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**Stress, development
and psychosomatic
symptoms in
adolescence**

A study of 14 to 16 year old school children

Academic dissertation
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1. INTRODUCTION

Adolescence as a transition from childhood to adulthood is a phase in life characterised by unique physical and psychological changes and social demands. It is also considered to be of special importance for well-being and psychosocial functioning as an adult. Nevertheless, until recently relatively little research on stress and development has been devoted to the study of adolescent age groups.

In public health research, subjective health has arisen as a field in its own right. As part of this interest, a study of psychosomatic symptoms and health behaviour among adolescents was undertaken at the Department of Public Health in Tampere, Finland, in 1981. By the time I joined the team in 1982, two surveys among 8th grade pupils had already been carried out.

In psychiatric research there has been growing interest in the relationship between stress and psychiatric morbidity in children and adolescents. The third survey was planned on the basis of a holistic model to study associations between stress, development and psychosomatic symptoms in adolescence. The question from which the work started was: what do psychosomatic symptoms "mean" in adolescent development? However, the limitations of a survey approach in answering this question soon became apparent, and the main points of interest were chosen on the basis of traditional questions in academic child psychiatric research.

2. THEORETICAL BACKGROUND AND LITERATURE

2.1. Definitions

Psychosomatics date far back in the history of medicine (Achté et al. 1984). The term gives rise to some confusion owing to the different meanings applied to it, which fall roughly into two categories. In a narrow sense it has been used to refer to a specific group of illnesses of assumed psychogenic etiology (Dunbar 1943, Alexander 1950). In a broader sense it has been applied to a holistic view of medicine in which social, cultural and psychological factors are considered in relation to illness (WHO 1964). Currently the term is usually employed in its broader sense (Lipowski 1984, Lloyd 1986). In the DSM III classification no diseases are considered specifically psychosomatic - the understanding is that biological, psychological and social aspects are inherent in all forms of disease.

In the present study the term "psychosomatic symptoms" is used to refer to physical symptoms known to be only rarely associated with organic disease in adolescence. "Physical complaints" would perhaps be more exact, but we opted for the above term due to its traditional use in psychiatry. Other terms used in earlier research include "functional symptoms" or "neurovegetative symptoms" (e.g. Mäenpää 1978).

In the literature there is some confusion as to whether stress refers to a 'stressor' or to 'perceived stress'. Some investigators assume stress to mean environmental circumstances which affect health directly or indirectly, while others emphasise the individual's state of being stressed. Furthermore, attempts have been made to take both of these into account. Psychosomatic symptoms in adolescence may mean healthy developmental sensitivity to bodily sensations at one end, or a somatisation disorder at the other. At group level, symptoms can also be thought of as reflecting distress in person-environment interaction. The present study investigates the relation between stressors and perceived stress measured by somatic (and in some cases also psychic) symptoms. The term 'stress' is used to refer to external stressors.

2.2. Stress and adolescent development

Adolescence begins, in psychological terms, at the time of onset of physical sexual maturity. It can be viewed as an adjustment process to the stage of puberty - a new set of inner and outer conditions that confront the individual (Blos 1962).

Laufer (1975) described adolescence as a time when uncertainties, new feelings and anxieties, and a new perception of self and others are experienced as part of the pressure to move towards adulthood and as part of giving up the safety and dependency of childhood. During this period adolescents must find appropriate ways of dealing with the inner pressures, and this period of their lives is considered to contribute something of great importance to their future mental health and social functioning. Blos (1962) called adolescence "the second individuation process". He also emphasised that the regressive processes of adolescence offer the individual an opportunity to modify or rectify childhood experiences which threatened to impede his progressive development. The back-and-forth motion of the adolescent towards greater independence and maturity, followed by retreat to more childish behaviour and dependence, is considered to be an essential part of the gradual psychological disengagement from parents - a process that normally extends over many years.

Erikson (1977) described adolescence as a time of developmental crisis with the specific task of identity formation. The adolescent has to establish an identity in relation to self, family, peers and society. Furthermore, the process of identity formation is an interactional process which takes place in a social context.

Little research has been done on the associations between stress, development and adolescent well-being (Rutter 1983). From a theoretical point of view, adolescence is a particularly interesting period for life stress studies since it is also considered as a period of unique 'developmental stress' that accompanies rapid physical and psychological growth. It is possible that the rapid physical and psychological changes make adolescents especially vulnerable to environmental stress. Furthermore, stress in adolescence may be specific to that developmental stage and differ from adult experiences (Monck & Dobbs 1985). On the other hand, it has been suggested that some stress in adolescence may be important for learning to cope with stress later in life (Elder & Liker 1982). In any case the major developmental tasks make adolescence different from adulthood.

One part of adolescent identity formation takes place in relation to the adolescent's changing body. Clinicians find transient psychosomatic symptoms among adolescents common and often relate them to developmental stress (e.g. Zeltzer & LeBaron 1984, Mäenpää 1978). Increased introspectiveness and sensitivity to bodily symptoms are thought to belong to normal adolescent developmental processes. Mechanic (1983) has suggested that additional life event stress or chronic psychosocial stress may be important in increasing the risk of the occurrence and maintenance of physical

symptoms, and perhaps also in determining future patterns of symptom perception and illness behaviour. He also laid down a hypothesis that changes in family, school or peer life make the adolescent more vulnerable to somatic complaints through increased introspection, whereas the stability of the environment and successful coping mechanisms buffer against excessive introspection and therefore also against physical symptoms.

In the present study we examined the occurrence of psychosomatic symptoms in 14 to 16 year old adolescents and their associations with various family background characteristics, the timing of puberty (in girls), recent life stress (life events and interpersonal problems) and earlier family events or family situation (parental divorce, parental death or parental discord).

The dramatic developmental tempo and marked individual differences in the timing of physical and psychic development make special requirements for research in this age group. In the present study it was possible to study the impact of pubertal development only in girls.

2.3. Psychosomatic symptoms in adolescence

Until recently, empirical studies on psychosomatic symptoms among adolescents have been few and far between (e.g. Blum 1986).

In Finland, Frisk (1968) reported the occurrence of psychosomatic problems among adolescent outpatients and in a control group of 15 to 16 year old school children. The occurrence of psychosomatic symptoms in adolescent community samples has been reported in 14 year olds by Puska et al. (1979) and in 12 to 18 year olds by Rimpelä et al. (1982).

In a longitudinal developmental study of 11 to 18 year old school children from 1969 to 1976, Rauste-von Wright and von Wright (1981) found a peak in psychosomatic symptoms among both sexes at the age of 13, and girls clearly had higher symptom scores than boys from the age of 15 upwards. In a nationally representative cross-sectional postal inquiry of 12 to 18 year old Finns, Rimpelä et al. (1982) found an increase in somatic and psychic symptoms from 12 to 16 years in both sexes; in 18 year old girls symptom scores were similar to those in 16 year olds, whereas in 18 year old boys they were as low as in 12 year olds. Girls had higher scores than boys at any age, the differences increasing with age. Interestingly, symptom scores in 12 year old

girls whose menstruation had not started, did not differ from those in boys of the same age. In a follow-up study of French high school students, Choquet and Menke (1987) also found that girls had higher scores than boys and that between the ages 16 and 18 many psychosomatic problems diminished in boys but remained steady or increased slightly in girls. Studies of younger children have shown almost equal prevalences of psychosomatic problems for both sexes (e.g. Moilanen 1986). The results thus suggest that there is a shift from an almost equal sex ratio in the prevalence of psychosomatic symptoms to a female preponderance during adolescence.

2.4. The impact of timing of puberty

For girls, results dealing with the psychosocial impact of timing of puberty have been somewhat inconsistent. Jones and Mussen (1958) reported that early maturing girls were less confident and less popular in early adolescence, but at the age of 17 showed a negative self-concept less often than late maturers. Clausen (1975) reported that early maturation correlated positively with self-confidence in middle class girls but negatively in working class girls. In more recent studies, Simmons et al. (1983), and Duncan et al. (1985) reported that early developers were less satisfied with their physical characteristics. Tobin-Richards et al. (1983) and Brooks-Gunn & Warren (1985b) reported that girls who matured at about the average time felt more attractive and had the most positive body image, and that early maturers had a more negative body image than late maturers.

Some of the inconsistencies in these studies may be explained by the outcome measures used, by the definitions of early and late maturation, or by differences in the ages of the subjects at the time of comparison. In any case, the results are less consistent than those for boys, among whom early maturation has been repeatedly found to be psychosocially advantageous and late maturation to be disadvantageous (Clausen 1975, Graham & Rutter 1985). Unlike boys, most of whom experience increased size and strength at puberty as a positive development, many girls have negative or ambivalent feelings toward the physical changes that take place (Koff et al. 1982, Ruble & Brooks-Gunn 1982). These studies also showed that negative feelings were more common among unprepared or early developing girls. Thus, early maturing girls may be psychosocially at a disadvantage (Greif & Ulman 1982, Brooks-Gunn et al. 1985).

It has been suggested that parental and peer support as well as cultural expectations are important while adapting to bodily changes (Petersen & Taylor 1980). Because early developing girls are the first in their age group to experience pubertal changes, they lack the peer support of similar experiences. They may also be less prepared for menarche (Greif & Ulman 1982). Parental reactions to an early developing girl may be different (Hill et al. 1985). Contradictory cultural expectations of menstruation, female appearance, and sex role may be especially confusing for an early developing girl.

In a study by Simmons et al. (1979), the 12 year old girls who were most vulnerable for decrease in self-esteem were those who had undergone multiple changes, that is who had reached puberty, changed school and starting to date. Thus the accumulation of stress may be essential.

Early puberty for girls may be stressful especially in relation to body image and symptom perception. It has been reported that early maturing girls are more likely than average maturers to have premenstrual symptoms (Ruble & Brooks-Gunn 1979); reports of menstrual pain increase with gynaecological age through the adolescent years (Widholm 1979, Klein & Litt 1981).

Recent studies have emphasised that the impact of timing should be studied in relation to other developmental effects. Petersen and Crockett (1985) distinguished four "age-graded" factors: chronological age, pubertal age, cognitive age, and grade in school. Pubertal age may include both the impact of actual as well as relative pubertal status, that is both maturation as such and the timing effect (Brooks-Gunn & Warren 1985a).

Dating and alcohol use are behaviours commonly taken up during the adolescent years. The timing of their adoption during early adolescent years has been reported to be associated with pubertal development (Rimpelä & Rimpelä 1983). It has been suggested that early dating may be stressful for girls (Simmons et al. 1979). Drinking may cause symptoms either directly or through conflict and distress, or may reflect one behavioural aspect of distress. Furthermore, pubertal development has been suggested to have adverse effects on the school performance of girls (Simmons et al. 1979).

2.5. Life stress

Little empirical research has been carried out on the impact of acute life stress on child and adolescent well-being (Rutter 1983). Among studies that have considered the effects of life events in adolescence is the report of Heisel et al. (1973), who found that paediatric patients had experienced more frequent and/or more severe life events prior to the onset of illness than had their healthy peers. Bedell et al. (1977) reported that life event stress was related to day-to-day changes in health status among chronically ill children. Hotaling et al. (1978), in a study of a non-clinical random sample of 118 college freshmen, suggested a direct causal linkage between stressful life events and illness. In a community sample of 167 twelve to fourteen year old children, Gad and Johnson (1980) found that negative life events were related to perceived health status. Significant associations between life stress and psychological symptoms, impaired psychological adjustment and depression have also been reported (Hudgens 1974, Gad & Johnson 1980, Newcomb et al. 1981, Tyerman & Humphrey 1983, Compas et al. 1986).

