



SARI FRÖJD

Mental Health in Middle Adolescence

Associations of Family Factors with
Diverse Maladjustment Outcomes



ACADEMIC DISSERTATION

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CONTENTS

LIST OF ORIGINAL PAPERS	5
ABSTRACT	6
TIIVISTELMÄ	8
1. INTRODUCTION	9
2. ADOLESCENCE, MENTAL HEALTH AND THE FAMILY: REVIEW OF THE LITERATURE	11
2.1 Theories of adolescence and adolescent development.....	11
2.1.1 Adolescence as a transitional period.....	11
2.1.2 The developmental tasks of adolescence	12
2.1.3 Maladjustment in adolescence	14
2.2 Depression in adolescence	15
2.2.1 Depression and depressive symptoms: nature and assessment.....	15
2.2.2 Epidemiology of adolescent depression	18
2.2.3 Help-seeking for adolescent depression	18
2.3 Alcohol use in adolescence.....	20
2.3.1 Harmful drinking: nature and assessment.....	20
2.3.2 Epidemiology of harmful drinking	22
2.4 Anxiety, psychosomatic symptoms, and perceived health in adolescence	23
2.5 Aspects of the family influence on maladjustment in adolescence.....	23
2.5.1 Parenting behaviours	24
2.5.2 Family life events	25
2.5.3 Socioeconomic status and financial stress.....	26
2.5.4 Family structure.....	28
2.6 Gender differences in prevalence and determinants of adolescent maladjustment	29
2.7 Conclusions of the literature reviewed.....	31
3. AIMS OF THE STUDY	33
4. SUBJECTS AND METHODS	34
4.1 The Adolescent Mental Health Cohort Study	34
4.1.1 Procedures.....	34
4.1.2 Subjects and dropout	34
4.1.3 Outcome variables	36
4.1.4 Explanatory variables	38
4.1.5 Confounders.....	39
4.2 The School Health Promotion Study.....	40
4.2.1 Procedures.....	40
4.2.2 Subjects and dropout	40
4.2.3 Outcome measures.....	41
4.2.4 Explanatory variables	43
4.3 Statistical methods	43

5. RESULTS	45
5.1 Gender differences in prevalence of family factors and maladjustment during middle to late adolescence.....	45
5.1.1 Family circumstances and parental monitoring among middle adolescent boys and girls in Finland.....	45
5.1.2 Prevalence of maladjustment outcomes in boys and girls	46
5.2 Associations of family structure and parental monitoring with middle adolescent maladjustment (study I).....	47
5.2.1 Associations of family structure and parental monitoring with diverse maladjustment outcomes	47
5.2.2 Which is a more powerful predictor of maladjustment, family structure or parental monitoring?.....	50
5.3 Associations of life events occurring to parents and middle adolescent maladjustment (study II).....	51
5.3.1 Associations of events occurring to parents with adolescent maladjustment outcomes....	51
5.3.2 Events most strongly associated with maladjustment	52
5.4 Perceived financial difficulties of the family in middle adolescence (study III).....	53
5.4.1 Prevalence of financial difficulties in the family	53
5.4.2 Associations of perceived financial difficulties and other SES indicators with maladjustment.....	54
5.5 Family involvement in help-seeking for depression among 17–18-year-olds (study IV).....	55
5.5.1 Associations of perceived need for help, help-seeking behaviour, and concerns of others with depression at T1.....	55
5.5.2 Predictors of help-seeking for depression.....	56
6. DISCUSSION	58
6.1 Family factors – mostly general risks.....	58
6.2 Differences and similarities between boys and girls in the associations of family factors and maladjustment outcomes.....	61
6.3 Parents as members in the social net involved in help-seeking for depression in late adolescence.....	63
6.4 The meaning of findings concerning family factors in middle adolescence.....	64
6.5 Methodological considerations.....	66
7. SUMMARY AND CONCLUSIONS	68
7.1 Directions for future research	69
8. ACKNOWLEDGEMENTS	70
9. REFERENCES	72
ORIGINAL COMMUNICATIONS	90

LIST OF ORIGINAL PAPERS

The study comprises four original communications and some complementary data that present descriptive analyses comparing the datasets used. The original communications are listed below.

- I Fröjd S, Kaltiala-Heino R, Rimpelä M: The association of parental monitoring and family structure with diverse maladjustment outcomes in middle adolescent boys and girls (Nordic Journal of Psychiatry 2007; 61(4): 296–303)
- II Fröjd S, Kaltiala-Heino R, Pelkonen M, von der Pahlen B, Marttunen M. Significance of family life events in middle adolescence: a survey on Finnish community adolescents (submitted to Nordic Journal of Psychiatry 11/2006)
- III Fröjd S, Marttunen M, Pelkonen M, von der Pahlen B, Kaltiala-Heino R. Perceived financial difficulties and maladjustment outcomes in adolescence (European Journal of Public Health 2006;16: 542–548)
- IV Fröjd S, Marttunen M, Pelkonen M, von der Pahlen B, Kaltiala-Heino R. Adult and peer involvement in help-seeking for depression in adolescent population: a two-year follow-up in Finland (Social Psychiatry and Psychiatric Epidemiology 2007; 42:945–952)

ABSTRACT

Adolescence is a period of life with a potential to prevention of both current impairment and future illness; and promoting successful development into productive adulthood.

So far, findings concerning determinants of maladjustment outcomes in adolescence are often based on clinical samples or epidemiological samples with a wide age range (ranging from childhood to late adolescence). Middle adolescence (ages 14–17) is associated with changes both in family relationships and prevalence of mental problems possibly affecting the significance of family determinants in predicting maladjustment. The pathway from childhood to adolescence is suggested to be different among boys and girls. There are also implications of differences in prevalence and effect of risk and protective factors of maladjustment between the sexes.

The present study aimed at studying, whether family factors are specific or general risk factors of adolescent maladjustment, whether the associations between family factors and maladjustment are similar in boys and girls, and whether the parents are significantly involved in help-seeking for depression in middle adolescence. Community data from two studies was utilised in the present study: two data waves from the Adolescent Mental Health Cohort -Study (Aged 15–16 years, N= 3809 and aged 17–18 years, N=2070) and one cross-sectional sample from the School Health Promotion Study (aged 14–16 years, N=17643). Maladjustment outcomes studied were depression, anxiety, excessive psychosomatic symptoms, perceived health, frequent excessive drinking, use of other substances than alcohol, and harmful drinking. Also help-seeking for depression was investigated. Family factors studied included family structure, parental monitoring, life events occurring to the parents, financial difficulties in the family as perceived by the adolescent, and concerns of the parents and siblings about changes in the adolescent mood or behaviour. All variables were assessed with self-report questionnaires. Univariate associations between the independent and dependent variables were in each separate study tested with chi square statistics or crude odds ratios with 95% confidence interval. The variables most significantly associated with maladjustment in boys and girls were searched for with stepwise logistic regression models adjusting for socioeconomic background and comorbidity, where appropriate.

In all datasets available, girls reported internalising types of maladjustment (depression, anxiety and excessive psychosomatic symptoms) systematically more often than did boys. On the other hand, boys of all ages reported harmful drinking patterns more often than did girls. Family factors were associated with diverse maladjustment outcomes in middle adolescence. Some factors (parental monitoring, family structure) acted as general risks, whereas others (life events, indicators of socioeconomic status) were more specific risk factors. Some gender differences in the associations between family factors and maladjustment were found. Boys and girls seemed to have similar associations between family factors and maladjustment in univariate analyses. The pathways to maladjustment

may be different, however, since some associations disappeared in multivariate analyses. Depression may be an important confounder in the association of perceived financial difficulties and frequent drinking among boys but not among girls, for example.

There were indicators of family members being important actors in help-seeking process of middle adolescents: concerns of the mother were significantly associated with help-seeking for depression even when depressive symptoms, perceived need for help and sociodemographic background were controlled for.

Results of the present study indicate that family determinants are significantly associated with maladjustment also in middle adolescence. Parents and health care professionals should not overestimate the independence of middle adolescent children. In society, families must be granted the resources needed to offer a sound and healthy growing environment for their adolescents.

TIIVISTELMÄ

Vanhempien ja perheen vaikutus lasten hyvinvointiin on suosittu tutkimusteema. Tutkimukset on kuitenkin usein tehty kliinisillä aineistoilla, retrospektiivisesti tai käyttäen otantaa ja analyysistrategiaa, jossa tutkittavina on ja tulokset koskevat monenikäisiä lapsia ja nuoria. Kehityopsykologisten teorioiden mukaan keskinuoruusiässä suhde vanhempiin muuttuu ja epidemiologisista tutkimuksista tiedämme, että myös psykiatristen häiriöiden ja oireilun määrä muuttuu varsin dramaattisesti keskinuoruudesta alkaen. Tulevien mielen-terveysongelmien ehkäisemiseksi tarvitaan yksityiskohtaisempaa tietoa juuri tämänikäisistä nuorista. Kuntien ja valtion päättäjät sekä perusterveydenhuollon toimijat tarvitsevat tietoa tavallisten suomalaisnuorten elämästä. Siksi tässä tutkimuksessa käytettiin kahden kysely-tutkimuksen, Kouluterveyskyselyn (17643 14–16-vuotiaasta vastaajaa) ja Nuorten Mielen-terveys – kohorttitutkimuksen (3809 15–16-vuotiaasta ja 2070 17–18-vuotiaasta vastaajaa), aineistoja. Tarkoituksena oli tutkia erilaisten perheeseen liittyvien tekijöiden yhteyksiä internalisoiviin ja eksternalisoiviin oireisiin. Tutkitut perhetekijät liittyivät perheraken-teeseen, perheen materiaaliseen ympäristöön, vanhempien kasvatustapoihin, vanhemmille sattuviin elämäntapahtumiin ja perheenjäsenten huoleen muutoksista nuoren mielialassa tai käyttäytymisessä. Tutkimuskysymykset olivat: ovatko perhetekijät yleisiä vai spesifejä riskitekijöitä, toimivatko ne samalla tavoin riskitekijöinä niin tytöille kuin pojillekin ja ovatko perheenjäsenet mukana avunhakemisprosessissa, kun nuori hakee apua masen-nukseen.

Kävi ilmi, että perhetekijät olivat pääosin yleisiä riskitekijöitä mutta tekijät, jotka olivat yhteydessä tyttöjen oireiluun, eivät aina olleet yhteydessä poikien oireiluun. Äiti näyttäytyi varsin merkittävänä tekijänä nuoren avunhakemisprosessissa: äidin huolet muu-toksista nuoren mielialassa tai käyttäytymisessä olivat yhteydessä ammattiavun hakemiseen masennukseen mallissa, jossa muiden nuorelle läheisten ihmisten huolet, masennusoireilu, nuoren kokema ammattiavun tarve ja sosioekonominen tausta oli kontrolloitu.

Kaiken kaikkiaan näytti siltä, että perhetekijät ovat merkitsevässä yhteydessä nuorten mielenterveyden ongelmiin. Irtautuminen vanhemmista keskinuoruuden kehitystehtävänä ei siis tarkoita sitä, että vanhemmat eivät olisi tärkeitä nuoren elämässä. Tämä olisi hyvä muistaa niin vanhempien, opettajien kuin terveydenhuollon ammattilaistenkin. Vanhemmat tulee pyrkiä ottamaan mukaan nuoren ongelmia ratkottaessa. Vanhemmuutta on tuettava myös silloin, kun nuori sitä kehityksellisistä lähtökohdistaan vastustaa. Toisaalta vanhem-pien ongelmia hoitavien tahojen tulisi ottaa selvää myös perheen nuoren tilanteesta.

1. INTRODUCTION

While most children navigate through the transitions of adolescence without encountering significant problems, adolescence does mark the increase in a number of mental health problems and risk behaviours such as depression, conduct disorder, and substance use (Lerner and Steinberg 2004a). Research in adult populations has suggested that the origins of many major disorders lie in childhood or adolescence (Kessler et al. 2005). Long-term follow-ups have shown that the risk of reoccurrence in adolescent disorders may be high (Fombonne 2001, Essau 2007) and that there may even be individuals with highly persistent symptoms (Dunn and Goodyer 2006, Dekker et al. 2007). Adolescence is thus the period of life with a potential to prevention of both current impairment and future illness; and promoting successful development into productive adulthood. In the pursuit of these goals, understanding risk factors is central to the identification of those adolescents most in need of early intervention. Finding out the needs for intervention is, however, not enough. Also the help-seeking process for mental health disorders in adolescence must be understood in order to ensure adequate intervention.

Family is the domain of adolescent development that has received more attention from both scholars and public than any other domain (Collins and Laursen 2004, Lerner and Steinberg 2004b). In contemporary Scandinavian societies, independence from the parents seems highly valued and parental monitoring considered intrusive. Yet, scientific literature shows a myriad of family factors related with adolescent adjustment. Parents may have a significant effect on the mental health and psychological well-being of their adolescent offspring and also on the mental health service utilisation of adolescents in need of intervention.

Family determinants may have different effects in different cultures. In Finland mothers work outside the home more often than in the UK or France, for example (Statistics Finland 2003). Parents seldom contribute to school activities. Adolescents move away from home early (Lahelma and Gordon 2003) although they may not gain economic independence from their parents. Hence, findings from Anglo-American cultures, for example, need to be confirmed in other countries concerning determinants such as socioeconomic status and parenting behaviours.

Theories of adolescent development seem to lead to contradictory hypotheses about the significance of family determinants. On one hand, the main pursuit of the adolescent may be struggling for independence from the family. Time spent with parents decreases (Dubas and Gerris 2002), while the time spent with peers increases; and the dependency on parents may shift to dependence on peers (Allen et al. 2006). Does this mean that the family loses significance? This is a hypothesis that may underlie studies on externalising problems or risk behaviour. On the other hand, literature concerning internalising problems has consistently suggested important effects of family factors in adolescence (for example: Forkel and Silbereisen 2001, Marmorstein and Iacono 2004, Bond et al. 2005, Gar et al. 2005, Garber 2005). Studying diverse outcomes simultaneously may shed more light on the specific effects of family factors.

Literature suggests differences both in the developmental schedule and in significance of mental health determinants between boys and girls (for example: Cyranowski et al. 2000, Ge et al. 2001, Cavallo et al. 2006, Dekker 2007). Yet, determinants of psychiatric disorders and problem behaviours are often studied as if they were similar among both sexes. When gender differences are studied, results of different studies are often contradictory. Data on gender differences both in prevalence of mental disorders and in determinants of mental ill-health are important in planning health services and other interventions concerning mental health of adolescents.

2. ADOLESCENCE, MENTAL HEALTH AND THE FAMILY: REVIEW OF THE LITERATURE

2.1 Theories of adolescence and adolescent development

2.1.1 Adolescence as a transitional period

The term adolescence derives from the Latin word *adolescere* (grow up, grow into maturity) and was first used in the 15th century, but a transitional period between childhood and mature adulthood was described already in texts of Plato and Aristotle (Lerner and Steinberg 2004b). Scientific study of adolescence was initiated in the beginning of the twentieth century with the publication “Adolescence” by Stanley Hall. The scientific work of Hall led to the idea of raising children in optimal circumstances in order to make them healthy, happy and successful (Brooks-Gunn and Duncan Johnson 2006). The later much criticised perception of adolescence as a period of storm and stress has been associated with Hall ever since, although other distinguished scholars, such as Anna Freud and Erik Erikson, held a comparable view of adolescence as a period with developmental disturbance and crisis (Lerner and Steinberg 2004b).

A transitional life period between childhood and adulthood is nowadays identified in societies all around the world; alas the scientific literature is mostly western biased (Coleman and Hendry 1999, Larson and Wilson 2004). Pathways to adulthood are shaped by the surrounding social, cultural and economic environment; but the adolescents play an active role in shaping their lives, too (O’Connor 2006). During the recent decades the period between childhood and adulthood seems to have elongated due to longer schooling, secular changes in the timing of puberty, later marriage and accelerated urbanisation (Coleman and Hendry 1999, Larson and Wilson 2004). There are in fact many transitions embedded in the stage of adolescence, each deserving attention in its own right: pubertal maturation, changes in parent-adolescent relationship, beginning of sexual relationships etc.

(Hoffman 1996). Especially recently, the transition out of adolescence and into adulthood has attracted scientific attention (for example: Arnett 2000). It has been suggested that there may no longer be any clear moment that marks the end of adolescence (Coleman and Hendry 1999, Larson and Wilson 2004).

Transition to adulthood necessitates biological, cognitive, emotional, and social reorganisation with the aim of adapting to cultural expectations of becoming an adult. Because of for example hormonal changes, stress caused by the transitions or the novelty of a situation, specific types of problems are more likely to arise during adolescence than in other periods of life. The majority of adolescents are, however, suggested to experience neither maladjustment nor problem behaviour. (Romano et al. 2001, Rushton et al. 2002, Susman and Rogol 2004, Reboussin et al. 2006, Sawyer et al. 2007)

2.1.2 The developmental tasks of adolescence

Adolescence is usually parsed into three developmental phases entailing early adolescence (ages 10–13), middle adolescence (ages 14–17) and late adolescence (from 18 until early twenties). In early adolescence, adaptation to bodily changes poses a major developmental challenge and emotional separation from parents is initiated. In middle adolescence, reformulation of relationship with parents and peers continues and abstract and moral thinking develop. In late adolescence, tasks include constructing values and considering one's relationship with society at large. The major developmental tasks of the respective phases of adolescence are intertwined and may well demand attention in earlier or later phases than those mentioned as their most important period of actualisation. (Christie and Viner 2005, Smetana et al. 2006)

One major project of adolescence is identity formation: exploring different alternative possibilities and changing the way in which one perceives oneself, what are the personal goals and so forth. These processes are not only parts of individual development. They are closely embedded in the adolescent's interpersonal relationships. Parents play a special role in adolescent decision making concerning their future roles as adults. Direction of interests, goals and values begins in childhood and is affected, for example, by the socioeconomic situation of the family. Advice and information given by the parents have an effect even when adolescents reject them. (Nurmi 2004)

The developmental tasks of adolescence were first introduced in 1948 by Robert Havighurst (Havighurst 1948). He identified eight tasks arising from biological, psychological and cultural basis: 1) achieving new and more mature relations with age-

mates of both sex, 2) achieving a masculine or feminine social role, 3) accepting one's physique and using the body effectively, 4) achieving emotional independence from parents and other adults, 5) preparing for marriage and family life, 6) preparing for an economic career, 7) acquiring a set of values and an ethical system as a guide to behaviour – developing an ideology, and 8) desiring and achieving socially responsible behaviour. He suggested, that the tasks are related to certain periods of the life-span and, if not achieved at the proper time, may never be achieved well. Successful achievement leads to happiness and success with later tasks while the consequences of failure are not only personal unhappiness and difficulty with later tasks, but also disapproval by the society (Havighurst 1948). Despite major societal changes, more recent descriptions of developmental tasks seem to be strikingly similar to those of Havighurst (Nurmi 2004), although the substance of the tasks may vary between different cultures (Larson and Wilson 2004).

The essence of the developmental tasks of adolescence is described by Havighurst to be preparation for adult life: “The boy becomes ready for manhood and the girl for womanhood”. Gender differences in social roles are best reflected in the second and fifth tasks. Especially girls in the upper middle class are suggested by Havighurst to hesitate, whether to assume the traditional feminine expectation of becoming a wife and mother with a dependence on a man for support, or to strive for both a career and a marriage. While contemporary Western girls are usually granted the opportunity to both a career and a family, girls have been suggested to take into account the role conflicts of these two domains more than do boys (Nurmi 2004).

Individuation from the family is often seen as the central developmental task in Western developmental psychology (Larson and Wilson 2004). The essence of this task is to form a new kind of relationship with parents: one with affection and connectedness but not detachment or emotional dependence (Beyers and Wim 2003). According to Havighurst, failing this particular task leads to difficulties in individual decision making and forming equal relationships with other adults. Havighurst refers both to psychological and to economic independence and describes the time between biological maturation and achieving possibilities to leave home and support oneself as especially stressful for both parents and adolescents (Havighurst 1948).

From early adolescence the time spent with parents decreases, while the time spend with peers increases (Dubas and Gerris 2002) and the dependency on parents may shift gradually to dependence on peers (Sabatelli and Aderson 1991, Collins and Laursen 2004, Nurmi 2004). Family-adolescent interactions have been suggested to be moderated by pubertal development (Collins and Laursen 2004), but there are inconsistencies in the findings considering associations of pubertal timing and adolescent-parent relationship. The

association may even be reciprocal: the pubertal maturation of the child triggers alterations in parental behaviour (Savin- Williams et al. 1986), while family interaction may moderate the timing of puberty (Susman and Rogol 2004).

Middle adolescence is the stage the most negotiations take place: young people are most in need of establishing their need for freedom while parents are the most afraid of the consequences of losing control. While the patterns of parent-child interaction may change during adolescent development, the quality of the relationship may be quite stable (McNally et al. 1991, Smetana et al. 2006). Parents remain important social and emotional resources, and have also influence on the other resources available to the adolescents (Goldstein et al. 2005). Recent findings suggest that achieving the central developmental tasks is best enhanced by a parent-adolescent relationship filled with mutual affection and communication, and without high levels of conflicts. Serious conflict between parents and adolescents is rare: ideally parents and adolescents constantly negotiate to redefine their relationship in order to reach an effective combination of cohesion and separateness. Constant serious conflicts are often a continuation of poor family relations in childhood rather than a special characteristic of adolescence. (Coleman and Hendry 1999, Collins and Laursen 2004)

2.1.3 Maladjustment in adolescence

Adolescence may be associated with increasing sensitivity to environmental stressors resulting in higher levels of distress (Larson and Ham 1993). For example life events have only a small effect on pre-adolescent negative affect (Larson and Ham 1993), while a consistent effect of life events on negative affect may be observed across adolescence (Ge et al. 2001, Larson et al. 2002).

Psychological maladjustment may present itself as internalising or externalising problems and also comorbidity between these is relatively common (Leadbeater et al. 1999). Internalising problems are generally considered to involve problems or disorders of mood, whereas externalising problems refer to dysregulation in behaviour, but this distinction is not quite clear cut. The problems most commonly called internalising in the literature are depression and anxiety (Graber 2004).

