 2000 benefited from residential support programmes all over USA. They concluded that, for those children subject to a number of material, neurobiological and emotional risk factors the prevalence rates for different cognitive, psycho-emotional and somatic problems (namely learning difficulties and school adjustment problems) were higher than the national average. Most particularly, asthma and hearing and sight problems showed a two-fold, five-fold and seven-fold increase in relation to the average national prevalence rates for these health problems;

- As to the studies on the analysis of the impact of alcohol and drug use on the physical and mental health of adolescents and adults, it should be mentioned that the epidemiological research conducted in this area concerns mainly the issues of co-occurrence and co-morbidity with other psychiatric pathologies. From this perspective, Adrian & Barry (2003) undertook a comparative analysis on data about the medical morbidity of all patients with diagnoses of alcohol and drug abuse/ dependency treated in hospital environment in the province of Ontario (Canada) between 1985 and 1986 and on data about the patients who, during the same period of time, were treated in hospitals all over Canada (after previous adjustment for the diagnoses and morbidity rates by sex/age). They defined a “standard morbidity rate” (SMR) as a standard measure for the whole of physical and mental pathologies included in the correlational analysis, and through the use of appropriate calculation formulae they concluded that: patients with primary diagnoses (PD) of alcohol or drug abuse/dependency (A/D) had higher morbidity levels than those with secondary diagnoses (SD) of these pathologies; SMR was higher for patients with a PD of abuse of prescribed drugs, intermediate for those with a PD of “illicit” drug dependency and lower for those with PD and SD of alcohol use; patients with A/D of alcohol presented a higher medical morbidity, both from a quantitative and qualitative viewpoint and those with drug A/D presented a higher psychopathological morbidity. Along the same line of research, Aarons *et al.* (1999) conducted an epidemiological study in a subgroup of an adolescent sample of both sexes with diagnoses of alcohol and drug abuse/dependency under treatment in specialised centres and included in a longitudinal project on the clinical development of

the addictive disturbances in adolescence. They established three sub-groups in their sample based on the outcome of the treatment: adolescents with negative outcome, since they did not stop using drugs during the follow-up of the treatment; adolescents with positive therapeutic outcome; a community subgroup of adolescents either abstinent or reporting reduced of psychoactive substances. They then concluded that: 1) substance-use behaviours which require treatment, even when successful, were associated with a high level of somatic health problems among boys and girls, the latter presenting even more serious health problems; 2) the maintenance of substance-use behaviours (due to therapeutic failure) was associated both with cumulative and serious health problems among girls and more serious health problems among boys; 3) in line with results from other studies, early initiation to alcohol use was associated with an high probability of drug abuse and somatic problems during adolescence and adulthood;

- Since attachment is an important variable in this project, a documental research has been made on the most well known databases by introducing different variations of the key words, attachment, health behaviours, children and adolescents. Even though the results of the research were somewhat disappointing<sup>1</sup>, mention should be made, on the one hand, to the association between anxious/ambivalent attachment style, family history of disease and current somatic complaints (the latter relationship mediated in part by a negative emotionality) identified by Feeney & Ryan (1994) among the university students interviewed in their research and, on the other hand, to the study by Maunder & Hunter (2001) on the relationship between attachment style, vulnerability to stress and state of health. These authors begin by drafting an important and systematic synopsis on the conceptual developments in the area of attachment theory (they revisit among others, the operational concept of “strange situation” due to Ainsworth in line with Bowlby’s theoretical foundations and the contributions of developmental neurobiology to the conceptual evolution of this construct, and go on proposing the theoretical delimitation of the basic types of adult attachment - secure, insecure and avoidant – after a previous discussion on the “internal working model” concept). They then move on to the theoretical construction trial of a comprehensive model aimed at explaining the contribution of insecure attachment behaviours for the

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<sup>1</sup> Research carried out in-ON on the data bases [ACM - The Guide](#); [Current Contents \(ISI\)](#); [ERIC \(EBSCO\)](#); [ISI Proceedings \(ISI\)](#); [Journal Citation Reports \(ISI\)](#); [PubMed](#); [Web of Science \(ISI\)](#); [Zentralblatt](#) with the combination of key words ATTACHMENT & ADOLESCENCE identified only 146 entries between 2000 and 2007, 15 of which were duplicated publications. It should be noted however that the interest has increased as in 2006 90 were published. The combination ATTACHMENT & CHILDHOOD was also used and the results were similar. For the same period 149 entries were identified, 102 of which were from 2006.

risk of developing somatic diseases. Such model is based on the meta-analysis of the literature concerning attachment quality, health and disease (in the child, adult and in the developmental perspective). Always following the same methodology, Maunder & Hunter undertake a *path analysis* in which they include the following regulation mechanisms: physiological response to situations of emotional stress, use of external affect regulators and use of protective factors (social support, search for help, adhesion to treatment). In short, they reach the conclusion that attachment style can be a predictor both of vulnerability to stress and to the (correlative) risk of developing somatic diseases through the mediation of three of the mechanisms which enhance such risk: the shift of the physiological response to stress, the excessive use of external regulators for the commonest affective states and the misuse of the aforementioned protective factors.

### **1.3 TYPE OF STUDY AND WORKING HYPOTHESES**

This is an analytical epidemiological study developed through a cross-sectional survey carried out on a sample of children and adolescents users of the primary health services of the Health sub-region of Coimbra.

There are two basic hypotheses in this project:

- The *antecedents of somatic diseases*, especially if they are early, serious (e.g., demanding hospitalisation for longer than a week) with a prolonged evolution and associated to *behavioural troubles* during childhood or early adolescence *increase the probability of the adolescent's involvement in health risk behaviours* (including smoking, drinking alcohol, use of psychotropic medication or other psychoactive drugs);
- *Attachment quality has a mediating effect on the interaction between somatic antecedents and health risk behaviours*. According to the mediator model advanced in this study, the maternal perception of an insecure attachment behaviour (anxious or avoidant) enhances the probability of health compromising behaviours most particularly among those youngsters who also present somatic antecedents, especially if (these antecedents) go along with disordered social behaviours. Conversely, the perception of a secure attachment will contribute to reduce the aforementioned probability in addition to the strengthening of healthy behaviours among the adolescents of the general population sample under study



## **1.4 STRATEGIC AIMS**

The following items include the strategic aims of this study:

1. To verify the theoretical/empirical hypotheses mentioned above;
2. To determine the impact of the involvement of adolescents in psychoactive substance use, particularly tobacco, alcohol and psychotropics, on the occurrence of avoidable medical and surgical pathologies;
3. To evaluate the influence that the access to medical and/or psychological treatment can have on the positive modification of health risk behaviours, including substance use;
4. To ascertain the influence of early and/or prolonged prescription of analgesics, psychotropics or other psychoactive drugs on the adoption of compromising health behaviours among the adolescent sample under study.

## **II RESEARCH PROTOCOL**

### **2.1 SAMPLE AND SAMPLING PROCEDURES**

The epidemiological study was conducted in a general population sample of children and adolescents randomly selected from the familial medicine, general practice and child health consultations of the Health Centres included in Coimbra Health Sub-Region. The selection procedures fulfilled the following criteria: 1) identification of all the Health Centres within Coimbra Health Sub-Region; 2) stratification of the surveyed units according to the number of children and adolescents - 6 to 18-year old - registered in each one of the health centres under scrutiny; 3) establishment of a panel sample (with an estimated number of 1500 children and adolescents of both sexes divided into three sub-groups of different age spans (E1: children between the ages of 6 and 8; E2: 11 to 14-year old adolescents; E3: 15 to 18 year-old adolescents); 4) option to include all Health Centres (HC) in Coimbra Health Sub-Region as primary survey units, rather than sticking to the initially foreseen random selection vis-à-vis practical considerations regarding the risk of an high rate of sample loss eventually rendering the study ineffective.

### **2.2 VARIABLES UNDER STUDY AND STATISTICAL ANALYSIS STRATEGY**

In order to implement the aims defined for this study a research protocol was set up structured around a cross-sectional epidemiological inquiry, following a model of empirical analysis based on adequate statistical assessment of data collected from the sample under investigation, by resorting to the following procedures:

1. Determination of the reliability coefficients for each one of the attachment scales included in the research protocol – measures of internal consistency through analysis of the psychometric qualities (principal components' analysis and item distribution analysis per each subscale) – PCV-M, IPPA and IACA;
2. Descriptive analysis (uni and multi-varied) and correlational analysis of cross-sectional data for each sub-group in the sample (estimation and comparison of average values, parametric tests, and whenever necessary non-parametric tests, for frequency analyses of qualitative variables, uni and multifactorial ANOVA);

3. Regression tests for longitudinal analysis of the variation of health risk behaviours in relation to the values of the “Dynamic Index of Somatic Antecedents” (IAS-*din*) and adequate discriminating statistical tests for the mediator model advanced in this study.

The selection of the variables under study was undertaken through the following psychometric data collection instruments included in the research protocol:

- **Health Inventory** (self-questionnaire to be filled in by parents of children and adolescents) consisting of closed and pre-coded questions organised diachronically (relevant medical and behavioural antecedents from the pregnancy and neo-natal period on, including, for example, the type and length of time of child’s or adolescent’s full hospitalisation; type, posology and length of time of prescribed medication use; preventive interventions and therapies undertaken);
- **Psychosocial self-questionnaire for adolescents** (adapted from Choquet *et col.*, INSERM) with closed and pre-coded questions in the following domains: social/demographic, physical health (including health behaviours, perception of bodily well-being, pubertal changes); violent behaviour (run away, violence, theft); substance use (alcohol, tobacco, psychotropic drugs);
- **Abridged medical record** (filled in by each one of the doctors from the different Health Centres enrolled in the study) drawn up from data included in the official “Individual Health Bulletin” in order to achieve a complementary validation for the medical and somatic-functional variables included in both questionnaires;
- **PCV-M** (Dias & Soares) parent version of a psychometric instrument which measures the perception of the quality of attachment behaviours of school-aged children through 4 sub-scales (difficulties in emotional self-regulation, secure-base behaviour, sharing emotions, social desirability) the scoring of which varies between 1 (totally different from my son/my daughter) and 5 (totally similar to my son/my daughter). In the initial validity study this scale revealed good internal consistency indices, with values for Cronbach’s alpha of .88 for the sub-scale “difficulties in emotional self-regulation”, of .82 for “secure-base behaviour”, of .76 for “sharing emotions” and of .86 for the global scale;



- **IPPA** – Inventory of Parent & Peer Attachment (Armsden e Greenberg) comprising 75 items that measure the perception of adolescents on different attachment features with parents and friends. The initial assessment of the reliability indexes for this scale revealed a Cronbach's  $\alpha$  coefficient of .87 for maternal attachment and .89 for paternal attachment (Armsden & Greenberg, 1987). The psychometric validity studies conducted in Portugal by Neves (1995) and Neves, Soares & Silva (1999) confirmed good reliability coefficients (.92 and .95, respectively for the mother and father scales). The Portuguese version for the mother and friends scales used in this research protocol was submitted to psychometric assessment for the sample in study;
- **IACA** – Inventory of Attachment in Childhood and Adolescence – constructed and developed by Carvalho, Soares & Baptista (2004). First the authors defined 80 items for the questionnaire conceptually based on the original psychodynamic models from the attachment theory (Bowlby, 1969, 1973) and in the evaluation instruments derived from the cognitive approach of this theory (EAS, SASC-R, BIS e RCMAS-1). Those items were then analysed in terms of their facial and content values. Based on this analysis 16 items were excluded due to their ambiguity and also because they weren't representative of the dimensions of attachment behaviour under scrutiny: secure, anxious/ambivalent and avoidant. The internal consistency values for each one of the sub-scales, measured by Cronbach'  $\alpha$  coefficient were the following: .87 for secure attachment, .84 for anxious attachment and .71 for avoidant attachment. A psychometric assessment of this instrument was undertaken in this research so as to detect the reliability indexes according to the methodology defined by IACA authors.

## 2.3 PROCEDURES FOR DATA COLLECTION

After choosing the operational coordinator for the fieldwork selection procedures were undertaken in order to recruit ESTESC' environmental health trainees, already placed in the different health centres (HC) included in the sample survey, to cooperate with the research team. The selected trainees then received a specific formation at ESTESC. Afterwards a meeting was held with general practitioners, namely those responsible for child and adolescent

health consultations in each one of the HC, with the purpose of informing them about the methodology and aims of the epidemiological survey.

Once the calculations for the estimated sample size, based on data in the previous year movement supplied by Coimbra Health Sub-Region, were concluded (using a number of users/by age group/by practitioner/by Health Centre composite ratio) a final sample distribution was obtained as indicated in table 1.

**Table 1: Sample distribution**

HEALTH CENTER (HC)	6-8 YEAR-OLDS		11-14 YEAR-OLDS		15-18 YEAR-OLDS		TOTAL	
	By age group	By Doctor	By age group	By Doctor	By age group	By Doctor	By HC	By Doctor/ HC
Arganil	17	2	19	2	20	2	55	6
Cantanhede	37	2	39	2	39	2	115	5
Celas	34	1	33	1	34	1	101	4
Condeixa-a-Nova	21	2	19	2	18	2	58	6
Eiras	16	1	17	1	16	1	49	4
Fernão de Magalhães	30	2	31	2	30	1	91	5
Figueira da Foz	64	1	64	1	65	2	194	5
Góis	7	1	8	2	8	2	23	5
Lousã	22	2	21	2	20	2	62	6
Mira	25	3	24	2	22	2	72	7
Miranda do Corvo	16	2	16	2	17	2	49	5
Montemor-o-Velho	29	2	30	2	28	2	87	5
Norton de Matos	31	1	31	1	31	1	93	4
Oliveira do Hospital	32	2	31	2	30	2	93	7
Pampilhosa da Serra	5	1	5	1	6	1	16	4
Penacova	16	1	16	1	18	1	49	4
Penela	8	1	7	1	7	1	22	3
Santa Clara	18	1	19	1	19	1	56	4
São Martinho do Bispo	22	1	25	2	24	2	71	5
Soure	22	1	20	1	21	1	63	4
Tábua	15	2	16	2	17	2	48	6
Vila Nova de Poiares	13	2	10	2	11	2	34	6
Total	501		500		501		1501	

The research's standard dossier was organised so as to respect the complex fieldwork logistics. A particular attention was given to the coding of individual dossiers by age subgroup (E1; E2; E3)/inquired subject (parent, adolescent, practitioner)/Health Centre as well as to its distribution by each Health Centre, carried out personally by the operational coordinator of the fieldwork under the supervision of the project's research team and counting on the institutional support of the colleague coming from Coimbra Health Sub-Region.

The fieldwork took place between January and July 2005. From the onset the difficulties linked to the logistics were obvious, especially as to the rather reduced crossed-availability of adolescents (namely the 15-18 year-old whose appointment rate is rather low) and health

professionals, most particular family doctors, to participate in the survey. In addition, in a number of situations, the mediating role played by the environmental health trainees (and by the nursing/ administrative staff of certain HC) was a rather ineffective one. Those difficulties, which continued throughout the course of the fieldwork, led to the lengthening of the time initially foreseen for the data collection (from 6 to 8 months).

In spite of both the technical skills and the methodological exigencies that were placed on the implementation of the fieldwork, the participation rate has been a relatively low one (587 subjects of the 1,500 initially estimated, meaning that there's been an effective participation rate of 39% in relation to the estimated sample size). Such relatively low participation rate can then be explained by the variables mentioned above, as well as by professional, bureaucratic, and administrative factors, that both converged to reduce the size (but not the empirical quality) of the study sample.

The participation rate per HC is shown in Table 2.

**Table 2: Participation rate**

HEALTH CENTRE (HC)	ESTIMATED	EFFECTIVE	RATE (%)
Arganil	55	54	98
Cantanhede	115	104	91
Celas	101	0	0
Condeixa-a-Nova	58	55	94
Eiras	49	21	43
Fernão de Magalhães	91	21	23
Figueira da Foz	194	41	21
Góis	23	19	84
Lousã	62	24	38
Mira	72	0	0
Miranda do Corvo	49	0	0
Montemor-o-Velho	87	67	77
Norton de Matos	93	0	0
Oliveira do Hospital	93	20	22
Pampilhosa da Serra	16	25	153
Penacova	49	0	0
Penela	22	0	0
Santa Clara	56	0	0
São Martinho do Bispo	71	30	42
Soure	63	56	89
Tábua	48	48	100
Vila Nova de Poiares	34	2	6
Total	1501	587	61

## 2.4 STUDY SAMPLE

The overall sample of this survey consists of 587 children and adolescents distributed in 3 age sub-groups:

- E1 (6-8 year-old) 225 children - 123 girls (55%) and 99 boys (45%);
- E2 (11-14 year-old) 187 adolescents – 108 girls (58%) and 79 boys (42%);
- E3 (15-18 year-old) 175 adolescents – 93 boys (53%) and 81 girls (47%).

As to the 362 youngsters of the global adolescent sample (E2 and E3) they have between 11 and 18 years old, and the mean age of those (347) who have mentioned it is 14.48 years old (14.43 for the boys and 14.55 for the girls, with a SD of +/- 2.4 for both genders).

The distribution by gender among the adolescent sample reveals a slight predominance of girls - in fact, 55.7% (201) of them are girls and 44.3% (160) boys - as is the case for the children sample (E1).

Two notes on the population under study:

- The boy/girl ratio for each sub-group follows the tendency of the Portuguese population for the same age groups (cf. census INE 2001) if not even more so (it should be remembered that this is a community-based population, with a specific regional profile which used the primary health care services during the period under analysis);
- The adolescent population (11-18 years old) even though initially divided according to developmental criteria – onset of adolescence, intermediate adolescence and end of adolescence – is the object of a common epidemiological analysis, for statistical reasons (small N for each one of the subgroups and previewed low prevalence rate for substance use behaviours – the study's dependent variable - particularly in E2) as well as for empirical reasons (adjustment of the variables under study to a 11-18 year-old general population sample and usual strategic orientation for epidemiological surveys in general population samples).

## 2.5 CALCULATION OF THE RELIABILITY COEFFICIENT FOR EACH ATTACHMENT SCALE

### 2.5.1 PCV-M

PCV-M is divided into four sub-scales – Difficulties in Emotional Self-regulation, Secure-base Behaviour, Sharing of Affection and Social Desirability (relating to mothers) – which can be scored from 1 (totally different from my son/daughter) to 5 (totally similar to my son/daughter).

**Table 3: Reliability coefficients: Internal consistency**

SCALE	TOTAL SCALE	DIFFICULTIES IN EMOTIONAL SELF-REGULATION	SECURE-BASE BEHAVIOUR	SHARING OF AFFECTION	SOCIAL DESIRABILITY (RELATING TO MOTHERS)
Cronbach' alpha	.844	.778	.789	.774	.650
N.º of items	33	12	7	7	7

By looking at this table, it's possible to ascertain that the scale presents overall a good Cronbach's alpha, very close to the one Dias & Soares obtained in their study (.86). However, its sub-scales present a lower consistency coefficient, although acceptable and very close to good, with the exception of the "social desirability" subscale whose score suggests that it may perhaps benefit from reformulation.

The following tables show the psychometric characteristics for each item in PCV, as well as for each one of its sub-scales.

**Table 4: Psychometric characteristics of the PCV-M: Total scale**

ITEMS	$\bar{\chi}$ IF DELETED	S2 IF DELETED	R (CORRECTED)	$\alpha$ CRONBACH IF DELETED
1	119.9458	282.524	.129	.847
2	119.3434	276.190	.382	.840
3	119.5181	275.548	.361	.840
4	120.4518	278.516	.297	.842
5	119.4217	271.191	.436	.838
6	119.7349	280.075	.190	.845
7	120.1627	276.767	.264	.843
8	120.0783	275.721	.274	.843
9	119.9458	272.609	.381	.839
10	121.0422	279.604	.221	.844
11	119.4157	274.572	.386	.839
12	119.6506	271.501	.391	.839
13	121.2892	284.534	.108	.847
14	119.7349	275.699	.317	.841
15	121.4337	286.477	.076	.847
16	119.7651	264.678	.551	.834
17	119.2952	271.809	.491	.837
18	119.7410	264.581	.574	.833
19	119.3494	273.889	.378	.839
20	121.4518	293.898	-.109	.852
21	119.4639	271.329	.440	.838
22	119.7229	268.711	.504	.836
23	119.5542	274.212	.353	.840
24	119.9819	270.588	.424	.838
25	119.9036	272.657	.350	.840
26	119.3133	274.107	.406	.839
27	119.3554	272.121	.476	.837
28	120.2048	275.909	.334	.841
29	120.1747	271.709	.340	.841
30	119.5843	269.820	.473	.837
31	119.8494	268.565	.560	.835
32	119.8253	272.387	.432	.838
33	119.3072	276.747	.340	.841

As can be observed, a set of 6 items presents a correlation with the remaining ones below .3 (after rounding-off) which, according to Bryman & Cramer (1992), suggests a need for revision. It is further stressed that 5 of these items belong to a single sub-scale, precisely the “social desirability” scale.

Tables 5, 6, 7 and 8 show the performance of the items by sub-scale.

**Table 5: Sub-scale “Difficulties in emotional self-regulation”**

ITEMS	$\bar{\chi}$ IF DELETED	S2 IF DELETED	R (CORRECTED)	$\alpha$ CRONBACH IF DELETED
PCV-M item1 (reverted)	43.8150	65.338	.285	.778
PCV-M item6 (reverted)	43.6127	66.192	.261	.780
PCV-M item8 (reverted)	43.9595	61.748	.452	.759
PCV-M item11 (reverted)	43.2832	63.541	.496	.756
PCV-M item14 (reverted)	43.6012	64.276	.393	.765
PCV-M item16 (reverted)	43.6358	61.012	.524	.751
PCV-M item19 (reverted)	43.2312	62.911	.488	.756
PCV-M item21 (reverted)	43.3179	62.718	.507	.754
PCV-M item23 (reverted)	43.4393	62.283	.500	.754
PCV-M item25 (reverted)	43.7457	64.005	.363	.769
PCV-M item29 (reverted)	44.0347	62.964	.373	.769
PCV-M item33 (reverted)	43.1734	65.109	.422	.763

As can be seen, the corrected correlation of each item with the others ranges from .3 to .5, and the consistency diminishes if any of them is removed, with the exception of item 6, although the added value of this procedure is very low (.002).