In Finland, Hurme (1981) reported on the basis of interviews with mothers, that the number of behavioural problems, including psychosomatic symptoms, in 12 to 13 year old children was highest among those who had experienced the most life changes. In a 5 year follow-up study of 19 year old conscripts up to the age of 24, Aalberg (1981) found that high life change scores correlated significantly with the incidence of somatic and mental symptoms. In a study of a group of former child psychiatric male patients and their controls during conscript service, Piha (1984) reported that abundant life changes preceding service were among those factors associated with the frequent use of outpatient services and numerous days of incapacitation during service.

2.6. Parental death, divorce and discord

Mental health professionals have long shown interest in the impact of parental loss on child development and later disturbance (e.g. Bowlby 1951). Many studies have shown that parental divorce is a stressful experience for children at any age (Richards & Dyson 1982, Cooney et al. 1986). Some sequelae emerge rapidly following separation, some increase over the first years following divorce and then abate, and still others may show a delayed emergence (Hetherington et al. 1982).

Parental loss through death is quite different from that due to divorce. Loss through death is final, whereas many children continue to meet the divorced parent more or

less frequently. Divorce is often preceded and followed by parental discord. The negative consequences of divorce on children may be largely due to discord and not to the divorce as such (e.g. Chess et al. 1983). Both death and divorce may lead to a chain of stressful experiences and also to changes in life circumstances long after, but these may be different in kind. Furthermore, divorce and death carry different psychological meanings for children.

The possible impact of parental loss on adolescent development may result from different factors: the impact of earlier trauma on development, the absence of the parent during adolescence, the consequences of the loss on the other parent and present circumstances. All may essentially differ depending on the type of loss. It is also important to distinguish between short-term and long-term effects and to study these at different developmental phases.

Surprisingly enough, little empirical research has been done on how earlier parental loss affects the adolescent developmental process (e.g. Rutter 1986).

Parental loss has been demonstrated as a vulnerability factor for adult psychiatric disorder, especially depression (Brown & Harris 1978), although there is some controversy in the literature (Tennant et al. 1980). Rutter (1966) found that over twice as many children attending a psychiatric clinic had lost a parent through death as would be expected from comparable death rates in the general population. He also found more bereaved children in a control group attending a paediatric clinic than in a dental control group. In one third of the clinic sample there was a gap of 5 years or more between the death and the onset of symptoms. Van Eerdevegh et al. (1982, 1985) studied bereaved children aged 2 to 17 years, 1 and 13 months after the death. Dysphoria, falling school performance and withdrawn behaviour were significantly increased in bereaved children of both sexes at all ages, whereas no increase in behavioural problems was found. Depressive symptoms, trouble with sleeping and reduced appetite were seen predominantly among the bereaved children who were female and/or older. Although the numbers of severely depressed children were too small for statistical analysis, these patients were predominantly adolescent boys who had lost their fathers.

Wallerstein and Kelly (1980) found that family rupture during adolescence could either drive adolescent development forward at a greatly accelerated tempo or retard it. Some youngsters matured rapidly, while others were unable to mature without family support and fell behind. Family functions of providing discipline, external structure

and controls were also weakened by divorce, and the divorce left some adolescents feeling vulnerable to their own newly strengthened sexual and aggressive impulses. Contributing to the adolescent's anxiety was their divorce-related perception of their parents as sexual persons. They also experienced heightened anxieties regarding their future competence as sexual partners. In a study by Reinhard (1977), adolescents also reported that they had had to mature faster and to assume greater responsibility after parental divorce.

The possible impact of earlier divorce on adolescent development may be a complex combination of reactivations of earlier problems in relationships and the influence of present family relationships and life circumstances. In a 5 year follow-up study, Wallerstein (1983) reported that although no significant sex or age differences emerged there was a subgroup of girls who, upon entering adolescence, became acutely depressed. In a 10 year follow-up of children who had experienced parental divorce between the ages of 2 1/2 and 6 years, Wallerstein (1984) reported that roughly one third still had strong negative feelings about divorce and spoke of a continued sense of deprivation within the divorced or remarried family. A heightened need to establish relationships with the absent father was common, especially among girls. Hetherington (1972) reported that girls in families with absent fathers due to divorce in adolescence had problems which manifested mainly as disruptions in interaction with males. Slater et al. (1983) reported that the self-concept of adolescent girls in divorced families was negatively affected whereas that of boys was not. The results of these studies suggest that if any sex differences exist in the impact of divorce in adolescence, girls may be more vulnerable. The impact of marital discord and divorce has been found fairly consistently to be more pervasive and enduring for boys than for girls in childhood before puberty (Hetherington 1981, Emery 1982, Rutter 1982).

Adolescents in divorced families have been reported to have more negative evaluation of the self (Boyd et al. 1983), and poorer school performance and less optimism about the future (Saucier & Ambert 1982) than adolescents in intact families. Gibson (1969) reported delinquency to be more common among boys in divorced families. Coleman et al. (1985) reported that children from divorced families started dating at an earlier age.

Divorce is not a single event but a process that involves many aspects of life situation long before and after the actual family breakup. Many authors have suggested that parental discord is the crucial factor for distress in children both in intact and in divorcing families (Hess & Camara 1979, Raschke & Raschke 1979, Emery 1982, Chess et al. 1983, Slater & Haber 1984, Long 1986).

3. PURPOSE OF THE STUDY

The purpose of the study was to investigate associations between stress, development, and psychosomatic symptoms in 14 to 16 year old adolescents. The main points of emphasis in the original publications are based on research tradition in child and adolescent psychiatry, and were as follows:

- I We studied the occurrence of psychosomatic symptoms among 14 to 16 year old adolescents, and their associations with school performance and various sociodemographic background characteristics (family structure, number of siblings, birth order, parental socioeconomic status). We assumed that adolescents with poor school performance, non-intact family structure, no siblings or many, or low parental socioeconomic status experience more distress and higher levels of psychosomatic symptoms than others.

- II We attempted to determine whether pubertal age affects perceptions of psychosomatic symptoms among 14 to 16 year old girls. Within the limits imposed by our data we looked at two alternative (though not mutually exclusive) hypotheses: first that early developing girls may be vulnerable and experience more psychosomatic symptoms than on-time or late maturers (timing of menarche), and second that symptoms may be associated with pubertal development as such (time since menarche).

More specifically, the questions in this study were as follows: 1) Do early developing girls have more psychosomatic symptoms than on-time or late developers? If so, do the differences persist through adolescence? 2) Are there differences in dating, alcohol use, school performance, or self-image related to either timing of menarche or time since menarche? 3) Can differences in psychosomatic symptoms be explained by the observed behavioural differences among maturational groups?

- III Here we assumed that life event stress and interpersonal problems increase the occurrence of psychosomatic symptoms.

- IV We then studied whether 16 year old school children who had experienced parental loss through death or parental divorce differed in their psychological well-being and behaviour from age-mates in intact families. We assumed that adolescents in both these groups with parental loss would have more distress symptoms, poorer school performance, lower self-esteem and a less positive self-image than adolescents in intact families. We further assumed that dating and drinking would be more common among adolescents with parental loss.
- V Children in original two-parent families were classified into two groups on the basis of parental discord in order to compare the impact of parental divorce and parental discord on adolescent well-being and behaviour. The questions asked were as follows: 1) Do adolescents from discordant or divorced families experience more distress symptoms than those from intact families? 2) Are there differences in self-esteem, self-image, school performance, alcohol use and dating behaviour between these groups? 3) Are the answers to these questions related to sex differences?

4. STUDY POPULATION AND METHODS

4.1. Subjects and collection of data

The study population included all 8th grade pupils attending Finnish secondary schools in the autumn of 1981 in Tampere, an industrial and university town of 166,000 inhabitants in southern Finland. Based on information from school registers and teachers the total number of pupils was 2287.

Twelve children in this age cohort in Tampere did not attend normal school due to severe handicap or illness. They and a class of mentally handicapped children (n=35) were excluded from the study population. The Swedish-speaking 8th grade class of 33 pupils was also excluded due to possible language difficulties.

The same pupils were examined three times: in the 8th grade in December 1981 and May 1982, and in the 9th grade in May 1983. Each survey was cross-sectional since it included all school children in these classes. The cross-sectional participation rates are presented in Table 1: 2242 pupils (98.0%) participated in the first survey, 1095 of whom (48.8%) were girls and 1147 (51.2%) boys. Of the pupils in the first survey 91.4% of the girls and 89.9% of the boys participated in all three surveys.

Table 1. Study population and response rate according to sex in the three surveys.

	Study population	Response rate	
	n	n	%
SURVEY I December 1981	2287	2242	98.0
SURVEY II May 1982	2291	2191	95.6
SURVEY III May 1983	2269	2194	96.7

Most of the pupils were born in 1967. The mean age of pupils at the start of the study was 14.5 years (SD 0.3 years) and, in the last survey, 15.9 years.

As seen in Table 2, the third survey in May 1983 focused more on the questions of the present study. Distress symptoms were asked in a similar way in each survey, but many other questions were asked only in the third survey, making follow-up only partly possible. The original versions of the questionnaires are presented in Appendices 2 to 4.

Table 2. Scheme of measures included in questionnaires in the three surveys.

Items	Dec 1981	May 1982	May 1983
Checklist of symptoms	X	X	X
Self-image			X
Self-esteem			X
School performance		X	X
Adolescent behaviour			
Dating experiences			X
Alcohol use		X	X
Delinquent acts			X
Social class			
Parental occupation	X		
Parental education			X
Family structure	X		
Number of siblings	X		
Birth order	X		
Parental death			X
Parental divorce			X
Parental discord			X
Timing of puberty			
Age of menarche	X		
Start of menstruation	X	X	X
Life events			X
Interpersonal problems			X

Papers I, II, and III were based on follow-up of the three surveys. (Only girls were included in paper II.) All who participated in the first and third surveys were included in study IV. Study V was based on cross-sectional data obtained in the third survey, although earlier data were utilised where available. In both IV and V additional exclusions were also made due to the special nature of the questions as follows: in study IV 57 children who had experienced recent parental loss through death or divorce during the last 17 months; in study V all children who had experienced parental death.

The questionnaires were completed in classrooms during school hours. A research worker introduced the purpose of the study to the pupils, delivered the questionnaires and was available for any questions about the research. Teachers were present in most cases but did not participate in the procedure. The pupils answered confidentially with their names.

Pupils who were absent on the day received a questionnaire from the teacher later, completed it at home and returned it by post. In each survey the proportion of postal questionnaires was 4-5%. Very few pupils present at school refused to participate. From 4 to 16 questionnaires from each wave of assessments had to be abandoned due to inappropriate completion. Thus the cross-sectional drop-out rate includes mainly pupils who were absent from school that day and did not return the postal questionnaire.

4.2. Measures

4.2.1. Symptom scores

Data about symptoms were obtained from all three questionnaires from a checklist of 17 physical and psychological symptoms (IV Table 1) commonly used in such checklists. The same checklist had been used earlier in a nationwide Finnish study of juvenile health habits (Rimpelä et al. 1982) and in an adult population (Aro 1981). Paronen et al. (1982) studied the constancy of symptom reports among 14 to 15 year old school children, and found the 1 month test-retest correlation of the symptom checklist to be 0.85 in girls and 0.67 in boys.

The question heading the checklist was "Have any of the following symptoms bothered you, and if so how often during this term?" (the term having lasted roughly 4 months). Girls were also asked whether some of these symptoms occurred only during menstruation. Such symptoms were excluded from individual scores.