A new approach in child and adolescent research is developmental psychopathology, which aims to describe the developmental processes that contribute to the emergence and perpetuation of disorders. The concept of developmental tasks has maintained relevance, even if they may nowadays be called developmental challenges

(Cicchetti and Toth 1998). Inadequate resolution of a developmental challenge contributes to detrimental organisation of individual psychological and biological systems resulting in impaired preparedness for adaptively resolving subsequent challenges (Cicchetti and Toth 1998). Thus, failing the challenge of intergenerational individualisation may contribute to increasing alcohol use in adolescence, for example (Bray et al. 2001).

Development from childhood to adolescence encompasses a change in the prevalence of mental disorders (Rutter and Taylor 2002, Lerner and Steinberg 2004a) and in the significance of risk and protective factors for maladjustment (Grant et al. 2006). It has also been suggested, that stressors are more strongly associated with parent-reported symptoms among children and more strongly associated with self-reported symptoms in adolescents (Grant et al. 2006).

Resources at multiple domains, such as family, school and community are important for both reducing problem behaviour and promoting healthy development. Thus the risk and protective factors are cumulating and intertwining in affecting the levels of different kinds of problem behaviour. The role of social relationships in the development of adolescent problem behaviour is considerable. (Youngblade 2007)

2.2 Depression in adolescence

2.2.1 Depression and depressive symptoms: nature and assessment

Until the 1970s child and adolescent depression were unidentified conditions. Children were considered unable to present with depression and depressive symptoms in adolescents were perceived to be transient problems related to normal development. (Harrington 2002) Today, some scholars argue that adolescent depression is a continuum (Beach and Amir 2003, Hankin et al. 2005, Lewinsohn et al. 2000) while others have found implications of a categorical conceptualisation of the disorder (Solomon et al. 2006). The continuum hypothesis suggests that depressed and non-depressed individuals can be distinguished by the number and severity of symptoms, while the categorisation hypothesis postulates that even if an individual feels extremely miserable or is filled with grief he may not be classified as depressed unless he/she suffers from a set of specific types of symptoms.

Diagnostic classifications (Diagnostic and Statistical Manual of Mental Disorders = DSM, International Statistical Classification of Diseases and Related Health Problems = ICD) rely on categorisation while symptom lists used in screening and research utilise the implicit taxonomies of psychopathology underlying rating scales (Child Behaviour

Checklist, for example) (Lahey et al. 2004). The clinical relevance of the taxonomy lies in questions like how concerned should one be with individuals who present with depressive symptoms but do not meet all criteria for a depressive disorder.

National Comorbidity Survey indicates that the risk of major depression increases at the age of 11–12 years (Kessler 2002). The mean age of onset in the Oregon Adolescent Depression Project was 14.9 years (Lewinsohn et al. 1998) and a steep rise in depression rates from the age of 15 was observed in the Dunedin Multidisciplinary Health and Development Study (Hankin et al. 1998). The period between middle to late adolescence may be considered a critical period associated with heightened vulnerability to depression, especially with new incidence of depression (Hankin et al. 1998). There seems to be a considerable delay from the first symptoms to a full blown depression in childhood and adolescence. The first depressive symptom may appear around the age of 10–11 years in children who develop a full blown disorder by the end of middle adolescence. Affective disorder developing into bipolar disorder during adolescence may onset at a significantly younger age than pure major depressive disorder. (Costello et al. 2006)

Higher prevalence and progressively earlier age of onset of major depression has been suggested in recent cohorts compared with older cohorts (Fombonne 1998, Kessler and Walters 1998). In the UK, adolescents in 1999 had estimated odds of a high emotional problem score 1.7 times higher than the adolescents in 1986 (Collishaw et al. 2004). However, a recent meta-analysis found no evidence of increasing depression rates in successive birth cohorts (Costello et al. 2006).

Disturbance in adolescence is not a transient problem. High rate of chronicity is suggested for adolescent depressive disorders (Oldehinkel et al. 1999, Dunn and Goodyer 2006, Colman et al. 2007) and also high levels of depressive symptoms have shown significant probability of continuation (Wiesner and Kim 2006). The proportion of recurrent adolescent depression seems higher than persistent depression but especially in males a small group can be identified with mostly comorbid disorder, severe impairment and only partial remissions (Dunn and Goodyer 2006). Major depressive disorder and also sub-threshold depressive syndromes in adolescence are significant predictors of other types of disorders in adolescence (Newman et al. 1996, Lewinsohn et al. 2000, Ramklint et al. 2003). On the other hand, it has been suggested that while persistent depressive symptoms in adolescence are clearly associated with deleterious outcomes in follow-up, episodic depressive symptoms may not be (Steinhausen et al. 2006, Colman et al. 2007).

Prevalence estimates of depression are affected by the methods of defining caseness in studies. Depression may be operationalised in three ways: 1) depressed mood assessed with a single item or a group of items concerning dysphoric affect, 2) depressive syndromes identified with sets of symptoms shown to co-occur empirically, and 3) depressive disorders classified in diagnostic manuals such as DSM IV (Cicchetti and Toth 1998) Prevalence of child and adolescent depression varies according to the informant also. For example Rubio-Stipec and colleagues (2003) suggest that parents report less depression than children from the age of 11 years and the difference in prevalence between parent and adolescent reported depression increases with the age of the adolescents studied. This seems to indicate, that just when the incidence of depression starts to increase, the capability of parents to identify depressiveness decreases. This may be partly due the shorter time parents spend with the adolescent offspring compared with time spent with younger children. Common assumptions about teenagers may also lead parents to interpreting sadness and withdrawal as sulking, lack of initiative as laziness and irritability as part of normal adolescent development.

Another problem with both indicators based on self reported symptoms and on a diagnostic interview is that the reliability and validity of the indicator changes with the age of the child. In adolescence depressive symptoms become more common and on the other hand adolescents are more capable of recognising and reporting these symptoms (Kessler et al. 2001).

Brief lists of questions completed by the adolescent are often used in community samples collected in schools or by postal surveys (Costello et al. 2005). In community samples of Finnish adolescents, such as the School Health Promotion Study, depression has often been assessed with R-BDI (Raitasalo 1995) the Finnish version of the 13-item Beck Depression Inventory (Beck and Beck 1972). In Finland, parents are rarely used as informants in adolescent depression research. If parents are interviewed, the aim is to assess the capability of the parents in identifying mental health problems in the offspring rather than to validate the information given by adolescents. This seems to indicate, that adolescents are considered better informants than the parents when assessing emotional symptoms among adolescents.

2.2.2 Epidemiology of adolescent depression

Point-prevalence of depressive disorders has been estimated at 3–8% with a lifetime prevalence of any DSM-IV depressive disorder of approximately 10–30% by the end of adolescence (Stein et al. 2001, Kessler et al. 2005, Harrington 2002, Zalsman et al. 2006). Major depressive disorder is the most commonly occurring disorder among adolescents with estimates of lifetime prevalence ranging from 15% to 25% (Hankin et al. 1998, Oldehinkel et al. 1999, Kessler et al. 2001) in community samples of middle to late adolescents. Life time prevalence estimates for adolescent dysthymia vary from 2 to 4 % and for subthreshold major depression from 4 to 26% (Newman et al. 1996, Oldehinkel et al. 1999, Lewinsohn et al. 2004, Sihvola et al. 2007).

Depressed adolescents may fall below the threshold for the diagnostic criteria for major depressive disorder even if their condition is associated with significant impairment, high recurrence, suicidality and comorbidity (Pine and Cohen 1999, Pickles et al. 2001, Gonzá-Tejera et al. 2005, Sihvola et al. 2007). The point prevalence of depression in middle to late adolescent populations falls between 10% to 20%, when symptom list-based measures are used to assess depressiveness (Olsson et al. 1999, Torikka et al. 2001, Rushton et al. 2002, Collishaw et al. 2004, Bond et al. 2005, Richardson et al. 2006). In the School Health Promotion Study on Finnish adolescents the estimated levels of depression assessed with R-BDI were as follows: mild depression 11% among girls and 6% among boys, moderate depression 9% among girls and 5 among boys, and severe depression 2% among girls and 1% among boys (Kaltiala-Heino et al. 2001).

2.2.3 Help-seeking for adolescent depression

According to the MECA study (Methods for the Epidemiology of Child and Adolescent Mental Disorders Study) study, a quarter of adolescents rated as having a diagnosis of one or more psychiatric disorders and functional impairment received mental health speciality services (Leaf et al. 1996). In Finland, 44% of 8–16-year-old children with self- or parent reported psychiatric problems had sought help from health or social services (Sourander et al. 2001), while in Australia the corresponding percentage was 25% (Sawyer et al. 2007) . There are indications in the literature of a several-year delay between awareness of psychiatric problems and help-seeking (Kessler et al. 1998, Laitinen-Krispijn et al. 1999,

Aalto-Setälä et al. 2002). Emerging adults may be reluctant to identify themselves as being deviant (Kuwabara et al. 2007).

There are several concepts related with the help-seeking process. A need for intervention is usually assessed either as a perceived need for help or as the presence of a disorder and possibly also functional impairment related to the disorder (Haarasilta 2003, Zwaanswijk et al. 2003). Severity of the disorder or symptoms (Laitinen-Krispijn et al. 1999, Sourander et al. 2001) and impairment (Leaf et al. 1996, Bergeron et al. 2005) have been suggested to be significantly associated with help-seeking. The type of disorder may not be related to rates of consulting a mental health professional in adolescents (Cuffe et al. 1995, Gasquet et al. 1999, Laitinen-Krispijn et al. 1999) whereas comorbidity seems to increase the likelihood of consulting a mental health professional (Gasquet et al. 1999, Aalto-Setälä et al. 2002).

Active help-seeking necessitates *perceived need for help*. In research literature perceived need for help is assessed either asking directly with questions like: “Do you think that you need help for emotional problems?” or with different proxies such as considering the use of mental health services or reporting mental health service use (Haarasilta 2003, Sourander et al. 2004). In children and younger adolescents the parental perceived need for help is often assessed, by for example asking if the parent perceives the child as deviant (Sourander et al. 2005). Also individuals fulfilling the criteria of no actual psychiatric disorder may perceive a need for help (Meadows et al. 2000) and, especially in adolescence, also may benefit from professional help.

When a need is perceived, help may not be attained because of *barriers to help*. Owens et al. (2002) suggest three types of barriers to mental health services: structural barriers, barriers related to perceptions about mental health problems and finally barriers related to perceptions about mental health services. Structural barriers concern accessibility of services (waiting lists, financing of the services, inconvenient services), which is a consequence of social and mental health policy, organisation of the mental health system and sometimes the organisation and working culture of individual mental health units. Perceptions about mental health problems include for example the ability to identify mental health problems, the identification of a need for intervention and beliefs about the aetiology and prognosis of mental health problems. Attitudes, knowledge and experience about mental health services, willingness to use professional help for personal problems, distrust in professionals or beliefs about effectiveness and consequences of professional help are examples of perceptions about mental health services. (Owens et al. 2002)

Socioeconomic differences in help-seeking have been reported for example in the USA (Flisher et al. 1997) but usually not in countries with publicly funded health care systems (Gasquet et al. 1999, Laitinen-Krispijn et al. 1999, Sourander et al. 2001).

In children, parental awareness of mental health problems is the key initial step in the help-seeking process (Sayal 2006). The developmental process of adolescence may shift the initiation of help-seeking from parents to adolescents. Yet, adolescents are not likely to make the decision to seek help alone. Both parents and peers may influence the decision. If the parent-adolescent relationship is good, the adolescent may confide with his/her parents telling about his/her distress. The mental health literacy of the parents and cultural factors (Grinstein-Weiss et al. 2005) then affect the decision whether to seek formal help or try to solve the problem without professional help. Thus, confiding in parents may not increase the probability of consulting a mental health professional (Gasquet et al. 1999) while lack of social support from the family can also make seeking professional help more probable (Grinstein-Weiss et al. 2005, Miville and Constantine 2006).

Sex differences in reporting a consultation with a mental health professional have been found in some studies (Cuffe et al. 1995, Gasquet et al. 1999) but not in others (Flisher et al. 1997, Sourander et al. 2001). Laitinen-Krispijn et al. (1999) suggest that the effect of gender may vary with the age of the children or adolescents studied.

2.3 Alcohol use in adolescence

2.3.1 Harmful drinking: nature and assessment

For many individuals adolescence is a time for experimentation with risky behaviours. Hazard rates for first use of alcohol seem to peak in the late teens (Costello et al. 2006, Steinhausen and Metzke 1998) and over the adolescent years the proportion of users increases (Duncan et al. 2006, Young et al. 2002) and alcohol use among users increases in quantity and frequency (Chassin et al. 2004, Lintonen et al. 2000b, Steinhausen and Metzke 1998). The legal drinking age varies between countries: for example in Finland alcohol may be purchased at the age of 18 years old and in USA the legal drinking age is 21 years. In both countries drinking alcohol before the legal age is highly prevalent (Duncan et al. 2006, Lewinsohn and Rohde 1996, Lintonen et al. 2000b). Being illegal, drinking alcohol in adolescence can be seen as deviant behaviour. Excessive drinking has also been suggested associating with involvement in other types of delinquent acts (Best et al. 2006).

In the 1990s drunkenness-oriented drinking style was increasingly adopted by Finnish adolescents (Lintonen et al. 2000b). For some adolescents, even heavy alcohol use may be a relatively benign, developmentally limited problem (Alcohol use and Abuse: A Pediatric Concern. 2001, Grant et al. 2001, Harford et al. 2006). For others, it may affect the course of adolescent development and create significant consequences for later adult outcomes, such as adult alcohol dependence and other mental health problems, educational attainment and occupational status (Rohde and Lewinsohn 2001, Chassin et al. 2004). Alcohol misuse is also associated with suicides among adolescents (Pirkola et al. 1999, Galaif et al. 2007, Giner et al. 2007). Early onset of regular drinking may increase the risk for adult alcohol dependence (DeWit et al. 2000, Grant et al. 2006) and adolescents presenting with subclinical levels of alcohol symptoms may be experiencing an early developmental stage of substance use disorders (Bailey et al. 2000, Shrier et al. 2003). The median age of onset (the age, in which half of the individuals ever to be affected with a substance use disorder, have been affected) for substance use disorders is 20 years (Kessler et al. 2005). There are indications of increasing rates of adolescent substance abuse and of a shift in onset of addictive behaviours towards younger ages (Fombonne 1998).

How to differ harmful drinking from the developmentally and statistically “normative” experimenting with alcohol? Several approaches have been used while no golden standard has been established. Substance use disorders (abuse and dependence) are classified in diagnostic and statistic manuals; and the Diagnostic and Statistic Manual for Primary Care Child and Adolescent Version identifies also substance use problem as a diagnostic category. (Shrier et al. 2003) There are, however some limitations in the validity of the DSM-IV criteria for alcohol use disorders in adolescence (Martin and Winters 1998, Chung and Martin 2005, Thatcher and Clark 2006). Alcohol research often utilises more descriptive categories, attempting to classify different types of adolescent alcohol use by the intensity of alcohol use or the adverse social consequences and symptoms of dependency, for example (Steinhausen and Metzke 2003). Intensity of drinking has been described with concepts like *regular drinking*: for example one drink a month for at least six months (Grant et al. 2006), *heavy drinking*: for example consuming alcohol at least once a week (Fergusson et al. 1995), or *excessive drinking*, for example ten units of alcohol or more per drinking occasion (Best et al. 2006). Also classifications concerning the drinking situations have been used, like *social drinking*: for example when the adolescent reports drinking when in company of friends, on the occasion of family celebration and at a party, and *problem drinking*: for example “I drink when I feel lonely” and “I drink when I feel bad and am having problems” (Steinhausen and Metzke 2003). Problem drinking has also

been used to describe a drinking habit with negative consequences, such as drinking and driving and passing out (Reboussin et al. 2006).

Self-report surveys are the most widely used methods of estimating adolescent drinking. Despite critical voices (or maybe because of them), there is considerable support for the reliability and validity of self-reported measures of adolescent alcohol drinking (Winters et al. 1991, Martin and Winters 1998, Lintonen et al. 2004). While adolescents in general seem to report their drinking habits quite reliably there may be a tendency of more experienced or heavy drinkers and adolescents entering treatment to underestimate their drinking amounts (Martin and Winters 1998, Lintonen et al. 2004). The cultural context is likely to affect willingness of answering honestly. In Finland, most adolescents consider drinking as desirable and thus there may be no barriers to reporting drunkenness (Lintonen et al. 2004).

2.3.2 Epidemiology of harmful drinking

Life-time prevalence of alcohol abuse in German community adolescents was estimated at 4% in females and 15% in males, while the corresponding estimates of alcohol dependence were 2% for females and 10% for males (Holly and Wittchen 1998). In the USA the life-time prevalence at the age of 18 years has been reported to be 18% for alcohol abuse and 6% for alcohol dependence (Young et al. 2002). One-year prevalence of alcohol dependence in the Dunedin Multidisciplinary Health and Development Study was 10% at the age of 21 (Newman et al. 1996).

Alcohol drinking in adolescence varies in different countries from a virtually non-existent phenomenon into a highly common, almost normative behaviour. In Switzerland, 30% of middle adolescent males have never consumed a whole glass of alcohol (Steinhausen and Metzke 1998). In the UK the percentage of middle adolescent abstainers is 6 (Marsden et al. 2005). The percentage of middle adolescents consuming alcohol at least weekly is 7 in New Zealand (Fergusson et al. 1995) while in Finland the corresponding percentage is 24 in boys and 13 in girls (Torikka et al. 2001). When the criteria for harmful drinking is based on the amounts used in one drinking occasion, the prevalence of harmful drinking among middle adolescents in UK was 10% (Best et al. 2006). Drunkenness oriented drinking can also be considered harmful. Of Finnish middle adolescent boys 15–30% and of girls 18–22% get drunk every month (Lintonen et al. 2000b, Seljamo et al. 2006) while 6% of 14–16-year old Finns get drunk every week (Kouvonen and Lintonen 2002).

2.4 Anxiety, psychosomatic symptoms, and perceived health in adolescence

A general predisposition toward anxiety may be inherited. Environmental influences, such as parent-adolescent attachment, parental behaviours and family climate contribute to the development of a specific type of anxiety disorder. (Gar et al. 2005) The prevalence of anxiety disorders in middle adolescence is 6–18% (Johnson et al. 2000, Zimmermann et al. 2003). Adolescent girls may report anxiety disorders significantly more than do boys (Romano et al. 2001). Anxiety disorders in adolescence are associated with other anxiety disorders, depression, substance use and psychosomatic symptoms (Zimmermann et al. 2003, Ginsburg et al. 2006, Connolly and Bernstein 2007). There is a significant increase in reporting psychosomatic symptoms from early to middle adolescence, especially in girls (Cavallo et al. 2006, Ginsburg et al. 2006).

Self-rated health is a global rating of an individual's health status. It can thus be affected both by physical and mental illnesses. Of Finnish 16-year-olds, 11% perceived their health as average, poor or very poor. (Pelkonen et al. 2003) Adolescent males tend to report higher ratings of health than adolescent females (Johnson and Richter 2002) but this gender difference may not be seen in all countries. The proportion of adolescents perceiving their health as “below good” increases from early to middle adolescence in both sexes (Cavallo et al. 2006). Both perceived health and psychosomatic complaints in adolescence have been suggested to be associated with adult educational attainment (Koivusilta et al. 2003).

2.5 Aspects of the family influence on maladjustment in adolescence

Even if emotional separation from parents may be seen as a central developmental task of middle and late adolescence, the family continues to be a significant determinant of adolescent adjustment and well-being. Also in the most individualistic cultures the values adolescents cherish and the choices they make in shaping their life are influenced by their parents (Collins and Laursen 2004, Larson and Wilson 2004). Hence, despite the increasing peer influence during adolescence, family members are central in shaping behaviour,

including deviant behaviour (Youngblade 2007). Familial factors have independent effects on adolescent well-being but they are also interrelated (Barrett and Turner 2006).

There are several aspects of the family and family life that may be considered important. Recent research in biological psychiatry has illuminated the significance of genetic heritability in mental health problems. This being a thesis on social psychiatry, there is no need to further review these results. Two remarks are in order, however. Firstly, according to the gene-environment interaction theory, genotype moderates the capacity of an environmental risk, such as socioeconomic status (Tuvblad et al. 2006), to bring about mental disorders. The significance of parenting and family life in explaining adolescent well-being is, however, not compromised by the undeniable significance of genetic heritability (Kendler and Baker 2007, Maccoby 2000, O'Connor 2006, Rutter et al. 2006). Secondly, recent literature on behavioural genetics suggests, that family is largely a non-shared environment (Eley and Lau 2005). Hence a family determinant, such as financial stress, may be a risk factor for one sibling but not to the other. Siblings may also perceive the family life differently.

2.5.1 Parenting behaviours

Interactions of the parent and child have been regarded as powerful determinants of child development. Healthy adolescent development is enhanced by maintaining mutual connection and affective bond while tolerating the expressions of the growing independence of the adolescent. (Hines 1997) Based on the seminal works of Baumrind, Maccoby and Martin (Coleman and Hendry 1999), parenting has been considered optimal when communication between parents and adolescents is bidirectional, parents show warmth and acceptance, encourage social responsibility while maintaining age-appropriate control and monitoring (Collins and Laursen 2004). Problems in parenting behaviours have been seen as a risk factor for problem behaviour (Collins and Laursen 2004) and as moderators or mediators between other risk factors, such as maternal depression or economical hardship, and maladjustment (Sheeber et al. 2001).

Parental monitoring can be conceptualised as parenting behaviours involving attention to and tracking of the whereabouts, actions and companions of the adolescent (Dishion and McMahon 1998, DeVore 2005). Research on parental monitoring has traditionally focused on adolescent norm breaking behaviours such as delinquency, antisocial behaviour, smoking and substance use (Foxcroft and Lowe 1995, Dishion and McMahon 1998, McArdle et al. 2002, DeVore 2005, Reboussin et al. 2006). The

relationship between parental monitoring and internalising problems has not received similar scientific attention, and discrepancy can be observed in the existing literature. In a study of Swedish (Kerr and Stattin 2000) and in two studies on American minority adolescents (Kim and Ge 2000, Sagrestano et al. 2003) internalising problems were associated with parental monitoring while in two American studies parental monitoring did not emerge as being associated with adolescent depression (Muris et al. 2001, Waizenhofer et al. 2004).

2.5.2 Family life events

Life events in the family domain have special characteristics compared to other events. Major life event in the family domain is often uncontrollable and may pose a threat to the continuity of the family environment: changes in the living conditions, financial circumstances, family relationships, level of social support from the family and so forth. Discontinuities in life course, problems in parent-adolescent relationship, lack of family cohesion or lack of perceived social support from family may, in turn, be risk factors for psychiatric disorders in the adolescent (Kaltiala-Heino et al. 2001, Avenevoli et al. 2005, Garber 2005, Meadows 2007).