**Table 6: Sub-scale “Secure-base behaviour”**

ITEMS	$\bar{\chi}$ IF DELETED	S2 IF DELETED	R (CORRECTED)	$\alpha$ CRONBACH IF DELETED
2	24.32	26.111	0.446	0.775
5	24.41	24.984	0.451	0.775
12	24.57	23.484	0.531	0.760
18	24.70	23.195	0.570	0.751
22	24.68	24.355	0.501	0.765
27	24.34	24.840	0.535	0.759
31	24.79	24.175	0.586	0.750

**Table7: Sub-scale “Sharing of affection”**

ITEMS	$\bar{\chi}$ IF DELETED	S2 IF DELETED	R (CORRECTED)	$\alpha$ CRONBACH IF DELETED
3	23.55	26.358	.472	.750
7	24.20	24.402	.499	.745
9	23.93	24.564	.550	.734
17	23.36	25.818	.523	.741
24	24.03	24.939	.479	.749
26	23.35	26.173	.482	.748
30	23.61	25.715	.470	.750

**Table 8: Sub-scale “Social desirability” (relating to mothers)**

ITEMS	$\bar{\chi}$ IF DELETED	S2 IF DELETED	R (CORRECTED)	$\alpha$ CRONBACH IF DELETED
4	16.75	18.017	.375	.610
10	17.36	16.937	.407	.599
13	17.59	15.982	.516	.562
15	17.71	16.999	.454	.585
20	17.74	18.563	.290	.635
28	16.49	18.740	.266	.642
32	16.14	19.252	.216	.655

As can be seen in this sub-scale item 20 no longer presents a negative inter-item correlation but item 32 presents a correlation below .3 (after rounding-off). It must be said nevertheless that its removal does not improve this sub-scale.

## 2.5.2 IPPA

**Table 9: Reliability coefficients**

SCALE	MOTHER	FATHER	FRIENDS
Cronbach' Alpha	.703	-	.844
N.°of items	25	-	25

As can be observed this instrument shows good psychometric characteristics for evaluating perception of the quality of attachment to friends, and moderately good ones for evaluating the same perception as regards their mother (please note that these were the sub-scales used in this study).



**Table 10: Sub-scale “Attachment-mother”**

ITEMS	$\bar{\chi}$ IF DELETED	S2 IF DELETED	R (CORRECTED)	$\alpha$ CRONBACH IF DELETED
IPPA - 1 Part I	80.9841	116.584	.566	.673
IPPA - 2 Part I	80.5796	122.685	.406	.688
IPPA - 3 Part I (reverted)	80.4713	125.694	.272	.695
IPPA - 4 Part I	80.9045	120.195	.347	.687
IPPA - 5 Part I	81.1847	115.646	.569	.672
IPPA - 6 Part I (reverted)	81.4268	121.351	.282	.692
IPPA - 7 Part I	81.8471	117.446	.451	.679
IPPA - 8 Part I	83.1688	140.154	-.393	.736
IPPA - 9 Part I (reverted)	81.8790	129.040	.005	.714
IPPA - 10 Part I	83.2739	138.161	-.347	.730
IPPA - 11 Part I	83.2357	138.142	-.333	.731
IPPA - 12 Part I	81.7038	112.126	.216	.711
IPPA - 13 Part I	81.2994	116.504	.512	.675
IPPA - 14 Part I (reverted)	81.8949	128.024	.041	.711
IPPA - 15 Part I	81.4777	111.739	.646	.662
IPPA - 16 Part I	81.7739	110.265	.641	.659
IPPA - 17 Part I	83.4618	136.505	-.327	.723
IPPA - 18 Part I	83.1242	131.336	-.101	.743
IPPA - 19 Part I	81.5860	112.518	.641	.663
IPPA - 20 Part I	81.2070	112.983	.701	.662
IPPA - 21 Part I	81.3758	113.366	.658	.664
IPPA - 22 Part I	80.7611	118.892	.527	.678
IPPA - 23 Part I	82.7038	136.644	-.230	.735
IPPA - 24 Part I	81.3217	112.621	.654	.663
IPPA - 25 Part I	81.0987	116.498	.519	.675

Although some items present negative inter-item correlations, removing them does not significantly improve this sub-scale, which may indicate the need to reformulate it.

**Table 11: sub-scale “Attachment– friends”**

ITEMS	$\chi$ IF DELETED	S2 IF DELETED	R (CORRECTED)	$\alpha$ CRONBACH IF DELETED
IPPA - 1 Part III	80.36	143.396	0.548	.833
IPPA - 2 Part III	80.67	143.084	0.537	.834
IPPA - 3 Part III	80.65	142.340	0.619	.831
IPPA - 4 Part III	82.46	163.139	-0.195	.860
IPPA - 5 Part III (reverted)	80.37	149.951	0.241	.845
IPPA - 6 Part III	80.40	140.510	0.747	.827
IPPA - 7 Part III	80.65	138.511	0.693	.827
IPPA - 8 Part III	80.12	142.736	0.620	.831
IPPA - 9 Part III	80.52	142.699	0.501	.835
IPPA - 10 Part III	82.50	160.458	-0.104	.856
IPPA - 11 Part III	82.85	163.297	-0.215	.858
IPPA - 12 Part III	80.48	141.837	0.599	.831
IPPA - 13 Part III	80.13	141.567	0.701	.829
IPPA - 14 Part III	80.46	141.760	0.540	.833
IPPA - 15 Part III	80.56	140.619	0.678	.829
IPPA - 16 Part III	80.47	140.678	0.637	.830
IPPA - 17 Part III	82.29	161.461	-0.151	.855
IPPA - 18 Part III	82.26	161.164	-0.135	.855
IPPA - 19 Part III	80.48	138.299	0.679	.827
IPPA - 20 Part III	80.34	138.983	0.723	.827
IPPA - 21 Part III	80.49	139.892	0.673	.828
IPPA - 22 Part III	82.20	160.767	-0.115	.856
IPPA - 23 Part III	82.51	162.382	-0.178	.857
IPPA - 24 Part III	80.59	138.552	0.680	.828
IPPA - 25 Part III	80.36	143.473	0.513	.834

### 2.5.3 IACA

The principal components’ factorial analysis of the self-evaluation version of this scale, using varimax rotation, presented a solution of 3 factors that can be theoretically understood. This 3-factor solution accounts for 36% of the variance. Hence:

- Factor 1 was composed of 24 items, which account for 16% of the variance and evaluate anxious /ambivalent attachment;
- Factor 2 was made up of 19 items, which account for 14% of the variance and evaluate secure attachment;
- Factor 3 was composed of 11 items that account for 6% of the variance and evaluate avoidant attachment.

As to the comparison between internal consistency values obtained by the authors of the instrument and those that were obtained for the sample study, the data is shown in the following tables.

**Table 12: Reliability coefficients**

	CRONBACH	ANXIOUS BOND	SECURE BOND	AVOIDANT BOND	TOTAL
Carvalho. M; Soares. I & Baptista. A. (2004)	$\alpha$	.84	.87	.71	
	N.º of items	24	19	11	64
Our study	$\alpha$	.813	.872	.617	.861
	N.º of items	24	19	11	64

This instrument showed sound psychometric characteristics for evaluating the different types of attachment following the results of the study that led to its initial construction and validation. As to its application to this study sample the reliability coefficients of the avoidant sub-scale were lower; however they do not compromise the findings for the global scale.

The internal consistency of the sub-scales is shown in tables 13, 14 and 15.

**Table 13: Sub-scale “Anxious/ambivalent bond”**

ITEMS	$\chi$ IF DELETED	S2 IF DELETED	R (CORRECTED)	$\alpha$ CRONBACH IF DELETED
IACA7	50.92	173.310	.217	.815
IACA8	50.81	171.344	.349	.807
IACA9	51.32	171.244	.399	.805
IACA10	51.62	179.681	.208	.812
IACA12	50.67	162.317	.223	0.830
IACA16	50.29	171.856	.353	.807
IACA20	50.80	166.762	.498	.800
IACA21	50.94	174.889	.337	.808
IACA24	50.77	175.095	.273	.810
IACA26	50.31	166.564	.474	.801
IACA27	51.07	171.440	.510	.802
IACA30	50.34	167.677	.459	.802
IACA32	50.24	172.253	.364	.806
IACA35	49.99	170.714	.364	.806
IACA36	50.83	171.293	.484	.802
IACA38	51.52	174.738	.468	.805
IACA40	50.49	166.807	.521	.799
IACA46	50.39	176.504	.235	.812
IACA47	50.74	175.494	.322	.808
IACA48	50.79	171.140	.408	.804
IACA52	50.80	170.061	.503	.801
IACA53	50.74	173.409	.319	.808
IACA59	51.08	175.652	.324	.808
IACA64	50.58	170.014	.427	.804

As can be observed the scale has the desired consistency and the removal of any of the items would lower its internal consistency.

**Table 14: Sub-scale “Secure bond”**

ITEMS	$\bar{\chi}$ IF DELETED	S2 IF DELETED	R (CORRECTED)	$\alpha$ CRONBACH IF DELETED
IACA1	66.10	158.514	.354	.870
IACA11	65.91	152.706	.509	.864
IACA18	66.25	152.495	.519	.864
IACA19	66.03	151.684	.557	.862
IACA25	65.81	155.959	.395	.868
IACA23	65.96	150.951	.565	.862
IACA29	66.74	156.422	.371	.869
IACA31	65.46	152.011	.367	.872
IACA33	65.92	153.674	.498	.865
IACA34	65.84	154.533	.497	.865
IACA41	65.83	152.099	.552	.863
IACA44	66.43	153.115	.484	.865
IACA45	66.32	155.282	.425	.867
IACA50	66.59	153.196	.472	.866
IACA55	65.68	153.955	.534	.864
IACA56	65.78	155.349	.509	.865
IACA57	65.62	157.522	.422	.867
IACA61	66.06	151.848	.561	.862
IACA63	66.12	151.274	.574	.862

The high correlations of each item with the scale and with the alpha score, if the item is removed, show the strong consistency of this sub-scale.

Data of the avoidant bond sub-scale is shown in table 15.

**Table 15: Sub-scale “Avoidant bond”**

ITEMS	$\bar{\chi}$ IF DELETED	S2 IF DELETED	R (CORRECTED)	$\alpha$ CRONBACH IF DELETED
IACA3	25.41	32.337	.412	.567
IACA4	25.64	34.642	.330	.587
IACA7	25.72	33.868	.154	.630
IACA15	25.42	32.174	.402	.568
IACA17	24.31	34.659	.198	.612
IACA28	25.26	33.063	.325	.584
IACA37	24.71	32.618	.330	.582
IACA39	25.07	31.438	.419	.562
IACA42	24.98	35.715	.125	.627
IACA51	25.48	35.966	.183	.611
IACA58	25.70	35.426	.241	.602

The low correlations of some items with the scale explain the low consistency of this sub-scale for which reason we suggest the reformulation of items 7, 42, 41 and 58, which also

showed the lowest factorial saturations in the original study by Carvalho, Soares & Baptista (2004).

## **III EMPIRICAL RESULTS**

### **3.1 DESCRIPTIVE AND CORRELATIONAL ANALYSIS OF DATA BY SUB-SAMPLE**

The following data concerns the univariate descriptive analysis (per gender) that has been conducted in each sub-sample: E1 (6-8 year-old children); E2 (11-14 year-old adolescents); E3 (15-18 year-old adolescents).

The strategy for presentation analysis and discussion of results is as follows:

1. Presentation, analysis and discussion of selected data from E1 sub-sample;
2. Presentation, analysis and discussion of selected data from E2 and E3 sub-samples.

#### **3.1.1 PRESENTATION AND ANALYSIS OF SELECTED DATA FROM E1 SUB-SAMPLE**

The following objectives were ascribed to the cross-sectional descriptive and correlational analyses of data issued from E1 sub-sample:

- Correlational analysis of relevant medical and behavioural antecedents (pregnancy, birth, newborn, 1<sup>st</sup> infancy, 2<sup>nd</sup> infancy, including type and time-length of hospitalisation, type, posology and time-length of prescribed medication' use). actual health status and actual child behaviour (including behaviour at home, social and pedagogic adaptation at school and early signs of health risk behaviours)

Therefore, keeping in mind both the theoretical assumptions of this study and the above mentioned objectives a set of questions have been formulated:

1. Has the child's pregnancy been disturbed by any medical problems of his/her mother?
2. Have there occurred during pregnancy family risk situations with a negative (compromising) impact on mother' well-being?
3. Has the newborn been submitted to any kind of treatment?

4. What is the mother' perception concerning the child' health state in three successive developmental phases: from birth to 24 months; from 3 to 5 years; from 6 to 8 years?
5. What is the rate of occurrence of medical diseases during the 1<sup>st</sup> infancy, the 2<sup>nd</sup> infancy and the latency period?
6. Is there any reference to accidents during the above-mentioned periods?
7. What is the complete hospitalization rate from birth to 24 months; from 3 to 5 years; from 6 to 8 years?

A brief comment on the results of the descriptive analysis ran on data from E1 will be subsequently presented.

To begin with, the marital state of the parents of the 225 children that have been assessed can be consulted on the next table

**Table 16: Marital state of the parents**

		N	% column
MARITAL STATE	Single	8	3.6%
	Married	188	85.1%
	Marital union	10	4.5%
	Separated	4	1.8%
	Divorced	7	3.2%
	Widowed	3	1.4%
	Other situation	1	.5%

As expected, since this is a general population sample scrutinized in routine appointments of primary care services, the parents are, for their most part (86.9%), married or living in marital situation.

**Table 17: Maternal health /obstetrical problems**

		n	Column N %
THIS CHILD'S PREGNANCY WAS MEDICALLY SURVEYED	Yes	216	96.4%
	No	8	3.6%
TROUBLED PREGNANCY	Troublesome vomiting	48	21.9%
	Danger of premature delivery	25	11.4%
	Other obstetrical complications	7	3.2%
	Hospitalization	4	1.8%
	Other problem	10	4.6%
	No health problems	125	57.1%
PREGNANCY TROUBLED FOR MORE THAN ONE PROBLEM	No	80	86.0%
	Yes	13	14.0%

In spite of the fact that nearly all mothers (96.4%) report that this was a medically assisted pregnancy about 43% of them recall. at least. one obstetric problem (most frequently 1st trimester sickness and danger of premature delivery) whilst a little more than 1 out of every 10 women (14%) reports more than one obstetric problem during this child's pregnancy.

**Table 18: Serious obstetric problems during pregnancy**

	n	Column %
SERIOUS OBSTETRIC PROBLEMS DURING PREGNANCY	None	85.8%
	One or more serious problems	14.2%

As one can verify by the observation of the previous table, a similar percentage of these mothers (14%) report antecedents of serious obstetric problems (according to medical standards).

**Table 19: Place, time-length of pregnancy and type of delivery**

	n	Column N %
PLACE	Public Hospital	94.6%
	Clinic	2.2%
	Another place	3.1%
TIME-LENGTH OF PREGNANCY	Complete	75.3%
	Premature	16.6%
	Post-mature	8.1%
TYPE OF DELIVERY	Normal	66.2%
	Caesarean	18.0%
	Forceps	11.3%
	Cupping-glass	4.5%

Analysis of this data allows concluding that the vast majority of deliveries (94%) took place. as expectable. at the public hospital. On the other hand, if it is true that  $\frac{3}{4}$  of the deliveries (75.3%) has followed a normal-length pregnancy, it is not less true that there is a lower rate of children from this sub-sample that were born from a normal delivery ( $\frac{2}{3}$ , i.e., 66.2%). It is also worth noticing that there is a statistical proximity between the percentage of premature deliveries (16.6%) and the one of dystocic (caesarean) deliveries (18%).



**Table 20: Family risk during pregnancy**

		n	Column N %
FAMILY RISK SITUATIONS DURING PREGNANCY	No	157	74.8%
	Yes	53	25.2%

Descriptive data from the previous table shows that ¼ of this sample. i.e., 25% of the inquired mothers, reports the occurrence of familial risk situations during pregnancy. Several categories of events have been included in this variable: health problem of father/another son or daughter (2.4%); accident of a close friend or family member (3.3%); “mourning” for the loss of a significant other (6.2%); father’s prolonged or frequent absence (3.3%); maternal depression (4.3%); conflict in the couple (2.4%).

In line with the importance attributed in the literature to maternal depression it is noticeable that all life events scrutinized in this sample can be clinically classified as emotional troubles of a depressive, or an anxious-depressive, nature.

Conversely, if the evocative memory related to two particular classes of events (“mourning” and “depression”) is appropriately emphasized it is possible to attain a figure of 10% for the antecedents of depression during pregnancy in this general population sample (not forgetting, of course, the “diminished” mnesic accuracy attributable to the retrieval of events that happened, at least, 6 years before the time of the inquiry).

**Table 21: Necessity of treatment during the newborn period**

		n	Column %
TREATMENT DURING THE NEWBORN PERIOD	No	189	88.7%
	Yes	24	11.3%

By consulting the previous table it is possible to conclude that a little more than 1 out of ten children (11.3%) from this sub-sample have required some sort of treatment during the early post-partum period.

**Table 22: Parental perception of children’ health state**

		n	Column %
FROM BIRTH TO THE 2ND YEAR	Grew well	192	86.9%
	Frail/in poor health	29	13.1%
FROM 3 TO 5 YEARS OLD	Vigorous and healthy	200	90.1%
	In poor health	22	9.9%
FROM 6 TO 6 YEARS OLD	Vigorous and healthy	196	90.7%
	In poor health	20	9.3%

Information to be retained is that the majority of the children have grown rather well, since their parents report that they were vigorous and in good health immediately after birth. It is also relevant to notice that the 1st infancy is the period where there is an higher percentage of children perceived by their parents as having a fragile health (13.1%). Will this figure be linked to the one that has been found for the precedent variable (necessity of treatment during the newborn period)?

**Table 23: Medical diseases during childhood**

		<i>n</i>	% Column
FROM BIRTH TO THE 2ND YEAR	No	108	51.2%
	Yes	103	48.8%
FROM 3 TO 5 YEARS OLD	No	113	51.1%
	Yes	108	48.9%
FROM 6 TO 6 YEARS OLD	No	133	62.7%
	Yes	79	37.3%

Data shown in this table is in line with the (expectable) prevalence of the “usual” childhood diseases (e.g., otitis, rhinitis, rhinofaryngitis). However, despite the frequency of these medical episodes throughout the early childhood years, their rate lowers to approximately 1/3 (37.3%) during the first sub-phase of the latency period (notice that the children of this sub-sample are precisely 6-8 year-old at the time of the survey).

These data on the medical-psychological antecedents reported to the first two years of life shows that almost 9 out of every 10 mothers (86.9%) remember that their baby “grew rather well” in this early developmental period (table 23). It isn’t then surprising that only 14% of them have often paid a visit to the family doctor/ the paediatrician (even though ¾ of the mothers has fulfilled the medical appointment’ periodicity suggested in their son’ individual health bulletin). Notice also that the percentages of the reporting of health problems (48.8%) and of the taking of prescribed medications (47.3%) are rather alike in this early developmental phase.

The medical antecedents referred to the toddler a little further on (3-5 years-old) show a similar pattern. Actually, 90.1% of the mothers remember their children at this age as being “vigorous and in good health”, even if, for about half of them (48.9%), they have had some (probably minor) health problems explaining, perhaps, the 67% rate of regular medical appointment attendance reported in the survey.

In relation to the actual health state of the children of this sub-sample (6-8-year-olds) it must be stressed that:

- The percentage of mothers assuming that their children are vigorous and in good health is a comparable one, and there is even a lesser reference to somatic health problems (only for 1/3 of the children. i.e., 37% of this sub-sample). In contrast, about ¼ of these children suffer frequently from somatic-functional complaints (mostly headaches and abdominal-aches);
- The attendance to medical appointments is lower in this phase (half the children attend a medical appointment occasionally and 37.7% regularly) and the taking of prescribed medication follows a similar tendency (it applies only for ¼ of the sub-sample, meaning that about 28.4% of them take some form of prescribed medication).

**Table 24: Accidents during childhood**

		n	Column N %
FROM BIRTH TO THE 2ND YEAR	No	204	94.4%
	Yes	12	5.6%
FROM 3 TO 5 YEARS OLD	No	184	86.8%
	Yes	28	13.2%
FROM 6 TO 6 YEARS OLD	No	190	96.4%
	Yes	7	3.6%

As it can be observed, accidents are relatively rare during childhood. The sole exception to this rule is the accident rate of 13% reported by the parents for the 3-5 year-old toddlers. Curiously enough there is equivalence between this rate and the one of complete hospitalization (particularly if it lasts for less than a week) reported to the same period.

**Table 25: Hospitalizations during childhood**

		n	Column N %
FROM BIRTH TO THE 2ND YEAR	No	160	87.0%
	Yes	24	13.0%
FROM 3 TO 5 YEARS OLD	No	172	86.4%
	Yes	27	13.6%
FROM 6 TO 6 YEARS OLD	No	167	91.8%
	Yes	15	8.2%

The need for complete hospitalization, from birth to the 2<sup>nd</sup> year of life, is referred to in the antecedents of 13% of these children, normally lasting for less than one week (for ¾ of the children). The same applies to the 2<sup>nd</sup> infancy (13.6% for a complete hospitalization rate,

which has a time length of less than one week for 82% of the hospitalized toddlers). Moreover, for  $\frac{3}{4}$  of the children this is a one-time experience (as in the previous period).

Regarding the causes of hospitalization, for 60% of these children it had to do with a medical or surgical pathology, for 7% of them it was due to accident whereas for the remnant 32% of the children their parents reported other (miscellaneous) reasons, often of an unspecified nature.

Episodes of more recent (actual) hospitalization (those concerning the 6-8 year-old subgroup) are reported by the parents of 8.2% of these children. Usually it is a unique hospitalization (80% of the cases) taking no more than a week, and triggered either by medical illness (40%) or by accident (13%).