Twelve physical symptoms were included in the Psychosomatic Symptoms Score (PSS) (I Table 1). Five psychological symptoms from the original symptom list were excluded from the PSS. The excluded symptoms were: lack of energy or depression, anxiety or nervousness, fatigue or feebleness, irritability or fits of anger, and nightmares. These items were excluded when the main interest was in physical symptoms. The Distress Symptoms Score (DSS) refers to the sum score of all 17 symptoms. The sum scores were construed from the following ratings for each item: 0=never, 1=sometimes, 2=quite often, 3=often or continuously. Thus the theoretical range of the PSS was 0-36 and that of the DSS 0-51. The internal reliability of the PSS was 0.74 and that of the DSS 0.82 as measured by Cronbach's alpha coefficient. Correlations between single symptom items are presented in Appendix 1. Since it may be argued that persistent symptoms are more clinically significant, in study I we made up a score of frequent psychosomatic symptoms by excluding occasional symptoms and summing up those that occurred 'quite often' (=1) and 'often or continuously' (=2).

4.2.2. Self-image, self-esteem and school performance

A semantic differential scale of self-image developed by Rauste-von Wright (1975) among Finnish adolescents was used as a measure of self-image. The test consisted of 21 bipolar scales representing various personality characteristics. In the current study (as well as in the original study) the factor analysis yielded seven factors that were interpreted as intelligence vs. mediocrity; attractiveness vs. unattractiveness; leadership vs. submissiveness; matter-of-factness vs. emotionality; presence of mind vs. impulsiveness; relaxedness vs. anxiety; and energy vs. lack of energy.

The self-esteem scale was a modified version of that developed for Finnish students (Helenius and Lyttinen 1974). It consisted of seven self-assertions on a 5-point scale (IV Table 2), giving a theoretical range from 7 to 35. The internal reliability of the score was 0.79 among girls and 0.77 among boys as measured by Cronhách's alfa coefficient.

Self-reported means of school marks were used as a measure of school performance.

4.2.3. Adolescent behaviour

Information about adolescent behaviour was obtained by structured questions. Those who reported that they had dated, for however short a period, were included in the group with dating experiences. Alcohol use was reported as either monthly or heavy

drinking. Those who reported having consumed alcohol monthly or more frequently during the term were included in the monthly drinking group. Pupils were included in the heavy drinking group if they also reported having been intoxicated at least four times during the term. We further asked whether the adolescent had been apprehended breaking the law during the previous 12 months.

4.2.4. Social class

Children were grouped into three social classes based on a standard classification of occupations (Central Statistical Office 1975) using the father's occupation or where this was missing the mother's. In cases of unknown occupation the assignment of social class was based on the parent's education.

4.2.5. Pubertal development (in girls)

The timing of puberty was based on the self-reported age of menarche in the first questionnaire. We asked whether the girl had started to menstruate and, if so, how old (in years) she had been at the time. In subsequent questionnaires we only asked whether she had started to menstruate or not; there were no discrepancies in these answers with regard to earlier reports of menarche. Age of menarche varied from 9 to 16. The 18 girls who still were premenarcheal at the end of the study were given the value 16 for age of menarche.

The girls were divided into four maturational groups: menarche at 11 or earlier, at 12, at 13, and at 14 or later. These groups were named 'extremely early', 'early', 'on time' and 'late', respectively. Gynaecological age refers to time since menarche.

The mean age of menarche (calculated by adding half a year to the reported age of menarche) was 13.2 years, which corresponds with the results of a recent prospective follow-up study of Finnish girls in which the mean age of menarche was 13.25 years (Ojajärvi 1982).

4.2.6. Life events and interpersonal problems

Information about life events during the past 12 months was obtained from the last questionnaire. The life event scale was constructed on the basis of earlier life event lists for young people (Coddington 1972, Johnson & McCutcheon 1980, Saari 1981). Some modifications were also made after a small pilot study of 30 pupils of the same

age. A total of 25 mainly adverse events and important changes were included in the final checklist. The pupils were asked whether they had experienced any events (yes or no) during the past 12 months (after May 1982). At the end of the checklist there was also an open-ended question for events not mentioned in the list. No weighting of events was used. In the analyses we constructed a score of 'life events' assumed to be independent of the adolescent's emotional and physical state. A separate score of 'interpersonal problems' was constructed for interpersonal events which were not all 'events' in the strict sense of the word and which may have been affected by the subject's own behaviour. We use the term 'life stress scores' when referring to both of these scores.

Possibilities to validate life event reports were limited: Answers to the item 'change of residence' were compared with the addresses reported on different questionnaires. Some comparisons could be made with interviews carried out with the families of 17 adolescents with high levels of psychosomatic symptoms and 12 controls in the spring of 1983. These comparisons suggest that life event reports given by the adolescents were fairly reliable (for details, cf. III pp. 192-3).

4.2.7. Parental death, divorce and discord

Information about parental death and divorce was obtained from answers to structured questions in the third survey. In the first survey we had information of the family structure. No illogicalities were found when these answers in the first and third survey were compared.

The evaluation of parental discord was based on a statement "My parents have many problems in their mutual relationship", with five alternative choices. In study V, adolescents in original two-parent families who agreed with the statement (from some to full extent) formed the parental discord group.

4.3. Comparison of participants and non-participants

First, comparisons were made between those who participated in all three questionnaires and those who participated in the first survey but not in the follow-up (n=229). Boys dropped out more often than girls (12% vs. 9%). Children from non-intact families were over represented among the non-participants (37% vs. 26%). Pupils who dropped out from the follow-up had higher levels of the PSS (girls M=4.8 vs. M=3.6, $p<0.001$; boys M=3.6 vs. 2.9, $p<0.01$) and DSS (girls M=8.3 vs 6.5, $p<0.001$; boys

M=5.9 vs 5.0, $p < 0.05$) than stable pupils. No significant differences in the father's or mother's social class were found among participants and non-participants.

Second, comparisons were made between those who participated in the follow-up and those who participated in the third survey only. The 86 pupils who participated only in the last survey also had higher symptom scores, 38% of them coming from divorced families and 40% reporting a change of residence. Other life events were also commoner among these pupils. Our assessments of life events may therefore be underestimates, but the drop out was relatively small. Furthermore, it should not affect associations between stress and symptoms.

4.4. Statistical methods

Statistical methods included the chi-squared test, Student's t test, correlations and analysis of variance. In study V post hoc comparisons were made using Scheffe's test.

In study II analysis of covariance and multiple classification analysis were also used. The multiple classification analysis allows independent variables to be ordinal or even qualitative, does not assume linearity, and it also gives results in a concrete fashion. (The square of eta indicates the proportion of variance explained by a given factor, and beta is a standardised regression coefficient in the sense used in multiple regression.)

Girls and boys were mainly analysed separately. Sex differences were partly tested with two-way analysis of variance.

All data analyses were done using the SPSS^X program.

5. RESULTS

5.1. Psychosomatic symptoms in adolescence

I Table 1 shows the frequencies of psychosomatic symptoms at the start of the study. Occasional symptoms were reported fairly often. Nine in 10 girls and eight in 10 boys reported at least one symptom. One in three girls and one in five boys reported symptoms occurring quite often or more frequently. 'Often or continuously' occurring symptoms were rare, with only 7% of girls and 4% of boys reporting them.

Most symptoms were commoner in girls than in boys. Only 'heartburn or acid troubles' was more prevalent in boys. There were no substantial differences in abdominal pains, nausea or vomiting, diarrhoea or excessive perspiration between boys and girls. Headache was the commonest single symptom among both sexes, reported by about two thirds of our subjects, quite often or often by 15% of girls and 7% of boys. One in three reported sleeping difficulties. Breathlessness and palpitations were least common. Frequent nausea or vomiting, heartburn or acid troubles and diarrhoea were also rare.

Girls reported more psychosomatic symptoms than boys throughout the study, but there was an increase in symptoms among both sexes during follow-up (I Table 2). The constancy of symptoms over time was quite high. The 5 month test-retest correlation of the PSS was 0.66 in girls and 0.69 in boys, the respective 17 month correlations being 0.53 and 0.59.

The proportion of adolescents reporting frequent symptoms did not essentially change during the study. Transient symptoms were common, but 13% of girls and 6% of boys reported frequent symptoms in all three inquiries.

Associations between the PSS and family background characteristics are presented in I Table 3. Higher levels of psychosomatic symptoms were observed in pupils with a non-intact family structure. Symptoms were also more prevalent in families with a higher number of children. These differences were small, but the gradient was maintained among both sexes throughout the study. There were no major differences related to birth order, but only children had lower scores than others.

Differences in symptoms between the social classes were small (I Table 4). However, children from working class families reported systematically slightly higher scores

than others. Among girls this difference in the last inquiry reached significance at the $p < 0.05$ level. Differences in relation to school performance were large, children with lower school performance reporting more symptoms (I Table 4). The association between school performance and symptoms was similar within all three social class groups.

5.2. Timing of puberty and psychosomatic symptoms (in girls)

Throughout the study higher levels of psychosomatic symptoms were found among earlier maturing girls (II Fig. 1). Contrary to our expectations, extremely early maturers and early maturers did not differ from each other. In order to separate the impact of timing and time since menarche, these two groups of early maturers were compared with the others, using time since menarche as the covariate. After adjusting for time since menarche, early maturers scored higher at the beginning of the study ($p < 0.01$), but not in the two subsequent surveys. The impact of time since menarche is illustrated in II Fig. 2, where the psychosomatic symptom scores among maturational groups at the three points in time are presented against time since menarche. The impact of time since menarche is clear, although not consistently linear. The on-time and extremely early groups had slightly lower scores than expected, if a linear effect of time since menarche is assumed. There were no significant associations between the variables studied and chronological age within the same schoolgrade.

We also studied whether there were any differences in dating and drinking habits that might constitute mediating factors in the relation between maturation and psychosomatic symptoms. At the age of 16, there were significant differences in dating behaviour depending on maturation (II Fig. 3). The proportion of those with dating experiences varied from 70% to 48% between early and late maturers, and the frequency of current dating from 30% to 15%, respectively, the greatest differences being observed between late maturers and the others. Monthly drinking was also positively related to maturation, showing a clear gradient in May 1982 (II Fig. 4). A year later, drinking was still less common among late maturers, but differences between the other groups were small (II Fig. 4). The results suggest a fairly strong "grade effect": the number of girls who reported drinking alcohol monthly in May 1983 exceeded the May 1982 figure for girls of similar gynaecological age. There was a strong relation between drinking behaviour and dating: 87.5% of girls who drank alcohol monthly had also started dating. Nearly half of the girls who had started dating

also drank alcohol monthly, compared with one tenth of girls with no dating experiences.

As expected, psychosomatic symptoms were more prevalent among dating and drinking girls (II Table 1). They were, however, positively related to maturation even after adjusting for dating and drinking. The results of the multiple classification analysis showed that the proportion of variance in psychosomatic symptoms explained by maturation was relatively small ($\eta^2=1.2\%$), but this impact remained after adjusting for dating and drinking. After adjusting for other factors, the direct impact of dating on symptoms diminished (smallest beta value), suggesting that its impact on symptoms was largely due to associations with the other variables.

At the age of 16, minor differences in mean school marks were also observed between the four maturational groups ($p<0.05$), with late maturers having slightly better school performance. No significant differences in any aspect of self-image could be demonstrated between the four maturational groups. We found no significant social class differences in the impact of age at menarche on symptoms.

5.3. Life stress and psychosomatic symptoms

The frequencies of different life events and interpersonal problems are presented in III Tables 2 and 3. 'Death of a grandparent', 'increased conflict between parents' and 'change of residence' were the most common single events. 'Losing a pet' was commoner among girls than boys. 'Increased conflict between parents' was also more commonly reported by girls, as were all interpersonal problems except for 'increased conflict with teacher', which was nearly twice as common among boys.

The correlations between life stress scores and psychosomatic symptom scores in the three inquiries are presented in III Table 4. These associations are also illustrated in III Figs. 1-3. Although the correlations were generally rather low, the number of life events and interpersonal problems was associated with the occurrence of psychosomatic symptoms.