Life events occurring in the family domain have been suggested to have a stronger association with adolescent depression than events in other domains (Larson and Ham 1993, Deardorff et al. 2003). The association between family related negative life-events and adolescent problem behaviours may be mediated by perceived parental involvement and deterioration of the parent-adolescent relationship (Dmitrieva et al. 2004). There may, for example, be a path from family life events to high levels of family conflict leading to low family involvement and inadequate parental monitoring to adolescent internalising and externalising problems (Ary and Duncan 1999, Dmitrieva et al. 2004).

Life events are a broad category from daily hassles to major loss experiences. Nevertheless, the usual way of dealing with life events in research on adolescent psychopathology is to compute the sum of events and study their cumulative effect. Findings with this design could usually be phrased: the more stress, the more maladjustment. The cumulative risk of life events has been fairly well established in adults and also adolescents, whereas there is less evidence for associations of specific stressors with specific disorders. (Compas 2004) Categorisation of events is needed to add to the understanding the role of specific types of life events in mental health problems. Individual

life events may have disorder-specific associations with the mental health of adolescents (Eley and Stevenson 2000, Tiet et al. 2001).

Parental divorce occurred years ago as well as a recent divorce has been suggested to be associated with depression and increased amounts of alcohol consumption among adolescents (Jeynes 2001, Ge et al. 2006, Huurre et al. 2006, Storksen et al. 2006). Divorce entails disorganisation and at least a temporary disruption of parent-adolescent relationships, along with secondary life events (Amato 2000, Ge et al. 2006, Huurre et al. 2006). Residential change, changes in financial situation, parental discord, parental adjustment to the new family situation and differing parenting styles of the parents are some of the stressors possibly affecting the offspring of divorced and remarried parents (Barber and Lyons 1994, Aseltine 1996, Hetherington et al. 1998). It has even been suggested that the other life events occurring at the same time or near the timing of parental divorce may have a more detrimental effect on child mental health than the divorce per se (Hines 1997, Ge et al. 2006). Constant parental conflicts, for example, have been related with adolescent depression, behavioural disorders as well as heavy drinking (Sheeber et al. 1997, Unger et al. 2000, Nomura et al. 2002, Marmorstein and Iacono 2004).

Experiences of loss have been suggested to be especially detrimental to mental health. Unexpected as it may seem, death of a family member has not always emerged as a significant predictor of adolescent depression (Rheingold et al. 2004, Ge et al. 2006). Depressive symptoms seem to be associated with grief after parental death but without additive stressors they usually resolve within six months of the loss (Cerel et al. 2006).

Adolescents may deploy a broader range of coping strategies as they age (Nurmi 2004). As a consequence, a change in the significance of life events as stressors may occur during the adolescent years. Studies concerning the possible developmental changes in the significance of family life events during adolescence are scarce, however. (Shanahan and Bauer 2004)

2.5.3 Socioeconomic status and financial stress

According to the social causation theory, the differences in opportunities to gain and sustain health between individuals and families of differing socioeconomic status (SES) are the cause of the differences observed in health among different social classes (or groups statistically formed by social status indicators). The social selection theory about SES and well-being changes the direction of causality vice versa: the ones with less health resources (for example, people with mental disorders) are selected to lower social positions. (for

example: Johnson et al. 1999, Hudson 2005) In adolescence the issue becomes more blurred: on the one hand the childhood environment continues to have an effect on mental health but on the other hand the adolescent spends more and more time away from home and its influence. Gradually the adolescent will have a SES on his/her own. (Hagquist 2007)

The developmental environment of a child varies according to the socioeconomic status of the family, although the impact of socioeconomic status may be different in different parts of the world (Bradley and Corwyn 2002, Compas 2004). Socioeconomic status of the family consists of a number of interrelated factors, such as family income, parental education, cherished values, and membership in specific subcultures and communities (Nurmi 2004). In the United States child poverty is a strong political issue and poverty researchers see it as one of the most significant markers of negative outcomes in both physical and mental health of adolescents (McLoyd 1998, Compas 2004). Some scholars see income poverty and socioeconomic status as two distinctly separate categories: income poverty can be defined by an absolute standard while SES is described as a relative position (McLoyd 1998). Child poverty is not a strong issue in Finland, although polarisation development may have been initiated among families with children (Developing the income of families with children. A summary report by the coordination group, 2006).

Traditionally, socioeconomic status of the family has been operationalised as characteristics of the father, such as educational level, occupation or labour status (Entwisle and Astone 1994). More recent measures of SES used in adolescent samples include, for example, household income, family affluence, and subjective measures of perceived social status (West and Sweeting 2004).

In general, low socioeconomic status is associated with high psychiatric morbidity and depression is no exception: low SES slightly increases the risk of episode onset and moderately increases persistence in adults (Lorant et al. 2003). Parental educational level and occupation was associated with elevated risk of depression in offspring even when parental depression was controlled for in a longitudinal study from USA (Ritsher et al. 2001). Parental SES (educational levels, occupations and family income) was associated with anxiety and conduct disorder but not with depression among adolescents in New Zealand. (Miech et al. 1999). In Finnish samples of community adolescents parental educational levels or occupation have not been associated with adolescent depression and drinking habits (Huurre et al. 2003, Lintonen et al. 2000a, Pelkonen et al. 2003) or have been associated with female depression only (Kaltiala-Heino et al. 2001).

Poverty or low income per se may not be associated with maladjustment. Considering adolescent alcohol use, low income may even be protective (Boys et al. 2003, Costello et al. 2007, Wiesner et al. 2007). A family member may, however, perceive financial difficulties even if the family cannot be deemed poor (the income of the family is not under 60% of the median income, for example). These perceived difficulties can be seen as a stressor affecting mental health.

Parental economic stress has been suggested to have both a direct effect on the psychological well-being of the offspring (Takeuchi et al. 1991, Wadsworth and Compas 2002, Grant et al. 2003, Leinonen et al. 2003) and an indirect effect through detrimental changes in the mood and (parenting) behaviour of the parents (Conger et al. 1994, Forkel and Silbereisen 2001, Conger et al. 2002, Grant et al. 2003, Solantaus et al. 2004).

An adolescent may perceive financial difficulties in the family as an uncontrollable life event affecting the daily life (Conger et al. 1999). Adolescents and parents may have a different view of the economic situation of the family, but the view most significantly affecting adolescent mental health seems to be that of the adolescent (Shek 2003). Family economic hardship perceived by the adolescent has been found to be associated with both internalising and externalising problems (Wadsworth and Compas 2002, Shek 2003).

The literature concerning inequalities in adolescent mental health is still scarce, and research has often utilised measures of psychological stress, such as the general health questionnaire, rather than measures of psychological symptoms or psychiatric disorders (Miech et al. 1999, West and Sweeting 2004). Many studies on financial stress have also been carried out in special economic circumstances, such as an economic depression, or with low-income or minority populations. The cognitive appraisals and effects of economic adversities may, however, vary according to the general amount of economic adversity (Forkel and Silbereisen 2001). There may also be differences in the buffering effect of protecting variables, such as social support, between areas with different distribution of economic adversity (Wight et al. 2006). In community adolescents, the factor affecting mental health may thus be the relative economic deprivation rather than the low income per capita or other objective measure of economic disadvantage (Torsheim et al. 2006).

2.5.4 Family structure

A variable extensively studied and often controlled for in studies on child and adolescent populations is family structure. Quite consistently the literature suggests that the best adjustment is associated with a family of two (biological) parents. Divorced or single parent

families and reconstituted or stepparent families have been associated with heavy drinking, depression, anxiety, loneliness, suicidality, poor academic achievement and low self-esteem (Garnefski and Diekstra 1997, Shucksmith et al. 1997, Hetherington et al. 1998, Kaltiala-Heino et al. 2001, Seljamo et al. 2006).

Parental divorce is probably one of the factors behind these differences between adjustment in two-parent families and others, although children are increasingly being born to single mothers also. As discussed earlier divorce is associated with several secondary stressors. It may thus not be the family composition per se, but the family processes and different distribution of risk factors between family types that explain adolescent adjustment (Adlaf and Ivis 1996, McArdle et al. 2002, Barrett and Turner 2005, Barrett and Turner 2006). Taking new roles with reasonable amount of responsibilities may also contribute to resilience and social competence in adolescents experiencing marital transitions in the family (Hetherington et al. 1998, Rodgers and Rose 2002). On the other hand, family structure seems to carry an independent risk for maladjustment: other risk factors associated with family structure may not always rule out the significance of family structure in multivariate analyses (Kaltiala-Heino et al. 2001, Kuntsche and Silbereisen 2004, Zimmermann 2006).

Adolescent adjustment has also been suggested to be associated with many other family-related factors, such as social support from the family (Garnefski and Diekstra 1996, Helsen et al. 2000, Kaltiala-Heino et al. 2001, Sheeber et al. 2001, Stice et al. 2004), sibling relations (Goodyer 1990, Bullock and Dishion 2002, Reinherz et al. 2003, Branje et al. 2004) and parental mental illness (Nomura et al. 2002, Ohannessian et al. 2004, Garber 2005) but these are not in the focus of this thesis.

2.6 Gender differences in prevalence and determinants of adolescent maladjustment

While sex may be a static, biological characteristic of an individual, gender can be described as a determinant that may change with social and cultural changes. Gender socialisation theory suggests that boys and girls are brought up differently resulting in differences in responses to stress (Meadows 2007). Gender differences are an important area of literature on adolescent mental health because knowledge of gender-specific pathways may enhance our understanding of the aetiology of disorders and help to guide targeted preventive interventions. Gender differences may be found in prevalence of mental

disorders and in determinants of mental ill-health. Data on both are important in planning health services and other interventions concerning mental health of adolescents.

Boys and girls may have different developmental pathways from childhood to adulthood (Huebner and Betts 2002, Meadows et al. 2006). It would be logical to hypothesise that differences in development may lead to differences in risk and protective factors associated with mental health. Significant gender differences in risk factors for maladjustment outcomes during the adolescent development have, indeed, been suggested by some researchers (Ronka et al. 1995, Barber et al. 1998, Liu 2005, Meadows et al. 2006, Wiesner and Kim 2006, Dekker et al. 2007), while others suggest similar pathways to problem behaviour in both sexes (Steinhausen and Metzke 2001, Goldstein et al. 2005). Girls have suggested being more vulnerable to problems in family interactions than boys are (Compton et al. 2003, Gutman and Sameroff 2004, Gutman and Eccles 2007). Childhood adversities may be more important risk factors for adult depression among females than they are among males (Veijola et al. 1998, Pirkola et al. 2005).

Levels of internalising problems in girls exceed the levels in boys in adolescence, while the situation concerning externalising problems is vice versa (Rutter et al. 2003, Rescorla et al. 2007). This may be due to differing liability to environments associated with risk or protective factors, and differences in susceptibility to environmental stressors between the sexes. (Rutter et al. 2003) It has also been suggested that mechanisms leading to maladjustment may be similar in boys and girls but the outcomes are different with girls reacting to stressors or lack of support with internalising, boys with externalising outcomes (Grant et al. 2006, Meadows 2007).

From early adolescence on, there is a female preponderance in major depression (Cyranowski et al. 2000, Galambos 2004), and also in depressive symptoms (Angold et al. 2002, Graber 2004, Adewuya and Ologun 2006, Richardson et al. 2006, Hankin et al. 2007) reported across the world. Gender differences in persistence of depression have been reported but the findings are controversial suggesting depression in adolescent girls to be more persistent than in boys (Rushton et al. 2002), vice versa (Dunn and Goodyer 2006), or no gender difference in the symptom stability (Tram and Cole 2006). However, adolescent emotional disorders may be associated with impairment across more aspects of social role functioning in boys than in girls (Riley et al. 1998).

There is considerable controversy as to what the causative factors of the female preponderance are (Cicchetti and Toth 1998, Piccinelli and Wilkinson 2000, Ge et al. 2001, Galambos 2004). A hypothesis with considerable empirical evidence is, that adolescent girls experience more stress in their living environment, especially related with family and other interpersonal relationships and may also react with depression to these stressors more

often than do boys (Leadbeater et al. 1999, Ge et al. 2001, Seiffge-Krenke and Stemmler 2002, Storksen et al. 2006, Gutman and Eccles 2007, Hankin et al. 2007).

Both substance use disorders and substance use problems are more common among adolescent males than females (Martin and Winters 1998, Shrier et al. 2003) and boys are also suggested having problematic drinking patterns more often than girls (Boys et al. 2003, Best et al. 2006). In recent studies, convergence in drinking patterns among boys and girls have been observed in many countries. Convergence seems to be especially obvious in the Nordic countries, in the UK, in the USA and in Ireland. (Ahlstrom et al. 2004) In Finland, observations of diminishing gender difference in drinking patterns were reported in the beginning of the 21st century (Lintonen et al. 2000b), and in 15–16 year-old adolescents no differences have lately been found concerning alcohol use or frequency of drunkenness (Laukkanen et al. 2001, Seljamo et al. 2006). In the UK the proportion of adolescent girls smoking and drinking frequently has even exceeded the proportion of boys with similar behaviour (Pritchard and Cox 2007).

The reports of differences disappearing or even turning vice versa may suggest changes in the social roles and norms of boys and girls in the countries studied. The determinants of alcohol use may, however, differ between the sexes: boys have been reported being more vulnerable to fathers and girls to mothers drinking, for example (Yeh et al. 2006). Parents have been suggested to monitor adolescent girls more firmly than boys of the same age (Bulcroft et al. 1996). This may be one explanation for smaller proportions of externalising problem behaviour among girls reported in older studies. While stress exposure and reactions to stress seem to mediate the relation between sex and depression, it has been suggested that no such mediation exists between sex and alcohol use (Hankin et al. 2007).

2.7 Conclusions of the literature reviewed

Adolescence is a special time period in human development with rapid biological and physiological changes. While the physical appearance and behaviour of the adolescent changes, the environment changes accordingly (Maccoby 2000). All these changes may make adolescents more vulnerable to psychological stress (Walker et al. 2004). In contemporary societies adolescence is a lengthy period, and different stages of adolescence are associated with different developmental tasks. Hence, adolescents of different ages may have different risk and protective factors for maladjustment. The critical period concerning changes both in family relationships and prevalence of mental problems seems to be middle

adolescence (Garnefski and Diekstra 1996, Kessler et al. 2005, Costello et al. 2006). However, literature on determinants of maladjustment outcomes in adolescence is often based on clinical samples or epidemiological samples with a wide age range. Time-sensitive designs that capture the developmental process are thus needed.

One set of determinants potentially highly relevant to adolescent maladjustment lay in the family domain. Family determinants include socioeconomic status of the family, parenting behaviours, family structure, life events occurring to the family and so forth. Many of these factors have been associated with single outcomes or with internalising or externalising problems only. Associations with diverse outcomes are seldom studied. Studies with community samples often assess general psychological distress instead of specific disorders or types of maladjustment. The question of specificity of family factors as risks stays unanswered with such designs.

There is a female preponderance in internalising problems in adolescence, while the situation concerning externalising problems is vice versa (Aalto-Setälä et al 2002, Costello et al. 2006). There is, however, no consensus about the underlying factors causing these gender differences. Females are suggested more vulnerable to interpersonal stress (Shih et al. 2006). Family stressors may thus be more detrimental to girls than to boys. On the other hand, studies of smoking and substance use suggest that the gender roles of boys and girls may be changing in the Nordic countries and the UK, for example (Laukkanen et al. 2001, Seljamo et al. 2006, Pritchard and Cox 2007).

Depression is the most commonly occurring disorder among adolescents often causing significant impairment and predicting future problems even when not fulfilling the diagnostic criteria of major depression. Yet, less than one in two depressed adolescents seek help. Parents and teachers are considered important actors in the help-seeking process of children or early adolescents. Less is known about the role of the parents in the help-seeking process among middle or late adolescents.

3. AIMS OF THE STUDY

The aims of the study were to answer the following research questions

1. Are family factors specific or general risk factors of adolescent maladjustment? (studies I–III)
2. Are the associations between family factors and maladjustment similar in boys and girls? (studies I–III)
3. Are the parents significantly involved in help-seeking for depression in middle adolescence? (study IV)

4. SUBJECTS AND METHODS

Data from two studies were utilised in the present study: two data waves from the Adolescent Mental Health Cohort -Study and one cross-sectional sample from the School Health Survey.

4.1 The Adolescent Mental Health Cohort Study

4.1.1 *Procedures*

In order to study the prevalence and determinants of mental health problems in Finnish adolescents a follow-up study with surveys was conducted at two-year intervals in two Finnish cities, Tampere and Vantaa. The first survey was conducted at secondary schools during the school term 2002–2003. The Swedish speaking schools and the schools offering special teaching for children with extensive learning disabilities were not invited. All ninth grade students (N = 3809) were invited to complete a person-identifiable questionnaire during a school lesson supervised by a teacher. The parents of the subjects were informed in advance by a letter, but parental consent to participation was not asked since the Finnish legislation on medical research allows a 15-year-old subject to consent alone. For students absent from school on the original survey day, a separate opportunity to participate was offered in the school within a couple of weeks of the original data collection. For students not present on either occasion, the questionnaires and two reminders were sent by mail.

4.1.2 *Subjects and dropout*

The response rate in Tampere was 97% and in Vantaa 92%. Age under 15 (n = 313), and obvious facetiousness (n=6) caused respondents to be excluded. Thus, the final sample consisted of 1609 girls and 1669 boys with a mean age of 15.5 years (range 15.0–19.9 years, SD 0.4).

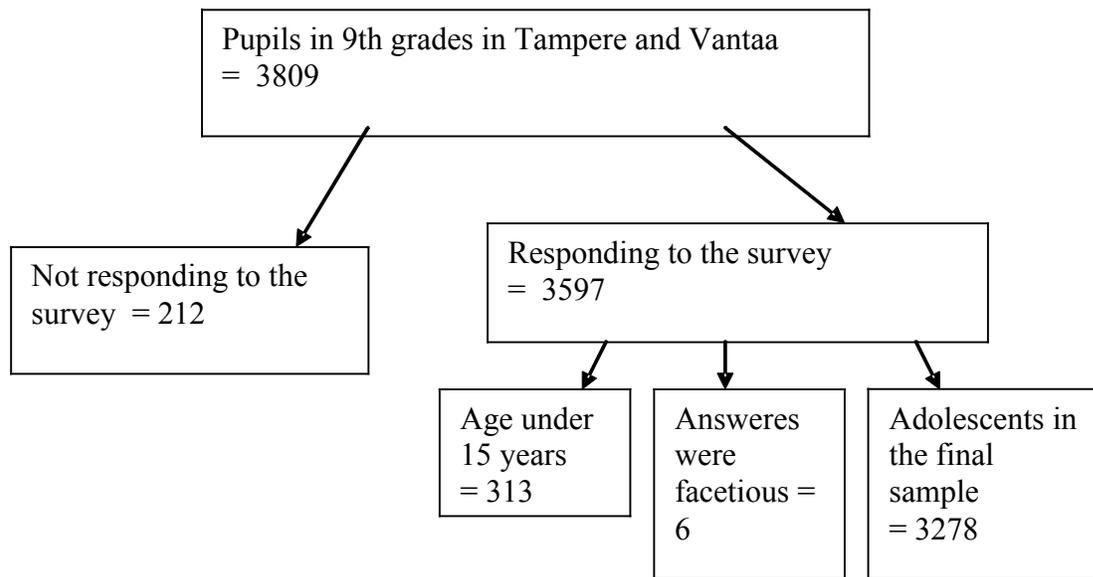


Figure 1. Target group and the final sample of the Adolescent Mental Health Cohort –Study (baseline)

The subjects having responded to the first survey were reached for a two-year follow-up (T2) through their current educational institutes, by post and finally through the Internet. 2082 responses were received. Two subjects responded both at the educational institute and in the Internet. For these two, the answers given through the Internet were eliminated from the data. Ten responses were excluded as they were judged by the researchers to have been completed facetiously. The final T2 sample represents 63.1% of the adolescents reached for and consisted of 2070 respondents, whose mean age was 17.6 (range 16.9–21.6 years, SD 0.41). Of the responses on the final data, 54% were given in survey occasions organised by educational institutes, 44% by post and 2% via the Internet.

Responding to the follow-up was significantly associated with age at T1 (Pearson correlation -0.103 ; two-tailed correlation significant at the level 0.01). Of the invited adolescents, 41% of the 16-year-olds or older responded, whereas 65% of the ones under 16 years old responded (Pearson chi square <0.001).

4.1.3 Outcome variables

Depression

The Raitasalo's modification of the short form of the Beck Depression Inventory (Beck and Beck 1972), R-BDI (Raitasalo 1995, Raitasalo 2007) was used to assess depression in all datasets used for the present study. The R-BDI has five differences with the short form of the Beck Depression Inventory: 1) the timeframe for depressive symptoms was widened from "right now" to "today", 2) an introductory question was added to each item, 3) a fifth answering alternative indicating positive feelings and cognitions was added to each item, 4) the item eliciting working difficulties was replaced with an item eliciting sleeping difficulties, 5) an item eliciting anxiety was added (Raitasalo 2007). The R-BDI has shown good psychometric properties in a large population sample of adolescents (Kaltiala-Heino et al. 1999). The scores for severity of depression are calculated from questions 1–13 (not including the item eliciting anxiety). These items indicate feelings, cognitions, and physical symptoms related to depression. The positive and neutral alternatives were scored 0 and the responses indicating increasing severity of symptoms were scored 1–3 ("3" indicating the highest severity). Scores of all items were summarised to get a sum-score of depressiveness (range 0–39 points). When three items or less were unanswered, the missing items were replaced with the mean value of the subject's responses to the other items of the scale. A score of 8 or more points indicates moderate to severe depression (Beck and Beck 1972), and this cutoff point was used to define caseness in this study. This cutoff point is widely used in adolescent general population studies in Finland (e.g. Kaltiala-Heino et al. 1999, Kaltiala-Heino et al. 2003), but to the best of my knowledge, there are no validation studies ascertaining the specificity of it. Cutoff points higher than this have been suggested for clinical adult populations (Luty and O'Gara 2006).