The next table shows objective data from the medical observation performed on these children by the family doctor.

**Table 26: Children' health state (medical evaluation)**

	n	Column N %
GLOBAL HEALTH STATE	Normal	211 96.8%
	Deficient	7 3.2%

After these results it is possible to conclude that this is a healthy general population sample, since a little more than 9 out of ten children (96.8%) are considered in good health.

In what concerns now the early behaviour of these children, 84% of the mothers remember that, as toddlers (0-2 years) they used to eat well, but, quite the reverse, that 1/3 of them presented sleeping problems (for 16.4% irregular sleeping rhythm and for 13.8% overnight restlessness).

Also the almost totality of the mothers (90%) remember their offspring as being interactive and socially dynamic in this early developmental phase. About two thirds of the toddlers (66.8%) have been placed in a nanny or in kindergarten. and for the most part (74%) they have had a good adaptation from the beginning. For the remnant 19.7% there has been a difficult adaptation, apparently quickly resolved.

Regarding now the behaviour pattern for the 3 to 5 year olds it is worth noticing that:

- The eating behaviour seems more problematic. since 30% of the mothers remember the difficult eating behaviour of their offspring;

- $\frac{3}{4}$  of these children have never had sleeping problems (however 17.3% of the mothers report occasional insomnia episodes);
- $\frac{1}{4}$  of the children (25.5%) have used a transitional object to deal with separation anxiety. Such fact can be linked both to the need of adapting to the kindergarten (rather normative at this pre-school age) and to the (related) difficulty in dealing with such social exigency (thus, for about 6 in every 10 children, the adaptation process has been a difficult one, in the beginning for 39% of them and persistently for 20.3% of the study sample);
- One third of the mothers (33.3%) recall their sons' difficult social behaviour, most particularly restless behaviour/instability (14%) and frequent disobedience (6.8%);

As to the actual behaviour of the sample' children (school phase) it is possible to verify that:

- The proportion of eating difficulties is analogous to the one of the precedent period (it concerns, in fact, almost  $\frac{1}{3}$  of the children. and is distributed between capricious eating habits and opposition to meals, for 16.4% and 12.2% of them, respectively);
- Problematic sleep concerns approximately 1 in every 10 children and takes mainly the form of insomnia or frequent nightmares (with reported rates of 36.4% and 38.5% respectively);
- Troubled behaviour reportedly affects  $\frac{1}{4}$  of the sub-sample (23.8% of the subjects), chiefly "defiant" stubbornness (with a 14.2% rate) and the conjunction timidity/social inhibition (12.7%).

Finally, in what relates both to school adaptation (including school behaviour and learning performances) and to the eventual need for medical-psychological aid (including the prescription of psychotropic medication) it is possible to conclude that:

- Nearly  $\frac{1}{4}$  of the children present moderate (21%) to accentuated (3.5%) difficulties in adapting to school and that 18% of them seem to have a problematic school behaviour;
- Poor school (learning) achievement concerns 2 out of every 10 children (19.7%), while 25% of the sample benefits from some kind of pedagogic support;

- 10% of the parents have already taken their sons to a medical-psychological appointment (94% of these children have benefited/ still benefit from some form of psychotherapy, or from orthophony and/or psychomotricity) and the rate of psychotropic medication is relatively low (8% of the children).

### 3.1.1.1 PERCEPTION OF ATTACHMENT QUALITY

**Table 27: Attachment quality scale – PCV-M**

	N	Minimum	Maximum	$\bar{x}$	Standard deviation
DIFFICULTIES IN EMOTIONAL SELF-REGULATION	195	25	60.00	47.0205	8.7145
SECURE-BASE BEHAVIOUR	195	8	35.00	28.5949	5.6491
SHARING OF AFFECTION	195	8	35.00	27.4205	5.7783
SOCIAL DESIRABILITY	195	8	33.00	19.7949	4.8947
TOTAL ATTACHMENT SCORE	195	77	157.00	122.8321	17.3589

When analysing the average values calculated for the maternal perception of children's attachment behaviour (measured through PCV-M) it is possible to conclude that the scores obtained for this sub-sample show a high dispersion around the mean values, as well as a considerable amplitude.

In fact, the dimension "Difficulties in emotional self-regulation" could variate, in theoretical terms, between 12 and 60 and the other dimensions between 7 and 75. Nevertheless the sum of the mean values allows concluding that, with the sole exception of "social desirability", attachment quality shows a positive tendency for the children of this sub-sample.

In brief, the following profile for this sub-sample may be drawn up:

1. Almost all mothers (96.4%) had a **medically assisted pregnancy**, although about half (43%) mentions an obstetrical problem and ¼ remembers traumatic occurrences during pregnancy;
2. Generally speaking, mothers remember their **children** as being “**strong and healthy**” as babies, toddlers (3-5 years) and schoolchildren (rates above 90% for each period);
3. The rate of the allusion to **medical problems** decreases steadily throughout childhood (it stands at 49% for the preschool period, and goes down to 1/3 during the school period), as does the prescribed medication rate (that concerned half of the children’s sample during the first infancy and only ¼ of them at school age);
4. The retrospective perception of child’s behaviour quality (sleeping/ eating/ social behaviour) shows different trends. Thus: **eating difficulties** are reduced until the end of the second year of life (1 in every 10 infants), increase moderately throughout the following phases (for 1/3 of the sample); conversely, **sleep-related problems** (mainly, restless sleep and insomnia) tend to decrease throughout childhood (from 1/3 as toddlers, to 10% of the schoolchildren of the sample); on the other hand the **behavioural changes** present a “hectic” curve: from very few for toddlers, they are mentioned by 1/3 of the mothers during the preschool period of their children (mainly instability and persistent disobedience); they come down slightly during school age (in fact, they are mentioned by ¼ of the mothers who emphasize both “defiant” stubbornness - 14.3% - and, in the opposite side, timid/inhibited behaviour - 12.7% - of their children during this developmental period);
5. **Adaptation difficulties** (to kindergarten and to school) seem to be more accentuated between 3 and 5 years of age (1/4 of the mothers report the use of a “transitional object” by the child, and this “mark” of separation anxiety may underlie the difficulties of adaptation to kindergarten – initial in 40% and persistent ones in 20% of the sample); as to the school years, difficult adaptation to school (25%, between moderate and marked) and a poor **school achievement level** (19.7%) seem to be overlapped. Notice that **changes in school behaviour** equally affect about 2 in every 10 children (18%) of this sample.

### **3.1.2 PRESENTATION AND ANALYSIS OF SELECTED DATA FROM E2 AND E3 SUB-SAMPLES**

The following specific objectives were ascribed to the cross-sectional descriptive and correlational analyses of data issued from E2 (11-14 year olds) and E3 (15-18 year olds) adolescents' sub-samples:

- To study the correlation between relevant medical and behavioural antecedents, the actual health state (including the use of prescribed medication) and the adolescent's behaviour (including age of first use for tobacco, alcohol and other drugs, characteristics and background of the 1<sup>st</sup> experience of substance use, actual features of those behaviours).

The statistical description of the survey's variables will respect the following procedures:

- Joint presentation of data from both adolescents' subgroups (E2+E3);
- Focus on data concerning the variables from the psychosocial auto-questionnaire and both attachment scales (IPPA and IACA) following procedures of correlational analysis by gender/subgroup whenever necessary.

The data to be presented in this section concerns the 362 youngsters of the global adolescent sample (E2 and E3) aged 11 to 18 years old and whose mean age (for the 347 subjects of this sample who have mentioned it) is 14.48 years old (14.43 for the boys and 14.55 for the girls, with a SD of +/- 2.4 for both genders). The distribution by gender reveals a slight predominance of girls – actually 55.7% (201) are girls and 44.3% (160) boys.

#### **3.1.2.1 HEALTH STATE**

Following a strategy similar to the one used for the display of data of E1 sub-sample the first results to be presented concern the youngster's perception about their health state.

Therefore, in what respects body image and bodily preoccupations, 6 in every 10 adolescents (63.3%) perceive their body (size vs. weight) as a “normal” one, and only a little more than 1 out of 10 finds himself/herself “fat” (14.3%). On the other hand it is rather reduced the proportion of those that find themselves “very meagre” (3.1%).



On the same subject, half of the girls (53.3%) would like to loose weight (against 20% of the boys) and, for 4.6% of the youngsters, this seems to be the problem they are most worried about. There is a significant statistical difference (for  $p < .0001$ ) in the correlacional analysis by gender, favouring, as expected, the girls.

The distribution of somatic-functional complaints amongst the adolescents of the study sample is exposed in the next table.

**Table 28: Somatic-functional complaints**

	N OBSERVED	%	N EXPECTED	RESIDUES
NO COMPLAINTS	5	1.4	88.5	-83.5
1-2 COMPLAINTS	53	15.0	88.5	-35.5
2-4 COMPLAINTS	107	30.2	88.5	18.5
>=5 COMPLAINTS	189	53.4	88.5	100.5
TOTAL	354	100		

$X^2=211.017$   $gl=3$   $p=.000$

As it can be observed the tendency for the “aggregation” of somatic-functional complaints seems to be the rule at this age. Nevertheless the reference to troubled sleep, aches (headache, abdominal pain, muscle pain) and anxious-depressive feelings (nervousness, Boredom, sadness, hopelessness) is a particularly relevant one.

The next table shows the quantitative distribution of these symptoms by gender:

**Table 29: Somatic-functional complaints by gender**

		GENDER		TOTAL	
		FEMALE	MALE		
SOMATIC-FUNCTIONAL COMPLAINTS	No complaints	n	2	3	5
		%	1.0%	1.9%	1.4%
		ra	-0.7	0.7	
	1-2 complaints	n	22	31	53
		%	11.2%	19.6%	15.0%
		ra	-2.2	2.2	
	2-4 complaints	n	54	53	107
		%	27.6%	33.5%	30.2%
		ra	-1.2	1.2	
	>=5 complaints	n	118	71	189
		%	60.2%	44.9%	53.4%
		ra	2.9	-2.9	
Total	n	196	158	354	
	%	100.0%	100.0%	100.0%	

$X^2=9.455$   $gl=3$   $p=0.024$

Girls report a more significant number of symptoms than boys (predominantly in the 15-18 age subgroup).

The type of complaint also varies with gender. Thus: 31.7% of the girls (and 22.6% of the boys) wake up (occasionally or frequently) during the night ( $p < .05$  for gender difference) and 19.3% of the girls (vs. 16.5% of the boys) suffer from nightmares ( $p < .01$  for gender difference regarding these overnight anguish episodes that seem to affect frequently 4.7% of the girls and 1.9% of the boys).

Headaches are a regular complaint for about half the sample' girls (49%) and a little more than 2 out of 10 boys (25.8%), whilst abdominal pain is chiefly a female complaint (on a regular basis for 30% of the girls and 13.2% of the boys, with a  $p < .01$  for gender difference).

With regard to the “depressive series” symptoms, always more frequent among girls, (even if the differences are not statistically significant) it is worth noticing the states of boredom (in fact, 44.4% of the girls and 26.1% of the boys feel occasionally or regularly bored) the nervousness (a regular complaint for 49.5% of the girls and 30% of the boys), the lack of energy (30% of the girls and 13% of the boys) and, most of all, the lack of hope in the future (reported regularly by 28.5% of the girls and 23.7% of the boys).

In such a context it is interesting to point out that the rate of medical appointments, by medical speciality, during the previous year, whereas it is, as expected, a relatively low one, reveals a tendency towards the consultation of dentists followed by general practitioners and ophthalmologists (note that regarding this last speciality it is identifiable a significant gender difference – for  $p < .01$  – in favour of the girls (see table 30).

**Table 30: Medical appointments**

DURING THE LAST 12 MONTHS YOU WENT TO:	BOYS	GIRLS	P
• A GENERAL PACTRICIONER	1.64±2.18	2.16±2.56	0.053
• A DERMATOLOGIST	0.16±0.848	0.15±0.76	0.939
• AN OPHTHALMOLOGIST	0.36±1.13	0.97±2.18	0.003
• A GYNECOLOGIST		0.32±1.50	
• A PSYCHOLOGIST (OR PSYCHIATRIST)	0.36±1.46	0.39±1.57	0.859
• A PEDRIATICIAN	0.34±1.99	0.42±1.67	0.684
• A PHYSIOTHERAPIST	0.16±0.92	0.22±1.21	0.628
• A DESNTIST	2.17±3.22	2.91±3.48	0.048
• AN ALLERGOLOGIST OR PNEUMOLOGIST	0.15±0.59	0.14±0.97	0.907
• A SCHOOL NURSE	0.19±0.856	0.38±1.62	0.225
• A SOCIAL WORKER	0.01±0.084	0.10±0.95	0.222
• A SCHOOL DOCTOR	0.02±0.19	0.07±0.68	0.391

Finally, table 31 synthesizes the results obtained for the rate of medical prescription during the last 12 months.

**Table 31: Prescribed medication**

DURING THE LAST 12 MONTHS YOU'VE TAKEN		GIRLS		BOYS	
Medication for tiredness	• NO	174	93.5%	149	95.5%
	• YES. PRESCRIBED AT LEAST FOR A MONTH	6	3.2%	5	3.2%
	• YES. PRESCRIBED FOR MORE THAN A MONTH	6	3.2%	2	1.3%
Medication to loose weight	• NO	184	99.5%	154	99.4%
	• YES. PRESCRIBED AT LEAST FOR A MONTH	1	0.5%	0	0.0%
	• YES. PRESCRIBED FOR MORE THAN A MONTH	0	0.0%	1	0.6%
Sleeping pills	• NO	173	93.5%	154	99.4%
	• YES. PRESCRIBED AT LEAST FOR A MONTH	6	3.2%	1	0.6%
	• YES. PRESCRIBED FOR MORE THAN A MONTH	6	3.2%	0	0.0%
Medication for nervousness (tranquilizers)	• NO	166	89.2%	147	95.5%
	• YES. PRESCRIBED AT LEAST FOR A MONTH	10	5.4%	6	3.9%
	• YES. PRESCRIBED FOR MORE THAN A MONTH	10	5.4%	1	0.6%
Medication for constipation	• NO	176	96.7%	149	96.1%
	• YES. PRESCRIBED AT LEAST FOR A MONTH	5	2.7%	6	3.9%
	• YES. PRESCRIBED FOR MORE THAN A MONTH	1	0.5%	0	0.0%
Medication for headaches	• NO	146	78.1%	127	81.9%
	• YES. PRESCRIBED AT LEAST FOR A MONTH	33	17.6%	27	17.4%
	• YES. PRESCRIBED FOR MORE THAN A MONTH	8	4.3%	1	0.6%
Medication for abdominal pain	• NO	158	84.9%	138	89.0%
	• YES. PRESCRIBED AT LEAST FOR A MONTH	20	10.8%	16	10.3%
	• YES. PRESCRIBED FOR MORE THAN A MONTH	8	4.3%	1	0.6%
Medication for asthma (anti-asthmatics)	• NO	178	97.3%	139	89.1%
	• YES. PRESCRIBED AT LEAST FOR A MONTH	1	0.5%	8	5.1%
	• YES. PRESCRIBED FOR MORE THAN A MONTH	4	2.2%	9	5.8%

Despite the low rates identified, mostly in what concerns the taking of prescribed medication for more than a month. it is worth noticing that:

- The rate of analgesics prescribed to these adolescents (to 1 in every 10 youngsters) concerning, most particularly, medication for headaches taken, at least for a month, by 17.6% of the girls and 17.4% of the boys, and
- The rate of prescription for tranquilizers (“for nervousness” to 5.4% of the girls and 3.9% of the boys and “to sleep” to 3.2% of the girls and .6% of the boys) whose time-span of prescription is always longer among girls.

### 3.1.2.2 EATING BEHAVIOURS AND PREOCCUPATION WITH BODY WEIGHT

The next table summarizes the available data on the adolescents' perception about their eating behaviours.

**Table 32: Weight control strategies (vomiting, diet, laxatives or other medications)**

	N OBSERVED	%	N EXPECTED	RESIDUES
NO WEIGHT CONTROL STRATEGIES	214	60.8	176.0	38.0
AT LEAST ONE WEIGHT CONTROL STRATEGY	138	39.2	176.0	-38.0
TOTAL	352			

$\chi^2=16.409$   $g1=1$   $p=0.000$

As it can be observed 39% of the adolescents hold on to unhealthy weight control strategies. The next table shows the gender differences regarding this type of behaviour.

**Table 33: Weight control strategies by gender**

		GENDER		TOTAL	
		FEMALE	MALE		
VOMITING, DIET, LAXATIVES OR OTHER MEDICATIONS TO LOOSE WEIGHT	• NO WEIGHT CONTROL STRATEGIES	n	108	106	214
		%	55.4%	67.5%	60.8%
		ra	-2.3	2.3	
	• AT LEAST ONE WEIGHT CONTROL STRATEGY	n	87	51	138
		%	44.6%	32.5%	39.2%
		ra	2.3	-2.3	

$\chi^2=5.370$   $g1=1$   $p=.02$

Data displayed on table 33 shows that there are chiefly the girls that entertain a problematic relationship with food (indeed 45% of them adopt unhealthy weight control strategies)

**Table 34: Attitude towards eating**

		GIRLS		BOYS	
WHEN YOU EAT A LOT YOU BECOME AFRAID OF BEING UNABLE TO STOP*	• NEVER	154	82.4%	143	92.9%
	• RARELY	21	11.2%	7	4.5%
	• SOMETIMES	11	5.9%	4	2.6%
	• OFTEN	1	0.5%	0	0%
WHEN YOU EAT A LOT YOU FEEL ASHAMED *	• NEVER	140	74.1%	135	87.1%
	• RARELY	30	15.9%	13	8.4%
	• SOMETIMES	14	7.4%	6	3.9%
	• OFTEN	5	2.6%	1	0.6%
WHEN YOU EAT A LOT YOU FEEL WELL *	• NEVER	62	32.5%	48	30.8%
	• RARELY	39	20.4%	15	9.6%
	• SOMETIMES	45	23.6%	40	25.6%
	• OFTEN	45	23.6%	53	34.0%
WHEN YOU EAT A LOT YOU FEEL DEPRESSED *	• NEVER	138	73.8%	135	86.5%
	• RARELY	30	16%	14	9.0%
	• SOMETIMES	15	8.0%	5	3.2%
	• OFTEN	4	2.1%	2	1.3%

For gender comparison \*p≤.05

\*\*p≤.01

On the other hand, the analysis of this sample' eating behaviours reveals that 59.6% of the boys (vs. 47.2% of the girls) report having pleasure in eating a lot, even if, in contrast, the same behaviour triggers the fear of non-stopping to 1 out of every 10 girls (and only to 2.6% of the boys), is shameful for 10% of the girls (against 4.5% of the boys) and brings about depressive feelings for a similar percentage of girls and boys (10% and 4.5% respectively). Note that for each one of these variables the gender difference is statistically significant (for a value of p<.05).

With regard to bulimic behaviours both the prevalence rate and gender distribution among adolescents can be consulted in tables 35 to 37.

**Table 35: Bulimic behaviours**

	N OBSERVED	%	N EXPECTED	RESIDUES
No	319	97.9	163.0	156.0
YES	7	2.1	163.0	-156.0
TOTAL	326			

$\chi^2=298.601$  g1=1 p=0.000

**Table 36: Bulimic behaviours by gender**

		GENDER		TOTAL	
		FEMALE	MALE		
BULIMIC BEHAVIOURS	• NO	n	174	145	319
		%	96.7%	99.3%	97.9%
		ra	-1.6	1.6	
	• YES	n	6	1	7
		%	3.3%	0.7%	2.1%
		ra	1.6	-1.6	

$X^2=2.691$      $g1=1$      $p=.101$

**Table 37: Bulimic behaviours**

		GIRLS		BOYS	
EATS A LOT IN A VERY SHORT TIME	• NEVER	90	47.1%	77	48.7%
	• RARELY	70	36.6%	53	33.5%
	• 2 TO 4 TIMES A DAY	16	8.4%	16	10.1%
	• SEVERAL TIMES A WEEK	14	7.3%	8	5.1%
	• EVERYDAY	1	5.0%	4	2.5%
INDUCES VOMITING	• NEVER	172	90.5%	142	89.9%
	• RARELY	14	7.4%	14	8.9%
	• 2 TO 4 TIMES A DAY	2	1.1%	1	6%
	• SEVERAL TIMES A WEEK	2	1.1%	0	0%
	• EVERYDAY	0	0.0%	1	6%

The prevalence rate for bulimic behaviour among the sample' adolescents is a relatively low one (2.1%) and this is the reason why no statistical significance is found when it comes to the analysis of gender differences.

Yet the excessive preoccupation with weight can operate as a kind of “turning tablet” for a rather problematic relation with both bodily image and food intake throughout adolescence and adulthood.

**Table 38: Preoccupation with body weight**

	N OBSERVED	%	N EXPECTED	RESIDUES
NO EXCESSIVE PREOCCUPATION WITH BODY WEIGHT	130	37.8	172.0	-42.0
EXCESSIVE PREOCCUPATION WITH BODY WEIGHT	214	62.2	172.0	42.0
TOTAL	344	100.0		

$X^2=20.512$      $g1=1$      $p=0.000$

**Table 39: Preoccupation with body weight by gender**

		GENDER		TOTAL	
		FEMALE	MALE		
EXCESSIVE PREOCCUPATION WITH BODY WEIGHT	NO	n	54	76	130
		%	28.0%	50.3%	37.8%
		ra	-4.2	4.2	
	YES	n	139	75	214
		%	72.0%	49.7%	62.2%
		ra	4.2	-4.2	

$X^2=18.004$      $gl=1$      $p=.000$

In line with the last comment it is worth noticing that 6 in every 10 youngsters (62% of the survey' sample) report an excessive preoccupation with their bodily weight, girls having a more unfavourable perception of their bodily image than boys, since they express more often than boys such a feeling (72% vs. 50% of the boys).