At the end of the study, adolescents who had experienced many life events had the highest levels of symptoms. Change in symptoms was not related to life event scores in girls, but in boys the greatest increase in symptoms occurred among those who had experienced many life events. Although boys in general had lower symptom scores than girls, by the end of the study boys with many life events reached the same level as

girls with many life events. However, symptom differences related to the number of life events were clearly present from the beginning, especially among girls.

A similar pattern of differences in psychosomatic symptoms emerged in relation to interpersonal problems, the correlations being higher than those for life events. Baseline differences in symptoms were greater in relation to interpersonal problems than in relation to life events, but here also the scores increased with increasing number of problems, especially among boys. As with life events, boys with many problems had reached the same level of symptoms by the end of the study as girls with many problems.

There was a marked correlation between life events and interpersonal problems (girls 0.30, boys 0.23). Since it may be argued that interpersonal problems were not independent of the subject in the same way as life events, partial correlations between life events and symptoms were also presented after adjusting for interpersonal problems (III Table 4). As expected, these coefficients were somewhat smaller, but the pattern of associations remained the same. On the other hand, interpersonal problems could also be considered as mediating factors between events and symptoms, reflecting a reaction in a stressful situation or some failure in social support. However, two-way analysis of variance showed no statistically significant interaction between life events and interpersonal problems (III Fig. 3). III Fig. 3 also shows that baseline differences in symptoms were mainly found among those who had reported not only life events but also interpersonal problems. A report of three or more life events but no interpersonal problems was uncommon.

III Fig. 4 shows the change in psychosomatic symptoms among girls and boys in relation to single events. (The events with an occurrence of about 5% or more were included.) 'Severe illness of a close friend', 'increased conflict between parents' and 'severe illness of a family member' were the single events most highly associated with high symptom scores and with the greatest increase in symptoms in both sexes. The effect of events involving illness or loss was greater in boys than in girls.

Symptom scores related to parental divorce and death of a family member are also included in III Fig. 4 as such events are serious. Because of their low frequency the results are only suggestive. Boys who had experienced parental divorce had high scores throughout the study, whereas those who had experienced the death of a family member had a marked increase in symptoms during follow-up. Among girls the impact of these events was less clear.

III Fig. 5 shows changes in symptoms in relation to single interpersonal problems. Among boys the highest symptom scores, and among both sexes the highest increase in symptoms, were found among those who reported 'loss of a close friend'. Girls who reported 'increased conflict with teacher' had high levels of symptoms and also a high increase in symptoms.

5.4. Parental loss and adolescent development

There were 1465 adolescents from original two-parent families, 394 from divorced families and 70 who had lost one or both parents through death. In most cases parental death involved death of father, in 13 cases death of the mother and in three cases death of both parents. Adolescents with recent parental loss during the previous 17 months were excluded.

IV Fig. 1 shows the mean DSS for adolescents in different groups. Boys who had suffered parental loss through death had the highest scores ($p < 0.001$), whereas girls in a similar situation did not differ from those in intact families. Boys had high scores regardless of the sex of the deceased parent. Girls had slightly higher scores if the mother had died, but the number of these girls was too small for any definite conclusions to be drawn. The results were similar when physical and psychic symptoms were analysed separately.

Compared with children from two-parent families, children from divorced families reported more distress symptoms, especially girls (girls $p < 0.001$, boys $p < 0.05$).

IV Table 3 shows the means of school performance, self-esteem and self-image factors in the three groups. Adolescents from divorced families and boys from families with parental death had lower school performance than those from two-parent families. The self-esteem of girls from divorced families was lower than that of the others. The self-esteem of boys with parental death was also lower than in other boys, although this difference did not reach statistical significance. Differences in factors of reported self-image were small. Girls from divorced families rated themselves as less intelligent and slightly more impulsive than those from two-parent families. Compared with boys from two-parent families, boys with parental death scored themselves as more emotional on the emotionality vs. matter-of-factness factor.

Compared with boys from two-parent families, apprehension of breaking the law was twice as common among boys from divorced families (12% vs. 6%; $p < 0.01$) and over three times as common among boys with parental death (22% vs. 6%; $p < 0.01$). Among girls breaches of the law were rare (1.2%).

IV Table 4 shows frequencies of dating and heavy drinking in the three groups. More than half of all adolescents had had dating experiences, but these were commoner among those with parental loss. Heavy drinking was twice as common among adolescents from divorced families as among those from two-parent families.

5.5. Parental discord, divorce and adolescent development

Children in original two-parent families were divided into two groups on the basis of parental discord. One in four girls and one in five boys reported that their parents had problems in their mutual relationship. Two-parent families without reported parental discord were termed "intact" families. Twenty-four per cent of the children had experienced parental divorce or separation. Only some 10% of these had experienced parental divorce during the previous 17 months. Therefore these results reflect the long-term impacts rather than immediate responses to divorce.

Children from both divorced and discordant families reported significantly more distress symptoms than those from intact families (V Fig. 1). Boys from discordant families had a slightly higher DSS than boys from divorced families, whereas the opposite was true of girls. However, neither of these differences reached statistical significance, and two-way analysis of variance showed no significant interaction between the sex of the child and the family situation in relation to the DSS. The results showed similar trends when somatic and psychic symptoms were analysed separately.

V Table 1 shows the means of school performance, self-esteem and self-image factors in the three family groups. Both girls and boys from divorced families had poorer school performance than children from intact or discordant families. Boys from discordant families reported lower self-esteem than boys from intact or divorced families, whereas girls from divorced families reported lower self-esteem than those from intact families. Two-way analysis of variance showed a significant interaction between sex and family situation in relation to self-esteem ($p < 0.01$).

Differences in factors of reported self-image were not great, but compared with children in intact families they were found more often among girls from divorced families and among boys from discordant families. Girls from divorced families considered themselves less intelligent, more impulsive and slightly less energetic than did girls from intact families. Girls from families of parental discord did not differ from girls in intact families on any other self-image dimension but considered themselves more impulsive. Boys from discordant families considered themselves more emotional, slightly less energetic, more impulsive and more anxious than did boys from intact families. Boys from divorced families rated themselves as slightly more emotional and less intelligent than those from intact families. However, two-way analyses of variance showed no significant interaction between sex and family situation in relation to any of the self-image factors.

Five per cent of the boys from intact families, 14% of those from divorced families and 12% of those from discordant families reported having been apprehended for breach of the law during the previous 12 months (V Table 2). In both sexes heavy drinking was commoner among children from divorced families and discordant families than among those from intact families (V Table 2).

Almost two in three girls and more than half of the boys had had dating experiences. Twenty-seven per cent of girls and 16% of boys were currently dating. Girls from both divorced and discordant families had more dating experiences and were also more often currently dating than girls from intact families. Similarly, boys from divorced families had more dating experiences than boys from intact families, but current dating was no commoner among them. Boys from discordant families did not differ from those from intact families in either respect (V Table 3).

Roughly 40% of the children whose parents were divorced lived in step families. No significant differences in the variables studied were found between these children and those living with a single divorced parent. The associations between family situation and measures of outcome were similar in the three social class groups.

6. DISCUSSION

6.1. Study design and methods

The study covered all Finnish school children aged 14–16 in Tampere, and as such was non-selective and representative. There may be regional differences in the occurrence of symptoms, but the associations studied probably represent somewhat general features in adolescent development, and can therefore be generalised at least to some extent with respect to Finnish urban children. Short-term cohort effects in the issues studied are unlikely. When interpreting the results it should be remembered that cultural differences probably do exist between countries in terms of growing up, both generally and in the face of stressful life experiences. Furthermore, our results concern the adolescent period only, and the long-term effects of stressful experiences, if they exist, may be quite different in adulthood.

Since the questionnaires were completed in class, the situation was controlled and the pupils could be motivated to cooperate. This ensured a very high response rate, which is of special importance in a study seeking to avoid selection bias. Possible interviewer bias was also avoided. On the other hand, although individual and honest answers were encouraged, it is possible that group trends in class leaned toward under- or overreporting of certain phenomena, this may be the case particularly with respect to drinking behaviour.

To the adolescent, investigators reflect the adult world, and may be perceived in his or her inner developmental process as representative of parents. The investigator cannot be isolated from the interactional research situation and may as such influence the results. We faced some criticism and rebelliousness, but less than we expected. On the other hand we faced need for adult consideration. Comments like "Adults do not care for adolescents" and "At last someone is interested in adolescent health and development" illustrate the point.

The very small number of questionnaires which had to be disregarded suggests that pupils of this age are both willing to cooperate and able to complete questionnaires properly. The reliability of answers that could be checked support this view, as do the available reliability coefficients.

Psychological problems have been found to be more prevalent among those who drop out (Cox et al. 1977). Our comparisons between participants and non-participants support this finding. Fortunately our drop-out rate was small, 88% of the study

population participating in the follow-up. Also, part of the analyses were based on cross-sectional data obtained when the participation rates were very high (97%).

When studying subjective symptoms a questionnaire approach can be considered appropriate, but all other data were also based on self-report and many of our measures were relatively crude.

Self-reporting poses particular problems in relation to parental discord and interpersonal problems, since these then reflect the adolescent's perceptions. On the other hand, it can be argued that such perceptions are of special importance providing they are stable. It is often thought that adolescent mood swings and perceptions may be intense but rapidly changing. The fact that pupils who reported parental discord or interpersonal problems in the third survey had had higher symptom scores in the two earlier surveys indicates indirectly that a certain degree of stability in perceptions of parental discord and interpersonal problems does exist. However, both symptom reports and these perceptions are likely to be coloured by the emotional state of the person. Furthermore, adolescents may be very loyal to their parents and under-report parental discord (Harley 1986).

There are many methodological problems associated with current life event stress research (Rabkin & Struening 1976, Brown 1981). Dohrenwend (1974) has suggested that in the design of life event studies it is important to draw samples from unselected populations, to acquire information about the baseline status of health, and to exclude confounding outcome-related items from life event checklists. Our study fulfils these criteria, but unfortunately the follow-up design was only partial since it did not include e.g. life events in the first surveys. Also, measuring life stress on the basis of a checklist ignored the complexity of the quality, severity and personal meanings of these phenomena.

6.2. Psychosomatic symptoms in adolescence

Occasional symptoms in adolescents were common, but frequent and persistent symptoms were rare. In a study by Schoenbach et al. (1983), adolescents reported occasional symptoms more often than adults, whereas the opposite was true in the case of frequent symptoms. It has been shown that people who are attentive to their bodies tend to report more symptoms (Pennebaker 1982). Attentiveness to the body and introspection are believed to belong to normal adolescent development. It may be

that occasional symptoms often reflect developmental introspection in adolescents. However, the constancy of symptoms over time as measured by the 17-month autocorrelations was fairly high, and about one in ten adolescents reported frequent symptoms in all three surveys. It may be that persistent or frequent symptoms are more of social psychiatric (Craig & Van Natta 1979) or even medical importance.

It is possible that the occurrence and maintenance of physical symptoms under stress in adolescence is of special importance in determining patterns of symptom perceptions as an adult (Mechanic 1983). De Boer and Mitscherlich (1973) have suggested a hypothesis of a two-phase development of psychosomatic illness: The first phase is a phase of stress, when a person experiences stress and subjective symptoms. If this state persists for long or often enough it may in some people lead to the second phase which is one of organic illness.

Little empirical research has been done on the long-term prognosis of psychosomatic symptoms in adolescence. Most existing reports are based on clinical materials and concern mainly younger children. In a follow-up study of school children from the age 11 to 18, Rauste-von Wright and von Wright (1981) reported a higher constancy of symptom reports among females than males as measured by correlations over time. Mäenpää et al. (1980), in a study of 30 patients who had attended an adolescent outpatient clinic for psychosomatic symptoms, reported that after treatment and a mean follow-up period of 6 years two thirds of them were symptom-free. In their study the best prognostic sign was the patient's own emotional experience of the relationship between functional disorders and his or her life situation.