Harmful drinking patterns

In the present study harmful drinking pattern is illustrated with frequency of drinking to the point of intoxication. Both at T1 and T2 frequency of drinking to the point of intoxication was elicited: "How often do you drink alcohol until you are really drunk?" (once a week or more often / approximately once or twice a month / less often / never). Only the assessment at T1 was used in the present study. The item has been used in a nationwide monitoring

system of adolescent health and health behaviours, The Adolescent Health and Lifestyle Survey (Lintonen et al. 2000b); and Lintonen and Rimpelä have shown that Finnish adolescents from the age 14 are well aware of the concept of being "really drunk" and have a perception highly correlated with their estimated blood alcohol concentration (Lintonen and Rimpelä 2001, Lintonen et al. 2004). For the analyses the variable was dichotomised to: once a week or more often yes/no (where the answer no included all the other alternative frequencies of drinking to the point of intoxication, and also abstaining).

Seeking professional help

At T2, the adolescents were asked if they had during the past two years sought professional help (several examples of services available for adolescents were given, such as health centre, psychiatric clinic for adolescents) for depression (yes, no).

Excessive psychosomatic symptoms

At T1 and T2, psychosomatic symptoms were measured by asking, "*During the past six months, have you experienced any of the following symptoms? How frequently?*" The list of symptoms comprised neck and shoulder pain, low back pain, stomach ache, feeling tense or nervous, irritation or tantrums, difficulties in falling asleep or waking in the night, headache and fatigue. The response alternatives to each symptom were *rarely or not at all / about once a month / about once a week / almost daily*. A symptom occurring almost daily was considered frequent. Only the assessment at T1 was used in the present study. In the analyses, three or more daily symptoms indicate excessive psychosomatic symptoms.

Anxiety

At T1 and T2, the 14th item of the R-BDI was used to detect cognitive symptoms of anxiety (Raitasalo 2007). The respondents were asked to rate the alternative that best describes them today: *I don't easily lose my nerve or get anxious (=0) / I don't feel anxious or nervous (0=); I get anxious and nervous rather easily (=1); I get very easily distressed, anxious or nervous (=2); I am constantly anxious and distressed, my nerves are always on*

edge (=3). Thus, anxiety was measured by a single question focusing on the cognitive aspect of being anxious. Because there is limited experience of the validity of the question, only extreme responses were considered significant: Scores 2–3 were noted as symptoms of significant anxiety. Only the assessment at T1 was used in the present study.

4.1.4 Explanatory variables

Perceived financial difficulties

At T1 and T2, perceived financial difficulties were assessed with one item of the Life Events Checklist (Johnson and McCutcheon 1980). The adolescents were asked to indicate if financial difficulties had occurred in the family during the past 12 months (yes/no). Only the assessment at T1 was used in the present study. Thus, recent financial stress, not long-term financial difficulties or poverty was measured.

Family life events

At T1 and T2, the adolescents were asked to indicate on the list given in a modified 26-item Life Events Checklist (LEC) (35), which life events had occurred to them during the past 12 months. Nine life events occurring in the family domain most probably independently of the behaviour of the adolescent offspring were included in the study and were as follows: "family moved (to another municipality)", "sibling was born", "family member was seriously ill/injured", "parental separation or divorce", "parents argued (with each other) more than previously", "mother / father became unemployed", "family member died", "parent was accused, arrested or convicted of a crime", "family had financial difficulties". Only the assessment at T1 was used in the present study.

Checklist of life events may be as reliable as an objectively rated interview when assessing occurring of life events in adolescents; and depression or anxiety may not be associated with over-reporting events (Wagner et al. 2006).

Perceived need for help

At T1 and T2 the adolescents were asked, if they (currently) felt that they need help for a) depression, b) for another mental health problem (yes/no each). Only the assessment at T1 was used in the present study. This is an item previously used in the School Health Promotion Study, a national school survey on adolescents (Lukkari et al. 1998)

Concerns about problems in adolescent mental health

At T2, the adolescents were asked if people around them had been concerned about changes in their mood or behaviour (separately: mother, father, sibling, peers, boy-/girlfriend, teacher; yes, no). The respondents were instructed to complete every item even if they did not think that there has been any reason to worry.

4.1.5 Confounders

Family structure

At T1 and T2, the adolescents were asked, with whom they live: mother and father, mother and stepfather, father and stepmother, mother only, father only, with some other legal guardian. To allow for developmental changes two more alternatives were introduced in the follow-up, namely “with spouse” and “alone or with a friend”. For the multivariate analyses the family structure was recoded into a dichotomous variable "non-intact family" (0= (biological or adoptive) mother and father, 1= all other alternatives).

Paternal and maternal educational levels

Parental educational levels were ascertained by asking the highest level of education that the mother had completed and the highest level the father had completed. The alternatives were comprehensive school only/ vocational school /college level/university degree. For

multivariate analyses a dichotomous variable was created: low educational level (=comprehensive school only) yes/no.

Parental unemployment

The adolescents were asked to indicate if their parents had both been employed/ one of the parents had been unemployed/ both of the parents had been unemployed during the last year. For the multivariate analyses the variable was dichotomised into parental unemployment yes/no.

4.2 The School Health Promotion Study

4.2.1 Procedures

The School Health Promotion Study is an annual survey among teenagers about their health, health behaviour and school experiences carried out since 1995 in even years in the Southern and Eastern counties and Lapland, and in odd years in the counties of Western Finland and Oulu. The data collection is carried out in co-operation with schools. All secondary schools in the study area are contacted. If a school decides to participate, the questionnaires are distributed to the pupils during a school lesson supervised by a teacher, who ensures that the pupils work on the survey undisturbed by peers, but does not interfere with in pupils' responses. The anonymous questionnaires are returned in sealed envelopes. While the school decides about co-operating in distributing the questionnaires, the participation is voluntary for the individual pupils. The Ethical Committee of Tampere University Hospital has approved the Study.

4.2.2 Subjects and dropout

The data used in the present study comprises responses of pupils in the 8th and the 9th grades of 75 secondary schools (14–16 years old) in two regions of Finland (Western Finland and Oulu) in April 1997 study. The sample consists of students from almost all secondary schools in all the study areas. Only the special schools for handicapped children

and classes with children who would have required assistance in reading and filling in the questionnaire due to severe sensory deficits were excluded from the study.

Of the pupils invited, 87% returned the questionnaire. As a result 17643 responses were obtained. Boys and girls were equally represented. Their mean age (sd) was 15.3 (0.6) years. A majority of the respondents had stable living conditions: 81.2% were living with both their parents, and 74.4% had lived in the same residential area for at least ten years. 12.6% of the respondents had parents with academic education.

4.2.3 Outcome measures

Perceived health

Perceived health was elicited by the question “How is your health?” (“very good / rather good / average / rather poor or poor”). In the analyses, perceived health was dichotomised to very good / rather good vs. average / poor.

Depressive symptoms

Depressive symptoms were measured by R-BDI, the Raitasalo’s modification of the short version of the Beck Depression Inventory (Raitasalo 1995, Raitasalo 2007). The variable used as an indicator for depressive symptoms in this data was formed in a similar way as the corresponding variable assessing depression used in the Adolescent Mental Health Cohort data (see above, page 47).

Anxiety

The 14th item of R-BDI was used to detect cognitive symptoms of anxiety. The variable used as an indicator for anxiety in this data was formed in a similar way as the corresponding variable used in the Adolescent Mental Health Cohort data (see above, page 49).

Excessive psychosomatic symptoms

Psychosomatic symptoms were measured by asking, “*During the past six months, have you experienced any of the following symptoms? How frequently?*” The list of symptoms comprised neck and shoulder pain, low back pain, stomach ache, feeling tense or nervous, irritation or tantrums, difficulties in falling asleep or waking in the night, headache and fatigue. The response alternatives to each symptom were *rarely or not at all / about once a month / about once a week / daily or almost daily*. The variable used as an indicator for excessive psychosomatic symptoms in this data was formed in a similar way as the corresponding variable used in the Adolescent Mental Health Cohort data (see above, page 49).

Frequent excessive drinking and substance use

Frequent excessive drinking was measured by asking, “*Have you ever drunk so much alcohol that you were really drunk?*” (“*Never / once / 2–3 times / 4–10 times / more than 10 times*”). Having been really drunk more than ten times was considered frequent excessive drinking in this population.

Trials with cannabis, pills, alcohol with pills, inhalants and hard drugs were each enquired by asking “*Have you ever tried or used cannabis (analogously: pills in order to get intoxicated / alcohol with pills / inhalants / hard drugs)? Never / once / 2–4 times / 5 times or more*”). Trials with any other substance than alcohol were summarised. The sum score was dichotomised into having used the substances in question not at all or occasionally / five or more times.

Excessive drinking is not uncommon among Finnish adolescents (Lintonen et al. 2000b), hence the extreme group who reported having experienced drunkenness more than ten times was used as a possible indicator of psychopathology. By contrast, trials with any other substance are rare among Finnish adolescents. Therefore, having used substances other than alcohol five or more times can be seen as warranting attention in the population studied.

4.2.4 Explanatory variables

Parental monitoring

Parental monitoring was elicited with two items: “*Do your parents know where you spend your Friday and Saturday nights?*” (“*always / sometimes / never*”), and: “*Do your parents know most of your friends?*” (“*both know / only father knows / only mother knows / neither of them knows*”).

Family structure

Family structure was elicited by “*Does your family include a) mother and father, b) mother and step-father, c) father and step-mother, d) only mother, e) only father, f) spouse (married/ co-habiting partner), g) other guardian.*” Family structure was used in the analyses classified as follows: both parents (a)/ stepparent family (b,c) / single-parent family (d,e) / apart from parents (f,g).

4.3 Statistical methods

Frequencies (n, %) of the characteristics of the sample were calculated in each study (I–IV). For the present study, the prevalence (%) of family circumstances, levels of parental monitoring and maladjustment outcomes were computed for each dataset available. Also gender differences in these prevalences were tested with chi square statistics (and Fisher’s exact test, when more appropriate). Univariate associations between the independent and dependent variables were in each separate study tested with chi square statistics or crude odds ratios with 95% confidence interval.

Gender differences in frequencies of family life events and prevalence of maladjustment outcomes were tested with chi square statistics. The best predictors of maladjustment were searched for with stepwise logistic regression models adjusting for socioeconomic background and comorbidity, where appropriate. Similar logistic regression models were made separately for boys and girls to find the factors most significantly associated with male and female maladjustment. To better deal with multi-collinearity in

the multivariate analyses a forward stepwise method was used. Though not reported here, the stepwise logistic regression models were always tested with backward stepwise and enter procedures to ascertain the robustness of the findings. SPSS 11.0 software package was used to carry out the analyses.

5. RESULTS

5.1 Gender differences in prevalence of family factors and maladjustment during middle to late adolescence

5.1.1 *Family circumstances and parental monitoring among middle adolescent boys and girls in Finland*

Differences between sexes concerning family circumstances and parental monitoring were similar in all datasets available (table 1). There were more boys living with both biological parents and more girls living in other family constellations. Girls reported being monitored more firmly than did boys. Although boys reported more often than girls that both parents know most of their friends, the proportion of girls reporting that neither parent knows was lower. The proportion of girls reporting that the parents always know where they spend their Friday and Saturday evenings was higher than the corresponding proportion of boys and the proportion of girls reporting that the parents usually do not know their whereabouts was lower than the corresponding proportion of boys.

Information about life events in the family domain was available in the Adolescent Mental Health Cohort only (table 1). In both surveys among the Adolescent Mental Health Cohort birth of a sibling, and parent accused, arrested or convicted of a crime were more often reported by boys, whereas increasing arguments between parents and financial difficulties in the family were more often reported by girls. Residential move and parental separation or divorce were events more often reported by 15–16-year-old boys than by girls of the same age.

Table 1. Frequencies (%) of family circumstances, recent life events in the family domain, and perceived parental monitoring among boys and girls of different ages.

	14-16-year-olds*			15-16 year-olds**			17-18 year-olds***		
	boys	girls	p	boys	girls	p	boys	girls	p
Family circumstances									
family structure			0.004			0.678			<0.001
both parents	82	80		71	69		65	60	
single parent	9	11		15	17		22	21	
stepparent (reconstituted family)	7	8		13	13		9	10	
away from parents	1	1		1	1		1	1	
lives alone/with spouse/with friends	not available			not available			3	8	
parental educational levels									
low educational level of mother				16	14	0.155	not available		
low educational level of father				18	19	0.402	not available		
Life events in the family domain	not available								
residential move				13	10	0.038	7	6	0.452
birth of a sibling				11	7	<0.001	7	3	<0.001
family member ill/injured				9	10	0.429	11	10	0.866
parental separation/divorce				12	8	0.001	6	5	0.095
increasing arguments between parents				16	21	<0.001	12	15	0.049
mother/father unemployed				8	8	0.463	6	6	0.722
death of a family member				6	5	0.632	8	6	0.078
parent involved with the law				3	2	0.005	2	1	0.046
family had financial difficulties				15	22	<0.001	15	21	<0.001
Parental monitoring									
do parents know friends			<0.001			<0.001			<0.001
both know	82	80		72	67		68	65	
only father knows	2	1		3	2		2	2	
only mother knows	10	15		17	25		17	24	
neither of the parents knows	6	3		8	6		13	9	
do parents know whereabouts			<0.001			0.012			<0.001
yes, always	59	68		58	61		57	68	
yes, sometimes	36	28		36	35		36	27	
no, usually not	5	3		7	4		7	5	

*School Health Promotion Study in 1997

**Adolescent Mental Health Cohort, first survey in academic year 2002–2003

***Adolescent Mental Health Cohort, two-year follow-up in academic year 2004–2005

5.1.2 Prevalence of maladjustment outcomes in boys and girls

In all datasets available, girls reported internalising types of maladjustment (depression, anxiety and excessive psychosomatic symptoms) systematically more often than did boys. On the other hand, boys of all ages reported harmful drinking patterns more often than did girls. A sex difference observed in perceiving one's health below good in the two younger age groups disappeared in the oldest age group. (table 2)

Table 2. Frequencies (%) of different types of maladjustment among boys and girls of different ages.

type of maladjustment	14-16-year-olds*			15-16 year-olds**			17-18 year-olds***		
	boys	girls	p	boys	girls	p	boys	girls	p
moderate or severe depression	6	10	<0.001	7	14	<0.001	7	10	0.004
anxiety	2	4	<0.001	3	6	<0.001	3	6	<0.001
excessive psychosomatic symptoms	2	7	<0.001	4	11	<0.001	4	11	<0.001
average/poor/very poor perceived health	17	22	<0.001	14	19	<0.001	18	21	0.097
Harmful drinking patterns									
been drunk more than 10 times (lifetime)	13	10	<0.001	17	14	0.007	not available		
drunkenness at least once a week (current)	not available			5	3	0.054	11	5	<0.001

*School Health Promotion Study in 1997

**Adolescent Mental Health Cohort, first survey in academic year 2002-2003

***Adolescent Mental Health Cohort, two-year follow-up in academic year 2004-2005

5.2 Associations of family structure and parental monitoring with middle adolescent maladjustment (study I)

5.2.1 Associations of family structure and parental monitoring with diverse maladjustment outcomes

In 14–16-year old adolescents of the School Health Promotion Study data it was found that all maladjustment outcomes studied (perceived health below good, depressive symptoms, anxiety, excessive psychosomatic symptoms, frequent excessive drinking and use of other substances than alcohol) were more common among girls and boys who lived in any other family constellation than with both parents (table 3).

Among both sexes, all the symptoms studied were the more common the less the parents knew about the whereabouts of the adolescent on Friday and Saturday nights (table 4).

All the symptoms studied were also more common among both sexes if neither of the parents knew the adolescent's friends (table 5).

Table 3. Frequency (%) of poor perceived health, depression, anxiety, excessive psychosomatic symptoms, drunkenness and substance use according to family structure among 14–16 year old Finnish adolescents.

	Family structure				p
	<i>both parents</i>	<i>step parent</i>	<i>single parent</i>	<i>apart from parents</i>	
Perceived health average/poor					
girls	21	28	28	27	<0.001
boys	16	20	18	23	0.002
Depression					
girls	10	14	15	19	<0.001
boys	6	8	9	24	<0.001
Anxiety					
girls	4	5	7	6	<0.001
boys	2	4	3	19	<0.001
Excessive psychosomatic symptoms					
girls	6	10	10	7	<0.001
boys	2	4	2	9	<0.001
Been drunk 10 or more times					
girls	8	18	14	16	<0.001
boys	12	24	18	28	<0.001
Used other substances 5 times or more					
girls	3	8	7	12	<0.001
boys	2	8	5	15	<0.001

Table 4. Frequency (%) of poor perceived health, depression, anxiety, excessive psychosomatic symptoms, drunkenness and substance use according to whether parents know where the adolescent spends Friday and Saturday nights, among 14–16 year old Finnish adolescents.

	Do your parents know where you spend Friday and Saturday nights?			p
	<i>always</i>	<i>sometimes</i>	<i>no</i>	
Perceived health average/poor				
girls	19	28	39	<0.001
boys	14	19	29	<0.001
Depression				
girls	9	14	30	<0.001
boys	5	7	9	<0.001
Anxiety				
girls	3	5	13	<0.001
boys	2	3	9	<0.001
Excessive psychosomatic symptoms				
girls	5	9	19	<0.001
boys	2	2	7	<0.001
Been drunk 10 or more times				
girls	6	17	27	<0.001
boys	9	18	34	<0.001
Used other substances 5 times or more				
girls	2	7	15	<0.001
boys	2	4	11	<0.001

Table 5. Frequency (%) of poor perceived health, depression, anxiety, excessive psychosomatic symptoms, drunkenness and substance use according to whether parents know the adolescent's friends, among 14–16 year old Finnish adolescents

	Do your parents know most of your friends?				p
	<i>both know</i>	<i>only mother</i>	<i>only father</i>	<i>neither knows</i>	
Perceived health average/poor					
girls	20	31	29	34	<0.001
boys	16	16	20	25	<0.001
Depression					
girls	9	18	17	29	<0.001
boys	5	10	9	17	<0.001
Anxiety					
girls	3	8	6	12	<0.001
boys	2	2	3	9	<0.001
Excessive psychosomatic symptoms					
girls	6	18	10	13	<0.001
boys	2	5	2	6	<0.001
Been drunk 10 or more times					
girls	8	20	15	16	<0.001
boys	13	14	17	16	0.001
Used other substances 5 times or more					
girls	3	11	6	13	<0.001
boys	2	9	5	8	<0.001

In multivariate analysis, taking parental monitoring into account levelled out most of the significant associations between family structure and maladjustment, especially in boys. However, boys living apart from parents reported more maladjustment outcomes, even when parental monitoring was taken into account. An increased risk of externalising problems (drinking, substance use) associated with living in single parent or step-parent families was also observed among both sexes. (table 6)

Table 6. Risk for (OR, 95% CI) average/poor perceived health, depression, anxiety, excessive psychosomatic symptoms, drunkenness and substance use according to family structure, whether parents know where the adolescent spends Friday and Saturday nights, and whether parents know the adolescent's friends, among 14–16 year old Finnish adolescents, controlled for age.

	Perceived health average/poor	depression	anxiety	excessive psychosom. symptoms	drunk 10 or more times	other substances 5 times or more
GIRLS						
Family structure						
both parents	1.0	1.0	1.0	1.0	1.0	1.0
step parent	1.3 (1.0 - 1.5)	1.2 (0.9 - 1.5)	1.2 (0.8 - 1.7)	1.4 (1.1 - 1.9)	1.9 (1.5 - 2.4)	2.3 (1.7 - 3.3)
single parent	1.1 (0.9 - 1.3)	1.1 (0.9 - 1.5)	1.6 (1.1 - 2.3)	1.4 (1.1 - 1.9)	1.3 (1.1 - 1.7)	1.7 (1.2 - 2.5)
apart from parents	1.2 (0.7 - 2.1)	1.5 (0.8 - 3.0)	1.2 (0.4 - 3.5)	1.0 (0.4 - 2.6)	1.9 (0.9 - 3.7)	3.3 (1.9 - 7.5)
Parents know where adolescent spends Friday and Saturday nights						
always	1.0	1.0	1.0	1.0	1.0	1.0
sometimes	1.6 (1.4 - 1.8)	1.5 (1.3 - 1.8)	1.4 (1.1 - 1.8)	1.7 (1.4 - 2.1)	2.9 (2.5 - 3.4)	3.5 (2.8 - 4.5)
no	2.4 (1.8 - 3.2)	3.3 (2.4 - 4.6)	3.3 (2.1 - 5.0)	3.6 (2.5 - 5.1)	4.8 (3.5 - 6.6)	6.3 (4.1 - 9.6)
Parents know most friends						
both parents	1.0	1.0	1.0	1.0	1.0	1.0
only father	1.4 (0.9 - 2.2)	1.6 (1.0 - 2.7)	1.7 (0.8 - 3.5)	2.4 (1.4 - 4.1)	1.8 (1.1 - 3.0)	2.0 (1.1 - 4.1)
only mother	1.5 (1.3 - 1.7)	1.8 (1.4 - 2.2)	1.5 (1.1 - 2.1)	1.5 (1.2 - 1.9)	1.5 (1.1 - 1.8)	1.5 (1.1 - 2.0)
neither parent knows	1.7 (1.3 - 2.2)	3.2 (2.4 - 4.4)	2.9 (1.9 - 4.4)	2.0 (1.4 - 2.9)	1.4 (1.0 - 2.0)	3.3 (2.2 - 5.0)
BOYS						
Family structure						
both parents	1.0	1.0	1.0	1.0	1.0	1.0
step parent	1.1 (0.9 - 1.4)	1.1 (0.9 - 1.6)	1.3 (0.8 - 2.1)	1.5 (0.9 - 2.5)	2.4 (1.9 - 2.9)	2.9 (2.0 - 4.2)
single parent	1.0 (0.8 - 1.3)	1.2 (0.8 - 1.6)	1.3 (0.8 - 2.1)	1.0 (0.5 - 1.7)	1.7 (1.3 - 2.1)	1.8 (1.2 - 2.7)
apart from parents	1.1 (0.5 - 2.1)	3.2 (1.6 - 6.4)	6.3 (2.9 - 13.6)	3.3 (1.2 - 8.9)	2.1 (1.1 - 4.1)	4.5 (2.0 - 10.2)
Parents know where adolescent spends Friday and Saturday nights						
always	1.0	1.0	1.0	1.0	1.0	1.0
sometimes	1.5 (1.3 - 1.7)	1.6 (1.3 - 2.0)	1.3 (1.0 - 1.8)	0.9 (0.6 - 1.2)	2.2 (2.0 - 2.6)	2.0 (1.5 - 2.6)
no	2.3 (1.8 - 2.9)	3.5 (2.6 - 4.9)	3.6 (2.3 - 5.6)	3.1 (2.0 - 5.0)	5.2 (4.1 - 6.6)	4.8 (3.2 - 7.2)
Parents know most friends						
both parents	1.0	1.0	1.0	1.0	1.0	1.0
only father	0.9 (0.6 - 1.4)	1.6 (0.8 - 2.9)	1.1 (0.4 - 3.3)	1.6 (0.6 - 4.1)	0.6 (0.4 - 1.0)	2.2 (1.2 - 4.1)
only mother	1.3 (1.0 - 1.6)	1.6 (1.2 - 2.2)	1.6 (1.0 - 2.6)	1.2 (0.7 - 2.3)	0.9 (0.7 - 1.2)	1.3 (0.9 - 2.0)
neither parent knows	1.6 (1.2 - 1.9)	3.0 (2.2 - 4.0)	2.5 (2.3 - 5.2)	2.7 (1.7 - 4.2)	1.0 (0.7 - 1.3)	2.4 (1.6 - 3.6)