### 3.1.2.3 IMPULSIVE AND VIOLENT BEHAVIOURS

Data referring to impulsive (screaming, getting involved in fights, breaking objects when nervous) and violent behaviours (running away, theft, physical threat) can be consulted in tables 40 and 41.

**Table 40: Impulsive behaviours**

		GIRLS		BOYS	
		n	%	n	%
SCREAMS WHEN NERVOUS	• No	132	63.5%	123	70.7%
	• SOMETIMES	61	29.3%	42	24.1%
	• OFTEN	15	7.2%	9	5.2%
BEATS OR BREAKS OBJECTS WHEN NERVOUS	• No	181	87.0%	140	80.1%
	• SOMETIMES	24	11.5%	30	17.1%
	• OFETN	3	1.4%	5	2.9%
GETS INVOLVED IN FIGHTS WHEN NERVOUS	• NEVER	146	78.5%	91	59.5%
	• RARELY	34	18.3%	49	32.0%
	• SOMETIMES	4	2.2%	9	5.9%
	• OFTEN	2	1.1%	4	2.6%

**Table 41: Violent behaviours**

	GIRLS			BOYS		
	NO	ONCE	SEVERAL TIMES	NO	ONCE	SEVERAL TIMES
• DURING THE LAST 12 MONTHS RAN AWAY FROM HOME	179	6	1	153	2	0
	96.2%	3.2%	0.5%	98.7%	1.3%	0.0%
• DURING THE LAST 12 MONTHS STOLE SOMETHING FROM THE PARENTS/THE FRIENDS	184	1	0	154	0	0
	99.5%	0.5%	0.0%	100.0%	0.0%	0.0%
• DURING THE LAST 12 MONTHS STOLE SOMETHING IN A PUBLIC PLACE	185	0	0	152	1	0
	100.0%	0.0%	0.0%	99.3%	0.7%	0.0%
• DURING THE LAST 12 MONTHS THREATENED SOMEONE	171	13	1	148	7	0
	92.4%	7.0%	0.5%	95.5%	4.5%	0.0%

Impulsive behaviours are reported, on the whole, by 1/3 to 1/5 of the sample's youngsters and their rate is always higher among the boys. Even if the episodes of running away, theft and physical threat are much rarer in this population, their rate is relatively higher among girls (in fact, 3.7% of the girls against 1.3% of the boys attempted, at least once during the year prior to the study, to escape from home, while 7.5% of the girls, vs. 4.5% of the boys, made physical threats to someone during the same period).

### 3.1.2.4 PSYCHOACTIVE SUBSTANCE USE

In what concerns substance use the results obtained for this community-based adolescents' sample (users of primary health care services) are quite similar to those obtained among school based samples in the framework of school-based surveys conducted in Portugal under the supervision of IDT (more recently in the realm of ESPAD)

**Table 42: Alcohol use**

	N OBSERVED	%	N EXPECTED	RESIDUE
NO USE OF ALCOHOLIC BEVERAGES	221	64.4	171.5	49.5
USE OF ALCOHOLIC BEVERAGES	122	35.6	171.5	-49.5
TOTAL	343	100.0		

$X^2=28.574$   $g1=1$   $p=.000$

Therefore, in what concerns alcohol consumption, data indicates a 36% prevalence rate for the use of alcoholic beverages.



Next table displays the frequency of alcohol use by type of beverage/mode of consumption/gender among the youngsters of the survey' sample.

**Table 43: Drinking habits**

		GIRLS		BOYS	
ACTUALLY DRINKS WINE	• NEVER	68	91.9%	56	83.6%
	• RARELY	6	8.1%	8	11.9%
	• 2 TO 4 TIMES A MONTH	0	0%	2	3.0%
	• SEVERAL TIMES A WEEK	0	0%	1	1.5%
	• EVERYDAY	0	0%	0	0%
ACTUALLY DRINKS BEER	• NEVER	31	41.9%	17	24.3%
	• RARELY	30	40.5%	32	45.7%
	• 2 TO 4 TIMES A MONTH	12	16.2%	14	20.0%
	• SEVERAL TIMES A WEEK	1	1.4%	6	8.6%
	• EVERYDAY	0	0%	1	1.4%
ACTUALLY DRINKS STRONG ALCOHOLS (ALCOHOLIC GRADE > 16°)	• NEVER	27	37.0%	29	43.3%
	• RARELY	36	49.3%	25	37.3%
	• 2 TO 4 TIMES A MONTH	10	13.7%	10	14.9%
	• SEVERAL TIMES A WEEK	0	0%	3	4.5%
	• EVERYDAY	0	0%	0	0%
DRUNKENESS EPISODES EVER IN LIFE	• NEVER	50	65.8%	36	50.7%
	• 1 TO 2 TIMES	16	21.1%	24	33.8%
	• 3 TO 9 TIMES	6	7.9%	8	11.3%
	• 10 OR MORE TIMES	4	5.3%	3	4.2%
DRUNKENESS EPISODES IN THE LAST 12 MONTHS	• NEVER	57	75.0%	43	62.3%
	• 1 TO 2 TIMES	14	18.4%	21	30.4%
	• 3 TO 9 TIMES	3	3.9%	5	7.2%
	• 10 OR MORE TIMES	2	2.6%	0	0.0%
DRINKS MORE THAN USUAL WHEN HE/SHE IS WITH FRIENDS	• No	38	52.1%	27	40.3%
	• YES. MODERATELY	30	41.1%	30	44.8%
	• YES. MUCH MORE	5	6.8%	10	14.9%
DRINKS MORE THAN USUAL WHEN HE/SHE FEELS LONELY *	• No	72	98.6%	60	90.9%
	• YES. MODERATELY	1	1.4%	6	9.1%
	• YES. MUCH MORE	0	0.0%	0	0.0%
DRINKS MORE THAN USUAL WHEN HE/SHE FEELS SAD OR DEPRESSED	• No	68	93.2%	64	97.0%
	• YES. MODERATELY	5	6.8%	1	1.5%
	• YES. MUCH MORE	0	0.0%	1	1.5%
DRINKS MORE THAN USUAL WHEN IN FAMILY PARTY	• No	52	71.2%	43	65.2%
	• YES. MODERATELY	20	27.4%	20	30.3%
	• YES. MUCH MORE	1	1.4%	3	4.5%
DRINKS MORE THAN USUAL WHEN ANGRY OR ENRAGED	• No	67	91.8%	61	92.4%
	• YES. MODERATELY	5	6.8%	2	3.0%
	• YES. MUCH MORE	1	1.4%	3	4.5%

For gender comparison \*p≤.05

\*\*p≤.01

Beer (followed by distilled beverages) is the most frequently used beverage among the youngsters and there is a tendency (also identified in the last ESPAD survey) towards the progressive rapprochement of consumption rates, especially for strong alcohols use, between boys and girls (actually, if 30% of the boys. against 17.6% of the girls, report drinking beer in an occasional or regular basis, the gender difference for the rate of distilled beverages' usage is a much lesser one, more precisely 19.4% of the boys vs. 13.7% of the girls)

With regard to drunkenness episodes (“ever in life” and “in the last 12 months”) their rate is always higher among boys. In fact, during the year prior to the survey (corresponding to the last 12 months) 3 out of every 10 boys (30.4%) and a little more than 1/5 of the girls (18.4%) report at least 1 to 2 acute ethylic episodes.

In what concerns the circumstances for the increase in alcohol consumption, it is worth noticing that feeling alone triggers alcohol abuse predominantly among boys (9.1% against 1.4% of the girls.  $p < .05$  for gender difference)

Table 44 displays data on adolescents' smoking habits.

**Table 44: Smoking habits**

		GIRLS		BOYS	
I'VE SMOKED EVER IN LIFE	• NO	148	76.7%	131	82.4%
	• YES	45	23.3%	28	17.6%
ACTUALLY	• I SMOKE REGULARLY	9	20.9%	4	14.3%
	• I SMOKE OCCASIONALLY	5	11.6%	3	10.7%
	• I SMOKED BUT QUIT SMOKING	7	16.3%	2	7.1%
	• I'VE ALREADY TRIED BUT I'VE NEVER BECOME A SMOKER	22	51.2%	19	67.9%
IN THE LAST MONTH I SMOKED	• NONE	27	61.4%	20	71.4%
	• LESS THAN 1 CIGARRETE PER WEEK	3	6.8%	3	10.7%
	• LESS THAN 1 CIGARRETE PER DAY	2	4.5%	1	3.6%
	• 1-5 CIGARRETES A DAY	7	15.9%	3	10.7%
	• 6-10 CIGARRETES A DAY	0	0.0%	0	0.0%
	• 11-20 CIGARRETES A DAY	3	6.8%	0	0.0%
	• MORE THAN 20 CIGARRETES A DAY	2	4.5%	1	3.6%
SMOKES MORE THAN USUAL WHEN WITH FRIENDS	• NO	16	48.5%	13	61.9%
	• YES. MODERATELY	12	36.4%	6	28.6%
	• YES. MUCH MORE	5	15.2%	2	9.5%
SMOKES MORE THAN USUAL WHEN FEELS LONELY	• NO	24	75.0%	15	71.4%
	• YES. MODERATELY	5	15.6%	6	28.6%
	• YES. MUCH MORE	3	9.4%	0	0.0%
SMOKES MORE THAN USUAL WHEN FEELS SAD OR DEPRESSED	• NO	19	59.4%	15	71.4%
	• YES. MODERATELY	8	25.0%	4	19.0%
	• YES. MUCH MORE	5	15.6%	2	9.5%
SMOKES MORE THAN USUAL WHEN IN A FAMILY PARTY	• NO	30	93.8%	15	71.4%
	• YES. MODERATELY	1	3.1%	5	23.8%
	• YES. MUCH MORE	1	3.1%	1	4.8%
SMOKES MORE THAN USUAL WHEN FEELS ANGRY OR ENRAGED	• NO	18	56.3%	14	63.6%
	• YES. MODERATELY	6	18.8%	4	18.2%
	• YES. MUCH MORE	8	25.0%	4	18.2%

In relation to smoking habits there is an (expected) reversion in the boys/girls ratio, in favour of the latter, although this gender difference has no statistical significance. To be more precise, tobacco use (occasional or regular) is reported by 1/3 of the girls (32.5%) and 1/4 of the boys (25%).

On the other hand, and in contrast with alcohol use, the increase in tobacco use seems to be bound, more often, to negative emotional states (sadness. anger. loneliness) and this is true for both boys and girls.

Finally the use of other drugs (“ever in life” and “in the last 12 months”) is a rather infrequent behaviour among these youngsters. This is an expectable result given either the low average prevalence rate for illicit drug use in adolescent general population samples or the small dimension of this study’ sample. Data on this behaviour can be consulted in the next table.

**Table 45: Drug use (ever in life)**

		GIRLS		BOYS	
YOU’VE TAKEN MARIJUANA OR HASHISH	• NEVER	172	95.6%	143	97.3%
	• 1 TO 2 TIMES	3	1.7%	4	2.7%
	• 3 TO 9 TIMES	1	0.6%	0	0.0%
	• 10 OR MORE TIMES	4	2.2%	0	0.0%
YOU’VE INHALATED ANY PRODUCT (SOLVANT, GLUE, ETC.)	• NEVER	180	98.9%	147	100.0%
	• 1 TO 2 TIMES	2	1.1%	0	0.0%
	• 3 TO 9 TIMES	0	0.0%	0	0.0%
	• 10 OR MORE TIMES	0	0.0%	0	0.0%
YOU’VE TAKEN COCAINE	• NEVER	182	100.0%	147	100.0%
	• 1 TO 2 TIMES	0	0.0%	0	0.0%
	• 3 TO 9 TIMES	0	0.0%	0	0.0%
	• 10 OR MORE TIMES	0	0.0%	0	0.0%
YOU’VE TAKEN HEROINE	• NEVER	182	100.0%	147	100.0%
	• 1 TO 2 TIMES	0	0.0%	0	0.0%
	• 3 A 9 VEZES	0	0.0%	0	0.0%
	• 10 OR MORE TIMES	0	0.0%	0	0.0%
YOU’VE TAKEN HALLUCINOGENS	• NEVER	180	98.9%	147	100.0%
	• 1 TO 2 TIMES	2	1.1%	0	0.0%
	• 3 TO 9 TIMES	0	0.0%	0	0.0%
	• 10 OR MORE TIMES	0	0.0%	0	0.0%
YOU’VE TAKEN ANFETAMINES. STIMULANTS (“UPPERS”)	• NEVER	182	100.0%	146	100.0%
	• 1 TO 2 TIMES	0	0.0%	0	0.0%
	• 3 TO 9 TIMES	0	0.0%	0	0.0%
	• 10 OR MORE TIMES	0	0.0%	0	0.0%
YOU’VE TAKEN A MEDICATION OUT OF PRESCRIPTION (“TO GET DRUGGED”)	• NEVER	180	99.4%	145	98.6%
	• 1 TO 2 TIMES	0	0.0%	1	0.7%
	• 3 TO 9 TIMES	1	0.6%	0	0.0%
	• 10 OR MORE TIMES	0	0.0%	1	0.7%

Notwithstanding the necessary caution in the appraisal of these results, owing to the reduced number of youngsters who admittedly “ever used” hashish, it is worth noticing that the use of this drug is reported by 4.5% of the girls, against 2.7% of the boys of this study’ sample.

Finally it is pertinent to address the age of initiation to drug use, or, more precisely, the age of the first experimentation with each one of these psychoactive substances

**Table 46: Age of initiation to (any) psychoactive substance use**

	GIRLS		BOYS	
	$\bar{\chi}$	$\sigma$	$\bar{\chi}$	$\sigma$
SMOKE YOUR 1 <sup>ST</sup> CIGARRETE	13	2	13	2
BEGAN SMOKING REGULARLY	14	4	13	3
DRANK (AN ALCOHOLIC BEVERAGE) FOR THE 1 <sup>ST</sup> TIME	13	3	13	2
BEGAN DRINKING ALCOHOL REGULARLY	13	5	14	5
GOT DRUNK FOR THE 1 <sup>ST</sup> TIME (IN CASE THAT HAPPENED)	14	4	15	4
USED MARIJUANA OR HASHISH FOR THE 1 <sup>ST</sup> TIME	14	3	16	3
TOOK HALLUCINOGENS FOR THE 1 <sup>ST</sup> TIME	13			
TOOK A MEDICATION OUT OF PRESCRIPTION ("TO GET DRUGGED")	14		15	

The results are also quite aligned with those presented in the last ESPAD survey report (2003), meaning that the age of initiation to the use of any of these drugs tends to drop to the 12/13 year-old group.

Note that alcohol has become the “gateway” drug for the majority of the young substance users screened in the most recent school-based epidemiological surveys.

Next table summarizes the adolescents’ distribution “profile” through the different psychoactive substances scrutinized in this survey.

**Table 47: Psychoactive substance use (overall)**

	N OBSERVED	%	N EXPECTED	RESIDUE
NO USE	293	80.9	51.7	241.3
SMOKING HABITS	9	2.5	51.7	-42.7
DRINKING HABITS	44	12.2	51.7	-7.7
DRUG CONSUMPTION	4	1.1	51.7	-47.7
SMOKING AND DRINKING HABITS	1	0.3	51.7	-50.7
DRINKING HABITS AND DRUG CONSUMPTION	5	1.4	51.7	-46.7
SMOKING & DRINKING HABITS PLUS DRUG CONSUMPTION	6	1.7	51.7	-45.7
TOTAL	362	100.0		

$\chi^2=1338$  .575 g1=6 p=.000

Overall 69 adolescents (corresponding to a rate of 19.1% of the 362 subjects of E2+E3 sub-sample) used any of the psychoactive substances in scrutiny [alcohol presents the higher prevalence rate, i.e., 9.6% of the adolescent sub-sample (56/362) and 81% among the users

subgroup (56/69)]. Notice that 12 of these youngsters (17.4% of the substance users' subgroup) use more than one psychoactive substance.

### **3.1.2.5 INDIVIDUAL, ENVIRONMENT AND INFORMATION ON HEALTH RISK BEHAVIOURS**

In amount to the data just presented and as a means of complementary information about the concept the sample' adolescents (11-18 year-olds) have about themselves and the environment they live in. it is interesting to point out that:

- The almost totality of boys (93.2%) and more than 4/5 of the girls seem to have developed a positive perception about the reality that surrounds them;
- Quite on the contrary, 4 out of every 10 girls (40.8%) and 5 in every 10 boys (50.4%) seem to have some sort of difficulty in dealing with frustration ( $p < .05$  for gender difference);
- In this line of mental functioning about half of the boys (46.2%), and a little more than  $\frac{1}{4}$  of the girls (27.8%), admit that they “do things without thinking”, whilst 2 in every 10 boys (20.1%), vs. 1 out every 10 girls, easily turn to violent acting (respectively,  $p < .01$  and  $p < .05$  for gender comparison);
- Finally 21.2% of the girls and 34.7% of the boys confess that they have the tendency to let things unfinished.

A psychosocial survey conducted in a general population sample should always include a section about beliefs and principles that adolescents themselves, as well as family members and the most significant social actors interacting with them (peers, teachers, health professionals), stand for when it comes to prevention of health risk behaviours.

A most used epidemiological strategy to accomplish such aim is to enquire adolescents about their willingness of becoming aware of these problems, accordingly to the (classic) double line of questioning: To whom does he/she talks to (source of information)? Does he/she want to know more (and from whom)?

**Table 48: To whom do youngsters talk about their problems**

11-18 YEAR OLDS	TALKS ABOUT SCHOOL PROBLEMS WITH	TALKS ABOUT SENTIMENTAL PROBLEMS WITH	TALKS ABOUT HEALTH PROBLEMS WITH	TALKS ABOUT DRUG PROBLEMS WITH	TALKKS ABOUT SEXUSL PROBLEMS WITH
NOBODY	13	32	20	130	88
	4.0%	10.0%	6.1%	41.4%	27.1%
FATHER OR MOHER (STEP-FATHER OR STEP-MOTHER)	252	116	263	109	119
	77.1%	36.3%	80.7%	34.7%	36.6%
CLOSE FRIEND	0	0	0	0	0
	.0%	.0%	.0%	.0%	.0%
BROTHER OR SISTER	9	29	1	9	7
	2.8%	9.1%	.3%	2.9%	2.2%
SOMEONE OF HIS/HER AGE (PEER)	36	141	11	54	97
	11.0%	44.1%	3.4%	17.2%	29.8%
TEACHER	9	1	2	3	4
	2.8%	0.3%	0.6%	1.0%	1.2%
DOCTOR	0	1	24	1	1
	0.0%	0.3%	7.4%	.3%	.3%
NURSE OR SOCIAL WORKER	0	0	0	0	0
	.0%	.0%	.0%	.0%	.0%
SOCIO-CULTURAL ANIMATOR	0	0	0	2	0
	.0%	.0%	.0%	.6%	.0%
AN ADULT (CLOSE OR FAMILY MEMBER)	8	0	5	6	9
	2.4%	.0%	1.5%	1.9%	2.8%

In descriptive terms it is worthwhile to emphasise the tendency towards the choice of parents as privileged sources of information (identified in the previous table) when it comes to talk about health problems, school problems or sexuality (parents being shortly followed by peers on the most private approach to the last subject). On the other hand, the peer group is chosen whenever sentimental issues are at stake.

Also of (some) notice is the elusive reference to the close friend at this age, as well as the (almost) total lack of allusion to nurses, social workers or socio-cultural animators among the sample' youngsters (a very different situation from the one reported by the school-based adolescents that have filled the same survey in France).

**Table 49: To whom do youngsters (of different age groups) talk about their problems**

		11-14] YEAR OLDS	[15-18] YEAR OLDS		
TALKS ABOUT SCHOOL PROBLEMS WITH ( $x^2= 4.060$ ; GL= 5; P= .541)	NOBODY	5	38.5%	8	61.5%
	FATHER OR MOHER (STEP-FATHER OR STEP-MOTHER)	125	49.6%	127	50.4%
	CLOSE FRIEND	0	0.0%	0	0.0%
	BROTHER OR SISTER	6	66.7%	3	33.3%
	SOMEONE OF MY AGE (PEER)	15	41.7%	21	58.3%
	TEACHER	6	66.7%	3	33.3%
	DOCTOR	0	0.0%	0	0.0%
	NURSE OR SOCIAL WORKER	0	0.0%	0	0.0%
	SOCIO-CULTURAL ANIMATOR	0	0.0%	0	0.0%
	AN ADULT (CLOSE OR FAMILY MEMBER)	3	37.5%	5	62.5%
TALKS ABOUT SENTIMENTAL PROBLEMS WITH ( $x^2= 5.276$ ; GL= 5; P= .383)	NOBODY	16	50.0%	16	50.0%
	FATHER OR MOHER (STEP-FATHER OR STEP-MOTHER)	64	55.2%	52	44.8%
	CLOSE FRIEND	0	0.0%	0	0.0%
	BROTHER OR SISTER	15	51.7%	14	48.3%
	SOMEONE OF MY AGE (PEER)	62	44.0%	79	56.0%
	TEACHER	0	.0%	1	100.0%
	DOCTOR	1	100.0%	0	0.0%
	NURSE OR SOCIAL WORKER	0	0.0%	0	0.0%
	SOCIO-CULTURAL ANIMATOR	0	0.0%	0	0.0%
	AN ADULT (CLOSE OR FAMILY MEMBER)	0	0.0%	0	0.0%
TALKS ABOUT HEALTH PROBLEMS WITH ( $x^2= 4.265$ ; GL= 6; P= .641)	NOBODY	11	55.0%	9	45.0%
	FATHER OR MOHER (STEP-FATHER OR STEP-MOTHER)	133	50.6%	130	49.4%
	CLOSE FRIEND	0	0.0%	0	0.0%
	BROTHER OR SISTER	0	0.0%	1	100.0%
	SOMEONE OF MY AGE (PEER)	3	27.3%	8	72.7%
	TEACHER	1	50.0%	1	50.0%
	DOCTOR	10	41.7%	14	58.3%
	NURSE OR SOCIAL WORKER	0	0.0%	0	0.0%
	SOCIO-CULTURAL ANIMATOR	0	0.0%	0	0.0%
	AN ADULT (CLOSE OR FAMILY MEMBER)	2	40.0%	3	60.0%
TALKS ABOUT DRUG PROBLEMS WITH ( $x^2= 15.755$ ; GL= 7; P= .027)	NOBODY	75	57.7%	55	42.3%
	FATHER OR MOHER (STEP-FATHER OR STEP-MOTHER)	55	50.5%	54	49.5%
	CLOSE FRIEND	0	0.0%	0	0.0%
	BROTHER OR SISTER	4	44.4%	5	55.6%
	SOMEONE OF MY AGE (PEER)	15	27.8%	39	72.2%
	TEACHER	1	33.3%	2	66.7%
	DOCTOR	1	100.0%	0	0.0%
	NURSE OR SOCIAL WORKER	0	0.0%	0	0.0%
	SOCIO-CULTURAL ANIMATOR	1	50.0%	1	50.0%
	AN ADULT (CLOSE OR FAMILY MEMBER)	2	33.3%	4	66.7%
TALKS ABOUT SEXUSL PROBLEMS WITH ( $x^2= 35.639$ ; GL= 6; P= .000)	NOBODY	59	67.0%	29	33.0%
	FATHER OR MOHER (STEP-FATHER OR STEP-MOTHER)	66	55.5%	53	44.5%
	CLOSE FRIEND	0	0.0%	0	0.0%
	BROTHER OR SISTER	2	28.6%	5	71.4%
	SOMEONE OF MY AGE (PEER)	27	27.8%	70	72.2%
	TEACHER	2	50.0%	2	50.0%
	DOCTOR	1	100.0%	0	0.0%
	NURSE OR SOCIAL WORKER	0	0.0%	0	0.0%
	SOCIO-CULTURAL ANIMATOR	0	0.0%	0	0.0%
	AN ADULT (CLOSE OR FAMILY MEMBER)	2	22.2%	7	77.8%

Data from this synoptic table shows that, when it comes to inter-group (E2-E3) comparison, the only recognizable difference between groups has to do with the approach to issues such as drugs or sexuality. In fact, the 15-18 year-olds choose, for their most part,



peers and adults as best confidants, while the 11-14 year-olds prefer instead not to talk to anyone about these matters (between 60% and 2/3 of the 11-14, respectively).