Honkasalo (1988) described the complex and several meanings that symptoms in science or in women's daily lives may have. Lask (1982) reviewed different explanations and functions given to psychosomatic symptoms and disorders in family research. The present study does not discriminate between symptoms reflecting healthy development of being in touch with one's body in an individual at one end and somatisation disorder at the other. Nor does it allow evaluation of the possible meanings of symptoms in a family context. At group level, however, psychosomatic symptoms may be interpreted as reflecting distress in the person-environment interaction.

In adults, psychosomatic symptoms have been found to be commoner in lower socioeconomic groups (Aro 1981, Schwab & Traven 1979), but psychological problems among children and adolescents have not been found to be generally related to social class (Quinton 1977). In the present study psychosomatic symptoms were slightly more

prevalent among adolescents from working class families, especially in girls. The differences were small but consistent. The findings raise the question whether this is the age period when such differences start to emerge. However, our follow-up was too short for such a conclusion to be made. No social class differences were found in the associations studied, but it should be remembered that our division of social class into three groups was fairly crude.

We found a strong association between school performance and psychosomatic symptoms. Adolescents with low scholastic capacity may thereby be exposed to stress, as school achievements are highly demanded and respected at school, in the family and in society at large. Low school performance may for school children be analogous to social status for adults. On the other hand, it is possible that other life strains affect both the experience of symptoms and school performance. A decline in school performance in younger children associated with divorce and other severe family stress has been reported in many studies (Hess & Camara 1979, Hetherington et al. 1982, van Eerdevegh et al. 1982). In this study lower school performance was associated with divorce among both sexes, but not with parental discord. It is possible that the association of low school performance with divorce reflects earlier impacts of divorce, whereas the nonexistent association with parental discord may suggest that school performance in adolescence is less affected by acute family stressors than earlier in childhood.

During our relatively short (17 months) follow-up there was an increase in symptoms among both sexes. It is probable that psychosomatic symptoms increase with age or development. However, it is also possible that the higher scores at the end of the study reflect a stressful life period for many. The pupils were in their last month of secondary school, had applied for further education, and were uncertain of the results. This kind of stress related to future perspectives did not exist during the two earlier surveys.

6.3. Pubertal development and psychosomatic symptoms (in girls)

The study demonstrates some of the complexity of studying developmental issues. Unfortunately we had information about pubertal development only in girls, and even then only retrospective data about menarche.

The results of the present study show differences in psychosomatic symptoms and social behavior in relation to age of menarche among 14 to 16 year old girls. However,

the results suggest that these differences were largely associated with pubertal development as such. After adjusting for time since menarche, the impact of timing on psychosomatic symptoms was demonstrated only at the beginning of the study, not later. Differences in behaviour also seemed to be related to gynaecological age rather than timing. There was an increase in symptoms among all maturational groups, and thus the impact of gynaecological age may be confounded with age or school grade effects. Within the same grade age was not related to symptoms, but its variance was small since all girls were born the same year.

It is possible that the effects of timing of menarche level off in mid-adolescence. Recent studies have suggested specific and time-limited effects of timing (e.g. Tobin-Richards et al. 1983, Brooks-Gunn & Warren 1985b). In the present study the lower symptom scores of the on-time group (when adjusted for time since menarche) fit in with earlier findings that being on time is least stressful. However, the differences were small. Even the impact of gynaecological age on psychosomatic symptoms is probably short-lived, and differences seem to level off when all girls have moved through the pubertal processes. The age-graded nature of many adolescent experiences may override any maturational effects, or the effects of maturation may spread rapidly through an age group (Brooks-Gunn & Warren 1985b).

Interactions between maturation and environmental context have added an important aspect to developmental studies (Brooks-Gunn & Warren 1985b, Simmons et al. 1983). In the present study we found no significant interactions in 16 year old girls with age of menarche when studying associations between stressful experiences and psychosomatic symptoms. The situation might have been different had the age group been younger.

6.4. Life stress and psychosomatic symptoms

The accumulation of many adverse events or problems had the greatest impact on symptoms. The psychiatric risk of cumulative chronic stress on children has been shown earlier (Rutter 1979b). Wildman (1978) suggested that there may be a threshold above which life events begin to exert an adverse affect. The limited information about life events and their seriousness in our study leaves open the question as to whether it was actually the accumulation of events that was essential. Another possibility is that serious events were more often followed by other, perhaps less important, events.

Symptom differences related to life stress scores were already apparent at the beginning of the study. This has also been reported among adults (e.g. Aro & Hänninen 1984). Some of these differences may be explained by differences in subjective reporting or by the telescoping effect of events reported that have occurred before the requested 12-month period. However, it seems more likely that the differences in prior levels of symptoms reflect real differences in distress.

It has been argued that long-lasting life processes rather than events are the essence of life stress (Gersten et al. 1977). Life events may be no more than separate stages in stressful processes. It is even more likely that interpersonal problems are often reflections of still more longstanding difficulties. However, the items in the list of interpersonal problems were also susceptible to confounding factors, as both increased interpersonal conflicts and symptoms may be reflections of an individual's psychological status. The items in the list of life events should have been independent of the individual's physical or psychological status. Most of them were beyond the control of the adolescent, and thus it seems unlikely that psychosomatic symptoms could have produced life events. The baseline differences in symptoms in relation to life events were largely explained by coexisting interpersonal problems. It is possible that stressful life processes produce life events, interpersonal problems and psychosomatic symptoms.

6.5. Parental death, divorce and discord

With the exception of girls with parental death, children who had lost their parent earlier in life showed more distress in adolescence than children from intact families. The most distressed groups seemed to be boys with parental death and girls from divorced families. The results are consistent with the earlier finding that the impact of parental loss is probably different in girls and boys (e.g. Hetherington 1981, Black 1978) and underline the importance of studying different kinds of parental loss separately (Harris & Brown 1985).

Divorce is not a single event but a multistage process which radically changes family relationships and which affects children long before the actual separation of parents occurs. For instance, Block et al. (1986) found in a prospective study that children, especially boys, whose parents were going to divorce differed in behaviour from those whose parents remained together, even 11 years before the actual marital rupture. There is strong evidence that parental discord is one crucial factor producing negative consequences of divorce (Rutter 1979a).

The judgement of parental discord was contemporaneous, whereas for the great majority of children divorce had taken place earlier in childhood. Thus conclusions about their relative impact are methodologically problematic due to this different time lag (Richards & Dyson 1982). Parental discord may often mean an acute stressor, whereas divorce may reflect mainly earlier or chronic stressors. In any case the results showed that both divorce and parental discord were associated with adolescent distress and problem behaviour. Children from both divorced and discordant families reported more distress symptoms, more abundant alcohol use and (in boys) more delinquent acts than children from intact families.

6.6. Sex differences

Differences between the sexes were found in many respects. The level of psychosomatic symptoms was higher among girls, which is in accordance with other studies suggesting female preponderance in symptom reporting from adolescence upwards (Rauste-von Wright & von Wright 1981, Rimpelä et al. 1982, Aro 1981). During adolescence there is also a shift in the sex ratio related to depression from almost equal before puberty to a female preponderance after puberty (Graham & Rutter 1985). The female preponderance in both psychosomatic symptoms and depression then persists through adult life (Schwab & Traven 1979, Weissman & Klerman 1979). There has been some doubt as to whether these differences between the sexes reflect real differences or are due to response bias. Recent studies have produced evidence in support of real differences (Briscoe 1982, Rutter 1982). The finding that women experience more symptoms and depression, but that the life-expectancy of men is shorter has puzzled scientists and led to a variety of speculations (Verbrugge 1985).

Reasons for the emerging sex differences in symptom perception and depression in adolescence have not been established. There may be some combination of age-related changes in biological functioning, cognitive functioning or social circumstances (Graham & Rutter 1985).

Comparisons between the sexes in adolescence are problematic due to different timing of pubertal development, girls as a whole being on average 2 years ahead in development (Petersen & Taylor 1980). Theoretically, if this were taken into account by comparing symptom scores for boys at the end of follow-up with those of girls 17 months earlier, the results would not show significant differences. However, this kind of approach is confounded by age, grade and environmental effects. Furthermore, our

follow-up was short and earlier research indicates that sex differences in symptom scores do persist (Rauste-von Wright & von Wright 1981).

Pubertal development in girls is often an ambivalent process accompanied by distress (Koff et al. 1981). Explanations for the increase in psychosomatic symptoms with gynaecological age in girls in the present study remain open. The timing explanation proved to be insufficient at this age. Sex-role expectations for adolescent girls in our culture are often contradictory. Rauste-von Wright (1975) reported that between the ages of 13 and 15 the values and ideal self-image of girls and boys became more similar, while girls' self-esteem and sense of social success slightly weakened. Fifteen year old girls as well as boys also considered a 'typical boy' to be more successful than a 'typical girl'. Does the increase in symptoms reflect the general stressfulness of the female pubertal developmental process?

On the other hand, during our relatively short follow-up there was similar increase in symptoms among both sexes. Furthermore, reactions to stress may vary according to sex: it has been suggested that girls tend to react more with subjective symptoms, whereas boys react more often with direct behaviour such as delinquency or alcohol abuse (Kandel & Davies 1982, Choquet & Menke 1987).

Girls reported conflict with parents and friends and conflict between parents more often than boys. This may reflect greater sensitivity or orientation of adolescent girls towards social relationships (Rosenberg & Simmons 1975). D'Arcy and Siddique (1984) reported that female adolescents showed greater external locus of control and greater concern for the quality of their familial relationships and peer group life than did boys. In the present study boys reported more conflict with teachers than girls, further suggesting different patterns of orientation in social relationships.

The results of this study suggest that the self-concept of girls in adolescence may be affected to a greater extent by earlier divorce. Parental divorce may add to the stressfulness of female adolescent development. It has been suggested that the impact of parental divorce may be delayed and stressful for girls in adolescence, mainly associated with difficulties in developing sexual relationships (Hetherington 1972). Wallerstein and Kelly (1980) reported that adolescent girls from divorced families in particular showed heightened anxiety about their emerging sexuality. In our study, dating was commoner among girls from divorced families, but we had insufficient data for a more detailed analysis.

In terms of change in symptoms, the impact of life events and interpersonal problems was more marked among boys. Though boys in general had lower symptom scores than girls, boys with many life events or problems had reached similar scores by the end of follow-up to those of the respective groups of girls. Also, the impact of single events was more marked among boys. Johnson and McCutcheon (1980) suggested that among adolescents an accumulation of negative life changes may have its greatest impact on the physical symptoms of males and on the psychological adjustment of females. Since events and problems may actually reflect longer processes, it is not sufficient to study only changes in symptoms (see Kessler 1983). Differences in symptoms at the beginning of the study in terms of subsequent life events were greater among girls than boys. The results can hardly be explained by differences in reporting. Thus the data suggest that both girls and boys react to stressful situations with psychosomatic symptoms, but that the pattern differs. Girls seem to react at an earlier phase of a stressful process. This might be due to their greater sensitivity to observe interpersonal relationships and their earlier detection of stressful processes. However, the results suggest that the overall impact of life stress on psychosomatic symptoms is greater in boys than in girls.

Several studies have suggested greater vulnerability of boys to family stress, at least before puberty (e.g. Rutter 1970, 1985). Our results also suggest that boys continue to be more vulnerable than girls to parental discord in adolescence.