5.2.2 Which is a more powerful predictor of maladjustment, family structure or parental monitoring?

The associations of family structure with depression, perceived health and anxiety disappeared almost entirely among both sexes in multivariate analyses assessing the effects of age, family structure and parental monitoring simultaneously. The associations of family structure with frequent drunkenness and use of other substances than alcohol sustained in the multivariate analysis in both sexes. The risk of psychosomatic symptoms was associated with living in single-parent and stepparent families among girls and with living apart from the parents in boys. (Table 3)

Maladjustment was most consistently associated with the lowest levels of parental monitoring (none of the parents know friends and parents usually do not know where the adolescent spends his/her Friday and Saturday evenings). (tables 4 and 5) In girls, the risk for the symptoms studied associated with only one of the parents knowing most of friends, was similar irrespective of the sex of the parent knowing. Among boys, "only father knows friends" was associated with increased risk for use of other substances than alcohol, corresponding to the risk in the group where neither of the parents knew the friends. (Table 5)

5.3 Associations of life events occurring to parents and middle adolescent maladjustment (study II)

5.3.1 Associations of events occurring to parents with adolescent maladjustment outcomes

In univariate analyses, almost all family life events were associated with depression and approximately half of them were associated with frequent drunkenness among 15–16-year olds in the Adolescent Mental Health Cohort Study. Residential move, parental separation and death of a family member were associated with depression but not with frequent drunkenness. Birth of a sibling was associated with neither outcome. Associations of life events in the family domain and depression were in general comparable for boys and girls: all events except for birth of a sibling and death of a family member were associated with depression among both sexes. Parental unemployment was associated with female depression only. There were, however, more pronounced gender differences in the associations between family life events and frequent drunkenness. Parents arguing more than previously, parental involvement with the law and financial difficulties in the family were associated with frequent drunkenness in both sexes. Frequent drunkenness in girls was also associated with a residential move, serious illness or injury of a family member and parental unemployment, whereas there were no events associated with male drunkenness only. (Table 7)

Table 7. Risk (OR with 95% CI) for depression and frequent drunkenness in middle adolescents according to separate family life events during past 12 months, and events best predicting the outcomes after controlling for gender, sociodemographic background and comorbidity (OR in model)

event	Depression		Frequent drunkenness	
	event-specific OR	OR in model	event-specific OR	OR in model
family moved	1.8 (1.3 - 2.4)		ns	
new sibling was born	ns		ns	
family member seriously ill/injured	3.1 (2.3 - 4.2)	2.1 (1.4 - 3.0)	1.8 (1.1- 3.0)	
parental separation or divorce	1.8 (1.3 - 2.6)		ns	
parents argued more than previously	2.3 (1.8 - 3.0)	1.8 (1.3 - 2.4)	1.9 (1.3 - 2.9)	
mother/father lost job	1.6 (1.1 - 2.3)		2.2 (1.3 - 3.7)	
family member died	1.5 (1.0 - 2.4)		ns	
parent suspected, arrested or convicted	4.6 (2.8 - 7.7)		5.5 (2.8 - 10.4)	2.7 (1.1 - 6.3)
family had financial difficulties	3.2 (2.5 - 4.1)	1.9 (1.4 - 2.6)	2.2 (1.5 - 3.3)	

5.3.2 Events most strongly associated with maladjustment

When all events were added in a stepwise logistic regression model controlling for gender, sociodemographic background and comorbidity, serious illness or injury of a family member, increase in inter-parental arguments, and financial problems in the family were associated with depression while parent suspected, arrested or convicted for a crime was the only event associated with frequent drunkenness. (Table 7)

Separate models among girls and boys, with sociodemographic background and comorbidity between depression and frequent drunkenness controlled for, revealed that depression in both sexes was associated with serious illness or injury of a family member. Parents' arguing more than previously was associated with male depression only, while financial difficulties in the family had a significant association with female depression only. Almost all associations between events and maladjustment outcomes became non-significant when depression was added to the stepwise models. None of the events predicted male frequent drunkenness. Having financial difficulties in the family was the only event predicting female frequent drunkenness. (Table 8)

Table 8. Risk (OR with 95% CI) for depression in boys and girls according to separate family life events during past 12 months, and events best predicting depression in boys and girls after controlling for sociodemographic background and comorbidity (OR in model)

event	Boys		Girls	
	event-specific OR	OR in model	event-specific OR	OR in model
family moved	2.0 (1.2 - 3.2)		1.8 (1.2 - 2.8)	
new sibling was born	ns		ns	
family member seriously ill/injured	3.7 (2.2 - 6.0)	2.6 (1.5 - 4.6)	2.8 (1.9 - 4.1)	2.1 (1.4 - 3.4)
parental separation or divorce	1.8 (1.1 - 3.1)		2.2 (1.4 - 3.4)	
parents argued more than previously	3.3 (2.1 - 5.1)	3.3 (2.0 - 5.4)	1.8 (1.3 - 2.5)	
mother/father lost job	ns		1.9 (1.2 - 3.0)	
family member died	ns		ns	
parent suspected, arrested or convicted	5.1 (2.5 - 10.4)		6.2 (2.8 - 13.9)	
family had financial difficulties	3.5 (2.2 - 5.4)		2.8 (2.1 - 3.8)	2.2 (1.5 - 3.2)

5.4 Perceived financial difficulties of the family in middle adolescence (study III)

5.4.1 Prevalence of financial difficulties in the family

Nearly a fifth of the 15–16-year-old adolescents reported that their family had financial difficulties during the previous 12 months, girls more often than boys (22% vs. 15%; $p < 0.001$). Perceived financial difficulties were associated with risk factors for poverty in Finnish families with children: unemployment and single parent family. The risk of reporting financial difficulties was 5–7-fold if both parents were unemployed compared to situation when both parents were employed. The risk of financial difficulties associated with living in a single-parent family was 2–3-fold compared with living in an intact family. Reporting financial difficulties was also significantly associated with low parental educational levels in both sexes. (Table 9)

Table 9. Risk (OR with 95% CI) for perceiving financial difficulties according to family structure, parental employment status, and parental educational levels

	perceived financial difficulties	
	boys	girls
<i>family structure</i>		
intact	1.0	1.0
single parent	2.4 (1.7 - 3.4)	3.4 (2.5 - 4.6)
stepparent	1.6 (1.1 - 2.3)	1.7 (1.2 - 2.3)
apart from parents	4.9 (2.0 - 12.1)	5.0 (1.9 - 13.6)
<i>parental employment</i>		
both employed	1.0	1.0
one unemployed	2.7 (2.0 - 3.6)	4.1 (3.2 - 5.4)
both unemployed	6.8 (3.6 - 13.0)	4.7 (2.5 - 8.8)
<i>paternal educational level</i>		
academic	1.0	1.0
college level	1.1 (0.7 - 1.7)	1.3 (0.9 - 2.1)
vocational	1.3 (0.9 - 1.9)	2.0 (1.4 - 2.8)
comprehensive	1.6 (1.0 - 2.5)	2.5 (1.7 - 3.7)
<i>maternal educational level</i>		
academic	1.0	1.0
college level	1.0 (0.7 - 1.4)	1.0 (0.7 - 1.5)
vocational	1.1 (0.7 - 1.6)	1.6 (1.1 - 2.2)
comprehensive	1.5 (1.0 - 2.4)	2.0 (1.3 - 3.0)

5.4.2 Associations of perceived financial difficulties and other SES indicators with maladjustment

Family structure, parental unemployment, parental educational levels and perceived financial difficulties were almost without exception associated with depression and harmful drinking patterns in both boys and girls when entered in logistic regression each alone (table 10). When all these SES indicators were entered into a stepwise logistic regression model, perceived financial difficulties levelled out the associations of almost all the other indicators with depression and harmful drinking patterns in both sexes. Of the traditional SES indicators, family structure was significantly associated with male depression and maternal educational level with male frequent drunkenness, whereas parental unemployment was associated with female depression. (Table 10)

When comorbidity between depression and frequent drunkenness was also adjusted for in multivariate analysis, the association between perceived financial difficulties and depression was sustained in both sexes, but the association between perceived financial difficulties and harmful drinking patterns lost significance in boys. (Table 10)

Table 10. Risk (OR with 95% CI) for depression and harmful drinking according to perceived financial difficulties, traditional SES indicators and risk factors for poverty among 15–16-year-old Finnish boys and girls when the independent variables are entered into the model alone (unadjusted), and in stepwise models not adjusting (model 1) or adjusting for comorbidity (model 2)

	depression			harmful drinking patterns		
	<i>unadjusted</i>	<i>model 1</i>	<i>model 2</i>	<i>unadjusted</i>	<i>model 1</i>	<i>model 2</i>
<i>BOYS</i>						
paternal educational level low	1.6 (1.0 - 2.6)			1.9 (1.1 - 3.3)		
maternal educational level low	1.5 (0.9 - 2.5)			2.6 (1.5 - 4.4)	2.8 (1.6 - 4.7)	2.8 (1.6 - 4.9)
parental unemployment	1.7 (1.1 - 2.5)			1.6 (1.0 - 2.6)		
non-intact family structure	1.8 (1.2 - 2.7)	1.5 (1.0 - 2.4)		1.8 (1.1 - 2.9)		
perceived financial difficulties	3.7 (2.4 - 5.6)	2.9 (1.8 - 4.6)	2.8 (1.8 - 4.5)	2.7 (1.6 - 4.5)	2.3 (1.3 - 4.1)	
harmful drinking	7.9 (4.7 - 13.5)		8.1 (4.5 - 14.4)			
depression				7.9 (4.7 - 13.5)		8.8 (5.0 - 15.7)
<i>GIRLS</i>						
paternal educational level low	1.4 (1.0 - 2.1)			1.7 (0.9 - 3.3)		
maternal educational level low	1.4 (0.9 - 2.1)			1.0 (0.4 - 2.3)		
parental unemployment	2.3 (1.7 - 3.1)	1.9 (1.3 - 2.7)	1.8 (1.2 - 2.5)	1.9 (1.1 - 3.3)		
non-intact family structure	1.8 (1.4 - 2.5)		1.4 (1.0 - 2.0)	1.3 (0.7 - 2.3)		
perceived financial difficulties	2.7 (2.0 - 3.7)	2.4 (1.7 - 3.4)	2.2 (1.5 - 3.1)	2.0 (1.1 - 3.6)	2.4 (1.3 - 4.3)	1.9 (1.0 - 3.5)
harmful drinking	4.2 (2.4 - 7.4)		3.5 (1.8 - 6.7)			
depression				4.2 (2.4 - 7.4)		3.5 (1.8 - 6.7)

5.5 Family involvement in help-seeking for depression among 17–18-year-olds (study IV)

5.5.1 Associations of perceived need for help, help-seeking behaviour, and concerns of others with depression at T1

Of the adolescents meeting the R-BDI criteria for depression at T1, 41% were classified as depressed with the same criteria also at T2. Approximately a third of the adolescents depressed at T1 perceived a need for help for it two years later. Of the adolescents perceiving a need for help for depression, less than half (39%) had sought professional help for it in the past two years. At T2, parents, siblings, peers, romantic partners and teachers

were more commonly concerned about changes in the mood or behaviour of adolescents depressed at T1 than the mood or behaviour of adolescents without depression at T1 (table 11).

Table 11. Percentages of perceived need for help, help-seeking behaviour, and concerns of others in 17–18-year-old adolescents with and without depression at T1

	depression at T1		
	yes	no	p
<i>Previous help-seeking behaviour (T1)</i>			
Sought professional help for depression	20	3	<0.001
Sought professional help for other mental health problem	12	3	<0.001
<i>Depressed at T2</i>	41	5	<0.001
<i>Perceived need for help (T2)</i>			
Thinks that needs help for depression	28	6	<0.001
Thinks that needs help for other mental health problem	12	4	<0.001
<i>Recent help-seeking behaviour (T2)</i>			
Sought professional help for depression	23	5	<0.001
Sought professional help for other mental health problem	9	3	<0.001
<i>Others concerned about changes in mood or behaviour (T2)</i>			
Mother	41	22	<0.001
Father	22	11	<0.001
Sibling	18	7	<0.001
Peers	30	14	<0.001
Boy-/girlfriend	30	12	<0.001
Teacher	15	5	<0.001

5.5.2 Predictors of help-seeking for depression

In univariate analyses being depressed at T1, perceiving a need for help (for depression and for other mental health problems) at T2, seeking help for other mental health disorders at T2, concerns of people close to the adolescent at T2, living apart from parents, sex and age were associated with seeking help for depression in the past two years. Parental educational levels were not associated with help-seeking for depression. Living with both parents was associated with *not* having sought help for depression. (Table 12: unadjusted) The first stepwise model containing depression at T1, perceived need for help for depression, perceived need for help for other mental health problems (non-significant), recent help-seeking for other mental health problems, family structure (only living apart from parents was significant), sex and age (non-significant) explained 33% of the probability of seeking

help for depression. (Table 12: model 1). Next, concerns of mother, father (non-significant), sibling (non-significant), peers, romantic partner (non-significant), and teacher were added to the stepwise model. The final model explained 38% of the probability of recent help-seeking for depression (table 12: model 2).

Table 12: Help seeking for depression among Finnish adolescents (ORs with 95% CI). Unadjusted probability of seeking help for depression during the past two years associated with depression at the age of 15–16 years and currently perceived need for help, help-seeking for other mental health problems, concerns of people close to the adolescent, demographic variables and socioeconomic background. Model 1: Best predictors of help-seeking in a stepwise logistic regression model including depression, perceived need for help, help-seeking for other mental health problems, demographic variables and socioeconomic background. Model 2: Best predictors of help-seeking for depression in a stepwise logistic regression model also including concerns of people close to the adolescent (model 2).

	unadjusted		model 1		model 2	
	OR	95% CI	OR	95% CI	OR	95% CI
Depression (T1)	5.4	3.6 - 8.1	2.7	1.6 - 4.7	2.2	1.2 - 3.9
Perceived need for help (T2)						
for depression	14.9	10.1 - 22.0	8.7	5.2 - 14.3	6.0	3.5 - 10.3
for other mental health problem	7.3	4.5 - 11.7	ns		ns	
Recent help-seeking for other mental health problems (T2)						
sought professional help for other mental health problem	14.9	9.2 - 23.9	19.0	10.1 - 35.8	9.8	4.8 - 20.1
Others concerned about changes in mood or behaviour (T2)						
mother	7.1	4.9 - 10.3	not in the model		2.1	1.3 - 3.5
father	6.3	4.3 - 9.2	not in the model		ns	
sibling	6.6	4.4 - 9.9	not in the model		ns	
peers	6.9	4.8 - 9.8	not in the model		2.2	1.3 - 3.7
boy-/girlfriend	5.1	3.5 - 7.5	not in the model		ns	
teacher	10.4	6.8 - 16.0	not in the model		3.5	1.8 - 6.5
Family structure (T2)						
both parents	1.00		1.00		1.00	
single or stepparent family	1.5	1.0 - 2.3	1.3	0.8 - 2.2	ns	
apart from parents	4.9	3.0 - 7.9	2.3	1.2 - 4.4	ns	
Socioeconomic variables (T1)						
low educational level of the father	1.5	0.9 - 2.3	ns		ns	
low educational level of the mother	0.7	0.4 - 1.2	ns		ns	
Sex						
female	3.6	2.3 - 5.6	2.4	1.4 - 4.1	2.3	1.3 - 4.0
Age (continuous)	1.7	1.2 - 2.5		ns	ns	

6. DISCUSSION

In the present study, internalising types of maladjustment were significantly more often reported by girls and externalising types of maladjustment by boys in all adolescent age groups studied; which is congruent with earlier studies (Rutter et al. 2003). Girls reported depressive symptoms, anxiety and excessive psychosomatic symptoms more commonly than did boys; and girls also rated their health below good more often than did boys. Frequent drinking was, however, more common among boys. No gender difference in middle adolescent drinking habits has been observed in recent Finnish studies (Laukkanen et al. 2001, Seljamo et al. 2006). These studies have defined heavy drinking as drinking until really drunk at least once a month. The present study utilised, however, a very extreme definition of harmful drinking: drinking until really drunk at least once a week. Gender differences in the extreme end of drinking habits have been observed also in other studies (Kouvonen and Lintonen 2002, van Beurden et al. 2005).

There were indications in the present study of gender differences in liability to environments associated with risk and protective factors (Rutter et al. 2003): there were more boys living with both biological parents and more girls living in other family constellations; and girls reported being monitored more firmly than did boys. Also life events were differently distributed: girls seemed to report more events which might be differently perceived, such as financial difficulties whereas boys tended to report more exact events such as the birth of a sibling. The finding of gender differences in reporting life-events is consistent with previous findings on adolescents (Costello et al. 2002, Waaktaar et al. 2004).

6.1 Family factors – mostly general risks

The first aim was to find indications of whether family factors are specific or general risk factors of adolescent maladjustment. The nature (specific vs general) of the hypothesised risk factors was studied with statistic models containing family factors as independent factors and examples of internalising and externalising problems as dependent factors. Finding a family factor to be significantly associated with both kinds of problems indicates

that it may be considered a general risk factor. Consistently with another recent study (Windle and Mason 2004), some family factors were found to be associated with several outcomes, whereas others were associated to one type of outcome only. All the family determinants studied were associated with both internalising and externalising outcomes in univariate analyses. Controlling for several family determinants simultaneously or taking comorbidity into account sometimes changed the picture.

The first factors studied were family structure and parental monitoring. Both showed an association with all the symptoms studied. Lack of monitoring has been associated with externalising problems (Foxcroft and Lowe 1995, Dishion and McMahon 1998, McArdle et al. 2002, DeVore 2005, Reboussin et al. 2006) whereas the association with internalising problems has received little attention and yielded ambiguous results. Some studies suggest an association between internalising problems and lack of parental monitoring (Kerr and Stattin 2000, Kim and Ge 2000, Sagrestano et al. 2003) whereas other do not (Muris et al. 2001, Waizenhofer et al. 2004). Recent findings suggest that parental monitoring may be associated with depression and anxiety across western countries, but the association may not be independent of other parenting characteristics (Vazsonyi et al. 2006). In the present study parental monitoring was associated to both internalising and externalising problems. The mechanism behind the associations may, however be different. The increase in externalising problems associated with low levels of parental monitoring may be due to better opportunities in involvement in deviant peers (Aseltine and Aseltine 1995, Dishion et al. 2004, Reitz et al. 2007). There may be also a bidirectional mechanism with parents reacting to problem behaviour with decreasing levels of monitoring (Dishion et al. 2004). Lower levels of internalising problems may, in turn, be associated with the interpretation of monitoring as love and care. Adolescents who are adequately monitored may feel that their parents care about them and are interested in their lives.

Both internalising and externalising types of maladjustment were more common among girls and boys who lived in any other family constellation than with both parents. The association was, however, not entirely independent of parental monitoring: taking parental monitoring into account in multivariate analysis levelled out many of the significant associations between family structure and maladjustment. Characteristics of parenting may thus be more important predictors of symptoms than family structure per se, a finding also emphasised by Shucksmith et al. (Shucksmith et al. 1995) and Dekovic et al. (Dekovic et al. 2003). Parenting and family structure may also be associated with each other. Children from non-intact families may receive less attention and monitoring from their parents than children from intact families (Astone and McLanahan 1991). Findings of the present study support the assumption that even if the adolescent's relationships with

parents and quality of parenting greatly modify the effect of family constellation on adolescent mental health, family structure also has an independent role. As also reported by Ledoux et al. (2002), alcohol and other substance use among middle adolescents of both sexes were associated with family structure even when parental monitoring was accounted for. This may be an association especially pronounced in a country with high alcohol consumption among adolescents.

Next family factor studied was life events occurring to the parents of the adolescent. Nine life events assessed with a life event checklist and occurring in the family domain most probably independently of the behaviour of the adolescent offspring were included in the study. Of these, two events (family moved, sibling was born) were perceived as either positive or negative. The rest (family member was seriously ill or injured, parents were separated or divorced, parents argued [with each other] more than previously, parent became unemployed, family member died, parent was accused, arrested or convicted of a crime, family had financial difficulties) were perceived as mainly negative in nature. Negative family life events were more strongly associated with depression than with frequent drunkenness. When all events were added in a stepwise logistic regression model there were several events associated with depression while “parent suspected, arrested or convicted of a crime” was only event associated with frequent drunkenness.

Previous studies concerning associations between life events and heavy or frequent drinking have suggested an association between the number of events and drinking habits but they have not estimated the effect of specific events (Simantov et al. 2000, Kostecky 2005). Diverse maladjustment outcomes are seldom studied simultaneously. An American study among high school adolescents found the number of life events to be associated with all outcomes studied; both internalising and externalising (Windle and Mason 2004). Another study with an even wider age range (9–17 years) concluded that some life events may be associated with specific types of disorders only (Tiet et al. 2001). Both studies concerned about events in multiple domains, not only in the family domain. Results of the present study indicate that the association between family life events and externalising problems may be mediated by depressive symptoms. Middle adolescents have been suggested to use alcohol for emotion regulation when facing problems (Marsden et al. 2005), which may explain the mediating effect discussed.