**Table 50: Wish to know more (about different subjects)**

		[11-14] YEAR OLDS		[15-18] YEAR OLDS	
I'D LIKE TO GET SOME MORE INFORMATION ON ALCOHOLIC BEVERAGES ( $\chi^2 = .118$ ; GL= 1; P= .731)	No	130	51.0%	125	49.0%
	YES	42	48.8%	44	51.2%
I'D LIKE TO GET SOME MORE INFORMATION ON TOBACCO ( $\chi^2 = .035$ ; GL= 1; P= .851)	No	132	50.6%	129	49.4%
	YES	39	49.4%	40	50.6%
I'D LIKE TO GET SOME MORE INFORMATION ON DRUGS ( $\chi^2 = .502$ ; GL= 1; P= .478)	No	127	51.6%	119	48.4%
	YES	44	47.3%	49	52.7%
I'D LIKE TO GET SOME MORE INFORMATION ON THE BODY AND BODILY FUNCTIONS ( $\chi^2 = .179$ ; GL= 1; P= .672)	No	116	51.6%	109	48.4%
	YES	55	49.1%	57	50.9%
I'D LIKE TO GET SOME MORE INFORMATION ON SEXUALITY ( $\chi^2 = 7.217$ ; GL= 1; P= .007)	No	125	55.8%	99	44.2%
	YES	46	40.4%	68	59.6%
I'D LIKE TO GET SOME MORE INFORMATION ON PREGNANCY OR CHILDBIRTH ( $\chi^2 = 2.477$ ; GL= 1; P= .115)	No	126	53.4%	110	46.6%
	YES	44	44.0%	56	56.0%
I'D LIKE TO GET SOME MORE INFORMATION ON AIDS ( $\chi^2 = 2.813$ ; GL= 1; P= .093)	No	124	53.7%	107	46.3%
	YES	46	43.8%	59	56.2%

Following the same comparative strategy for the inter-group analysis of the perception about the need for furthering their knowledge in these themes, it is possible to acknowledge a very large coherence between the results obtained for the 11-14 and the 15-18 year-olds, the sole exception being the greater percentage of youngsters interested in knowing more about sexuality in the latter group (60% vs. 40% with a p value of <.01).

**Table 51: Substance use behaviours and choice of confidants**

	SUBSTANCE USE BEHAVIOURS														
	NO DRUG USE		TOBACCO		ALCOHOL		DRUGS		TOBACCO AND ALCOHOL		ALCOHOL AND DRUGS		TOBACCO, ALCOHOL AND OTHER DRUGS		
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	
TALKS ABOUT SCHOOL PROBLEMS WITH ( $\chi^2= 46.906$ ; $df= 30$ ; $P= .025$ )	Nobody	10	3.8	0		1	2.4	0		1	100	0		1	16.7
	Father or mother	208	79.4	6	75	27	65.9	4	100	0		4	80	3	50
	Close friend	0		0		0		0		0		0		0	
	Brother or sister	5	1.9	1	12.5	3	7.3	0		0		0		0	
	Someone of my age (peer)	26	9.9	0		7	17.1	0		0		1	20	2	33.3
	Teacher	6	2.3	1	12.5	2	4.9	0		0		0		0	
	Doctor	0		0		0		0		0		0		0	
	Nurse or social worker	0		0		0		0		0		0		0	
TALKS ABOUT SENTIMENTAL PROBLEMS WITH ( $\chi^2= 16.556$ ; $df= 30$ ; $P= .978$ )	Nobody	26	10.2	0		4	9.8	0		0		1	20	1	16.7
	Father or mother	100	39.2	3	37.5	8	19.5	2	50	0		0		3	50
	Close friend	0		0		0		0		0		0		0	
	Brother or sister	24	9.4	1	12.5	4	9.8	0		0		0		0	
	Someone of my age (peer)	103	40.4	4	50	25	61	2	50	1	100	4	80	2	33.3
	Teacher	1	.4	0		0		0		0		0		0	
	Doctor	1	.4	0		0		0		0		0		0	
	Nurse or social worker	0		0		0		0		0		0		0	
TALKS ABOUT HEALTH PROBLEMS WITH ( $\chi^2= 99.094$ ; $df= 36$ ; $P= .000$ )	Nobody	16	6.1	0		3	7.3	0		0		0		1	16.7
	Father or mother	217	83.1	6	75	30	73.2	3	75	0		3	60	4	66.7
	Close friend	0		0		0		0		0		0		0	
	Brother or sister	0		1	12.5	0		0		0		0		0	
	Someone of my age (peer)	7	2.7	0		1	2.4	1	25	1	100	0		1	16.7
	Teacher	2	.8	0		0		0		0		0		0	
	Doctor	16	6.1	1	12.5	6	14.6	0		0		1	20	0	
	Nurse or social worker	0		0		0		0		0		0		0	
TALKS ABOUT DRUG PROBLEMS WITH ( $\chi^2= 37.979$ ; $df= 42$ ; $P= .648$ )	Nobody	107	42.8	4	57.1	16	39	0		0		1	20	2	33.3
	Father or mother	92	36.8	1	14.3	11	26.8	1	25	0		1	20	3	50
	Close friend	0		0		0		0		0		0		0	
	Brother or sister	7	2.8	1	14.3	1	2.4	0		0		0		0	
	Someone of my age (peer)	33	13.2	1	14.3	12	29.3	3	75	1	100	3	60	1	16.7
	Teacher	3	1.2	0		0		0		0		0		0	
	Doctor	1	.4	0		0		0		0		0		0	
	Nurse or social worker	0		0		0		0		0		0		0	
TALKS ABOUT SEXUAL PROBLEMS WITH ( $\chi^2= 28.583$ ; $df= 36$ ; $P= .806$ )	Nobody	79	30.5	2	25	6	14.3	0		0		0		1	16.7
	Father or mother	98	37.8	2	25	14	33.3	1	25	0		1	20	3	50
	Close friend	0		0		0		0		0		0		0	
	Brother or sister	5	1.9	1	12.5	1	2.4	0		0		0		0	
	Someone of my age (peer)	65	25.1	3	37.5	19	45.2	3	75	1	100	4	80	2	33.3
	Teacher	3	1.2	0		1	2.4	0		0		0		0	
	Doctor	1	.4	0		0		0		0		0		0	
	Nurse or social worker	0		0		0		0		0		0		0	

Turning now to the analysis of the differences in the choice of sources of information / confidants between substance users and non-users, it is possible to draw the conclusion that

those adolescents reporting the cumulative use of tobacco, alcohol and other drugs show a distinctive tendency to avoid speaking to the parents about their school and health problems. Will it be that they don't speak at all about these questions, in a kind of denial of their own problems? Or are they inclined to talk about this issues with their peers, in an apparently more superficial stance that resembles a “disavowal pact” to avoid the thorough awareness of their personal difficulties (bearing in mind the fact that it is precisely among them that the greater percentage of these problems are identified)?

### 3.1.2.6 PERCEPTION OF ATTACHMENT BEHAVIOURS

A final allusion to the results obtained for the mean scores of the attachment scales used in the adolescents' sample. Data will be displayed by subgroup (E2 & E3) and gender, so that the comparison of mean scores by group and gender can be properly evaluated (Tables 52 to 54 for IPPA and tables 55 and 56 for IACA)

**Table 52: IPPA (mean scores)**

	N	MINIMUM	MAXIMUM	$\bar{\chi}$	$\sigma$
IPPA (MOTHER VERSION)	341	15.00	131.00	81.0499	11.25874
IPPA (PEER VERSION)	336	33.00	121.00	83.2708	13.04348

**Table 53: IPPA (gender differences)**

	GIRLS			BOYS		
	N	$\bar{\chi}$	$\sigma$	N	$\bar{\chi}$	$\sigma$
IPPA (MOTHER VERSION)	190	80.9947	12.18877	151	81.1192	10.00595
IPPA (PEER VERSION)	187	83.7914	12.91679	149	82.6174	13.21526

$P > .05$  (N.S.)

**Table 54: Differences between E2 and E3 subgroups**

		E2	E3	TOTAL
IPPA (MOTHER VERSION) **	$\bar{\chi}$	82.8286	79.1747	81.0499
	N	175	166	341
	$\sigma$	11.83334	10.32676	11.25874
	MINIMUM	15.00	53.00	15.00
	MAXIMUM	131.00	98.00	131.00
IPPA (PEER VERSION) *	$\bar{\chi}$	81.6919	84.9268	83.2708
	N	172	164	336
	$\sigma$	14.02685	11.74136	13.04348

	MINIMUM	33.00	52.00	33.00
	MAXIMUM	112.00	121.00	121.00

\*p<.05

\*\*p<.01

The only statistically significant difference that has been found concerns the inter-subgroup comparison of IPPA mean scores. And this is true either for the perception of attachment to mother (whose mean value is higher among the 11-14 year-old adolescents, for p<.05), or for the perception of attachment to peers (in this case the subgroup difference goes in the same sense, also for p <.05)

**Table 55: IACA (mean scores/E2 and E3 subgroups)**

ATTACHMENT		N	$\bar{\chi}$	$\sigma$
ANXIOUS	E2	168	49.8988	15.48600
	E3	151	50.3576	15.43042
SECURE	E2	167	65.5868	16.16677
	E3	152	63.8553	15.58629
AVOIDANT	E2	167	25.5150	7.46627
	E3	151	26.9470	6.62197

P>.05 (ns)

**Table 56: IACA (gender differences)**

ATTACHMENT		N	$\bar{\chi}$	$\sigma$
ANXIOUS	FEMALE	173	50.3468	14.64764
	MALE	145	49.8414	16.42689
SECURE	FEMALE	173	64.3988	16.09338
	MALE	145	65.2138	15.74545
AVOIDANT	FEMALE	172	25.8605	6.74543
	MALE	145	26.6690	7.47036

p>.05

Quite on the contrary the values obtained for the mean scores of each one of IACA' sub-scales show no significant difference for both gender and subgroup.

Equal to the psychosocial profile that has been outlined for the E1 sub-sample (6 to 8 year-old children) it is now possible to summarize the most relevant psychosocial and behavioural features of the adolescent sub-sample (the 11-18 year olds from E2+ E3 subgroups):

## **HEALTH STATE**

The perception that adolescents have of their health status is globally favourable. Even so note that:

1. On how they relate to their body, about 1 in every 10 adolescents (14.3%) see themselves as “fat”, whilst half of the girls, against 20% of the boys, show concern about losing weight;
2. Somatic-functional complaints and depressive feelings are mainly referred to by girls. Thus: 1/3 of the girls (31.7%), against ¼ of the boys (22.6%), complain about insomnia, whilst 19.3% of the girls (and 16.5% of the boys) are occasionally troubled by nightmares; pain (headaches and abdominal pain) are an eminently female complaint (about half of the girls against ¼ of the boys mention having headaches often, and there is an overlapping pattern for abdominal pain); complaints of the depressive “series” (sadness, boredom, lack of energy, “nerves”) affect mainly girls, although the gender differences are not statistically significant in this sample (it must be pointed out, however, that slightly over ¼ of the adolescents regularly refer to feeling lack of hope about their future);
3. The rate of medical appointments in the last year is relatively low, regardless of the medical specialty (dentists included, consulted on average, during the year, 2 times by the boys and 3 times by the girls of the sample);
4. Even if the rate of medical prescription is relatively low for this population, there’s an average rate of 17.5% for analgesic intake, and 5.4% (for girls, against 3.9% for boys) for use of prescribed medication for “being nervous”; medication “for sleeping” was prescribed to 3.2% of the girls (for a period exceeding one month).

## **EATING BEHAVIOURS**

It seems that it is chiefly the girls who have a problematic relationship with food. Thus, eating a lot raises the “fear of not stopping” in 11% of the girls (against 2.6% of the boys) and this same eating behaviour is bounded to a feeling of “shame”, or provokes depressive feelings, in about 1 in every 10 girls (against 4.5% of the boys).

### **VIOLENT BEHAVIOURS**

1. Impulsive behaviour (screaming, getting involved in fights or breaking objects) is mentioned by 1/3 to 1/5 of the adolescents of the sample, boys always showing the higher rate;
2. On the other hand cases of theft, physical threats or running away from home are very rare among the young people surveyed, although the last 2 situations are mentioned by a greater number of girls than boys (3.7% of the girls, against 1.3% of the boys tried to run away from home in the last year, and, during the same period of time, 7.5% of the girls, against 4.5% of the boys, threatened someone physically).

### **PSYCHOACTIVE SUBSTANCE USE**

1. In this population alcohol use follows a trend similar to that found in the latest ESPAD survey. Thus, rates of beer use, be it occasional or regular, stand at 30% for boys (and 17.6% for girls), rates of consumption of distilled beverages being almost similar between boys and girls (19.4% against 13.7%);
2. Episodes of drunkenness (ever in life. in the last 12 months) are always more frequent among boys. Thus, in the year preceding the survey, 3 in every 10 boys (against 18.4% of the girls) admitted having had, at least, 1 to 2 episodes of acute alcohol intoxication;
3. As to smoking there is an (expected) reversion in the boys/ girls ratio, in favour of the latter. In particular, occasional or regular smoking is mentioned by 1/3 of the girls (32.5%), against ¼ of the boys (25%);
4. As expected, the rate of other drug use (ever in life and in the last 12 months) is rather small in this population. Though a careful critical attitude is needed in the epidemiological appraisal of this statistical data, one should notice that the “ever used” rate for hashish is, among this sample, 4.5% for the girls (against 2.7% for the boys);
5. About 2 in every 10 adolescents of this sample report the use of, at least, one psychoactive substance. Alcohol beverages present the highest use rate (80% of substance users and 10% of the total sample) and approximately 1/5 of these adolescents (17.4%) use more than one psychoactive substance.

### **INFORMATION ON HEALTH RISK BEHAVIOURS**

On this point, one must note that, against a background of a relative lack of interest on the part of adolescents (mainly the 11-14 years-old) about subjects like sexuality, health problems, or drug use (which interest about ¼ of the youngest and half of the 15-18 year-olds, parents being the most sought-after source of information in both subgroups), it is identifiable, in the adolescents who accumulate smoking, alcohol and other drug use, a distinctive tendency not to talk to their parents (or other adults) about health or school problems (at the most, they confide in their peers, perhaps in the defensive search of a sort of “disavowal pact” for their difficulties), unlike what happens with other groups of adolescents (in particular the non-users)

### **3.2 INFERENCE ANALYSIS**

After describing and comparing by gender the questionnaire data, the moment has arrived to verify if there is a correlation between the relevant medical and behavioural antecedents and health risk behaviours among the adolescents in the sample under study.

This directive correlational analysis (hence its inferential character) will be presented in three stages:

- Analysis and discussion of the observed correlations between the variables selected for cross-sectional analysis (obtained through the psychosocial self-questionnaire);
- Analysis and discussion of the correlations found in the longitudinal analysis (taking advantage simultaneously from the research protocol, the fieldwork methodology and the panel sample design) after constructing the risk index (*IAS-din*);
- Analysis of the logit regression in order to conduct the empirical test of the mediator model presented to explain the variation in psychoactive substance use among adolescents according to their somatic, somatic-functional and behavioural antecedents.

### 3.2.1 CROSS-SECTIONAL ANALYSIS

In view of the type of study and the theoretical-empirical reasoning on health risk behaviours that has been adopted in the statistical analyses, the association between the number of somatic-functional complaints and drug use among the adolescent sample will be the first to be tested.

**Table 57: Substance use and somatic-functional complaints**

		CONSUMOS		TOTAL
		NO SUBSTANCE USE	SUBSTANCE USE	
SOMATIC-FUNCTIONAL COMPLAINTS	NO COMPLAINTS	N	4	5
		%	1.4%	1.4%
		RA	0.0	0.0
	1-2 COMPLAINTS	N	50	53
		%	17.5%	15.0%
		RA	2.8	-2.8
	>=3 COMPLAINTS	N	231	296
		%	81.1%	83.6%
		RA	-2.6	2.6
	Total	N	285	69
		%	80.5%	100.0%

$\chi^2 = 7.611$        $gl=2$        $p=.022$

As the previous table shows, there is a dependent relationship between use behaviours and the quantity of somatic-functional complaints, given that 9 in every 10 users (94.2%) mention 3 or more somatic-functional complaints ( $p < .05$  for the inter-group comparison). However, it is interesting to note that only 22% of the adolescents who present a greater number of functional complaints ( $\geq 3$ ) report substance use behaviours (65/296). Thus it becomes necessary to clarify:

- What is the statistical profile of the relationship drug use/ somatic functional complaints by gender?
- What is the rate of somatic-functional problems among adolescents involved in other health risk behaviours (violent behaviour and eating behaviour troubles)?



However, before undertaking these statistical analyses, it seems pertinent to understand whether there is a correlation between the perception of physical and psycho-affective discomfort by the youngsters (as expressed by their somatic-functional complaints) and the parents' perception of their health status.

**Table 58: Somatic-functional complaints and health state by gender**

GENDER		HEALTH STATE (11-18 ANOS)		TOTAL		
		VIGOROUS/HEALTHY	FRAIL HEALTH			
<b>FEMALE</b> ( $\chi^2= 5.296$ ; GL=2; P=.071)	<b>SOMATIC-FUNCTIONAL COMPLAINTS</b>	NO COMPLAINTS	N	1	1	2
			%	.6%	7.7%	1.1%
		RA	-2.3	2.3		
		1-2 COMPLAINTS	N	14	1	15
			%	8.7%	7.7%	8.6%
		RA	.1	-.1		
	>=3 COMPLAINTS	N	146	11	157	
		%	90.7%	84.6%	90.2%	
	RA	.7	-.7			
	TOTAL	N	161	13	174	
		%	100.0%	100.0%	100.0%	
	<b>MALE</b> ( $\chi^2= 271$ ; GL= 2; P= .873)	<b>SOMATIC-FUNCTIONAL COMPLAINTS</b>	NO COMPLAINTS	N	3	0
%				2.2%	0.0%	2.1%
RA			.4	-.4		
1-2 COMPLAINTS			N	26	1	27
			%	19.0%	14.3%	18.8%
RA			.3	-.3		
>=3 COMPLAINTS		N	108	6	114	
		%	78.8%	85.7%	79.2%	
RA		-.4	.4			
TOTAL		N	137	7	144	
		%	100.0%	100.0%	100.0%	

The previous table shows that there is no agreement between parents and their children on this subject. More precisely, parents seem to be more optimistic (by conviction, denial or lack of attention?) about the health of their adolescent children than the adolescents themselves. On the one hand this is to be expected (as the saying goes “to each his own”. and this common sense saying very much applies to the symptoms/feelings in this phase of the life cycle) and, on the other hand, it can also illustrate the significant parent/children communication gap during adolescence.

Conversely, it is worth referring to the predictive nature of information provided by parents and teachers of children and adolescents (between ages 4 and 11) as regards

“attention difficulties”, “delinquent behaviours” and “somatic complaints. In fact, the same problems were identified in these youngsters 6 years later by Verhulst, Koot & Van der Ende (1994) when proceeding to the comparative analysis of longitudinal data from their study. And this is so, despite the fact that this data was obtained by means of a psychometric instrument with different characteristics (in this case the parent and teacher versions – CBCL & TRF – of a psychopathological inventory commonly used in clinical and epidemiological studies) and in the context of a cohort study.

It becomes therefore pertinent to find out, following the research line described above, if a significant correlation may be established between the somatic-functional complaints of adolescents and some objective data, in this case the frequency of medical appointments by the youngsters (as stated by parents, based on the individual health bulletin of their children).