Although boys in general had lower scores in distress symptoms than girls, boys with parental death had the highest scores. Somewhat surprisingly, in our study girls with parental death did not differ from those from intact families. There is some suggestion that children are more likely to be adversely affected by the death or illness of the parent of the same sex (Rutter & Quinton 1984). In our study the majority of children with parental death had lost their father. There were, however, no clear differences between those who had lost a mother or father, but the number of children whose mother had died was very small. Furthermore, one could suggest that girls have worked through their grief at the time of the loss but that boys have not, as our culture tends to allow girls to cry but to discourage boys from showing their feelings openly. Another possible explanation - leading to different conclusions - is that in girls loss and grief is repressed and remains unresolved in adolescence, which may leave them prone to depression in adult life. We do not know whether it is beneficial for development or not, to experience distress in adolescence under these circumstances. Distress symptoms may reflect developmental stress that strengthens personal growth, or may be signals of excessive stress putting healthy emotional development at risk.

6.7. Implications for adolescent health care

Although transient psychosomatic symptoms in adolescence were common, the constancy of symptoms measured by 17 month test-retest correlations was fairly high, and 13% of the girls and 6% of boys reported frequent symptoms in all three questionnaires. The occurrence of symptoms was associated with environmental stress, and the study demonstrated some of the complexity of these phenomena as part of development and interactional life processes.

The results do not allow direct interpretations or conclusions to be made as to the clinical significance of the symptom reports. They do, however, support the view held in adolescent medicine that owing to rapid changes in adolescence physical, psychological, and social aspects are especially closely interrelated. Thus the meaning or clinical significance of physical complaints cannot be interpreted merely on the basis of symptom reports. What is required instead is a holistic approach which examines the individual adolescent experience, life history and life situation, taking into account the development with its physical, psychological and social aspects. There is no justification to believing that psychosomatic symptoms in adolescence are part of normal developmental processes and are self-limiting without listening closely to the adolescent's experience and examining his or her life situation.

In Finland school health care reaches all children of this age group. Thus it has a key role within our health care system in identifying and helping children in need of further support in their development and life situation.

The role of social support as a buffer against stress may be important (e.g. Hetherington 1981). Within the community, adolescents who experience family stress would probably benefit from support from extrafamilial adults (at school, in hobbies etc.). Furthermore, it has been shown that a beneficial school climate may support children living under conditions of psychosocial disadvantage (Rutter et al. 1979).

6.8. Implications for further research

The present study still provided in many respects a crude picture of the relationships between life stress, development and adolescent well-being. In order to gain better understanding of the interactive processes involved, more specific questions and more specific study designs are needed.

When studying children and adolescents a developmental perspective is vital. Neither the age and developmental stage nor complex reciprocal interactions with the environment can be omitted. Rather than thinking in terms of "variables" or "factors", one should focus on "processes" and "mechanisms" (Rutter 1987). Careful theoretical considerations about processes across time are needed. A hypothetical process can then be turned piece by piece into specific study designs implemented in the form of empirical tests with appropriate "variables". Longitudinal designs are often needed, and specific attention should be paid to various kinds of interaction.

Among questions deserving more detailed and long-term study of the processes involved are the constancy of psychosomatic symptoms over time and the appearance of sex differences in symptom perceptions during adolescence.

Since stresses and difficulties are unavoidable in life, it is important to study what is protective in stressful circumstances. Even in the face of great adversity many children develop normally. Learning to cope successfully with different stresses can be considered an important developmental task.

In his review of research into stress-resistant children, Garmezy (1985) concluded that three sets of protective factors can be identified in children as follows: 1) personality factors such as self-esteem; 2) family cohesion and absence of discord; and 3) the availability of external support systems that encourage and reinforce the child's efforts to cope. Rutter (1987) pointed out that in order to find new approaches for prevention we need to proceed from searching for broadly based protective factors to focusing on specific protective mechanisms and processes, especially those involved in changes in life trajectory. He suggested that adolescence may be of special interest in this respect since it is a life stage which includes many so-called "key turning points" in people's lives when a risk trajectory may be redirected onto a more adaptive path. In addition, adolescence may be of special importance in learning successful coping mechanisms that will help to deal positively with the stresses and strains of life.

7. SUMMARY

The purpose of the study was to investigate associations between stress, development, and psychosomatic symptoms in adolescence. We studied the occurrence of psychosomatic symptoms in 14 to 16 year old adolescents and their associations with various family background characteristics, the timing of puberty (in girls), recent life stress (life events and interpersonal problems) and earlier family events or family situation (parental divorce, parental death and parental discord).

The study population included all 8th grade pupils attending Finnish secondary schools in Tampere in the autumn of 1981. The same pupils were examined three times: in the 8th grade in December 1981 and May 1982, and in the 9th grade in May 1983. Each of these surveys was cross-sectional, including all school children in these classes. There were altogether 2287 pupils, 98.0% of whom participated in the first survey. Of these pupils 91.4% of the girls and 89.9% of the boys participated in all three surveys.

Most of the pupils were born in 1967. The mean age of the pupils at the start of the study was 14.5 years (SD 0.3 years) and, in the last survey, 15.9 years. The questionnaires were completed in class during school hours.

Distress symptoms were asked by a checklist of 17 physical and psychological symptoms in all three questionnaires. Twelve physical symptoms were included in the Psychosomatic Symptoms Score. All other data in the study were also based on self-report.

Girls experienced more psychosomatic symptoms than boys throughout the study, but there was an increase in symptoms among both sexes during follow-up. Transient symptoms were common, but 13 % of girls and six per cent of boys reported frequent symptoms in all three surveys. Higher levels of psychosomatic symptoms were observed among pupils with a disrupted family structure and among those with poor school performance. There was a systematic though small increase in symptoms as the number of siblings increased. Children from working class families had slightly higher scores than children from higher social classes.

In girls there were differences in psychosomatic symptoms, dating, and alcohol use with age of menarche. However, the results suggest that these differences were largely related to pubertal development as such. After adjusting for time since menarche, the impact of timing on psychosomatic symptoms was demonstrated only at

the beginning of the study, not later. Differences in behaviour also seemed to relate to pubertal development rather than timing. The differences in symptoms remained even after adjusting for dating and alcohol use.

Life events and interpersonal problems were associated with psychosomatic symptoms. In terms of change in symptoms, the impact of life events and interpersonal problems was demonstrated in boys but not in girls. Although boys with a history of no events or problems had lower symptom scores than girls, those with a history of many events or problems had caught up with the girls by the end of the follow-up period. On the other hand, symptom differences related to life stress scores were already apparent at the start of the study, and were greater in girls than in boys.

Boys who had lost their parent through death had higher distress symptom scores than those from intact families or families broken by divorce, and had poorer school performance than boys from intact families. Girls in a similar situation did not differ from girls from intact families.

Children from both divorced and discordant families experienced more distress symptoms than those from intact families. Lower school performance was associated with divorce, but not with parental discord. Sex differences were found in self-esteem, girls from divorced families and boys from discordant families reporting the lowest self-esteem. Group differences in reported self-image were small; compared with children from intact families, the observed differences among girls were mainly among those from divorced families and among boys mainly among those from discordant families. Among both sexes abundant alcohol use and among boys delinquent acts were commoner in discordant or divorced families than in intact families.

The results were discussed in the light of methodological pitfalls and the complexity of interactional processes of development. Possible explanations for differences between the sexes were discussed, as well as the implications for adolescent health care and further research.

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10. APPENDICES

Appendix 1. Intercorrelations ($\times 100$) between symptoms in girls ($n = 1095$) and in boys ($n = 1147$) in December 1981.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
1. Abdominal pains	-	29	36	25	23	29	28	23	21	20	34	25	14	20	24	14	09	
2. Loss of appetite	21	-	25	32	31	26	30	22	22	23	17	33	08	11	27	11	17	
3. Headache	22	23	-	20	23	27	25	22	19	17	19	27	14	18	20	12	11	
4. Lack of energy or depression	21	33	24	-	27	23	44	23	24	13	18	42	24	17	37	17	18	
5. Sleeping difficulties	13	27	17	26	-	16	32	22	19	22	18	29	25	14	26	18	17	
6. Nausea or vomiting	20	23	16	15	19	-	19	23	19	11	34	21	15	15	18	17	17	
7. Anxiety or nervousness	23	28	20	33	27	13	-	24	28	28	22	45	28	25	43	16	18	B
8. Dizziness	14	26	27	19	24	18	15	-	13	14	13	25	18	07	20	15	13	O
9. Tremor of hands	12	12	11	19	17	19	26	16	-	19	16	22	23	21	22	20	18	Y
10. Nightmares	10	19	14	12	19	13	23	14	16	-	14	21	13	14	25	06	11	S
11. Diarrhoea or irregular bowel function	20	19	07	14	16	18	18	08	12	21	-	15	16	32	22	14	17	
12. Fatigue or feebleness	24	36	34	36	30	22	34	28	16	23	20	-	21	17	39	10	15	
13. Excessive perspiration without physical effort	08	16	10	19	19	09	22	16	21	10	12	20	-	14	21	30	24	
14. Heartburn or acid troubles	15	13	09	12	11	10	12	05	18	13	20	12	15	-	22	14	12	
15. Irritability or fits of anger	24	28	19	37	20	13	34	16	22	22	17	30	19	16	-	09	18	
16. Breathlessness	08	17	15	14	11	08	17	15	13	16	16	19	15	08	17	-	16	
17. Palpitations	07	11	14	09	16	14	16	11	18	17	15	13	17	08	16	23	-	

G I R L S

Appendix 2. The Finnish version of the questionnaire in December 1981

KANSANTERVEYSTIETEEN LAITOS
TAMPEREEN YLIOPISTO
PL 607
33101 TAMPERE 10

Hyvä vastaaja

Tampereen yliopiston kansanterveystieteen laitoksella tehdään tutkimusta nuorten terveydentilasta. Tutkimusryhmään kuuluvat erikoislääkäri Päivi Rantanen, lääkäri Seppo Aro ja tutkija Olavi Paronen.

Tutkimuksen ensimmäisessä vaiheessa tehdään luokkakysely kaikille tamperelaisille peruskoulun yläasteen 8. luokan oppilaille. Jatkossa tullaan ottamaan yhteyttä joihinkin kyselyyn vastanneisiin nuoriin ja heidän vanhempiansa. Siksi tiedustelemme nimeäsi ja osoitettasi.

Kaikki lomakkeen tiedot käsitellään täysin luottamuksellisesti. Antamasi tiedot eivät tule opettajien, kouluterveydenhoitajan eivätkä vanhempiesi tietoon.

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VASTAUSOHJEET

Vastaa kysymyksiin rengastamalla oikean tai sopivimman tuntuksen vaihtoehdon edessä oleva numero. Joihinkin kysymyksiin vastaat kirjoittamalla kysytyn tiedon sitä varten varattuun tilaan. Lue ensin koko kysymys ja merkitse sitten vastauksesi. Merkitse vain yksi vaihtoehto kuhunkin kysymykseen.

Koulu _____

Luokka _____

Nimi _____

Osoite _____

1. Sukupuoli

1 tyttö

2 poika

2. Syntymäaika _____ / _____ 19_____

ALUKSI KYSYMMME YLEISESTÄ TERVEYDENTILASTASI KULUNEENA SYYSLUKUKAUTENA

3. Mitä mieltä olet terveydentilastasi? Onko se tällä hetkellä

1 erittäin hyvä

2 melko hyvä

3 tyydyttävä

4 melko huono

5 erittäin huono

4. Onko Sinulla ollut kuluneen syyslukukauden aikana hengitystietulehduksia (esim. flunssaa, nuhakuumetta, angiinaa, nielurisatulehdusta, poskiontelon tulehdusta, yskää tai kurkkukipua)?

1 ei kertaakaan

2 yhden kerran

3 kaksi kertaa

4 kolme kertaa tai useammin

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10. Oletko kuluneen syyslukukauden aikana ottanut yhteyttä jonkin sairauden tai vamman takia

Kouluterveydenhoitajaan?