In the present study, perceived financial difficulties were considered from two different perspectives. In study II they were included as a family life event associated with both internalising and externalising problems (Tiet et al. 2001, Wadsworth and Compas 2002, Shek 2003). In study III they were considered as an indicator of financial stress in the family, and also their meaning as indicator of socioeconomic status was discussed.

Reporting financial difficulties was associated with reporting parental unemployment and living in a single-parent family: both factors known to cause financial difficulties in Finnish families with children (Developing the income of families with children. A summary report by the coordination group 2006). This may suggest that perceived financial difficulties are an indicator of poverty or low socioeconomic status. On the other hand, a difference in reporting financial difficulties was found between sexes indicating that the objective financial situation of the family may not be the only explanation for reporting financial difficulties. Perceived financial difficulties were also associated with internalising (depression) and externalising (harmful drinking patterns) maladjustment outcomes even after controlling for parental educational levels, parental unemployment and family structure. The finding is in line with the Swedish study by Hagquist (1998), who reported that girls were worried about the finances of the family almost twice as often as boys. This may indicate that perceived financial difficulties are not simply a measure of the financial situation of the family, but also a reflection of the psychological meaning associated with that situation.

It seems thus that family related factors may cause diverse maladjustment outcomes. The pathways to maladjustment may differ between individuals and families. The contemporary behavioral genetic studies suggest that family environment is primarily non-shared. In other words siblings may be treated differently by the parents, they may perceive the family environment differently and, finally the family environment may have different effects on them. (Eley and Lau 2005) For example, inter-parental conflict may lead to depression in one adolescent, to harmful drinking in another, and have no effect on the third.

6.2 Differences and similarities between boys and girls in the associations of family factors and maladjustment outcomes

The second aim was to explore, whether the associations between family factors and maladjustment were similar among boys and girls. Findings both concordant and discordant of the hypothesis of sex acting as a mediator between stressors and psychopathology have been reported previously (Grant et al. 2006). The lack of parental support and presence of family conflict have been reported to be associated with adolescent depression among boys and girls similarly when assessed by multiple informants (Sheeber et al. 1997). In the

present study, the associations between family factors and maladjustment were in general fairly similar among the sexes. There was no gender difference in the association of parental monitoring and diverse maladjustment outcomes: different symptoms were the more common the less the parents knew about whereabouts and friends of the adolescents of both sexes. Previous findings concerning gender differences in the association of depression and parental monitoring are scarce. A study among 12–18-year-olds in a rural school district in the USA (Jacobson and Crockett 2000), and another among early adolescents in Netherlands (Finkenauer et al. 2005) suggest that the relation between depression and monitoring may pertain mainly to girls, whereas an study on Bahamian adolescent found no gender difference in the association between adolescent reported depression and parental monitoring (Yu et al. 2006).

Previous research has suggested that gender may moderate the association between family stressors and internalising outcomes, but there are inconsistent findings about the gender most affected by family stress. For example adolescent boys have been suggested to be more vulnerable to internalising disorders in face of stressful life events than girls (Leadbeater et al. 1999) and specifically to be at greater risk for internalising outcomes associated with high rates of family stressors (Gaylord et al. 2003). Girls investing in social relationships have been suggested to show more distress when facing adverse family life events (Gore et al. 1993). In the present study both male and female depression was associated with life events in the family domain. Girls seemed more vulnerable to problems in the material environment (financial difficulties), while boys seemed to suffer from bad family atmosphere (parents arguing). Both sexes presented with depression when facing illness of a family member.

Family life events have reported not to be associated with initiating alcohol use or increase in use in a multi-ethnic sample of adolescent boys (Biafora et al. 1994). The specific events related with male and female externalising disorders have been reported to be different (Tiet et al. 2001). Negative family interactions have, however, been associated with delinquency in adolescence regardless of gender (Gutman and Eccles 2007). The present study suggests that family life events may have a stronger association with female than male drinking habits in middle adolescence but associations of individual events are not independent of each other and of the presence of depression. In multivariate analyses controlling for comorbidity between depression and frequent drunkenness only financial difficulties was significantly associated with frequent drunkenness among girls, and the associations between all family life events and male frequent drunkenness lost significance. Previous findings suggest that delinquent behaviour predicts depression among adolescents of both sexes (Wiesner and Kim 2006).

Contrary to most poverty studies (Grant et al. 2006) the association of perceived financial difficulties with maladjustment in the present study was stronger for girls than it was for boys. The difference in findings is probably due to the conceptualising of financial stress. While poverty is usually measured with variables assessing family income or eligibility to financial aid (reported by the parents or obtained from register data), financial stress in the present study was elicited with an item concerning financial difficulties perceived by the adolescent. Socioeconomic differences in adolescent mental health are rarely reported in studies with traditional indicators of socioeconomic status (West 1997), while differences have been reported in studies measuring perceived financial stress (Conger et al. 1999, Wadsworth and Compas 2002, Shek 2003, Solantaus et al. 2004). Different alcohol use trajectories were, however, not associated with differences in financial stress perceived by East-German adolescents (Wiesner et al. 2007). The findings of the present study may be explained by the better ability of adolescent girls to recognise financial stress in the parents and also by stronger vulnerability to parental stress caused by financial difficulties. Girls may not, however be more prone to alcohol consumption when facing personal financial difficulties. Frequent alcohol consumption has been associated with more money at the disposal of the adolescent (Lintonen et al. 2001, Kouvonen and Lintonen 2002), especially in girls (Wiesner et al. 2007).

6.3 Parents as members in the social net involved in help-seeking for depression in late adolescence

There were indicators of family members being important actors in help-seeking process of middle adolescents: concerns of the mother were significantly associated with help-seeking for depression even when depressive symptoms, perceived need for help and socio-demographic background were controlled for. Adolescent depression at the age of 15–16-years was significantly associated with concerns among parents and significant others (siblings, peers, boy/girlfriends, teacher) about changes in the adolescent's mood or behaviour two years later, which indicates that people close to the adolescent had recognised the adolescent's problems relating to mental health. The percentage of mothers concerned about the changes in the adolescent's mood or behaviour in the present study is consistent with earlier findings among younger adolescents: more than 60% of American parents (mainly biological mothers) of depressed 9–13-year-olds reported that their child "has a problem" or "needs help" (Teagle 2002). The effect of recognising the problem or

being worried about a depressed peer, on help-seeking initiation has, to the best of my knowledge, not been previously addressed in the literature.

The concerns of parents and significant others were also associated with seeking professional help for depression in the present study. Even when the presence of adolescent-reported symptoms meeting the R-BDI-13 criteria of depression, perceived need for help, help-seeking for other mental health problems, and sociodemographic variables were controlled for, the concerns of mother, peers and teacher were associated with greater probability of recent help-seeking for depression. As discussed earlier, parental and teacher recognition of mental health problems have previously been found to be associated with service use (Laitinen-Krispijn et al. 1999, Sourander et al. 2005). The present study attempted to create an even more comprehensive model of help-seeking by simultaneously studying the significance of perceived need and concerns of parents and significant others, including the peers and intimate partners of the adolescents. Adding the concerns of parents and significant other in the statistical model predicting help-seeking for depression increased the explanatory power of the model indicating that these people may be an important part of the help-seeking process.

The help-seeking process seems, thus, to include negotiations about the *meaning* of the symptoms experienced. These negotiations may concern not only the adolescent but also his/her social network.

6.4 The meaning of findings concerning family factors in middle adolescence

Life domains are not independent but interrelated: for example family life has an effect of the selection of peers and the quality of adolescent relations with them (Lerner and Steinberg 2004a). Family structure may be associated with differences in parenting behaviours, such as parental monitoring. It is, thus understandable that the proportion of variance explained with family factors alone may not be considerable. On the other hand, when family members are added to a model explaining behaviour, the proportion of variation explained may increase. This can be observed in the results of the fourth study “Adult and peer involvement in help-seeking for depression in adolescent population: a two-year follow-up in Finland”.

In studies of risk factors among adolescents, it may be hard to establish which risks are specific of adolescence and which are linked to processes beginning in childhood and

continuing in the adolescence (Appleyard et al. 2005). Processes initiated in childhood may be difficult to alter with interventions initiated during adolescence. For example parental monitoring is a method used throughout the childhood development. If monitoring has been inadequate the first ten years of the child's life, it may be hard to establish proper monitoring in the adolescent years. Family interventions have, however been found to be advantageous in preventing legal and other consequences in randomised, controlled trials among delinquent youth aged 10–17 years (Woolfenden et al. 2002).

On the other hand the developing adolescent may cause alterations in the family circumstances and the effect of family risks may change with adolescent development (Collins and Laursen 2004). In middle adolescence, parenting behaviours are bound to be changed. Even if desire and capacity for independence increase in middle adolescence, the results of the present study suggest that certain concrete supervision is nevertheless supportive and beneficial to adolescent mental health.

It has been suggested that the traditional construct of parental monitoring is in fact not a measure of the parents' attempts to find out about their children's activities and friends but rather a measure of the adolescent's willingness to confide with his/her parents, indicating a good parent-child relationship (Kerr and Stattin 2000, Stattin and Kerr 2000). Even if the parent-adolescent relationship is full of warmth and other good qualities, parents may perceive monitoring intrusive. Adolescents struggling for independence may not be willing to confide with their parents. Thus, despite a good relationship, monitoring may not be included in parental behaviour. The present study indicates that parents must show their interest in these important aspects of the adolescent's life in concrete ways, whether it is by asking the adolescent where he/she is going and with whom, being interested in unsolicited adolescent disclosure or by active parental surveillance of the adolescent activities.

Life events are commonly appreciated as risk factors of maladjustment. For adolescent offspring, life events occurring to parents pose a multiple risk. They may be life events meaning a direct loss to the adolescent him/herself: such as maternal death or parental divorce. Major life event occurring to the parent is uncontrollable, from the adolescent's point of view, and may pose a threat to the continuity of the family environment. The parenting behaviours may be altered because the parent is occupied with coping with his/her loss or other difficulty. Financial difficulties may cause friction in parental relationships. Divorce may entail a residential move. The mechanisms causing maladjustment associated with life events may be important and interesting to study. However, the finding of an association between family life events and adolescent

maladjustment is important per se. It indicates that when parents are faring badly, adolescent offspring may also need extra support.

6.5 Methodological considerations

The study was based on two large population samples. The coverage of compulsory comprehensive school until age 16 in Finland is more than 99%. The studied areas represent well the Finnish population, containing both urban and rural areas and a population representatively divided to branches of industry, agriculture and services. The samples may thus be considered representative of Finnish adolescents except for those with mental handicap or severe sensory deficits. The response rates in the School Health Promotion Study and Adolescent Mental Health Cohort baseline survey were good and drop-out was almost exclusively due to being absent from school on the survey day. Pupils absent from school on the survey day may suffer excessively from psychosocial and health problems. Thus, their absence could result in the presented prevalence rates of problems being underestimates. Pupils absent from school are also more likely to have experienced negative life events recently and parental monitoring among these pupils may also be inadequate. The response rate in the Adolescent Mental Health Cohort follow-up was satisfactory. The attrition in the Adolescent Mental Health Survey follow-up was, however, associated with faring worse in the baseline survey.

The age range in the study samples was narrow: hence the data are homogenous according to age. The main interest was in middle adolescents, since this is the central developmental phase with significant changes in the parent-adolescent relationships. It is also associated with the onset of major mental disorders and problems most prevalent in adulthood. For example in depression research the usefulness of samples with both children and adolescents in studies of risk factors has been criticised, considering the increase in prevalence of during transition from childhood to adolescence (Newman et al. 1996, Costello et al. 2003, Ford et al. 2003) .

The results were reported separately for boys and girls. The statistical methods used in multivariate analyses did not enable statistical testing of the differences between the odds ratios of boys and girls, for example. This does not compromise the findings concerning gender differences. The separate models for boys and girls showed that there are gender differences in the determinants most significantly associated with the outcomes studied.

Most measures used have been previously used in large community samples of adolescents in Finland and also elsewhere. The results can thus be compared with previous

research. Mental health problem prevalences were comparable with earlier Finnish studies (Lintonen et al. 2000b, Aalto-Setälä et al. 2001, Haarasilta 2003).

The R-BDI has been widely used to study depression in unselected European populations and in screening depression in clinical work in Finland (Raitasalo 2007). In epidemiological research targeting at identifying determinants of mental health problems or need for treatment the use of self-reported symptom lists is arguable especially in children and adolescents. Symptoms causing functional impairment may hinder normal development even with the presence of no DSM or ICD disorder (Lewinsohn et al. 2000, Kaltiala-Heino and Frojd 2007).

The use of cutoff points in defining caseness when using symptom list based measures such as the BDI has been criticised as inappropriate (Ruscio and Ruscio 2002). For example, if depression is seen as a phenomenon best described as a continuum (Hankin et al. 2005), using dichotomised measures may seem unwarranted. However, a core element of the present study was to study several different outcomes simultaneously, which was enabled by the use of dichotomised variables. Considering individual outcomes, a cutoff point was selected to measure problems severe enough to warrant clinical assessment and also, most likely, an intervention.

Only adolescents themselves (and not their parents, teachers or family doctors) were used as informants of the family circumstances. Considering determinants of maladjustment this can be considered an advantage. The interest was in the perceptions of the adolescents. Whether the family of the adolescent perceiving financial difficulties really is poor or whether the parents of the girl reporting firm parental monitoring really know where the daughter spends her Saturday evening is of no relevance here. Perceiving poor circumstances may affect mood and behaviour. For example, a recent study on parental monitoring among Bahamian adolescents showed that the perception of the adolescent about the level of parental monitoring was significantly associated with depression, whereas the perception of the parents was not (Yu et al. 2006).

Data on the mental health or drinking habits of the parents were not available. These have been shown to be associated with adolescent depression and frequent drunkenness both due to genetic heritability and due to defects in family circumstances (Collins et al. 2000). Thus with our survey design the confounding effect of parental illness could not be ruled out. On the other hand, when planning preventive interventions in school settings, for example, one may also be unaware of the parental problems. Parental monitoring is a skill that may be benefited by mentally ill or alcoholic and healthy parents alike.

7. SUMMARY AND CONCLUSIONS

Significance of family determinants in middle adolescent maladjustment was clear. Diverse maladjustment outcomes were associated with family life events, parental monitoring, socioeconomic status and family structure. Findings concerning the association with traditional SES indicators versus perceived financial difficulties, and the finding an association between diverse internalising problems and parental monitoring were new. Also the preliminary finding concerning the role of family members in help-seeking for depression was interesting.

Boys and girls seemed to have similar associations between family factors and maladjustment when studied with univariate analyses. The pathways to maladjustment may be different, however, since some associations disappeared in multivariate analyses. Depression may be an important confounder in the association of perceived financial difficulties and frequent drinking among boys but not among girls, for example.

The present study aimed to identify family factors that are associated with adolescent maladjustment. The research methods were quantitative and outcome measures were dichotomised, negative outcomes. The findings can not be used to categorise individual adolescent into winners and losers. Rather, risk factors may be searched for in order to be able to prevent the negative outcomes. Whether the potential risk factors truly are causal risk factors remains to be shown. This issue would be further clarified with intervention studies.

Changing the risk factors proposed by the present study would mean changes in family policy, parent education and psycho education for adolescents themselves. Also the mental health literature of adults (current and potential parents) needs to be enhanced. Parents of preadolescent children should have more support from school health services, for example, in order to be better prepared for parenting adolescents. Not only small children, but also adolescents need love, support and guidance of their parents in order to feel well and success in their developmental tasks. In society, families must be granted the resources needed to offer a sound and healthy growing environment for their adolescents.

Adolescents need their parents and also adults outside the family to deal with circumstances they can not change: financial difficulties and other negative life events in the family. The events may not be preventable, but the negative psychological

consequences can be alleviated by supporting the cognitive processing of the psychological meaning associated with such difficulties and by giving adequate social support.

Family circumstances and life events occurring to parents affect the adolescent offspring. It is, thus, highly recommendable that adult social and health services work in collaboration with child and adolescent services. When parents fare badly, adolescents need support outside the family.

7.1 Directions for future research

The present study indicates that family factors may be determinants with multi-finality: that is to say that they are associated with multiple outcomes. Recent theoretical conceptualisations of family relationships see them as bidirectional interactions. Longitudinal designs are thus needed to establish the directions of causality concerning the factors studied.

Multidisciplinary approaches concerning socioeconomic differences in adolescent mental health would be most welcome, since it seems that the nature of socioeconomic status may be changing. Societal changes including the effects of polarisation on adolescent mental health call for further research on perceived financial stress.

The role of parents and peers in help-seeking processes is a promising line of research possibly leading into new approaches in health education.

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ORIGINAL COMMUNICATIONS

The association of parental monitoring and family structure with diverse maladjustment outcomes in middle adolescent boys and girls

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Fröjd S, Kaltiala-Heino R, Rimpelä M. The association of parental monitoring and family structure with diverse maladjustment outcomes in middle adolescent boys and girls. *Nord J Psychiatry* 2007;61:296–303. Oslo. ISSN 0803-9488.

The aim of this study was to study the associations between family structure, parental monitoring and maladjustment outcomes among middle adolescent girls and boys. Data was collected through a school-based survey of a nationally representative sample of 17,643 Finnish adolescents aged 14–16 years. The less the parents knew the adolescents' friends and whereabouts, the more common were all the maladjustment outcomes studied. Non-intact family structure was associated with maladjustment and had associations independent of parental monitoring. We conclude that parental involvement with adolescents is conducive to healthy development, and that adolescents need the protection provided by parental supervision. Knowing the adolescent's whereabouts and friends is a concrete and easily measurable way of assessing parents' involvement in the adolescent's life.

• *Adolescence, Epidemiology, Family, Mental health, Parental monitoring, Parenting.*

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Parental monitoring can be conceptualized as parenting behaviours involving attention to and tracking of the whereabouts and doings of the adolescent (1, 2). In research questionnaires, parental monitoring is usually operationalized as parental awareness, or adolescents' perceptions of their parents' knowledge, of the leisure activities and whereabouts of the offspring and of their friends/peer group (3, 4). Parental knowledge may be obtained by unsolicited adolescent disclosure or by active parental tracking of the adolescent's activities. Which of these is the more important feature of monitoring is an area of considerable controversy (2).

Research on parental monitoring has traditionally focused on adolescent norm-breaking behaviour such as delinquency, antisocial behaviour, smoking and substance use. The association of lack of parental monitoring and adolescent norm-breaking behaviour has been established with diverse samples and measurement techniques (1, 2). The relationship between parental monitoring and internalizing problems has not received similar scientific attention, and discrepancy can be observed in the existing literature. In a study of Swedish 14-year-olds (5), parental knowledge of the whereabouts,

activities and contacts of the offspring was linked to lower levels of internalizing problems. Kim & Ge (6) reported that adolescent depression was less common if they perceived they were firmly monitored by parents. On the other hand, in two recent American studies, parental monitoring did not emerge as being associated with adolescent depression (7, 8).

The question of sex differences in these associations has rarely been addressed, and when it has, the results have been inconsistent. In high-risk adolescents, parental monitoring was associated with less drinking for boys and more drinking for girls, whereas the association of parental monitoring with lower levels of delinquency was independent of gender (9).

It has been suggested that global family factors (for example socio-economic status or family structure) have a weaker impact on adolescent adjustment than the more proximal factors (parental childrearing behaviours and the quality of the parent–child relationship). For example, Dekovic et al. (10) found that in a community sample of adolescents single parent family was not associated with adolescent antisocial behaviour, whereas parental monitoring was. Griffin et al. (9) found the

association of parental monitoring with lower levels of delinquency to be independent of the family structure.

The aim of this study is to examine the associations between parental monitoring, family structure and mental health problems among 14-16-year-old girls and boys. The study seeks to answer the following questions:

- 1) How is parental monitoring and family structure associated with diverse maladjustment outcomes (depressive symptoms, anxiety, psychosomatic symptoms, excessive drinking and substance use) in middle adolescence?
- 2) Are the associations similar among girls and boys?

Material and methods

The School Health Promotion Study is a survey among teenagers about their health, health behaviour and school experiences. The survey has been carried out annually since 1995 in different regions of Finland. The data collection takes place in co-operation with schools. All secondary schools in the study area are contacted. If a school decides to participate, the questionnaires are distributed to the pupils during a school lesson supervised by a teacher, who ensures that the pupils work on the survey undisturbed by peers, but does not interfere with in pupils' responses. The anonymous questionnaires are returned in sealed envelopes at the end of the lesson. While the school decides about co-operating in distributing the questionnaires, the participation is voluntary for the individual pupils. The Ethical Committee of Tampere University Hospital has approved the study. In 1997, special schools for handicapped children and classes with children who would have required assistance in reading and filling in the questionnaire because of severe sensory deficits were excluded from the study.

The material of this study comprises responses of pupils in the 8th and the 9th grades of 75 secondary schools (14–16 years old) in two regions of Finland in April 1997. This means almost all secondary schools in all the study areas.

Of the pupils in the participating schools, 87% returned the questionnaire. Drop-out (13%) was mainly due to being absent from school on the day of the survey. Occasional responses (< 1%) had to be excluded because of poor data quality. As a result, 17,643 responses were obtained. Boys and girls were equally represented. Their mean age \pm standard deviation was 15.3 ± 0.6 years. A majority of the respondents had stable living conditions: 81.2% were living with both their parents, and 74.4% had lived in the same residential area for at least 10 years; 12.6% of the respondents had parents with academic education.

Parental monitoring

Parental monitoring was measured first by asking: "Do your parents know where you spend your Friday and Saturday nights?" ("always/sometimes/never"). Next, we asked: "Do your parents know most of your friends?" ("both know/only father knows/only mother knows/neither of them knows").

Family structure

Family structure was elicited by "Does your family include a) mother and father, b) mother and step-father, c) father and step-mother, d) only mother, e) only father, f) your own spouse (married/co-habiting partner), g) other guardian." Family structure was used in the analyses classified as follows: both parents (a)/step-parent family (b,c)/single-parent family (d,e)/apart from parents (f,g). (The alternative "your own spouse" was included because the questionnaire was also used among elder students, their data not reported here.)

Perceived health

Perceived health was elicited by the question "How is your health?" ("very good/rather good/average/rather poor or poor"). In the analyses, perceived health was dichotomized to very good/rather good vs. average/poor.