**Table 59: Somatic-functional complaints and frequency of medical appointments**

		FREQUENCY MEDICAL APPOINTMENTS				TOTAL	
		OFTEN	REGULARLY	OCCASIONALLY	RARELY		
SOMATIC-FUNCTIONAL COMPLAINTS	NO COMPLAINTS	N	2	1	1	1	5
		%	7.4%	1.3%	.6%	2.0%	1.6%
		RA	2.5	-.3	-1.4	.3	
	1-2 COMPLAINTS	N	6	8	21	5	40
		%	22.2%	10.3%	13.2%	10.2%	12.8%
		RA	1.5	-.8	0.2	-.6	
	>=3 COMPLAINTS	N	19	69	137	43	268
		%	70.4%	88.5%	86.2%	87.8%	85.6%
		RA	-2.4	.8	.3	.5	
	TOTAL	N	27	78	159	49	313
		%	100.0%	100.0%	100.0%	100.0%	100.0%

$\chi^2 = 10.136$      $g1=6$      $p=.119$

In doing this cross-sectional analysis one can observe that both variables are independent, which means that there is no association between the frequency of medical appointments and the somatic complaints of adolescents.

The association between somatic-functional complaints and psychoactive substance use is regularly researched in epidemiological studies conducted in general population. Keeping the (quantitative) categorization in 3 classes for the composite variable “somatic-functional complaints” and by crossing it with the variable “substance use behaviours” (divided into 2 classes, according to the epidemiological profile of this type of behaviour for this population) it becomes evident that the correlation between the two variables has the expected direction, but that it is not statistically significant (see Table 60).

**Table 60: Substance use and somatic-functional complaints by gender**

GENDER		CONSUMOS		TOTAL		
		NO SUBSTANCE USE	SUBSTANCE USE			
<b>FEMALE</b> $(\chi^2 = 3.340;$ $GL = 2;$ $P = .118)$	<b>SOMATIC-FUNCTIONAL COMPLAINTS</b>	N	2	0	2	
		NO COMPLAINTS	%	1.2%	0.0%	1.0%
			RA	0.7	-0.7	
		1-2 COMPLAINTS	N	21	1	22
			%	13.0%	2.9%	11.2%
		RA	1.7	-1.7		
	>=3 COMPLAINTS		N	139	33	172
		%	85.8%	97.1%	87.8%	
	RA	-1.8	1.8			
		TOTAL	N	162	34	196
	%		82.7%	17.3%	100.0%	
<b>MALE</b> $(\chi^2 = 5.609;$ $GL = 2;$ $P = .061)$	<b>SOMATIC-FUNCTIONAL COMPLAINTS</b>	N	2	1	3	
		NO COMPLAINTS	%	1.6%	2.9%	1.9%
			RA	-0.5	0.5	
		1-2 COMPLAINTS	N	29	2	31
			%	23.6%	5.7%	19.6%
		RA	2.3	-2.3		
	>=3 COMPLAINTS		N	92	32	124
		%	74.8%	91.4%	78.5%	
	RA	-2.1	2.1			
		TOTAL	N	123	35	158
	%		77.8%	22.2%	100.0%	

On the other hand, the analysis by gender (intra groups) shows that there is an overlap of the somatic-functional complaints/substance use interaction profile between boys and girls.

The following table shows the correlation analysis between somatic-functional complaints and violent behaviour.

**Table 61: Somatic-functional and violent behaviours**

		VIOLENT BEHAVIOURS		TOTAL	
		No	YES		
SOMATIC-FUNCTIONAL COMPLAINTS	NO COMPLAINTS	N	2	1	3
		%	0.7%	2.0%	0.9%
		RA	-0.9	0.9	
	1-2 COMPLAINTS	N	35	8	43
		%	12.8%	16.0%	13.3%
		RA	-0.6	0.6	
	>=3 COMPLAINTS	N	236	41	277
		%	86.4%	82.0%	85.8%
		RA	0.8	-0.8	
TOTAL	N	273	50	323	
	%	100.0%	100.0%	100.0%	

$\chi^2 = 1.149$        $g1=2$        $p=.563$

As shown, even if there is a significant rate of impulsive behaviours among the adolescents under study who report the largest number of somatic-functional complaints ( $\geq 3$ ) there is no statistical difference compared to the other adolescents (82% and 86%, respectively).

From the double epidemiological and preventive viewpoint this fact may mean that the somatic-functional complaints (of a predominant anxious-depressive nature) should always be evaluated in their context. In other words attention should always be paid to the current association with other problematic behaviours for the adolescent's health and social adaptation.

On the other hand, it should be granted adequate importance, though mainly a retrospective one, to the association (for a given adolescent) of these behaviours with a family and academic history marked by emotional, relational and educational difficulties (whether subjective or objective).

In fact, data from this study is not contradictory with the importance awarded in literature to the association of somatic-functional complaints (be they interpreted as somatoform disturbances, psychosomatic symptoms or episodes of somatisation) to the risk of adolescent depression (Zwaigenbaum *et al.*, 1999) and to emotional disturbances and health compromising behaviours among the adolescents who more frequently refer to this type of symptomatology (Garralda & Bailey, 1990. Beiter *et al.*, 1991. Simpson *et al.*, 2006)

**Table 62: Somatic-functional complaints and troubled eating behaviour**

		VOMITING, DIET, LAXATIVES OR MEDICATIONS TO LOOSE WEIGHT			
		NO WEIGHT CONTROL STRATEGIES	AT LEAST ONE WEIGHT CONTROL STRATEGY	TOTAL	
SOMATIC-FUNCTIONAL COMPLAINTS	NO COMPLAINTS	N	3	1	4
		%	1.4%	0.7%	1.1%
		RA	0.6	-0.6	
	1-2 COMPLAINTS	N	42	11	53
		%	19.6%	8.0%	15.1%
		RA	3.0	-3.0	
	>=3 COMPLAINTS	N	169	126	295
		%	79.0%	91.3%	83.8%
		RA	-3.1	3.1	
	TOTAL	N	214	138	352
		%	100.0%	100.0%	100.0%

$\chi^2 = 9.430$  gl=2 p=.009

The analysis of data issued in the previous table leads to the establishment of a dependency correlation between somatic-functional complaints and a particularly problematic eating behaviour in the sample under study (“weight control strategies”) mainly because of its connection to body image and, through that, with the acknowledgement of the evolving self in the process of identity construction. Thus, 91% of the adolescents who use, at least, one of the weight control strategies surveyed in this study report 3 or more somatic-functional symptoms (against around ¾ - 79% - of the others).

The following table shows the result of the same analysis between genders (intra-groups).

**Table 63: Somatic-functional complaints and eating behaviour disorders by gender**

GENDER			VOMITING, DIET, LAXATIVES OR MEDICATIONS TO LOOSE WEIGHT		TOTAL	
			NO WEIGHT CONTROL STRATEGIES	AT LEAST ONE WEIGHT CONTROL STRATEGY		
FEMALE $(\chi^2 = 11.562;$ $GL = 2;$ $P = .003)$	SOMATIC-FUNCTIONAL COMPLAINTS	NO COMPLAINTS	N	2	0	2
			%	1.9%	0.0%	1.0%
		RA	1.3	-1.3		
		1-2 COMPLAINTS	N	19	3	22
			%	17.6%	3.4%	11.3%
		RA	3.1	-3.1		
	>=3 COMPLAINTS	N	87	84	171	
		%	80.6%	96.6%	87.7%	
	RA	-3.4	3.4			
	TOTAL	N	108	87	195	
		%	100.0%	100.0%	100.0%	
	MALE $(\chi^2 = 1.019;$ $GL = 2;$ $P = .601)$	SOMATIC-FUNCTIONAL COMPLAINTS	NO COMPLAINTS	N	1	1
%				0.9%	2.0%	1.3%
RA			-0.5	0.5		
1-2 COMPLAINTS			N	23	8	31
			%	21.7%	15.7%	19.7%
RA			0.9	-0.9		
>=3 COMPLAINTS		N	82	42	124	
		%	77.4%	82.4%	79.0%	
RA		-0.7	0.7			
TOTAL		N	106	51	157	
		%	100.0%	100.0%	100.0%	

This table shows that it is among girls that the inter-groups difference observed becomes statistically relevant (for  $p < .05$ ). Indeed, almost all (97%) of the girls who use weight control strategies (by vomiting, dieting, laxatives or medication) mention 3 or more somatic-functional complaints (against slightly over  $\frac{3}{4}$  of the other adolescents).

From what has just been stated it becomes rather interesting to understand whether there is a statistical interdependence between substance use and this type of eating behaviour for the entire adolescent sub-sample.

**Table 64: Substance use and weight control strategies**

		SUBSTANCE USE		TOTAL	
		NO SUBSTANCE USE	SUBSTANCE USE		
VOMITING, DIET, LAXATIVES OR MEDICATIONS TO LOOSE WEIGHT	• NO WEIGHT CONTROL STRATEGIES	N	177	37	214
		%	62.5%	53.6%	60.8%
		RA	1.4	-1.4	
	• AT LEAST ONE WEIGHT CONTROL STRATEGY	N	106	32	138
		%	37.5%	46.4%	39.2%
		RA	-1.4	1.4	
TOTAL		N	283	69	352
		%	100.0%	100.0%	100.0%

$\chi^2 = 1.852$ ;  $gl=1$        $p=.174$

This does not seem to be the case, which may lead us to question if eating behaviour disorders (and particularly bulimia) in girls is an “epidemiological equivalent” to drug use in boys. A comparative analysis of this gender difference may be enlightening.

**Table 65: Substance use and weight control strategies by gender**

GENDER		SUBSTANCE USE		TOTAL		
		NO SUBSTANCE USE	SUBSTANCE USE			
FEMALE ( $\chi^2 = 6.727$ ; $GL = 1$ ; $P = .009$ )	VOMITING, DIET, LAXATIVES OR MEDICATIONS TO LOOSE WEIGHT	• NO WEIGHT CONTROL STRATEGIES	N	96	12	108
			%	59.6%	35.3%	55.4%
			RA	2.6	-2.6	
	• AT LEAST ONE WEIGHT CONTROL STRATEGY	N	65	22	87	
		%	40.4%	64.7%	44.6%	
		RA	-2.6	2.6		
TOTAL		N	161	34	195	
		%	100.0%	100.0%	100.0%	
MALE ( $\chi^2 = 0.314$ ; $GL = 1$ ; $P = .575$ )	VOMITING, DIET, LAXATIVES OR MEDICATIONS TO LOOSE WEIGHT	• NO WEIGHT CONTROL STRATEGIES	N	81	25	106
			%	66.4%	71.4%	67.5%
			RA	-0.6	0.6	
	• AT LEAST ONE WEIGHT CONTROL STRATEGY	N	41	10	51	
		%	33.6%	28.6%	32.5%	
		RA	0.6	-0.6		
TOTAL		N	122	35	157	
		%	100.0%	100.0%	100.0%	

This hypothesis is not confirmed, quite in the contrary; it is among girls that there is an interdependence between psychoactive substance use and weight control strategies (at  $p < .01$ ) since about 7 in every 10 users uses at least one weight control strategy (against 40% of the non-users).

Nevertheless, these findings seem to confirm the (well-documented) co-occurrence of eating behaviour disorders and substance use (e.g.. Bulik *et al.*, 1992, von Ranson *et al.*, 2002, Neumark-Sztainer *et al.*, 1997, Fulkerson *et al.*, 2004)

It must be said, however, that to the above-referred association is awarded, on the one hand, an additive character which stems essentially from the compulsive nature and the endless (primary) quest for sensorial pleasure associated to both behaviours (Greenberg *et al.*, 1999, Corcos *et al.*, 2000) and, on the other hand, a depressive emotional substrate which contributes to underline the medical morbidity of this type of behaviour (Lock *et al.*, 2001. Fulkerson *et al.*, 2004)

**Table 66: Substance use and violent behaviours**

		SUBSTANCE USE		TOTAL	
		NO SUBSTANCE USE	SUBSTANCE USE		
VIOLENT BEHAVIOURS	NO	N	221	52	273
		%	86.7%	76.5%	84.5%
		RA	2.1	-2.1	
	YES	N	34	16	50
		%	13.3%	23.5%	15.5%
		RA	-2.1	2.1	
TOTAL	N	255	68	323	
	%	100.0%	100.0%	100.0%	

$\chi^2 = 4.266$      $g1=1$      $p=.039$

The same reasoning may be applied to the observable association between substance use and violent behaviour. In fact, while ¼ of the young consumers of the study sample (24%) accumulate other impulsive behaviours (physical violence, running away from home or from school, or other violent gestures) only one out of ten non-users mentions the same type of behaviours ( $p < .05$ ).



The following table shows the result of the analysis between genders (intra groups).

**Table 67: Substance use and violent behaviours by gender**

GENDER		SUBSTANCE USE		TOTAL			
		NO SUBSTANCE USE	SUBSTANCE USE				
FEMALE ( $\chi^2= 8.424$ ; GL= 1; P= .004)	VIOLENT BEHAVIOURS	No	N	135	26	161	
			%	93.1%	76.5%	89.9%	
			RA	2.9	-2.9		
		Yes	N	10	8	18	
			%	6.9%	23.5%	10.1%	
			RA	-2.9	2.9		
	TOTAL	N	145	34	179		
		%	100.0%	100.0%	100.0%		
	MALE ( $\chi^2= 8.377$ ; GL= 1; P= .834)	VIOLENT BEHAVIOURS	No	N	86	26	112
				%	78.2%	76.5%	77.8%
RA				0.2	-0.2		
Yes			N	24	8	32	
			%	21.8%	23.5%	22.2%	
			RA	-0.2	0.2		
TOTAL		N	110	34	144		
		%	100.0%	100.0%	100.0%		

The results of this analysis show that it is the female users who more decisively contribute to the relation described above, since it is among them that there is a clearer evidence (at  $p < .01$ ) of the association between substance use and violent behaviour (for 1/4 of these girls) whilst only a reduced rate (7%) of the other girls makes reference to the same type of behaviour.

This statistical finding is in line with the clinical observation (confirmed by other epidemiological studies) according to which externalized behaviours (centred on the body and on impulsive acting out) among girls are usually associated to significant impasses in the identity process.

Moreover, the association between these health risk behaviours (substance use and violent behaviours) and somatic-functional disturbances regularly identified in general population (e.g.. Choquet & Ledoux, 1993, Catalano *et al.* 1997, Carlini-Marlatt *et al.*, 2003) or in clinical population studies (Tims *et al.*, 2002) confirms the epidemiological notion of the co-occurrence of these pathologies and reinforces the need to develop integrated and comprehensive preventive- therapeutic methodologies (Kessler *et al.*, 1996. Kaminer, 1999)

## Attachment Behaviours (cross perception between parents and children)

As to the comparison trial between adolescents' perception of maternal attachment and parents' perception (more specifically mothers. in view of the high rate of maternal participation in this study) of adolescents' attachment behaviours, it is important to begin by pointing out that these variables were measured, in this study, by different instruments.

Thus. the adolescents' perception of maternal (and peer) attachment was assessed by means of IPPA, whilst maternal perception of adolescents' attachment behaviours was measured through IACA.

As previously stated, these 2 psychometric instruments make use of different evaluation criteria for the same construct (the question can even be raised as to whether they measure the same construct). Bearing this in mind, it is nevertheless interesting making an analogical comparison between the two variables.

**Table 68: Correlation trial between IPPA and IACA**

		IACA		
		ANXIOUS	SECURE	AVOIDANT
IPPA_MOTHER	R	-.086	.167 (**)	-.106
	P	.129	.003	.062
	N	311	312	311
IPPA_PEERS	R	-.131 (*)	.141 (*)	-.047
	P	.021	.013	.411
	N	307	308	307

\*\* P< .01

\* p< .05

As the previous table shows. there is a positive correlation between the good quality of perceived maternal attachment behaviours by adolescents and the perception of adolescents' secure attachment behaviour by their mothers. The same can be said about the perception of peers' attachment (i.e., the more positive it is the higher the mean score for maternal perception of secure attachment behaviours among their adolescent offspring)

### 3.2.2 LONGITUDINAL ANALYSIS

The longitudinal analysis of the correlations between the main variables – somatic antecedents, attachment and substance use behaviours – implies a developmental approach to

all variables (organized diachronically) included in the construct / independent variable “somatic antecedents”.

In order to operate such analytical modelling, five indexes per age group were initially built, to be used as independent variables in the correlational analyses with the other main variables of the empirical model proposed in this research:

1. Index of somatic antecedents (IAS);
2. Index of hospitalisations (IH);
3. Index of social behaviour troubles (IACS);
4. Index of traumatic situations (IST);
5. Index of global risk (IRG).

Note that the variables included in these indexes are part of the Health Inventory and originate from the information provided by parents as regards the somatic and behavioural antecedents of their offspring (see appendix II at the end of this document).

The tables that follow display data related to the construction of these indexes.

**Table 69: Risk indexes (sum of the number of events): parametric values**

NAME	N	MIN	MAX	MEAN	SD
A1 INDEX OF SOMATIC ANTECEDENTS 0-2 YEARS	356	0	3	0.57	0.772
A2 INDEX OF SOMATIC ANTECEDENTS 3-5 YEARS	348	0	3	0.75	0.872
A3 INDEX OF SOMATIC ANTECEDENTS 6-10 YEARS	345	0	4	0.95	1.036
A4 INDEX OF SOMATIC ANTECEDENTS 11-18 YEARS	327	0	5	1.00	1.048
A GLOBAL INDEX OF SOMATIC ANTECEDENTS	356	0	12	3.13	2.780
B1 INDEX OF HOSPITALISATIONS 0-2 YEARS	276	0	1	0.12	0.329
B2 INDEX OF HOSPITALISATIONS 3-5 YEARS	284	0	1	0.12	0.321
B3 INDEX OF HOSPITALISATIONS 6-10 YEARS	277	0	1	0.12	0.320
B4 INDEX OF HOSPITALISATIONS 11-18 YEARS	275	0	1	0.11	0.312
B GLOBAL INDEX OF HOSPITALISATIONS	341	0	3	0.38	0.699
C1 INDEX OF SOCIAL BEHAVIOUR TROUBLES 0-2 YEARS	346	0	2	0.16	0.384
C2 INDEX OF SOCIAL BEHAVIOUR TROUBLES 3-5 YEARS	348	0	4	0.91	0.984
C3 INDEX OF SOCIAL BEHAVIOUR TROUBLES 6-10 YEARS	346	0	5	0.83	0.974
C4 INDEX OF SOCIAL BEHAVIOUR TROUBLES 11-18 YEARS	331	0	4	0.66	0.938
C GLOBAL INDEX OF SOCIAL BEHAVIOUR TROUBLES	349	0	11	2.52	2.392
D1 INDEX OF TRAUMATIC SITUATIONS 0-2 YEARS	351	0	4	0.80	0.868
D2 INDEX OF TRAUMATIC SITUATIONS 3-5 YEARS	338	0	3	0.36	0.581
D3 INDEX OF TRAUMATIC SITUATIONS 6-10 YEARS	326	0	2	0.27	0.492
D4 INDEX OF TRAUMATIC SITUATIONS 11-18 YEARS	313	0	2	0.28	0.491
D GLOBAL INDEX OF TRAUMATIC SITUATIONS	351	0	7	1.65	1.513
E INDEX OF RISK BEHAVIOURS (11-18 YEARS)	175	0	3	0.30	0.530
IRG IRG	356	0	27	7.5927	5.26266

As can be observed, the sample under study presents, from birth to 18 years of age, an average figure of 3 somatic antecedents (ranging from 0 to 12 antecedents)

Although the average number of traumatic situations is lower, they deserve attention because during their lives the adolescents under study have already undergone (on average) 2 traumatic situations. As to the number of hospitalisations the average figure is low (<1 hospitalisation), varying between 0 and 3. With regard to social behaviour troubles, there are 3 references per adolescent on average (the references to this kind of situation vary between 0 and 11)

In view of these findings and the strategy used to build each one of these 5 partial indexes, and considering the need to avoid dispersion of this important independent variable, an index of integrated risk was built, named “dynamic index of somatic antecedents” (IAS-*din*) with 5 classes: never (lack of antecedents); decrease (throughout growth process); maintenance (in all phases); increase (throughout growth process); irregular profile.

With this “dynamic index of somatic antecedents” (IAS-*din*) available, which measures the medical trajectory of the adolescents in the sample, it is worth beginning by analysing its correlation with the taking of prescribed medication among this population.

**Table 70: Correlation between somatic antecedents and taking of medications**

		MEDICATIONS
IAS	RHO	.130 (*)
	SIG. (2-TAILED)	.014
	N	354

\* p < .05

**Table 71: Contingency between somatic antecedents and taking of medications**

		MEDICATIONS		TOTAL	
		NEVER TOOK ANY MEDICATION	TOOK 1 TO 3 MEDICATIONS		
IAS	NO SOMATIC ANTECEDENTS	N	103	2	105
		%	31.3%	8.0%	29.7%
		RA	2.5	-2.5	
	EARLY SOMATIC ANTECEDENTS	N	51	5	56
		%	15.5%	20.0%	15.8%
		RA	-0.6	0.6	
	SOMATIC ANTECEDENTS UP TO 10 YEARS OF AGE	N	32	1	33
		%	9.7%	4.0%	9.3%
		RA	0.9	-0.9	
	SOMATIC ANTECEDENTS DURING ADOLESCENCE	N	23	4	27
		%	7.0%	16.0%	7.6%
		RA	-1.6	1.6	
	SOMATIC ANTECEDENTS FROM 6 YEARS ON	N	32	2	34
		%	9.7%	8.0%	9.6%
		RA	0.3	-0.3	
	SOMATIC ANTECEDENTS ALL THE TIME	N	88	11	99
		%	26.7%	44.0%	28.0%
		RA	-1.9	1.9	
TOTAL	N	329	25	354	
	%	100.0%	100.0%	100.0%	
	RA				

As expected there is a correlation between IAS and the taking of prescribed medication, which, although not very significant, does however indicate a clear-cut line of separation between the extreme subgroups of IAS (“never had” and “always had”). Thus, whilst 1/3 (31%) of the adolescents of the first subgroup (against 8% of them) never took medication. about half (44%) of the youngsters from the second subgroup mentions having taken between 1 and 3 prescribed medications (against 27% who never took medication).