1 en

2 kyllä, minkä sairauden tai vamman takia? _____

Koululääkäriin?

1 en

2 kyllä, minkä sairauden tai vamman takia? _____

Muuhun lääkäriin?

1 en

2 kyllä, minkä sairauden tai vamman takia? _____

11. Oletko kuluneen syyslukukauden aikana ollut sairaalassa vuodepotilana?

1 en

2 kyllä, minkä sairauden tai vamman takia? _____

12. Oletko kuluneen syyslukukauden aikana käyttänyt jotakin seuraavista lääkkeistä? Vastaa jokaiseen kohtaan.

	En	Kyllä	
Lääkettä päänsärkyyn	1	2	
Lääkettä kuukautiskipuihin	1	2	
Särky-, kipu- tai kuumelääkettä muihin vaivoihin	1	2	
Antibiootteja (esim. penisilliini)	1	2	
Yskänlääkettä	1	2	
Nuhalääkettä	1	2	
Lääkettä vatsavaivoihin	1	2	
Unilääkettä tai rauhoittavaa lääkettä	1	2	
Vitamiinivalmisteita	1	2	
Rautalääkettä	1	2	
Muuta lääkettä	1	2	Kerro mitä
lääkettä? _____			

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SEURAAVAT KYSYMYKSET KOSKEVAT JOITAKIN OIREITA JA VAIVOJA, JOITA OLET MAHDOLLISESTI TUNTENUT KULUNEEN SYYSLUKUKAUDEN AIKANA

13. Onko Sinulla kuluneen syyslukukauden aikana ollut joitakin seuraavista oireista ja kuinka usein?
Rengasta sopivin vaihtoehto joka riviltä.

	Ei lainkaan	Silloin tällöin	Melko usein	Usein tai jatkuvasti
Vatsakipuja	1	2	3	4
Ruokahaluttomuutta	1	2	3	4
Päänsärkyä	1	2	3	4
Haluttomuutta tai tarmottomuutta	1	2	3	4
Vaikeuksia päästä uneen tai heräilemistä öisin	1	2	3	4
Pahoinvointia tai oksentelua	1	2	3	4
Jännittyneisyyttä tai hermostuneisuutta	1	2	3	4
Huimauksen tunnetta	1	2	3	4
Käsien vapinaa	1	2	3	4
Painajaisunia	1	2	3	4
Ripulia tai epäsäännöllistä vatsantoimintaa	1	2	3	4
Väsymystä tai heikotusta	1	2	3	4
Runsasta hikoilua ilman ruumiillista ponnistelua	1	2	3	4
Närästystä tai happovaivoja	1	2	3	4
Ärtyneisyyttä tai kiukunpurkauksia	1	2	3	4
Hengitysvaikeuksia tai ahdistuksen tunnetta ilman ruumiillista ponnistelua	1	2	3	4
Sydämen tykytystä tai epäsäännöllisiä sydämenlyönnejä	1	2	3	4

Jos Sinulla ei ole yhtään edellä luetelluista oireista (olet rengastanut jokaisen oireen kohdalta ykkösen), tytöt siirtyvät kysymykseen 22 ja pojat kysymykseen 23.

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NÄMÄ KYSYMYKSET KOSKEVAT EDELLÄ ILMOITTAMIASI OIREITA

14. Oletko ollut joistakin mainitsemistasi oireista huolissasi kuluneen syyslukukauden aikana?

1 en

2 kyllä, mistä oireista? _____

15. Oletko keskustellut mainitsemistasi oireista kuluneen syyslukukauden aikana vanhempiesi kanssa?

1 en

2 kyllä

16. Entä ovatko vanhempasi olleet mainitsemistasi oireista huolissaan?

1 eivät

2 kyllä

17. Oletko ollut mainitsemiesi oireiden takia poissa koulusta kuluneen syyslukukauden aikana?

1 en

2 kyllä, minkä oireiden takia? _____

18. Oletko kuluneen syyslukukauden aikana käyttänyt jotain lääkettä mainitsemiesi oireiden vuoksi? Flunssien hoitoon käyttämiäsi lääkkeitä ei oteta huomioon.

1 en

2 kyllä, mihin oireisiin? _____

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19. Oletko ottanut kuluneen syyslukukauden aikana yhteyttä mainitsemiesi oireiden takia

Kouluterveydenhoitajaan?

1 en

2 kyllä, minkä oireiden takia? _____

Koululääkäriin?

1 en

2 kyllä, minkä oireiden takia? _____

Muuhun lääkäriin?

1 en

2 kyllä, minkä oireiden takia? _____

20. Onko elämässäsi ollut kuluneen syyslukukauden aikana joitakin erityisiä tekijöitä, joiden arvelet olleen syynä mainitsemiisi oireisiin?

1 ei

2 kyllä, kerro minkälaisia tekijöitä? _____

KAKSI SEURAAVAA KYSYMYSTÄ ON TYTÖILLE

21. Ovatko jotkut mainitsemistasi oireista sellaisia, jotka mielestäsi esiintyvät vain kuukautisten aikana tai ovat yhteydessä kuukautiskiertoon?

1 ei

2 kyllä, mitkä oireet? _____

3 minulla ei ole vielä kuukautisia

22. Minkä ikäisenä Sinulla oli ensimmäiset kuukautiset?

_____ -vuotiaana

1 minulla ei ole vielä kuukautisia

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NÄMÄ KYSYMYKSET OVAT KAIKILLE

23. Tiedätkö tämän hetkisen pituutesi?

- 1 en
- 2 kyllä, olen _____ cm pitkä

24. Tiedätkö tämän hetkisen painosi?

- 1 en
- 2 kyllä, painan _____ kg

LOPUKSI MUUTAMA KYSYMYS PERHEESTÄSI

25. Asutko vanhempiesi kanssa?

- 1 kyllä
- 2 en, kenen luona asut? _____

26. Kysymme vielä vanhemmistasi tai huoltajastasi. Kuuluuko perheeseesi

- 1 äiti ja isä
- 2 äiti ja isäpuoli
- 3 isä ja äitipuoli
- 4 vain äiti tai vain isä
- 5 joku muu huoltaja, kuka? _____

27. Mikä on isäsi tai isäpuolesi ammatti tai työ? Merkitse ammatin tai työn nimi mahdollisimman tarkasti, esim. koneasentaja, lukion lehtori, opiskelija.

- _____
- 1 Perheessäni ei ole isää tai isäpuolta

28. Mikä on äitisi tai äitipuolesi ammatti tai työ? Merkitse ammatin tai työn nimi mahdollisimman tarkasti, esim. kanslisti, liikkeenharjoittaja, kotiäiti.

- _____
- 1 Perheessäni ei ole äitiä tai äitipuolta

29. Montako itseäsi vanhempaa ja nuorempaa siskoa tai veljeä Sinulla on?

- _____ vanhempaa siskoa tai veljeä
- _____ nuorempaa siskoa tai veljeä

30. Onko Sinulla kaksossiskoa tai -veljeä?

- 1 ei
- 2 kyllä

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KIITOS SINULLE!

Appendix 3. The Finnish version of the questionnaire in May 1982

KANSANTERVEYSTIETEEN LAITOS
TAMPEREEN YLIOPISTO
PL 607
33101 TAMPERE 10

Hyvä vastaaja

Tampereen yliopiston kansanterveystieteen laitoksella tehdään tutkimusta Tampereen yläasteen 8. luokan oppilaiden terveydentilasta. Tutkijoina ovat lääkäri Seppo Aro, tutkija Olavi Paronen ja erikoislääkäri Päivi Rantanen.

Viime syksynä kysyimme terveydentilastasi syyslukukauden aikana. Nyt tiedustelemme Sinun terveyteesi liittyviä asioita tämän kevätlukukauden aikana. Lomakkeen lopussa on myös joitakin elintapojasi ja koulunkäyntiäsi koskevia kysymyksiä.

Korostamme vielä, että lomakkeen tiedot käsitellään täysin luottamuksellisesti. Antamasi vastaukset eivät tule opettajien, kouluterveydenhoitajan eivätkä vanhempiesi tietoon.

Tutkimus on sitä hyödyllisempi ja luotettavampi mitä huolellisemmin vastaat.

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KOULULAISTEN TERVEYSKYSELY KEVÄÄLLÄ 1982

VASTAUSOHJEET

Vastaa kysymyksiin rengastamalla oikean tai sopivimman tuntuksen vaihtoehdon edessä oleva numero. Joihinkin kysymyksiin vastaat kirjoittamalla kysytyn tiedon sitä varten varattuun tilaan. Lue ensin koko kysymys ja merkitse sitten vastauksesi. Merkitse vain yksi vaihtoehto kuhunkin kysymykseen.

Koulu _____

Luokka _____

Nimi _____

Osoite _____

1. Sukupuoli

1 tyttö

2 poika

2. Syntymäaika _____ / _____ 19 _____

ALUKSI KYSYMME YLEISESTÄ TERVEYDENTILASTASI KULUNEENA KEVÄTLUKUKAUTENA

3. Mitä mieltä olet terveydentilastasi? Onko se tällä hetkellä

1 erittäin hyvä

2 melko hyvä

3 tyydyttävä

4 melko huono

5 erittäin huono

4. Onko Sinulla ollut kuluneen kevätlukukauden aikana hengitystietulehduksia (esim. flunssaa, nuhakuumetta, angiinaa, nielurisatulehdusta, poskiontelon tulehdusta, yskää tai kurkkukipua)?

1 ei kertaakaan

2 yhden kerran

3 kaksi kertaa

4 kolme kertaa tai useammin

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5. Entä onko Sinulla ollut kuluneen kevätlukukauden aikana jokin muu äkillinen sairaus tai tapaturma?

1 ei

2 kyllä, kerro millainen? _____

6. Oletko kuluneen kevätlukukauden aikana ollut poissa koulusta jonkin sairauden tai vamman takia?

1 en

2 kyllä, minkä sairauden tai vamman takia? _____

7. Kuinka monta päivää yhteensä olet kuluneen kevätlukukauden aikana ollut poissa koulusta jonkin sairauden tai vamman takia?

_____ päivää

8. Oletko kuluneen kevätlukukauden aikana ottanut yhteyttä jonkin sairauden tai vamman takia terveydenhoitajaan tai lääkäriin?

1 en

2 kyllä, minkä sairauden tai vamman takia? _____

9. Oletko kuluneen kevätlukukauden aikana käyttänyt jotakin seuraavista lääkkeistä? Vastaa jokaiseen kohtaan.

	En	Kyllä	
Lääkettä päänsärkyyn	1	2	
Lääkettä kuukautiskipuihin (tytöt)	1	2	
Särky-, kipu- tai kuumelääkettä muihin vaivoihin	1	2	
Antibiootteja (esim. penisilliini)	1	2	
Yskänlääkettä	1	2	
Nuhalääkettä	1	2	
Lääkettä vatsavaivoihin	1	2	
Unilääkettä tai rauhoittavaa lääkettä	1	2	
Vitamiinivalmisteita	1	2	
Rautalääkettä	1	2	
Muuta lääkettä	1	2	Kerro mitä
lääkettä? _____			

SEURAAVAT KYSYMYKSET KOSKEVAT JOITAKIN OIREITA JA VAIVOJA, JOITA OLET MAHDOLLISESTI TUNTENUT KULUNEEN KEVÄTLUKUKAUDEN AIKANA

10. Onko Sinulla kuluneen kevätlukukauden aikana ollut joitakin seuraavista oireista ja kuinka usein?

Rengasta sopivin vaihtoehto j o k a r i v i l t ä.