Depressive symptoms

Depressive symptoms were measured by a Finnish modification of the 13-item version of the Beck Depression Inventory (BDI) (11, 12) validated in Finnish (13). The BDI has been shown to be suitable for detecting depression among adolescents (14). In the Finnish modification, the original 13-item BDI has been completed with an additional response alternative to each item, indicating the positive perception of oneself (13). Each item in the BDI scores 0–3, and the item scores are summarized to total score ranging 0–39. Scores 0–7 were classified as no or mild depressive symptoms and 8 or more as moderate or severe depressive symptoms (11). The psychometric properties of the Finnish version of the 13-item BDI in an adolescent sample were shown to be good in the School Health Promotion Study 1997 (13).

The 13-item Beck Depression Inventory measures the respondent's own perception of her/his depressive symptoms but is not a diagnostic instrument for depressive disorders. However, severe depressive symptoms are likely to be persistent (15). Therefore, we believe that symptoms severe enough to suggest moderate to severe depression on a self-rating scale like the BDI warrant attention.

Anxiety

An additional item formulated analogously to the 13 items of the BDI was used to detect cognitive symptoms

of anxiety (16). The respondents were asked to rate the alternative that best describes them today: "I don't easily lose my nerve or get anxious" (=0)/"I don't feel anxious or nervous" (0=); "I get anxious and nervous rather easily" (=1); "I get very easily distressed, anxious or nervous" (=2); "I am constantly anxious and distressed, my nerves are always on edge" (=3). Thus, anxiety was measured by a single question focusing on the cognitive aspect of being anxious. Because we have a limited experience of the validity of the question, only extreme responses were considered significant: scores of 2–3 were noted as symptoms of significant anxiety.

Psychosomatic symptoms

Psychosomatic symptoms were measured by asking, "During the past 6 months, have you experienced any of the following symptoms? How frequently?" The list of symptoms comprised neck and shoulder pain, low back pain, stomach ache, feeling tense or nervous, irritation or tantrums, difficulties in falling asleep or waking in the night, headache and fatigue. The response alternatives to each symptom were "rarely or not at all/about once a month/about once a week/daily or almost daily". A symptom occurring daily or almost daily was considered frequent. In the analyses, three or more daily symptoms indicate excessive psychosomatic symptoms. This measure of psychosomatic symptoms has been used for over 20 years in the Adolescent Health and Lifestyle Survey (17). The advantage of the instrument is that we have extensive experience of its use among Finnish adolescents.

Frequent excessive drinking and substance use

Frequent excessive drinking was measured by asking, "Have you ever drunk so much alcohol that you were really drunk?" ("Never/once/2–3 times/4–10 times/more than 10 times"). Having been really drunk more than 10 times was considered frequent excessive drinking in this population.

Trials with cannabis, pills, alcohol with pills, inhalants and hard drugs were each enquired by asking "Have you ever tried or used cannabis (analogously: pills in order to get intoxicated/alcohol with pills/inhalants/hard drugs)? Never/once/2–4 times/5 times or more"). Trials with any other substance than alcohol were summarized. The sum score was dichotomized into having used the substances in question not at all or occasionally/five or more times.

Excessive drinking is not uncommon among Finnish adolescents (18), and therefore as a possible indicator of psychopathology, we used the extreme group who reported having experienced drunkenness more than 10 times. By contrast, trials with any other substance are rare among Finnish adolescents. Therefore, having used substances other than alcohol five or more times can be seen as warranting attention in the population studied.

Statistical analyses

The association between parental monitoring variables and the selected complaints/disorders were first tested with chi-square test separately for boys and girls.

The associations detected between parental monitoring variables and the complaints/disorders studied were confirmed in logistic regression analyses using each studied disorder in turn as dependent variables, and the parental monitoring variables, age (continuous) and family structure (living with both parents/single parent family/step-parent family/living apart from parents) as independent variables. The analyses were carried out separately for girls and boys. Odds ratios and their 95% confidence intervals are given.

Results

Of the respondents, 80.4% lived with both parents, 7.7% in step-parent families, 10.0% in single-parent families and 0.7% apart from parents. There were more boys living with both parents (82.4 vs. 80.3%) and more girls living in step-parent (8.2% vs. 7.5%) and single-parent (10.8 vs. 9.5%) families ($P=0.004$). Of the girls (boys), 67.9% (58.9%) reported that their parents always knew where they spent Friday and Saturday nights, 27.6% (36.4%) stated the parents sometimes knew, and 2.8% (4.7%) said the parents never knew this (P between sexes <0.0001). Of girls (boys), 80.4% (82.2%) reported that both their parents knew most of their friends, 1.3% (2.0%) said only father knew, 15.1% (9.7%) said only mother knew, and 3.3% (6.1%) stated that neither of their parents knew their friends ($P<0.0001$).

Girls reported more internalizing symptoms (depressive symptoms, anxiety and psychosomatic symptoms) than boys. Boys reported more frequently more than 10 experiences of drunkenness, and girls again more often five or more times substance use other substances than alcohol (Table 1).

All the symptoms studied were more common among girls and boys who lived in any other family constellation than with both parents. Among boys, symptoms were most common among those living apart from their parents (Table 2). Among both sexes, all the symptoms studied were the more common the less the parents knew about the whereabouts of the adolescent on Friday and Saturday nights (Table 3). All the symptoms studied were also more common among both sexes if neither of the parents knew the adolescent's friends. Girls especially tended to have more symptoms if only father knew their friends. Among boys, the findings were inconclusive regarding any special significance of friends known to father only or mother only (Table 4).

In multivariate analyses adjusted for age, the associations between family structure and the symptoms studied partially disappeared among girls. Girls living

Table 1. Prevalence of perceived average/poor health, depressive symptoms, anxiety, excessive psychosomatic symptoms, frequent excessive drinking and substance use in Finnish 14–16-year-old girls and boys (%).

	Girls	Boys	<i>P</i>
	<i>n</i> = 8695	<i>n</i> = 8948	
Perceived health			<0.001
Very good/good	77.9	82.8	
Average/poor or very poor	22.0	16.8	
Missing	0.2	0.5	
Depressive symptoms			<0.001
Yes	10.5	5.8	
No	84.0	86.4	
Missing	5.5	7.8	
Anxiety			<0.001
Yes	4.1	2.3	
No	92.5	92.4	
Missing	3.5	5.3	
Excessive psychosomatic symptoms			<0.001
Yes	6.7	2.1	
No	93.1	97.2	
Missing	0.2	0.7	
Frequent excessive drinking			<0.001
Yes	9.9	13.4	
No	89.8	86.2	
Missing	0.3	0.4	
Use of other substance than alcohol			<0.001
Yes	3.8	3.1	
No	96.1	96.7	
Missing	0.0	0.2	

in single-parent, and especially in step-parent families more often reported frequent drunkenness and use of other substances than alcohol, and girls in single-parent

and step-parent families also had a greater risk of psychosomatic symptoms. Boys living apart from their parents presented with more internalizing and externalizing symptoms, and boys living in single-parent or especially in stepfamilies reported increased frequent drunkenness and substance use other than alcohol, as compared to boys living with both parents.

Among both sexes, different symptoms were more common the less the parents knew about where the adolescent spent Friday and Saturday nights. In both sexes, all the symptoms studied were more common if neither of the parents knew the adolescent's friends. In girls, the risk for the symptoms studied if only father knew their friends was no greater than the risk if only mother knew the friends. Among boys, "only father knows friends" was associated with increased risk for use of other substances than alcohol, corresponding to the risk in the group where neither of the parents knew the friends (Table 5).

Discussion

Both internalizing and externalizing maladjustment outcomes were more common among the community sample of middle adolescents if the parents did not know the whereabouts of the adolescents and did not know their friends. Living in any other family constellation than with both parents was associated with maladjustment in both sexes. In multivariate analyses, taking parental monitoring into account levelled out most of the significant associations between family structure and maladjustment, especially in boys. Characteristics of parenting

Table 2. Perceived health, depression, anxiety, excessive psychosomatic symptoms, drunkenness and substance use according to family structure among 14–16-year-old Finnish adolescents (% (*n/N*)).

	Family structure				<i>P</i>
	Both parents	Step-parent family	Single-parent family	Apart from parents	
Perceived health average/poor					
Girls	20.6 (1425/6929)	27.8 (196/706)	27.7 (257/929)	26.9 (18/67)	<0.0001
Boys	16.2 (1169/7229)	19.8 (130/655)	18.5 (155/836)	22.6 (12/53)	0.02
Depression					
Girls	10.1 (666/6593)	14.5 (95/655)	15.4 (135/879)	19.0 (12/63)	<0.0001
Boys	5.6 (378/6771)	8.5 (52/611)	8.9 (69/777)	24.0 (12/50)	<0.0001
Anxiety					
Girls	3.7 (248/6738)	5.2 (35/673)	7.5 (67/891)	6.4 (4/65)	<0.0001
Boys	2.1 (147/6947)	3.8 (24/636)	3.5 (28/795)	19.2 (10/52)	<0.0001
Excessive psychosomatic symptoms					
Girls	5.8 (399/6933)	10.1 (71/705)	10.5 (98/929)	7.5 (5/67)	<0.0001
Boys	1.9 (134/7216)	3.7 (24/654)	2.4 (20/835)	9.4 (5/53)	<0.0001
Ten or more times drunk					
Girls	8.4 (582/6918)	18.2 (128/174)	14.5 (135/929)	16.4 (11/67)	<0.0001
Boys	11.6 (893/7225)	24.5 (161/657)	17.8 (149/837)	27.8 (15/54)	<0.0001
Five or more time substance use					
Girls	2.9 (201/6938)	8.5 (59/706)	6.6 (61/930)	11.9 (8/67)	<0.0001
Boys	2.3 (167/7248)	7.7 (51/660)	5.1 (43/863)	14.8 (8/54)	<0.0001

Table 3. Perceived health, depression, anxiety, excessive psychosomatic symptoms, drunkenness and substance use according to whether parents know where the adolescent spends Friday and Saturday nights, among 14–16-year-old Finnish adolescents (% (n/N)).

	Do your parents know where you spend Friday and Saturday nights?			P
	Always	Sometimes	No	
Perceived health average/poor				
Girls	19.0 (1142/6015)	28.0 (665/2378)	38.8 (93/240)	<0.0001
Boys	14.1 (732/5178)	19.2 (613/3185)	29.4 (122/415)	<0.0001
Depression				
Girls	9.2 (530/5736)	14.3 (319/2235)	29.8 (64/215)	<0.0001
Boys	4.6 (225/4884)	7.3 (215/2956)	8.6 (69/371)	<0.0001
Anxiety				
Girls	3.5 (205/5681)	5.3 (121/2277)	13.5 (30/223)	<0.0001
Boys	1.9 (95/5004)	2.6 (80/3032)	8.7 (34/390)	<0.0001
Excessive psychosomatic symptoms				
Girls	5.3 (318/6013)	8.9 (213/2383)	18.8 (45/240)	<0.0001
Boys	2.0 (103/5166)	1.6 (51/3185)	7.3 (30/412)	<0.0001
Ten or more times drunk				
Girls	6.4 (385/6006)	17.1 (405/2374)	27.1 (65/240)	<0.0001
Boys	8.7 (451/5171)	17.9 (572/3193)	34.1 (141/414)	<0.0001
Five or more time substance use				
Girls	2.0 (122/6018)	7.2 (172/2383)	15.4 (37/240)	<0.0001
Boys	1.9 (98/5185)	4.0 (128/3200)	11.1 (46/416)	<0.0001

thus seemed more important predictors of symptoms than family structure, a finding also emphasized by Shucksmith et al. (19) and Deković et al. (10). Some aspects of family structure are nevertheless worth noting. Boys living apart from parents reported more maladjustment outcomes, even when parental monitoring was taken into account. Another noteworthy finding is the

increased risk of externalizing problems (drinking, substance use) in adolescents of both sexes living in single parent or step-parent families.

Knowing where the adolescents spend their Friday and Saturday evenings seemed to carry more relevance for adolescent maladjustment than being acquainted with the friends of the adolescents. Both aspects of

Table 4. Perceived health, depression, anxiety, excessive psychosomatic symptoms, drunkenness and substance use according to whether parents know the adolescent's friends, among 14–16-year-old Finnish adolescents (% (n/N)).

	Do your parents know most of your friends?				P
	Both know	Only father	Only mother	Neither knows	
Perceived health average/poor					
Girls	20.0 (1387/6935)	31.0 (35/113)	29.2 (380/1302)	34.2 (96/281)	<0.0001
Boys	15.6 (1129/7221)	15.6 (27/173)	20.0 (170/848)	25.4 (137/539)	<0.0001
Depression					
Girls	9.3 (615/6595)	18.0 (20/111)	16.7 (204/1225)	29.1 (74/254)	<0.0001
Boys	5.0 (337/6769)	9.7 (15/155)	8.8 (79/797)	17.1 (85/496)	<0.0001
Anxiety					
Girls	3.1 (234/6735)	8.1 (9/111)	6.5 (81/1245)	12.1 (33/270)	<0.0001
Boys	1.9 (130/6945)	2.4 (4/164)	3.4 (28/815)	8.7 (44/507)	<0.0001
Excessive psychosomatic symptoms					
Girls	5.6 (388/6938)	17.7 (20/113)	10.1 (131/1301)	13.5 (38/282)	<0.0001
Boys	1.7 (121/7207)	5.1 (9/175)	2.4 (20/848)	6.2 (33/536)	<0.0001
Ten or more times drunk					
Girls	8.5 (590/6925)	20.4 (113/149)	15.2 (198/1300)	16.0 (45/281)	<0.0001
Boys	12.6 (909/7219)	14.4 (25/174)	16.7 (142/851)	16.2 (87/537)	0.001
Five or more time substance use					
Girls	2.9 (198/6943)	10.6 (12/113)	6.3 (82/1302)	13.5 (38/282)	<0.0001
Boys	2.4 (172/7238)	8.6 (15/175)	4.7 (40/851)	8.0 (43/540)	<0.0001

Table 5. Risk for (OR, 95% CI) average/poor perceived health, depression, anxiety, excessive psychosomatic symptoms, drunkenness and substance use according to family structure, whether parents know where the adolescent spends Friday and Saturday nights, and whether parents know the adolescent's friends, among 14–16-year-old Finnish adolescents, controlled for age.

	Perceived health average/poor	Depression	Anxiety	Excessive psychosomatic symptoms	Drunkenness	Substance use
Girls						
Family structure						
Both parents	Ref	Ref	Ref	Ref	Ref	Ref
Step-parent family	1.3 (1.0–1.5)	1.2(0.9–1.5)	1.2(0.8–1.7)	1.4(1.1–1.9)	1.9(1.5–2.4)	2.3(1.7–3.3)
Single-parent family	1.1 (0.9–1.3)	1.1(0.9–1.5)	1.6 (1.1–2.3)	1.4(1.1–1.9)	1.3(1.1–1.7)	1.7(1.2–2.5)
Apart from parents	1.2 (0.7–2.1)	1.5(0.8–3.0)	1.2(0.4–3.5)	1.0(0.4–2.6)	1.9(0.9–3.7)	3.3(1.9–7.5)
Parents know where the adolescents spends Friday and Saturday nights						
Always	Ref	Ref	Ref	Ref	Ref	Ref
Sometimes	1.6 (1.4–1.8)	1.5 (1.3–1.8)	1.4 (1.1–1.8)	1.7 (1.4–2.1)	2.9 (2.5–3.4)	3.5 (2.8–4.5)
No	2.4 (1.8–3.2)	3.3 (2.4–4.6)	3.3 (2.1–5.0)	3.6 (2.5–5.1)	4.8 (3.5–6.6)	6.3 (4.1–9.6)
Parents know friends						
Both	Ref	Ref	Ref	Ref	Ref	Ref
Only father	1.4 (0.9–2.2)	1.6 (1.0–2.7)	1.7 (0.8–3.5)	2.4 (1.4–4.1)	1.8 (1.1–3.0)	2.0 (1.1–4.1)
Only mother	1.5 (1.3–1.7)	1.8 (1.4–2.2)	1.5 (1.1–2.1)	1.5 (1.2–1.9)	1.5 (1.2–1.8)	1.5 (1.1–2.0)
Neither	1.7 (1.3–2.2)	3.2 (2.4–4.4)	2.9 (1.9–4.4)	2.0 (1.4–2.9)	1.4 (1.0–2.0)	3.3 (2.2–5.0)
Boys						
Family structure						
Both parents	Ref	Ref	Ref	Ref	Ref	Ref
Step-parent family	1.1(0.9–1.4)	1.1(0.9–1.6)	1.3(0.8–2.1)	1.5(0.9–2.5)	2.4(1.9–2.9)	2.9(2.0–4.2)
Single-parent family	1.0(0.8–1.3)	1.2(0.8–1.6)	1.3(0.8–2.1)	1.0(0.5–1.7)	1.7(1.3–2.1)	1.8(1.2–2.7)
Apart from parents	1.1(0.5–2.1)	3.2(1.6–6.4)	6.3(2.9–13.6)	3.3(1.2–8.9)	2.1(1.1–4.1)	4.5(2.0–10.2)
Parents know where the adolescents spends Friday and Saturday nights						
Always	Ref	Ref	Ref	Ref	Ref	Ref
Sometimes	1.5 (1.3–1.7)	1.6 (1.3–2.0)	1.3 (1.0–1.8)	0.9 (0.6–1.2)	2.2 (2.0–2.6)	2.0 (1.5–2.6)
No	2.3 (1.8–2.9)	3.5 (2.6–4.9)	3.6 (2.3–5.6)	3.1 (2.0–5.0)	5.2 (4.1–6.6)	4.8 (3.2–7.2)
Parents know friends						
Both	Ref	Ref	Ref	Ref	Ref	Ref
Only father	0.9 (0.6–1.4)	1.6 (0.8–2.9)	1.1 (0.4–3.3)	1.6 (0.6–4.1)	0.6 (0.4–1.0)	2.2 (1.2–4.1)
Only mother	1.3 (1.0–1.6)	1.6 (1.2–2.2)	1.6 (1.0–2.6)	1.2 (0.7–2.3)	0.9 (0.7–1.2)	1.3 (0.9–2.0)
Neither	1.6 (1.2–1.9)	3.0 (2.2–4.0)	3.5 (2.3–5.2)	2.7 (1.7–4.2)	1.0 (0.7–1.3)	2.4 (1.6–3.6)

monitoring, however, carried an independent association with adolescent maladjustment.

Our findings support the assumption that even if the adolescent's relationships with parents and quality of parenting greatly modify the effect of family constellation on adolescent mental health, family structure also has an independent role. It is noticeable that despite increasing numbers of divorces, most of the adolescents in Finland nowadays live with both their parents, and living in a single-parent or stepfamily signifies deviation from the norm, which may be stressful per se. Even when both parents remain close to the adolescent, self-blame, jealousy, feeling of not receiving enough attention and other negative thoughts may bother her/him during a divorce and when parents form new relationships, and contribute to emotional and behavioural difficulties. For example, Tulisalo et al. (20) found that parental divorce in childhood increased the risk of depression in early

adulthood independent of the quality of the relationships with parents.

In middle adolescence, reformulation of relationship with parents and peers is the most important developmental task. (21) The adolescent becomes aware of her/his individuality in relation to her/his parents, and attempts to take distance from them, often openly questioning parents' rules, values, opinions and lifestyles. (22) Even if desire and capacity for independence increase in middle adolescence, our results suggest that certain concrete supervision is nevertheless supportive and beneficial to adolescent mental health. Adolescents need limits to be able to grow up safely. The challenge is to set the limits in an optimal way. Allowing adolescents too much freedom freely to attend places and socialize with peers the parents do not know may be associated both with cultural tendencies to conceptualize adolescents as mini-adults, mainly in need of liberty and

independence and with various personal problems of the parents, such as stress, marital discord, mental disorders and substance use, which are known to predispose children to mental health problems (23, 24).

Family connectedness, comprising perception of being cared about and listened to by parents, and having fun with the family are associated with less adolescent depression (25). On the other hand, in the study by Muris et al. (26), parental control (asking where the adolescent has been and what the adolescent has been doing) did not emerge as significant for depression, which was predicted by rejection and lack of warmth. In our community sample of adolescents, parental monitoring was associated not only with externalizing but also with internalizing symptoms. Thus it seems that parental knowledge of whereabouts and friends was interpreted more as parental involvement in the lives of the respondents than as restricting and controlling measures.

Stattin & Kerr have challenged the traditional construct of parental monitoring. They maintain that parental monitoring is in fact not a measure of the parents' attempts to find out about their children's activities and friends but rather a proxy for the quality of the parent-adolescent relationship (3, 5). Testing this theory, Waizenhofer et al. (8) found that parents' active methods of obtaining knowledge were among the best predictors of parental knowledge about the whereabouts and friends of their adolescent offspring, and moreover that knowledge itself (not the method of its acquisition) was the only predictor of adolescent deviance.

Adolescents and parents may have a good relationship even if the parents do not show active interest in the whereabouts and friends of the adolescent. We claim that parental interest in these important aspects of the adolescent's life must be shown, whether it is by asking the adolescent where he/she is going and with whom, being interested in unsolicited adolescent disclosure or by active parental surveillance of the adolescent activities.

The present study is based on a large population sample. The coverage of compulsory comprehensive school until age 16 in Finland is more than 99%. The studied areas represent well the Finnish population, containing both urban and rural areas and a population representatively divided to branches of industry, agriculture and services. The sample is thus representative of Finnish adolescents except for those with mental handicap or severe sensory deficits. Drop-out was almost exclusively related to being absent from school on the survey day. Pupils absent from school on the survey day are likely to suffer excessively from psychosocial and health problems. Thus, their absence could result in the presented prevalence rates of problems being underestimated. Pupils absent from school are also more likely

to have parents who do not know the adolescent's whereabouts. Including these students would more likely strengthen the associations detected between the phenomena studied than compromise the results.

The analyses were carried out using all available data individually for each analysis. There may be variation within a participant's responses so that she/he has reported on, for example, depression but not on anxiety. Therefore the *N* values in Tables 2–4 may vary from cell to cell, and thus we chose to report *n/N* for each cell separately instead of giving total *N* in the top of the columns. We thought it was optimal always to use all material available for each analysis.

There is confounding related to the fact that if not living with both parents, children mainly live with the mother. This may have affected the associations of parental knowledge of the adolescents' friends and adolescent maladjustment. The specific influences on adolescent mental health of the involvement of mothers and fathers deserve further study. For example, among boys, "only father knows friends" was associated with increased risk for use of other substances than alcohol, corresponding to the risk in the group where neither of the parents knew the friends. The "only father knows" group, however, was very small.