**Table 72: Correlation between somatic antecedents and frequency of medical appointments and taking of medications (controlled by substance use behaviours)**

		IAS-DIN	
SUBSTANCE USE	FREQUENCY OF MEDICAL APPOINTMENTS	RHO	<b>.213</b>
		P	<b>.000</b>
		N	293
	MEDICATIONS	RHO	.095
		P	.103
		N	293

As can be seen in the table above, there is only a significant correlation (at  $p < .001$ ) between the frequency of medical appointments and psychoactive substance use by the adolescents in the sample.

It becomes then interesting to check if there is an association between taking medication and substance use among the adolescents of the study sample.

The findings are shown in the following table.

**Table 73: Substance use and taking of medications**

		MEDICATIONS			
		NEVER TOOK ANY MEDICATION	TOOK 1 TO 3 MEDICATIONS	TOTAL	
SUBSTANCE USE	NO SUBSTANCE USE	N	<b>254</b>	16	270
		%	<b>83.0%</b>	57.1%	80.8%
		RA	<b>3.3</b>	-3.3	
	SUBSTANCE USE	N	52	<b>12</b>	64
		%	17.0%	<b>42.9%</b>	19.2%
		RA	-3.3	<b>3.3</b>	
TOTAL		N	306	28	334
		%	100.0%	100.0%	100.0%

$\chi^2 = 11.078$   $g1=1$   $p=.001$

There is a statistical dependency between substance use and the taking of prescribed medication, since about 20% of the adolescents who have never taken medication use psychoactive substances whilst the same behaviour is mentioned by 4 in every 10 adolescents (42.9%) who took 1 to 3 prescribed medications during the year before the survey.

Table 73 shows the distribution of the youngsters when the cross analysis between IAS-*din* and drug use is performed.

**Table 73: IAS-*din* and substance use**

IAS DYNAMIC	SUBSTANCE USE	%
NEVER (NO SOMATIC ANTECEDENTS)	• NO SUBSTANCE USE	<b>75.3%</b>
	• SMOKING HABITS	4.1%
	• DRINKING (ALCOHOL) HABITS	12.3%
	• DRUG CONSUMPTION	1.4%
	• SMOKING AND DRINKING HABITS	1.4%
	• DRINKING HABITS AND DRUG CONSUMPTION	1.4%
	• SMOKING AND DRINKING HABITS PLUS DRUG CONSUMPTION	4.1%
DECREASE (THROUGHOUT GROWTH PROCESS)	• NO SUBSTANCE USE	<b>61.0%</b>
	• SMOKING HABITS	2.4%
	• DRINKING HABITS	17.1%
	• DRUG CONSUMPTION	7.3%
	• SMOKING AND DRINKING HABITS	7.3%
	• DRINKING HABITS AND DRUG CONSUMPTION	2.4%
	• SMOKING AND DRINKING HABITS PLUS DRUG CONSUMPTION	2.4%
MAINTENANCE (IN ALL PHASES)	• NO SUBSTANCE USE	68.3%
	• SMOKING HABITS	1.6%
	• DRINKING HABITS	11.1%
	• DRUG CONSUMPTION	7.9%
	• SMOKING AND DRINKING HABITS	1.6%
	• DRINKING HABITS AND DRUG CONSUMPTION	4.8%
	• SMOKING AND DRINKING HABITS PLUS DRUG CONSUMPTION	4.8%
INCREASE (THROUGHOUT GROWTH PROCESS)	• NO SUBSTANCE USE	<b>64.8%</b>
	• SMOKING HABITS	4.0%
	• DRINKING HABITS	16.8%
	• DRUG CONSUMPTION	2.4%
	• SMOKING AND DRINKING HABITS	0.8%
	• DRINKING HABITS AND DRUG CONSUMPTION	5.6%
	• SMOKING AND DRINKING HABITS PLUS DRUG CONSUMPTION	5.6%
IRREGULAR PROFILE	• NO SUBSTANCE USE	<b>60.0%</b>
	• SMOKING HABITS	6.7%
	• DRINKING HABITS	25.3%
	• DRUG CONSUMPTION	1.3%
	• SMOKING AND DRINKING HABITS	1.3%
	• DRINKING HABITS AND DRUG CONSUMPTION	4.0%
	• SMOKING AND DRINKING HABITS PLUS DRUG CONSUMPTION	1.3%

This table shows that the largest percentage of abstinent is to be found among young people who have no somatic antecedents.

The longitudinal correlation data presented so far must be critically commented, both as regards the empirical reasoning that justifies it and the pertinence of the findings. in view of the practical objectives of this epidemiological survey.

As to the first point, the nature of IAS-*din* taken together with the restricted N (362 subjects) which is the object of the inferential analysis conducted, enforces the “statistical axis” built on the somatic-functional and behavioural antecedents (IAS-*din*) and psychoactive substance use (dependent variable in the empirical model presented).

Effectively it is the analysis of the nature of the variation of “attachment quality”, in function of the statistical contingency defined by the IAS-din / substance use axis, which underlies the mediator model to be validated in the study.

As to the second point, it must be stressed that the association of health risk behaviours to the access to medical appointments in primary health care services, on the one hand, and, on the other, to the eventual prescription of medication to children and adolescents is far from being a linear one.

And this seems to be true both as regards its epidemiological interpretation (taking medication, especially non-prescribed. may be considered as a risk factor for initiating drug use), and as regards the preventive use of medical appointments, chiefly because of the (frequent) inefficacy of primary health care teams, namely in what concerns the early diagnosis and the timely referral of children and adolescents in psychiatric risk to specialized services (Prosser & McArdle, 1996, Neumark-Sztainer *et al.*, 1997, Aarons *et al.*, 1999, Jaffe, 2002)

In the sequence of the empirical reasoning which underpins this study the question is thus raised of knowing whether the quality of attachment varies in function of the statistical contingency of somatic antecedents and substance use.



The following tables provide an answer to this question.

**Table 74: IACA and substance use [11-14 year-olds] by somatic antecedents**

SOMATISATION		SUBSTANCE USE DICHOTOMISED	N	$\bar{\chi}$	$\sigma$	MINIMUM	MAXIMUM
ANXIOUS	NEVER	NO USE	26	45.1538	16.55703	4.00	73.00
	DECREASE (THROUGHOUT GROWTH PROCESS)	NO USE	19	53.9474	18.02922	38.00	112.00
		SUBSTANCE USE	1	46.0000	.	46.00	46.00
	MAINTENANCE (IN ALL PHASES)	NO USE	24	49.5833	8.67739	38.00	64.00
		SUBSTANCE USE	1	46.0000	.	46.00	46.00
	INCREASE (THROUGHOUT GROWTH PROCESS)	NO USE	52	51.6923	13.43180	27.00	94.00
		SUBSTANCE USE	4	49.0000	8.12404	37.00	54.00
	IRREGULAR PROFILE	NO USE	33	51.1515	18.01062	1.00	96.00
		SUBSTANCE USE	4	49.0000	8.12404	37.00	54.00
	TOTAL	NO USE	154	50.4221	15.14496	1.00	112.00
SUBSTANCE USE		5	48.4000	7.16240	37.00	54.00	
SECURE	NEVER	NO USE	26	62.2692	21.82028	8.00	87.00
	DECREASE (THROUGHOUT GROWTH PROCESS)	NO USE	19	69.4737	10.79284	47.00	90.00
		SUBSTANCE USE	1	73.0000	.	73.00	73.00
	MAINTENANCE (IN ALL PHASES)	NO USE	24	69.8750	13.16884	45.00	87.00
		SUBSTANCE USE	1	73.0000	.	73.00	73.00
	INCREASE (THROUGHOUT GROWTH PROCESS)	NO USE	52	66.5769	15.00895	29.00	91.00
		SUBSTANCE USE	4	69.0000	2.82843	67.00	73.00
	IRREGULAR PROFILE	NO USE	32	64.8750	14.36786	40.00	95.00
		SUBSTANCE USE	4	69.0000	2.82843	67.00	73.00
	TOTAL	NO USE	153	66.3660	15.57357	8.00	95.00
SUBSTANCE USE		5	69.8000	3.03315	67.00	73.00	
AVOIDANT	NEVER	NO USE	26	22.5385	7.38772	7.00	37.00
	DECREASE (THROUGHOUT GROWTH PROCESS)	NO USE	19	26.3158	6.58325	18.00	45.00
		SUBSTANCE USE	1	29.0000	.	29.00	29.00
	MAINTENANCE (IN ALL PHASES)	NO USE	24	26.8333	4.95779	21.00	37.00
		SUBSTANCE USE	1	29.0000	.	29.00	29.00
	INCREASE (THROUGHOUT GROWTH PROCESS)	NO USE	52	27.0192	7.34444	13.00	45.00
		SUBSTANCE USE	4	33.0000	12.19289	20.00	48.00
	IRREGULAR PROFILE	NO USE	32	24.8125	7.10946	12.00	42.00
		SUBSTANCE USE	4	33.0000	12.19289	20.00	48.00
	TOTAL	NO USE	153	25.6797	6.99685	7.00	45.00
SUBSTANCE USE		5	32.2000	10.70981	20.00	48.00	

**Table 75: IACA and substance use [15-18 year olds] by somatic antecedents**

SOMATISATION		SUBSTANCE USE DICHOTOMISED	N	$\bar{\chi}$	$\sigma$	MINIMUM	MAXIMUM	
ANXIOUS	NEVER	NO USE	24	48.0833	12.66943	12.00	77.00	
		SUBSTANCE USE	5	34.2000	11.64903	17.00	46.00	
	DECREASE (THROUGHOUT GROWTH PROCESS)	NO USE	10	47.4000	9.89051	37.00	67.00	
		SUBSTANCE USE	5	48.6000	14.01071	31.00	70.00	
	MAINTENANCE (IN ALL PHASES)	NO USE	20	53.4000	21.86177	4.00	89.00	
		SUBSTANCE USE	6	49.5000	13.08052	36.00	73.00	
	INCREASE (THROUGHOUT GROWTH PROCESS)	NO USE	34	53.4412	12.84214	28.00	77.00	
		SUBSTANCE USE	18	55.0000	17.47603	26.00	95.00	
	IRREGULAR PROFILE	NO USE	21	50.3810	16.76746	13.00	90.00	
		SUBSTANCE USE	6	38.6667	8.57127	26.00	46.00	
	TOTAL	NO USE	109	51.1101	15.32871	4.00	90.00	
		SUBSTANCE USE	40	48.3250	16.10126	17.00	95.00	
	SECURE	NEVER	NO USE	24	61.6250	15.32492	25.00	85.00
			SUBSTANCE USE	5	66.4000	17.92484	45.00	84.00
DECREASE (THROUGHOUT GROWTH PROCESS)		NO USE	10	71.5000	12.14038	56.00	91.00	
		SUBSTANCE USE	5	68.4000	13.12631	52.00	80.00	
MAINTENANCE (IN ALL PHASES)		NO USE	20	62.4000	16.55104	24.00	85.00	
		SUBSTANCE USE	6	67.5000	9.07193	51.00	77.00	
INCREASE (THROUGHOUT GROWTH PROCESS)		NO USE	35	63.3143	15.60500	2.00	87.00	
		SUBSTANCE USE	18	68.8889	12.14079	48.00	90.00	
IRREGULAR PROFILE		NO USE	21	57.5238	19.71197	8.00	91.00	
		SUBSTANCE USE	6	65.3333	12.95634	49.00	80.00	
TOTAL		NO USE	110	62.4182	16.41066	2.00	91.00	
		SUBSTANCE USE	40	67.7750	12.19602	45.00	90.00	
AVOIDANT*		NEVER	NO USE	24	<b>24.5833</b>	6.86463	13.00	48.00
			SUBSTANCE USE	5	27.2000	5.44977	20.00	35.00
	DECREASE (THROUGHOUT GROWTH PROCESS)	NO USE	10	27.1000	6.80604	15.00	35.00	
		SUBSTANCE USE	5	28.6000	3.04959	25.00	32.00	
	MAINTENANCE (IN ALL PHASES)	NO USE	20	26.8500	7.76819	7.00	41.00	
		SUBSTANCE USE	6	30.0000	3.89872	25.00	35.00	
	INCREASE (THROUGHOUT GROWTH PROCESS)	NO USE	34	27.8824	5.23835	17.00	39.00	
		SUBSTANCE USE	18	<b>30.7222</b>	6.32275	23.00	42.00	
	IRREGULAR PROFILE	NO USE	21	24.1429	7.85039	10.00	44.00	
		SUBSTANCE USE	6	24.0000	3.34664	19.00	28.00	
	TOTAL	NO USE	109	26.1743	6.83786	7.00	48.00	
		SUBSTANCE USE	40	28.9000	5.53219	19.00	42.00	

\* p<.05 for psychoactive substance users and somatic antecedents profile

Before commenting on the preceding tables, it is important to recall that one of the working hypotheses of this study is based on the potential mediator role played by the quality

of adolescents' attachment behaviours over the (predictable) correlation between somatic antecedents and psychoactive substance use.

The preceding tables show that, on the one hand, the (expected) lack of statistically significant findings for the 11-14 subgroup holds true, but that, on the other hand, among the users of the 15-18 subgroup, whose somatic antecedents increased throughout their growth process, the parental perception of an avoidant attachment behaviour is significantly higher than it is for the non-users of the same subgroup (at  $p < .05$ )

### 3.2.3 THE LOGIT MODEL

The Logit model is a qualitative response model and it is used with the purpose of modelling decision-making behaviours, in case a choice between a finite set of alternatives has to be made.

This regression model has a particular relevance in this study. since it allows analysing the effect of a single variable in the explanation of substance use behaviours, a variable which effect is regulated by the values of the other variables with a hypothetically explicatory importance.

The dependent variable is a binary one, since it assumes the value 1 when there is substance use behaviour and 0 in all the other cases.

It also must be noted that the coefficient interpretation cannot be made in marginal terms (as it happens with linear regression models) since the coefficient's effect is measured taking into account the values of all the other explicatory variables. Therefore, if the estimated coefficient (B) has a positive value this implies that, for an adolescent holding the characteristics analysed in the model, there will be a greater propensity for drug use. Conversely, if the coefficient is negative this means that there is a reduced probability for an adolescent with the aforementioned characteristics to engage in substance use.

It is also important to assess both the contribution and robustness of each variable for the explanation of the problem under study. The analysis of each parameter' *p-value* allows to corroborate or, on the contrary, to invalidate the variable's relevance. A *p-value* inferior to .05 means that the variable is a relevant one. If it is inferior to .01 the variable is highly relevant for the model.

In the initial structuring of the model a multiplicity of variables, that proved to influence substance use behaviours in the univariate analysis, were tested (e.g.. the somatic antecedents). However, after performing several iterations they were not retained in the final

model either because they didn't affect the probability of adolescent's substance use behaviours when conditioned to the effects of the other variables, or because their effects were reproduced through other variables. given the actual inter-variable correlation.

The model derived from the logistic regression analysis, using the *Enter* method with the *Wald* statistics, selected only two out of the four indicators used in the estimation as predictors of substance use behaviours.

### 3.2.4. LOGIT REGRESSION ANALYSIS

In order to pinpoint the variables that better explain drug use, in the light of the explicative model proposed in this study, a regression analysis for binary dependent data was done in which the dependent variable selected was the occurrence of substance use (dichotomous) and the independent variables were the “dynamic index of somatic antecedents” (IAS-*din*) and the parental perception of the adolescents' attachment behaviours (secure attachment. avoidant attachment and anxious attachment). The findings are presented here.

**Table 76: Summary of the model for E2 subgroup (11-14 year olds)**

AGE SUBGROUP	STEP	-2 LOG LIKELIHOOD	COX & SNELL R <sup>2</sup>	NAGELKERKE R <sup>2</sup>
[11-14] YEARS	1	110.979**	.056	.105 (10.5%)

\*\*P<.001

The summary of the logit probabilistic model, which classifies individuals according to their propensity to substance use, shows that about 11% of the substance use behaviours among the 11 to 14 year-old are explained by variables included in the model (somatic antecedents and attachment quality perception).

**Table 77: Summary of the model for E3 subgroup (15-18 year olds)**

AGE SUBGROUP	STEP	-2 LOG LIKELIHOOD	COX & SNELL R <sup>2</sup>	NAGELKERKE R <sup>2</sup>
[15-18] YEARS	1	158.439**	.095	.139 (13.9%)

\*\*P<.001

The same applies to subgroup E3, given that 14% of the adolescents' substance use behaviours between ages 15-18 is explained by their somatic antecedents and attachment quality perception.

The following table displays information about the variables of the equation that are the most important for the model in both age subgroups (11-14 and 15-18 year-olds).

**Table 78: Variables of the Equation**

AGE SUBGROUP		B	S. E.	WALD	DF	SIG.	EXP (B)
11-14	IAS-DIN	.155	.194	.640	1	.424	1.168
	<b>ANXIOUS</b>	<b>-.058</b>	<b>.024</b>	<b>5.748</b>	<b>1</b>	<b>.017</b>	.943
	SECURE	-.003	.017	.026	1	.871	.997
	<b>AVOIDANT</b>	<b>.109</b>	<b>.043</b>	<b>6.327</b>	<b>1</b>	<b>.012</b>	1.115
	CONSTANT	-2.152	1.262	2.907	1	.088	.116
15-18	IAS-DIN	.164	.149	1.223	1	.269	1.179
	<b>ANXIOUS</b>	<b>-.041</b>	<b>.016</b>	<b>6.298</b>	<b>1</b>	<b>.012</b>	0.959
	SECURE	.017	.015	1.261	1	.261	1.017
	<b>AVOIDANT</b>	<b>.111</b>	<b>.038</b>	<b>8.548</b>	<b>1</b>	<b>.003</b>	1.117
	CONSTANT	-3.446	1.306	6.962	1	.008	.032

Dependent variable: substance use behaviours

The “chance reasons” or odds [EXP(B)] are usually calculated for binary variables. An odds superior to 1 indicates that in relation to the category of reference (generally 0) there is a greater chance of presenting a given result. A “chance reason” inferior to 1 means that there is a lesser probability of a certain result in relation to the aforementioned category of reference.

It is possible then to conclude that adolescents with a low anxious attachment have a greater chance of not using drugs, and that, conversely, those adolescents who score high for avoidant attachment {EXP(B) >1} have a greater probability of presenting substance use behaviours.

As can be observed, the attachment quality variables contribute the most to the model, especially anxious and avoidant attachment, the significance of which is higher in the 15-18 age group. This reinforces the fact that the summary of the model presents a higher explicative percentage of substance use behaviours in this age group.

On the other hand, the “dynamic somatic antecedents index” (IAS-din) does not significantly contribute to the model tested in this study.

Which amounts to saying that there is no empirical evidence that the influence of the number and persistence of somatic and somatic-functional antecedents during the growth process (measured through IAS-din) on adolescents’ psychoactive substance use (the health risk behaviour at stake in this study) is mediated by the quality of their attachment behaviours (assessed by the IACA version used in this research protocol, i.e., from the viewpoint of the parental perception of adolescents’ attachment behaviours).

However, the findings of this study confirm empirically that each one of the main independent variables – somatic antecedents and attachment behaviours’ quality – directly influence (although independently, in the case of this study) the dependent variable (“substance use behaviours”)

This, it must be said, is an interesting contribution (as will be briefly discussed further ahead) to add to the as yet limited collection of data from studies (epidemiological, medical or psychosocial) which deal with both the medical-preventive dyad – health risk behaviours / somatic antecedents – and the psychological triad which includes these entities plus the attachment behaviours’ quality.

As to this last point, if it is true that the concept of attachment, both as a dynamic psychological construct and as an epidemiological variable, has become increasingly relevant in neurocognitive, psychodynamic and psychosocial studies on human behaviour, it is no less true that its conceptual complexity together with the (correlated) difficulty of empirical operationalization (still) tend to restrict its use in the field of health risk behaviours.

Despite this fact, which has already been commented on in the chapter on the theoretical–empirical framework of the research, it is worth mentioning a number of studies on the clinical and epidemiological relevance awarded to the (maternal, parental or adolescent) perception of attachment behaviours.

Thus, in one of the studies (Mauder & Hunter, 2001). the hypothesis is raised of there being an association between insecure attachment (anxious or avoidant) and the risk of somatic disease (mediated by 3 mechanisms – vulnerability to stress. use of external regulators for common affective states and insufficient resource to protective environmental factors), whilst another study (Goldberg *et al.*, 1990) shows the influence of the role played by the child’s early chronic diseases (congenital) in establishing an insecure mother-child attachment pattern.

Other researchers that are mainly interested in attachment representations (which they differentiate from attachment behaviours as such). investigate:

- The hypothesis of there being an association between a mental representation of insecure attachment (assessed by AAI), somatoform disturbances and the repetitive use of health care services against a background of insecure interpersonal relationship (Waller. Scheidt & Hartmann, 2004);
- The hypothesis of discontinuity of attachment representations during the life cycle – meaning a continuing shift between secure and insecure attachment - in function of

traumatic episodes (disorganization, maternal depression and physical abuse) in poorly structured families (Weinfield, Sroufe & Egeland, 2000);

- The association between psychiatric disease and insecure attachment patterns (anxious or avoidant) among adolescents hospitalized in psychiatric residential units in the U.K., for whom the traumatic experiences linked to loss and separation were not susceptible to mental elaboration (Wallis & Steele, 2001).

# SUMMARY AND THEORETICAL INTEGRATION OF THE FINDINGS

The findings presented here lead to a reflection on the doubtful preventive meaning of the interaction between antecedents of somatic diseases during childhood and adolescence and the adoption of healthy behaviours. especially from adolescence onwards.

This fact, which has already been discussed in other studies, mainly those conducted on samples of children and adolescents suffering from oncological or prolonged diseases (e.g.. Hollen & Hobbie, 1993. Hudson *et al.*, 2002. Tercyak *et al.*, 2006). appears in a clearly contradictory light in this research.

The above mentioned studies do indeed reveal that serious (and persistent) somatic antecedents are commonly associated with later involvement in health risk behaviours (at least the analyses carried out seem to point in that direction and specialized preventive models are designed accordingly).