Conclusion

Parental involvement is mental health promotive in middle adolescents, despite their increasing need and capacity for independence. Middle adolescents need a certain amount of concrete supervision. When cultural trends emphasize adolescents' competence and needs for independence, parents may be uncertain of the extent to which they should involve themselves in their adolescent children's lives and how. The aspects of involvement studied here, knowing the adolescents' friends and whereabouts, are concrete and easy to discuss and measure. In family counselling, parents should be encouraged to ask about the adolescent's social life and meet their friends. They should be encouraged to adopt the view that this kind of involvement is not intrusive but conducive to healthy development. Depressed or otherwise distressed parents especially may need support in their attempts to monitor their adolescent children. On the other hand, adolescents who are depressed may behave in a rejecting way towards parents, who should nevertheless keep involving themselves positively in order to promote the adolescent's development. Clinicians meeting adolescents in health-care and social services should pay attention to concrete aspects of the adolescents' relationships with their parents in assessing the adolescent client's family situation. This topic is also relevant for discussions in co-operation between schools and families.

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**Adult and peer involvement in help-seeking for depression in adolescent population:
a two-year follow-up in Finland**

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ABSTRACT

Help-seeking among adolescents and adults is often perceived as a process involving only the health care system and the individual suffering from psychiatric symptoms. The present study attempted to create a model of help-seeking also including members of adolescents' social networks. A prospective follow-up design included a school-based survey on all ninth grade students (mean age 15.5) during the academic year 2002-2003 in two Finnish towns (N= 3278; response rate 94 %); and a follow-up conducted two years later (N=2080; response rate 63 %). The respondents were assessed for current depression and help-seeking for depression and other mental health problems each time. In the follow-up they were asked if they felt that they need help for depression and if their mother, father, sibling, peers, boy- or girlfriend or teacher had been worried about changes in their mood or behaviour. The associations of perceived need for help, help-seeking behaviour and concerns of different people, with depression at baseline were studied. Stepwise logistic regression models were computed to find the best predictors for help-seeking for depression. One third of the adolescents meeting R-BDI-13 criteria for depression at baseline still perceived a need for help for depression two years later but only a fifth of them had sought professional help. Depression at baseline was significantly associated with concerns about changes in mental health or behaviour among parents and significant others; and the concerns of mother, peers and teacher were among the best predictors of recent help-seeking for depression. To ensure adequate

intervention for depressed adolescents without a social network capable of prompting referral, routine screening for depression should be applied in primary health care services and specialized services for adolescents.

INTRODUCTION

With approximately ten per cent of adolescents currently suffering from moderate to severe depression and up to 25 % of adolescents experiencing a depressive episode during adolescence [1, 2], depression can be considered a major public health issue among adolescents. Research on adults has clearly suggested that the origins of many psychiatric disorders are in childhood or adolescence [3, 4]. Treatment of childhood disorders may thus be preventive of adult mental disorders. Adolescence is a developmental stage when the individual prepares for adulthood. Depression may severely disrupt this development. Despite current impairment, potentially deleterious effect on future career and social roles, and relatively high recurrence rates associated with adolescent depression, it is a commonly under-treated condition [1, 5, 6, 7].

Several aspects for child, adolescent, and young adult help-seeking behaviour have been addressed in the literature. Some are characteristics of the individual or the illness; others are related to the health care system. Type and severity of the disorder and impairment have been suggested to be significantly associated with adolescent help-seeking [8, 9, 10, 11]. Since less than half of adolescents with major depression seek treatment by the age

of 18 [1, 12, 13], factors other than the presence of a disorder, or impairment [14] can be hypothesised to be significantly associated with help-seeking.

In voluntary treatment settings a depressed adolescent or his/her parent must perceive a need for intervention in order to contact mental health services. Young people actually seeking or receiving help are a minority of those perceiving a need for help [11, 15]. Thus, perceived need is an essential but not sufficient predictor of help-seeking.

Several types of perceived barriers to care have been identified in the literature. Among adolescents these include economic disadvantage, concerns about confidentiality and stigma, perceiving professionals as being inaccessible, willingness to solve the problem unaided and unfavourable beliefs about mental illness and treatment [16, 17, 18]. In Finland, the health care system is publicly funded. Primary mental health services for adolescents are available free of charge at schools and other educational institutions and the adolescents are informed of these possibilities. Also the costs of specialist level services are covered by the municipalities except for a nominal entrance fee for some services. Thus, financial barriers to access of services are unlikely. No association between socioeconomic status and mental health service use was found in a Finnish population study on children and adolescents [9]. Other barriers to Finnish adolescent mental health services have not been addressed in the literature.

Among children, recognition of mental health problems by parents and/or a teacher is suggested to be of importance [19, 20, 21, 22, 23]. During adolescence the problem

recognition of the adolescent him/herself may be hypothesized to become more important predictor of help-seeking, although parental perception of mental health problems has been suggested to be more strongly associated with mental health service use than the perception of adolescents as old as sixteen [9].

Many studies on help-seeking behaviour of children and adolescents have used cross-sectional data, been conducted with children or preadolescents or have covered a wide age range from childhood to adolescence. Help-seeking patterns, however, are suggested to change during adolescence [24, 25]. Informal help-seeking may shift with age from parents to peers [26]. The proportion of perceived social support received from parents and peers may also change in the course of adolescence [27]. An interesting question is whether these changes will also be reflected in the roles of parents and peers in help-seeking for depression. In order to study the significance of different actors in the adolescent's social network in recognising problems in mental health and initiating help-seeking for depression, we conducted a follow-up study on Finnish adolescents.

The aim of the study was to answer the following questions:

1. What is the proportion of depressed middle adolescents perceiving a need for professional help?
2. What is the proportion of depressed adolescents reporting having sought professional help for their ailment?
3. Are the concerns about changes in adolescent mood or behaviour among parents or other people close to the adolescents associated with current adolescent depression?

4. Are the concerns about changes in adolescent mood or behaviour among parents or other people close to the adolescent associated with formal help-seeking for depression?

METHODS

Procedures

The present study is a part of an ongoing prospective follow-up study entitled “Adolescent Mental Health Cohort Study”. 9th grade students (aged 15-16 years) of all the Finnish-speaking secondary schools in two Finnish cities, Tampere (200 000 inhabitants) and Vantaa (180 000 inhabitants) filled in a person-identifiable questionnaire during a school lesson supervised by a teacher. Students absent from school received the questionnaires by post. The final T1 sample consisted of 1609 girls and 1669 boys whose mean age was 15.5 (sd 0.39). The response rate was 94 %. The procedures of baseline (T1) data collection are described in detail elsewhere [28].

The subjects responding to the first survey were reached for a two-year follow-up (T2) through their current educational institutes, by post and finally through the Internet. 2082 responses were received. Two subjects responded both at the educational institute and on the Internet. For these two, the answers given through the internet were excluded from the data. Ten responses were excluded as they were judged by the researchers to have been completed facetiously. The final T2 sample represents 63 % of the adolescents having responded to the first survey, and consisted of 2070 respondents, whose mean age

was 17.6 (sd 0.41). Of the responses in the final data, 54 % were given at survey occasions organized by educational institutes, 44 % by post and 2 % via the Internet.

Measures

Depression

A Finnish modification [29] of the 13-item Beck Depression Inventory [30, 31] was used to assess depression in both surveys (T1 and T2). The Finnish version of the BDI-13 (R-BDI-13) has shown good psychometric properties in a large population sample of adolescents [32]. The 13 items indicate feelings, cognitions, and physical symptoms related to depression and were scored 0-3 ("3" indicating the highest severity). The scores of all 13 items were computed into a sum-score (range 0-39 points) in which a score of 8 or more points indicates moderate to severe depression [30]. This cutoff point was used to define depression in the present study.

Perceived need for help

At T2 the adolescents were asked if they felt that they needed help for a) depression (yes/no), b) for another mental health problem (yes/no). These items have been used extensively in school surveys of Finnish adolescents. Both items of perceived need for help were used for the analyses, since the adolescents feeling a need for help may not

have known whether they were suffering from depression or from another mental health problem.

Others concerned about changes in the adolescent's mood or behaviour

The adolescents were asked if people close to them had been concerned about changes in their mood or behaviour (separately: mother, father, sibling, peers, boy-/girlfriend, teacher; yes/no). The respondents were instructed to complete every item even if they did not think that there had been any reason for concern.

Help-seeking for depression and other mental health problems

At T2 the adolescents were asked if they had during the past two years sought professional help ("for example from the school health services, primary health care, family counselling services, or adolescent psychiatric services") for a) depression (yes/no), b) another mental health problem (yes, no). Help-seeking for other mental health problems was controlled for in the final model, since adolescents may not have recognised the nature of their mental health problems, and also because help-seeking for other mental health problems may enhance help-seeking for depression (comorbidity, good experience of help, propensity to seek help).

Family structure

At T2 the adolescents were asked about their home family structure. Responses were coded into three categories: "both parents", "single or stepparent family", and "apart from

parents". This final category included living alone, with a spouse or friend, or a legal guardian.

Socioeconomic variables

At T1, the educational levels of the parents were elicited with two analogous items: "What is the highest educational level obtained by your father (mother)". The response alternatives were "Comprehensive school only", "Comprehensive school with vocational education", "Secondary school with/without vocational education", and "Academic degree". The alternative "comprehensive school only" was selected to indicate low educational level both in mothers and fathers.

Statistical analyses

Frequencies of depression at T1 and T2, perceived need for help, help-seeking behaviour, others concerned about changes in the adolescent's mood or behaviour, family structure, socioeconomic variables, and sex are given. Crosstabulations with chi square statistics were computed in order to investigate associations of perceived need for help, previous and recent help-seeking behaviour, and concerns of others about changes in the adolescent's mood or behaviour, with current depression. The percentage of adolescents seeking help for depression when perceiving a need for help for depression was also computed.

Variables assessing depression, perceived need for help, help-seeking for other mental

health problems, concerns of others about changes in the adolescent's mood or behaviour, family structure, socioeconomic variables, sex and age were first entered into a logistic regression equation one at a time to calculate the unadjusted risk (OR with 95% CI) for help-seeking for depression associated with them. Next, a stepwise logistic regression model was computed testing the significance of perceiving the need for help when sociodemographic background and seeking help for other mental health problems were controlled for (model 1). Finally, to test the significance of people close to the adolescent in help-seeking for depression, variables indicating concerns of other people were added into the stepwise logistic regression model (model 2). Forward LR statistics was applied to deal with multicollinearity. The final model was also tested with enter and backward LR procedures. Nagelkerke R Square statistics was used to ascertain the percentage of probability of help-seeking for depression at T2 explained by the stepwise models.

Attrition

Respondents differed significantly from non-respondents. According to the T1 survey, non-responders at T2 survey were more commonly males (63 % vs. 44%), came less often from families with both parents (65% vs. 72%), and more often from families with low parental educational levels (low educational level of the father: 22% vs 16%; of the mother: 18% vs. 13%). A larger proportion of the drop-outs were depressed (12% vs. 9%).

RESULTS

Characteristics of the sample

At both T1 and T2, 9% of adolescent participants met R-BDI-13 criteria for depression. At T2, perceiving a need for help for depression was more common than perceiving a need for help for other mental health problems. The percentage of adolescents seeking help for depression and also for other mental health problems was larger at T2 than at T1. Of the people close to the adolescents, the one most commonly worried about changes in the mood or behaviour of the adolescent was the mother, followed by peers. (Table 1)

Table 1. Frequencies (n,%) of sex, family structure, depression, perceived need for help, help-seeking, concerns of others about the adolescent mood or behaviour, and proportion of missing data among 17-18-year-old adolescents responding to a follow-up survey on mental health

characteristics of the sample	n	%	% missing
<i>Depression</i>			
at T1	188	9	0.5
at T2	177	9	0.5
<i>Perceived need for help (T2)</i>			
Thinks that needs help for depression	166	8	0.8
Thinks that needs help for other mental health problem	100	5	1.4
<i>Previous help-seeking behaviour (T1)</i>			
Sought professional help for depression	101	5	1.5
Sought professional help for other mental health problem	82	4	2.0
<i>Recent help-seeking behaviour (T2)</i>			
Sought professional help for depression	140	7	0.7
Sought professional help for other mental health problem	169	8	1.4
<i>Others concerned about changes in mood or behaviour (T2)</i>			
Mother	485	24	3.4
Father	231	12	4.2
Sibling	160	8	5.0
Peers	314	16	4.3
Boy-/girlfriend	261	13	6.1
Teacher	120	6	4.8
<i>Family structure (T2)</i>			1.0
both parents	1279	62	
single or stepparent family	628	31	
apart from parents	142	7	
<i>Socioeconomic variables (T1)</i>			
Low educational level of the father	312	16	8.5
Low educational level of the mother	252	13	7.5
<i>Sex</i>			0.0
male	903	44	
female	1167	56	

Associations of perceived need for help, help-seeking behaviour, and concerns of others with depression at T1

Approximately one third of the adolescents depressed at T1 still perceived a need for help for it at T2 but only a fifth had sought professional help for it in the past two years. Twenty per cent of the adolescents depressed at T1 had sought help for depression some time in the past. The parents and other people close to the adolescent were more commonly concerned about changes in the mood or behaviour of depressed adolescents than of adolescents without depression at T1. (Table 2)

Table 2: Percentages of perceived need for help, help-seeking behaviour, and concerns of others in 17-18-year-old adolescents with and without depression at T1

	depressed at T1		
	yes	no	p
Previous help-seeking behaviour (T1)			
Sought professional help for depression	20	3	<0.001
Sought professional help for other mental health problem	12	3	<0.001
Depressed at T2	41	5	<0.001
Perceived need for help (T2)			
for depression	28	6	<0.001
for other mental health problem	12	4	<0.001
Recent help-seeking behaviour (T2)			
Sought professional help for depression	23	5	<0.001
Sought professional help for other mental health problem	9	3	<0.001
Others concerned about changes in mood or behaviour (T2)			
Mother	41	22	<0.001
Father	22	11	<0.001
Sibling	18	7	<0.001
Peers	30	14	<0.001
Boy-/girlfriend	30	12	<0.001
Teacher	15	5	<0.001

Predictors of recent help-seeking for depression

Of the adolescents perceiving a need for help for depression, 39 % had sought help for it in the past two years. When alone in logistic regression depression, perceived need of help, recent help-seeking for other mental health problems, concern of the people close to the adolescent, living apart from the parents, sex and age predicted recent help-seeking for depression, while parental educational levels did not. Living with both parents was associated with not seeking help for depression at T2. Perceiving a need for help for depression (T2) and having recently sought professional help for some other mental health problem were associated with an approximately 15-fold probability of recently

seeking help for depression. (Table 3, unadjusted) In model 1 depression at T1, perceived need for help for depression (T2), recent help-seeking for other mental health problems, living apart from parents and female sex predicted recent help-seeking for depression. This model explained 33 % of the probability of recent help-seeking for depression. (Table 3, model 1)

Adding concerns of the people close to the adolescents resulted in family structure losing significance. Concerns of the mother, peers and the teacher were significantly associated with help-seeking for depression. Model 2 explained 38 % of the probability to seek help for depression. (Table 3, model 2)

Table 3: Help seeking for depression among Finnish adolescents (ORs with 95% CI). Unadjusted probability of seeking help for depression during the past two years associated with depression at the age of 15-16 years and currently perceived need for help, help-seeking for other mental health problems, concerns of people close to the adolescent, demographic variables and socioeconomic background. Model 1: Best predictors of help-seeking in a stepwise logistic regression model including depression, perceived need for help, help-seeking for other mental health problems, demographic variables and socioeconomic background. Model 2: Best predictors of help-seeking for depression in a stepwise logistic regression model including also concerns of people close to the adolescent (model 2).

	unadjusted		model 1		model 2	
	OR	95% CI	OR	95% CI	OR	95% CI
Depression (T1)	5.4	3.6 - 8.1	2.7	1.6 - 4.7	2.2	1.2 - 3.9
Perceived need for help (T2)						
for depression	14.9	10.1 - 22.0	8.7	5.2 - 14.3	6.0	3.5 - 10.3
for other mental health problem	7.3	4.5 - 11.7	ns		ns	
Recent help-seeking for other mental health problems (T2)						
sought professional help for other mental health problem	14.9	9.2 - 23.9	19.0	10.1 - 35.8	9.8	4.8 - 20.1
Others concerned about changes in mood or behaviour (T2)						
mother	7.1	4.9 - 10.3	not in the model		2.1	1.3 - 3.5
father	6.3	4.3 - 9.2	not in the model		ns	
sibling	6.6	4.4 - 9.9	not in the model		ns	
peers	6.9	4.8 - 9.8	not in the model		2.2	1.3 - 3.7
boy-/girlfriend	5.1	3.5 - 7.5	not in the model		ns	
teacher	10.4	6.8 - 16.0	not in the model		3.5	1.8 - 6.5
Family structure (T2)						
both parents	1.00		1.00		1.00	
single or stepparent family	1.5	1.0 - 2.3	1.3	0.8 - 2.2	ns	
apart from parents	4.9	3.0 - 7.9	2.3	1.2 - 4.4	ns	
Socioeconomic variables (T1)						
low educational level of the father	1.5	0.9 - 2.3	ns		ns	
low educational level of the mother	0.7	0.4 - 1.2	ns		ns	
Sex						
female	3.6	2.3 - 5.6	2.4	1.4 - 4.1	2.3	1.3 - 4.0
Age (continuous)	1.7	1.2 - 2.5		ns	ns	

DISCUSSION

Of the adolescents depressed at T1, 41% were still or again depressed two years later.

Only 23 % of the depressed adolescents reported two years later having sought professional help for it during the past two years. The proportion is similar to that for help-seeking adolescents having an episode of DSM-major depression, in population samples of middle to late adolescents in Finland [33, 34] and elsewhere [24, 35].

Of the adolescents meeting R-BDI-13 criteria for depression, one third reported a perceived need for help for it two years later. The finding that a minority (39 %) of the adolescents perceiving a need for help for depression had actually sought help in the past two years was in accordance with earlier reports on community adolescents [36] and adults [37]. Perceiving a need for help was, nevertheless, one of the strongest predictors

of help-seeking in the present study.

Adolescent depression was significantly associated with concerns among parents and significant others (siblings, peers, boy/girlfriends, teacher) about changes in the adolescent's mood or behaviour two years later. This may indicate that people close to the adolescent had recognized the adolescent's current depression or residuals of a previous episode. The percentage of mothers concerned about the changes in the adolescent's mood or behaviour in the present study is consistent with earlier findings among younger adolescents: more than 60 % of American parents (mainly biological mothers) of depressed 9-13-year-olds reported that their child "has a problem" or "needs help" [20]. The effect of recognising the problem or being worried about a depressed peer, on help-seeking initiation has, to the best of our knowledge, not been previously addressed in the literature. Adolescents have, however, been reported to be able to recognise well the most obvious symptoms of depression (suicidality, sense of worthlessness) and to indicate concern for a depressed peer presented in a vignette [38].

The concerns of parents and significant others were also associated with seeking professional help for depression in the present study. Even when depression, perceived need for help, and sociodemographic variables were controlled for, the concerns of mother, peers and teacher were associated with greater probability of recent help-seeking for depression. As discussed earlier, parental and teacher recognition of mental health problems have previously been found to be associated with service use [22, 39]. The present study attempted to create an even more comprehensive model of help-seeking by

simultaneously studying the significance of perceived need and concerns of parents and significant others, including the peers and intimate partners of the adolescents. The statistical model explanatory power of the model for help-seeking was enhanced with adding the concerns of people close to the adolescent.

In univariate analysis depression was associated with an almost eight-fold increase in probability of seeking professional help. Adding perceived need for help and controlling for sociodemographic background in a stepwise logistic regression model decreased the odds ratio considerably, and adding concerns of people close to the adolescent to the model decreased the odds ratio further. Adolescent help-seeking was more significantly associated with perceived need for help. Concerns of the people close to the adolescent were found to be equally significant to the symptoms of depression. The help-seeking process seems, thus, to include negotiations about the *meaning* of the symptoms experienced. These negotiations may concern not only the adolescent but also his/her social network.

Help-seeking for other mental health problems considerably increased the probability of help-seeking for depression at the age of 17-18 years. This finding suggests that young people already in contact with mental health services have an advantage in receiving treatment for relapses or incidents of new mental health problems.

Of the adolescents with no depression at T1, 5 % reported help-seeking for depression during the past two years. This indicates little amount of new incidences, also reported in

other longitudinal studies on adolescents [2], or help-seeking for mild depression or other problems related to adolescent development.

According to the data gathered at T1, the drop-outs fared worse than the responders. The results should, thus, be interpreted carefully in populations at high risk of mental health problems. The follow-up design enabled controlling for prior depression and help-seeking behaviour. Both logistic regression methods (backward and forward LR) tested yielded a similar model, which is a strong indication of the model's robustness.

The Finnish version of R-BDI-13 is a tool validated for adolescent populations. It cannot be used to produce a DSM diagnosis of major depression but is probably robust enough to be used for identifying the subjects most probably in need of an intervention. Self-reported internalising and externalising problems in adolescence have been reported to be associated with DSM diagnoses in follow-up [41]. Items assessing “perceived need for help”, and “help-seeking for depression” have previously been used in national surveys on adolescents. The concerns about changes in an adolescent's mood or behaviour among parents and significant others were elicited with items tailored specifically for this survey. With adolescents as the sole informants we cannot determine whether the parents and significant others actually were concerned or not. Minor concerns may not have been noticed by the adolescent. Finally, our results may have been affected by reluctance of the respondents to report contact with mental health services caused by stigma. On the other hand, the independent variables such as the perceived need for help for mental health problems and concerns of others would also probably have been similarly affected.

Thus, the hypothesised non-response would not have affected the association between the explanatory variables and the outcome.

CONCLUSION

Access to services is important but not sufficient in ensuring adequate intervention for adolescents with emotional problems. Depression may affect the decision-making capabilities of adolescents otherwise mature and independent. Self recrimination associated with depression may also lead the adolescent to consider the behavioural changes as shortcomings in personal characteristics, rather than as signs of problems in mental health. Parents, teachers and other adults should thus not leave young people alone to cope with mental health problems. The mental health literacy of both adolescents and adults must be enhanced to achieve better awareness of the effectiveness of treatment, symptoms deserving psychiatric evaluation and the fact that adolescent depression is not necessarily a transient phenomenon. To guarantee adequate intervention for depressed adolescents without a social network capable of prompting referral, routine screening for depression should be applied in primary health care services and specialised services for adolescents.

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