Now, the inferential analyses conducted in this research on the correlation of psychoactive substance use and somatic antecedents (notice that as regards the latter variable the statistical modelling of the different sections of the Health Inventory led to the “dynamic index of somatic antecedents” – IAS-*din* – which has been used in the main inferential analyses) show:

- A higher rate (44%) for prescribed medication use among the adolescents with persistent somatic antecedents during growth (against a 8% rate for those with no somatic antecedents. in the year prior to the survey);
- An interdependency between the use of prescribed medication and the use of any psychoactive substance (for  $p < .001$ ) for the adolescents in the sample;
- A greater percentage of non-users among the adolescents with no somatic antecedents ( $3/4$ , i.e., 75%, against close to  $2/3$  in the subgroups with persistent and /or progressive somatic antecedents during growth);
- The contribution given by this variable, associated with the parental perception of adolescent’s insecure attachment behaviour (anxious and/or avoidant), to the explanation of substance use among the 15/18-year-old of the study sample.



As stated in the previous chapter, this combination of findings can be interpreted as empirical evidence of the interaction between somatic antecedents and psychoactive substance use among the adolescents under study. Such interaction takes the form of the direct influence of the first variable over the second.

In line with the hypotheses formulated for this research it is equally worthwhile to emphasise the direct influence that an insecure attachment style— anxious and, mainly, avoidant – exerts on psychoactive substance use (this interaction is even reinforced among the adolescents with a past history of increasing somatic antecedents during growth)

In order to sum up the study's most significant empirical contributions, some comments will be made focusing on the questions left open by the research:

1. The (correlated) notions of risk (harmful, compromising) health behaviour and of healthy behaviour (health protecting behaviour) have a descriptive and fuzzy nature (*ad limite* a multidimensional character) given that they encompass a set of different behaviours without a hierarchical (or structural) model being clearly defined (e.g., Kulbok, Earls & Montgomery, 1988, Vickers, Conway & Hervig, 1990, Berg-Kelly *et al.*, 1997) Thus, the former notion may include from bad oral hygiene to drug use or sexual risk/addictive behaviours, passing through weight control strategies, excessive or insufficient physical activity, amongst other (unhealthy) behaviours;
2. The same semiotic vagueness, more than a semantic one, also affect designations such as somatoform disorders (DSM-IV-TR diagnosis), somatisation, somatic-functional complaints, psychosomatic symptoms, which are associated, both in clinical literature and epidemiological studies conducted in general population samples, with the notions of depressiveness, anxious-depressive symptoms or depressive complaints;
3. It thus becomes particularly interesting to proceed to a previous conceptual clarification and subsequent operational definition that leads to drafting a structured interdisciplinary research protocol in a well characterized general population sample (from the geographical, social-cultural and behavioural viewpoints), preferably with a cohort (or sequential cohort) study design and which, by resorting to appropriate modelling procedures, may lead to the clarification of working hypothesis based on suitable heuristic notions (e.g., the neurobehavioral hypothesis of the “somatic marker”, put forward by A. Damásio, H. Damásio & Tranel in 1991, the hypothesis of the “internal working model” – from Bowlby, 1973 – the one of the “D – disorganization/disorientation model” - Hesse & Main in 2000,

based on the attachment theory - or other hypotheses which enable new research in a “border line” scientific field);

4. Obviously, such a structuring project will only make sense if, besides generating knowledge in this such important area of human relation, i.e.. the one that deals with the relationship of the subject to the Other and the environment where he lives on and moves in,. it also enables the development of technical skills and of an integrated,. comprehensive and consistent strategy for communitarian intervention.

This is precisely the dynamic challenge launched by the research team who conducted this study, whose findings will be diffused, whilst reflecting critically on its practical contribution to the improvement of research and intervention processes in the domain of health risk behaviours.

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## APPENDIX II

The construction of the Indexes was accomplished through the following statistical procedures

**Table I Phase 1: Calculations for the 5 Indexes**

NAME	LABEL	
A1	• INDEX OF SOMATIC ANTECEDENTS 0-2 YEARS	SUM OF THE NUMBER OF EVENTS
A2	• INDEX OF SOMATIC ANTECEDENTS 3-5 YEARS	SUM OF THE NUMBER OF EVENTS
A3	• INDEX OF SOMATIC ANTECEDENTS 6-10 YEARS	SUM OF THE NUMBER OF EVENTS
A4	• INDEX OF SOMATIC ANTECEDENTS 11-18 YEARS	SUM OF THE NUMBER OF EVENTS
A	• GLOBAL INDEX OF SOMATIC ANTECEDENTS	SUM OF THE NUMBER OF EVENTS
B1	• INDEX OF HOSPITALISATIONS 0-2 YEARS	SUM OF THE NUMBER OF EVENTS
B2	• INDEX OF HOSPITALISATIONS 3-5 YEARS	SUM OF THE NUMBER OF EVENTS
B3	• INDEX OF HOSPITALISATIONS 6-10 YEARS	SUM OF THE NUMBER OF EVENTS
B4	• INDEX OF HOSPITALISATIONS 11-18 YEARS	SUM OF THE NUMBER OF EVENTS
B	• GLOBAL INDEX OF HOSPITALISATIONS	SUM OF THE NUMBER OF EVENTS
C1	• INDEX OF SOCIAL BEHAVIOUR TROUBLES 0-2 YEARS	SUM OF THE NUMBER OF EVENTS
C2	• INDEX OF SOCIAL BEHAVIOUR TROUBLES 3-5 YEARS	SUM OF THE NUMBER OF EVENTS
C3	• INDEX OF SOCIAL BEHAVIOUR TROUBLES 6-10 YEARS	SUM OF THE NUMBER OF EVENTS
C4	• INDEX OF SOCIAL BEHAVIOUR TROUBLES 11-18 YEARS	SUM OF THE NUMBER OF EVENTS
C	• GLOBAL INDEX OF SOCIAL BEHAVIOUR TROUBLES	SUM OF THE NUMBER OF EVENTS
D1	• INDEX OF TRAUMATIC SITUATIONS 0-2 YEARS	SUM OF THE NUMBER OF EVENTS
D2	• INDEX OF TRAUMATIC SITUATIONS 3-5 YEARS	SUM OF THE NUMBER OF EVENTS
D3	• INDEX OF TRAUMATIC SITUATIONS 6-10 YEARS	SUM OF THE NUMBER OF EVENTS
D4	• INDEX OF TRAUMATIC SITUATIONS 11-18 YEARS	SUM OF THE NUMBER OF EVENTS
D	• GLOBAL INDEX OF TRAUMATIC SITUATIONS	SUM OF THE NUMBER OF EVENTS
E	• INDEX OF RISK BEHAVIOURS (11-18 YEARS)	SUM OF THE NUMBER OF EVENTS
IRG	• GLOBAL RISK INDEX (0-18 YEARS)	SUM (A1 TO E)



**Table II Phase 2: Recoding of the 4 indexes**

VARIABLE INPUT	INDEX	VARIABLE OUTPUT	ALGORITHM	LABEL
A1	IAS	A1R	RECODE (0=0) (1 THRU 2=1) (2 THRU HIGHEST=2) . EXECUTE	
A2		A2R	RECODE (0=0) (1 THRU 2=1) (2 THRU HIGHEST=2) . EXECUTE	
A3		A3R	RECODE (0=0) (1 THRU 2=1) (2 THRU HIGHEST=2) . EXECUTE	0= [NO ANTECEDENTS] 1= [1 A 2 ANTECEDENTS] 2= [> A 2 ANTECEDENTS]
A4		A4R	RECODE (0=0) (1 THRU 2=1) (2 THRU HIGHEST=2) . EXECUTE	
A		AR	RECODE (0=0) (1 THRU 2=1) (2 THRU HIGHEST=2) . EXECUTE	
B1	IH	B1R	RECODE (0=0) (1 THRU 2=1) (2 THRU HIGHEST=2) . EXECUTE	
B2		B2R	RECODE (0=0) (1 THRU 2=1) (2 THRU HIGHEST=2) . EXECUTE	0= [NO HOSPITALIZATIONS] 1= [1 A 2 HOSPITALIZATIONS] 2= [> A 2 HOSPITALIZATIONS]
B3		B3R	RECODE (0=0) (1 THRU 2=1) (2 THRU HIGHEST=2) . EXECUTE	
B4		B4R	RECODE (0=0) (1 THRU 2=1) (2 THRU HIGHEST=2) . EXECUTE	
B		BR	RECODE (0=0) (1 THRU 2=1) (2 THRU HIGHEST=2) . EXECUTE	
C1	IACS	C1R	RECODE (0=0) (1 THRU 2=1) (2 THRU HIGHEST=2) . EXECUTE	
C2		C2R	RECODE (0=0) (1 THRU 2=1) (2 THRU HIGHEST=2) . EXECUTE	0= [NO BEHAVIOURAL TROUBLES] 1= [1-2 BEHAVIOURAL TROUBLES] 2= [> 2 BEHAVIOURAL TROUBLES]
C3		C3R	RECODE (0=0) (1 THRU 2=1) (2 THRU HIGHEST=2) . EXECUTE	
C4		C4R	RECODE (0=0) (1 THRU 2=1) (2 THRU HIGHEST=2) . EXECUTE	
C		CR	RECODE (0=0) (1 THRU 2=1) (2 THRU HIGHEST=2) . EXECUTE	
D1	IST	D1R	RECODE (0=0) (1 THRU 2=1) (2 THRU HIGHEST=2) . EXECUTE	
D2		D2R	RECODE (0=0) (1 THRU 2=1) (2 THRU HIGHEST=2) . EXECUTE	0= [NO TRAUMATIC SITUATIONS] 1= [1-2 TRAUMATIC SITUATIONS] 2= [> 2 TRAUMATIC SITUATIONS]
D3		D3R	RECODE (0=0) (1 THRU 2=1) (2 THRU HIGHEST=2) . EXECUTE	
D4		D4R	RECODE (0=0) (1 THRU 2=1) (2 THRU HIGHEST=2) . EXECUTE	
D		DR	RECODE (0=0) (1 THRU 2=1) (2 THRU HIGHEST=2) . EXECUTE	

**Table III Phase 3: construction of IAS (Index of Somatic Antecedents) by recode**

ALGORITHM	LABEL
IF (SUM (A1R TO A4R)=0) IAS = 0 . EXECUTE .	NO SOMATIC ANTECEDENTS
IF (A1R = 1 & A2R = 1 & A3R = 1 & A4R = 1) IAS = 1 . EXECUTE .	
IF (A1R = 0 & A2R = 1 & A3R = 1 & A4R = 1) IAS = 1 . EXECUTE .	
IF (A1R = 1 & A2R = 0 & A3R = 0 & A4R = 0) IAS = 1 . EXECUTE .	
IF (A1R = 1 & A2R = 1 & A3R = 0 & A4R = 0) IAS = 1 . EXECUTE .	EARLY SOMATIC ANTECEDENTS
IF (A1R = 2 & A2R = 0 & A3R = 0 & A4R = 0) IAS = 1 . EXECUTE .	
IF (A1R = 0 & A2R = 1 & A3R = 0 & A4R = 0) IAS = 1 . EXECUTE .	
IF (A1R = 2 & A2R = 2 & A3R = 1 & A4R = 2) IAS = 2 . EXECUTE .	
IF (A1R = 0 & A2R = 0 & A3R = 1 & A4R = 1) IAS = 2 . EXECUTE .	
IF (A1R = 1 & A2R = 1 & A3R = 1 & A4R = 0) IAS = 2 . EXECUTE .	
IF (A1R = 2 & A2R = 2 & A3R = 2 & A4R = 2) IAS = 2 . EXECUTE .	
IF (A1R = 0 & A2R = 1 & A3R = 1 & A4R = 0) IAS = 2 . EXECUTE .	
IF (A1R = 0 & A2R = 2 & A3R = 1 & A4R = 0) IAS = 2 . EXECUTE .	SOMATIC ANTECEDENTS UP TO 10 YEARS OF AGE
IF (A1R = 0 & A2R = 0 & A3R = 2 & A4R = 0) IAS = 2 . EXECUTE .	
IF (A1R = 1 & A2R = 0 & A3R = 1 & A4R = 0) IAS = 2 . EXECUTE .	
IF (A1R = 2 & A2R = 1 & A3R = 2 & A4R = 0) IAS = 2 . EXECUTE .	
IF (A1R = 1 & A2R = 1 & A3R = 2 & A4R = 0) IAS = 2 . EXECUTE .	
IF (A1R = 1 & A2R = 2 & A3R = 2 & A4R = 0) IAS = 2 . EXECUTE .	
IF (A1R = 2 & A2R = 2 & A3R = 1 & A4R = 0) IAS = 2 . EXECUTE .	
IF (A1R = 0 & A2R = 0 & A3R = 0 & A4R = 1) IAS = 3 . EXECUTE .	SOMATIC ANTECEDENTS DURING ADOLESCENCE
IF (A1R = 0 & A2R = 0 & A3R = 0 & A4R = 2) IAS = 3 . EXECUTE .	
IF (A1R = 1 & A2R = 1 & A3R = 1 & A4R = 1) IAS = 4 . EXECUTE .	
IF (A1R = 2 & A2R = 2 & A3R = 2 & A4R = 1) IAS = 4 . EXECUTE .	
IF (A1R = 0 & A2R = 1 & A3R = 1 & A4R = 2) IAS = 4 . EXECUTE .	
IF (A1R = 1 & A2R = 1 & A3R = 2 & A4R = 1) IAS = 4 . EXECUTE .	
IF (A1R = 1 & A2R = 0 & A3R = 1 & A4R = 1) IAS = 4 . EXECUTE .	
IF (A1R = 1 & A2R = 1 & A3R = 1 & A4R = 2) IAS = 4 . EXECUTE .	
IF (A1R = 1 & A2R = 0 & A3R = 2 & A4R = 1) IAS = 4 . EXECUTE .	
IF (A1R = 0 & A2R = 1 & A3R = 0 & A4R = 1) IAS = 4 . EXECUTE .	
IF (A1R = 1 & A2R = 2 & A3R = 1 & A4R = 1) IAS = 4 . EXECUTE .	
IF (A1R = 1 & A2R = 0 & A3R = 0 & A4R = 1) IAS = 4 . EXECUTE .	SOMATIC ANTECEDENTS ALL THE TIME
IF (A1R = 1 & A2R = 1 & A3R = 2 & A4R = 2) IAS = 4 . EXECUTE .	
IF (A1R = 0 & A2R = 1 & A3R = 2 & A4R = 2) IAS = 4 . EXECUTE .	
IF (A1R = 1 & A2R = 1 & A3R = 0 & A4R = 1) IAS = 4 . EXECUTE .	
IF (A1R = 0 & A2R = 2 & A3R = 2 & A4R = 1) IAS = 4 . EXECUTE .	
IF (A1R = 1 & A2R = 0 & A3R = 0 & A4R = 2) IAS = 4 . EXECUTE .	
IF (A1R = 2 & A2R = 0 & A3R = 0 & A4R = 2) IAS = 4 . EXECUTE .	
IF (A1R = 1 & A2R = 0 & A3R = 1 & A4R = 2) IAS = 4 . EXECUTE .	
IF (A1R = 1 & A2R = 2 & A3R = 2 & A4R = 1) IAS = 4 . EXECUTE .	
IF (A1R = 2 & A2R = 1 & A3R = 2 & A4R = 1) IAS = 4 . EXECUTE .	
IF (A1R = 1 & A2R = 2 & A3R = 2 & A4R = 2) IAS = 4 . EXECUTE .	
IF (A1R = 0 & A2R = 0 & A3R = 1 & A4R = 2) IAS = 5 . EXECUTE .	
IF (A1R = 0 & A2R = 0 & A3R = 2 & A4R = 1) IAS = 5 . EXECUTE .	SOMATIC ANTECEDENTS FROM 6 YEARS ON
IF (A1R = 0 & A2R = 0 & A3R = 1 & A4R = 1) IAS = 5 . EXECUTE .	
IF (A1R = 0 & A2R = 0 & A3R = 1 & A4R = 0) IAS = 5 . EXECUTE .	

**Table IV Phase 4: construction of IAS dynamic (IAS-*din*)by recode**

ALGORITHM	LABEL
IF (SUM (A1R TO A4R)=0) IAS-DINAM = 0 . EXECUTE .	NEVER
IF (A1R = 1 & A2R = 0 & A3R = 0 & A4R = 0) IAS-DINAM = 1 . EXECUTE .	DECREASE (THROUGHOUT GROWTH PROCESS)
IF (A1R = 1 & A2R = 1 & A3R = 0 & A4R = 0) IAS-DINAM = 1 . EXECUTE .	
IF (A1R = 1 & A2R = 1 & A3R = 1 & A4R = 0) IAS-DINAM = 1 . EXECUTE .	
IF (A1R = 2 & A2R = 0 & A3R = 0 & A4R = 0) IAS-DINAM = 1 . EXECUTE .	
IF (A1R = 2 & A2R = 2 & A3R = 1 & A4R = 0) IAS-DINAM = 1 . EXECUTE .	
IF (A1R = 1 & A2R = 1 & A3R = 1 & A4R = 1) IAS-DINAM = 2 . EXECUTE .	MAINTENANCE (IN ALL PHASES)
IF (A1R = 2 & A2R = 2 & A3R = 2 & A4R = 2) IAS-DINAM = 2 . EXECUTE .	
IF (A1R = 2 & A2R = 2 & A3R = 2 & A4R = 1) IAS-DINAM = 2 . EXECUTE .	
IF (A1R = 1 & A2R = 1 & A3R = 0 & A4R = 1) IAS-DINAM = 2 . EXECUTE .	
IF (A1R = 1 & A2R = 0 & A3R = 1 & A4R = 1) IAS-DINAM = 2 . EXECUTE .	
IF (A1R = 1 & A2R = 2 & A3R = 1 & A4R = 1) IAS-DINAM = 2 . EXECUTE .	
IF (A1R = 2 & A2R = 1 & A3R = 2 & A4R = 1) IAS-DINAM = 2 . EXECUTE .	
IF (A1R = 1 & A2R = 2 & A3R = 2 & A4R = 1) IAS-DINAM = 2 . EXECUTE .	
IF (A1R = 0 & A2R = 0 & A3R = 0 & A4R = 1) IAS-DINAM = 3 . EXECUTE .	
IF (A1R = 0 & A2R = 0 & A3R = 1 & A4R = 1) IAS-DINAM = 3 . EXECUTE .	
IF (A1R = 0 & A2R = 1 & A3R = 1 & A4R = 1) IAS-DINAM = 3 . EXECUTE .	INCREASE (THROUGHOUT GROWTH PROCESS)
IF (A1R = 0 & A2R = 0 & A3R = 1 & A4R = 2) IAS-DINAM = 3 . EXECUTE .	
IF (A1R = 0 & A2R = 0 & A3R = 2 & A4R = 1) IAS-DINAM = 3 . EXECUTE .	
IF (A1R = 0 & A2R = 0 & A3R = 1 & A4R = 1) IAS-DINAM = 3 . EXECUTE .	
IF (A1R = 1 & A2R = 1 & A3R = 2 & A4R = 1) IAS-DINAM = 3 . EXECUTE .	
IF (A1R = 1 & A2R = 1 & A3R = 1 & A4R = 2) IAS-DINAM = 3 . EXECUTE .	
IF (A1R = 0 & A2R = 1 & A3R = 2 & A4R = 2) IAS-DINAM = 3 . EXECUTE .	
IF (A1R = 1 & A2R = 1 & A3R = 2 & A4R = 2) IAS-DINAM = 3 . EXECUTE .	
IF (A1R = 0 & A2R = 0 & A3R = 0 & A4R = 2) IAS-DINAM = 3 . EXECUTE .	
IF (A1R = 0 & A2R = 1 & A3R = 1 & A4R = 2) IAS-DINAM = 3 . EXECUTE .	
IF (A1R = 0 & A2R = 0 & A3R = 2 & A4R = 0) IAS-DINAM = 4 . EXECUTE .	
IF (A1R = 0 & A2R = 0 & A3R = 1 & A4R = 0) IAS-DINAM = 4 . EXECUTE .	
IF (A1R = 1 & A2R = 0 & A3R = 1 & A4R = 0) IAS-DINAM = 4 . EXECUTE .	
IF (A1R = 1 & A2R = 0 & A3R = 2 & A4R = 1) IAS-DINAM = 4 . EXECUTE .	
IF (A1R = 0 & A2R = 1 & A3R = 0 & A4R = 1) IAS-DINAM = 4 . EXECUTE .	
IF (A1R = 0 & A2R = 1 & A3R = 0 & A4R = 0) IAS-DINAM = 4 . EXECUTE .	IRREGULAR PROFILE
IF (A1R = 1 & A2R = 0 & A3R = 0 & A4R = 1) IAS-DINAM = 4 . EXECUTE .	
IF (A1R = 0 & A2R = 2 & A3R = 2 & A4R = 1) IAS-DINAM = 4 . EXECUTE .	
IF (A1R = 1 & A2R = 0 & A3R = 0 & A4R = 2) IAS-DINAM = 4 . EXECUTE .	
IF (A1R = 2 & A2R = 0 & A3R = 0 & A4R = 2) IAS-DINAM = 4 . EXECUTE .	
IF (A1R = 2 & A2R = 1 & A3R = 2 & A4R = 0) IAS-DINAM = 4 . EXECUTE .	
IF (A1R = 1 & A2R = 1 & A3R = 2 & A4R = 0) IAS-DINAM = 4 . EXECUTE .	
IF (A1R = 1 & A2R = 0 & A3R = 1 & A4R = 2) IAS-DINAM = 4 . EXECUTE .	
IF (A1R = 1 & A2R = 2 & A3R = 2 & A4R = 0) IAS-DINAM = 4 . EXECUTE .	
IF (A1R = 0 & A2R = 1 & A3R = 1 & A4R = 0) IAS-DINAM = 4 . EXECUTE .	
IF (A1R = 0 & A2R = 2 & A3R = 1 & A4R = 0) IAS-DINAM = 4 . EXECUTE .	

The results of these indexes must be interpreted upwardly since the higher codes correspond always either to a greater number of events or to most serious ones. according to the situation in analysis.