	Ei lainkaan	Silloin tällöin	Melko usein	Usein tai jatkuvasti
Vatsakipuja	1	2	3	4
Ruokahaluttomuutta	1	2	3	4
Päänsärkyä	1	2	3	4
Haluttomuutta tai tarmottomuutta	1	2	3	4
Vaikeuksia päästä uneen tai heräilemistä öisin	1	2	3	4
Pahoinvointia tai oksentelua	1	2	3	4
Jännittyneisyyttä tai hermostuneisuutta	1	2	3	4
Huimauksen tunnetta	1	2	3	4
Käsien vapinaa	1	2	3	4
Painajaisunia	1	2	3	4
Ripulia tai epäsäännöllistä vatsantoimintaa	1	2	3	4
Väsymystä tai heikotusta	1	2	3	4
Runsasta hikoilua ilman ruumiillista ponnistelua	1	2	3	4
Närästystä tai happovaivoja	1	2	3	4
Ärtyneisyyttä tai kiukunpurkauksia	1	2	3	4
Hengitysvaikeuksia tai ahdistuksen tunnetta ilman ruumiillista ponnistelua	1	2	3	4
Sydämen tykytystä tai epäsäännöllisiä sydämenlyönnejä	1	2	3	4

Jos Sinulla ei ole yhtään edellä luetelluista oireista (olet rengastanut jokaisen oireen kohdalta ykkösen), voit siirtyä kysymykseen 18.

23. Kuinka usein harrastat urheilua tai liikuntaa vapaa-aikanaasi?
(Koulun liikuntatunteja EI siis lasketa mukaan.)

- 1 en koskaan
- 2 harvemmin kuin kerran kuukaudessa
- 3 1–2 kertaa kuukaudessa
- 4 noin kerran viikossa
- 5 useamman kerran viikossa
- 6 suunnilleen joka päivä

24. Oletko koskaan juonut alkoholijuomia (olutta, viiniä, väkeviä juomia tms.)?

- 1 en (voit siirtyä kysymykseen 27)
- 2 kyllä

25. Mikä seuraavista vaihtoehdoista kuvaa parhaiten nykyistä alkoholinkäyttöäsi? Ota huomioon myös ne kerrat, jolloin nautit hyvin pieniä määriä alkoholia, vaikkapa vain puoli pulloa keskiolutta tai tilkan viiniä.

Käytän alkoholijuomia

- 1 vähintään kerran viikossa
- 2 noin pari kertaa kuukaudessa
- 3 noin kerran kuukaudessa
- 4 noin kerran parissa kuukaudessa
- 5 muutaman kerran vuodessa
- 6 kerran vuodessa tai harvemmin
- 7 en käytä lainkaan alkoholijuomia

26. Oletko kuluneen kevätlukukauden aikana käyttänyt alkoholia niin, että olet ollut humalassa?

- 1 en
- 2 kyllä, kuinka monta kertaa? _____ kertaa

27. Kuinka monta kupillista kahvia juot keskimäärin päivässä? Vedä viiva, ellet juo lainkaan päivittäin kahvia.

_____ kupillista päivässä

käännä

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Appendix 4. The Finnish version of the questionnaire in May 1983

TAMPEREEN YLIOPISTO
KANSANTERVEYSTIETEEN LAITOS

LUOTTAMUKSELLINEN

KOULULAISKYSELY KEVÄÄLLÄ 1983

Tämä kysely on jatkoa syksyllä -81 alkaneelle tutkimukselle nuorten terveydentilasta ja elämäntilanteesta. Tutkijoina ovat lääkäri Hillevi Aro, tutkija Olavi Paronen ja lääkäri Päivi Rantanen.

Korostamme vielä, että lomakkeen tiedot käsitellään täysin luottamuksellisesti. Antamasi vastaukset eivät tule opettajien, kouluterveydenhoitajan eivätkä vanhempiesi tietoon.

Lue kysymys huolella ja vastaa rengastamalla sopivimman tuntuksen vaihtoehdon kohdalla oleva numero. Joihinkin kysymyksiin vastataan kirjoittamalla kysytty tieto sitä varten varattuun tilaan.

Tutkimus on sitä hyödyllisempi mitä huolellisemmin ja rehellisemmin vastaat.

Nimi _____

Osoite _____

Koulu _____

Luokka _____

Syntymäaika ____/____ 19____

Oletko

1 tyttö

2 poika

ALUKSI KYSYMMME TERVEYDENTILASTASI

1. Mitä mieltä olet terveydentilastasi?

Onko se tällä hetkellä

- 1 erittäin hyvä
- 2 melko hyvä
- 3 tyydyttävä
- 4 melko huono
- 5 erittäin huono

2. Onko Sinulla jokin alla luetelluista tai muu pitkäaikaissairaus?

Vastaa jokaiseen kohtaan.

Merkitse myös, minkä ikäinen olit, kun sairaus todettiin.

	Ei	Kyllä	Minkä ikäisenä sairaus todettiin?
Sokeritauti	1	2	_____ v.
Astma	1	2	_____ v.
Allerginen nuha	1	2	_____ v.
Allerginen ihottuma	1	2	_____ v.
Muu allergia	1	2	_____ v.
Muu ihottuma	1	2	_____ v.
Migreeni	1	2	_____ v.
Muu sairaus	1	2	_____ v.
Kerro, mikä muu sairaus:			
_____			_____ v.
_____			_____ v.
_____			_____ v.

3. Mikä on nykyinen pituutesi ja painosi?

Pituus _____ cm

Paino _____ kg

4. Onko Sinulla kuluneen kevätlukukauden aikana ollut joitakin seuraavista oireista ja kuinka usein?
Rengasta sopivin vaihtoehto joka riviltä.

	Ei lainkaan	Silloin tällöin	Melko usein	Usein tai jatkuvasti
Vatsakipuja	1	2	3	4
Ruokahaluttomuutta	1	2	3	4
Päänsärkyä	1	2	3	4
Haluttomuutta tai tarmottomuutta	1	2	3	4
Vaikeuksia päästä uneen tai heräilemistä öisin	1	2	3	4
Pahoinvointia tai oksentelua	1	2	3	4
Jännittyneisyyttä tai hermostuneisuutta	1	2	3	4
Huimauksen tunnetta	1	2	3	4
Käsien vapinaa	1	2	3	4
Painajaisunia	1	2	3	4
Ripulia tai epäsäännöllistä vatsantoimintaa	1	2	3	4
Väsymystä tai heikotusta	1	2	3	4
Runsasta hikoilua ilman ruumiillista ponnistelua ..	1	2	3	4
Närästystä tai happovaivoja	1	2	3	4
Ärtyneisyyttä tai kiukunpurkauksia	1	2	3	4
Hengitysvaikeuksia tai ahdistuksen tunnetta ilman ruumiillista ponnistelua	1	2	3	4
Sydämen tykytystä tai epäsäännöllisiä sydämenlyönnejä	1	2	3	4

Vain tytöille:

5. Ovatko jotkut mainitsemistasi oireista sellaisia, jotka mielestäsi esiintyvät vain kuukautisten aikana tai ovat yhteydessä kuukautiskiertoon?

1 ei

2 kyllä, mitkä oireet? _____

3 minulla ei ole vielä kuukautisia

ELÄMÄNMUUTOKSET

6. Seuraavassa luetellaan erilaisia tapahtumia, joita ihmiset joskus kokevat.
Vastaa joka riville, oletko kokenut esitetyn tapahtuman viimeisen vuoden aikana (siis touko-
kuun 82 jälkeen) vai et.

	Oletko kokenut tapahtuman viimeisen 12 kk aikana?	
	En	Kyllä
Asunnon vaihto	1	2
Sisaruksen syntymä	1	2
Koulun vaihto	1	2
Perheenjäsenen vakava sairastuminen	1	2
Vanhemman kotoa pois muuttaminen	1	2
Vanhempien avioero.	1	2
Vanhemmilla lisääntyneitä keskinäisiä ristiriitoja	1	2
Äidin työttömäksi joutuminen.	1	2
Isän työttömäksi joutuminen	1	2
Perheenjäsenen kuolema	1	2
Isovanhemman kuolema	1	2
Läheisen ystävän vakava sairastuminen.	1	2
Sisaren tai veljen kotoa pois muuttaminen	1	2
Uusi äiti- tai isäpuoli	1	2
Läheisen ystävän kuolema	1	2
Välien kiristyminen äidin kanssa	1	2
Välien kiristyminen isän kanssa	1	2
Läheisen ystävän menettäminen	1	2
Selvittelyihin johtanut lainrikkomus	1	2
Oma vakava sairastuminen	1	2
Seurustelusuhteen katkeaminen	1	2
Lisääntyneitä ristiriitoja opettajan kanssa	1	2
Vaikeuksien lisääntyminen luokkatovereiden kanssa	1	2
Kotoa pois muuttaminen	1	2
Lemmikkieläimen menettäminen	1	2

Muita tapahtumia, jotka ovat olleet Sinulle tärkeitä:

NÄMÄ KYSYMYKSET KOSKEVAT VANHEMPIASI

7. Elävätkö vanhempasi?

- 1 molemmat elävät
- 2 vain äiti elossa
- 3 vain isä elossa
- 4 ei kumpikaan elossa

8. Ovatko vanhempasi eronneet?

- 1 ei
- 2 kyllä

9. Mikä on isäsi nykyinen työtilanne?

- 1 työssä kodin ulkopuolella
- 2 työssä kotona
- 3 työttömänä
- 4 eläkkeellä
- 5 pitkäaikaisella sairauslomalla
- 6 muu, mikä? _____

10. Mikä on äitisi nykyinen työtilanne?

- 1 työssä kodin ulkopuolella
- 2 työssä kotona tai kotiäiti
- 3 työttömänä
- 4 eläkkeellä
- 5 pitkäaikaisella sairauslomalla
- 6 muu, mikä? _____

11. Mikä on isäsi koulutus?

- 1 kansakoulu, tai kansakoulu ja ammattikoulutus
- 2 keskikoulu, tai keskikoulu ja ammattikoulutus
- 3 ylioppilastutkinto, tai ylioppilastutkinto ja ammattikoulutus
- 4 yliopisto- tai korkeakoulututkinto
- 5 en tiedä

12. Mikä on äitisi koulutus?

- 1 kansakoulu, tai kansakoulu ja ammattikoulutus
- 2 keskikoulu, tai keskikoulu ja ammattikoulutus
- 3 ylioppilastutkinto, tai ylioppilastutkinto ja ammattikoulutus
- 4 yliopisto- tai korkeakoulututkinto
- 5 en tiedä

KOULUNKÄYNTIIN, YSTÄVIIN JA VAPAA-AIKAAN LIITTYVIÄ KYSYMYKSIÄ

13. Millainen ilmapiiri luokallasi on?

- 1 erittäin hyvä
- 2 melko hyvä
- 3 ei hyvä eikä huono
- 4 melko huono
- 5 erittäin huono

14. Millaiset välit sinulla on **opettajiesi** kanssa?

Tuletko hyvin toimeen

- 1 kaikkien kanssa
- 2 useimpien kanssa
- 3 joidenkin kanssa
- 4 en kenenkään kanssa

15. Millaiset välit sinulla on **luokkatovereittesi** kanssa?

Tuletko hyvin toimeen

- 1 kaikkien kanssa
- 2 useimpien kanssa
- 3 joidenkin kanssa
- 4 en kenenkään kanssa

16. Kuinka monen **koulutoverisi** kanssa juttelet tavallisen **koulupäivän** aikana?

- 1 en kenenkään kanssa
- 2 1–2 koulutoverin kanssa
- 3 3–5 kanssa
- 4 6–10 kanssa
- 5 11–20 kanssa
- 6 yli 20 kanssa

17. Kuinka paljon käytät aikaa keskimäärin päivässä koululäksyjesi tekemiseen?

_____tuntia

18. Oletko tyytyväinen koulumenestykseesi?

- 1 erittäin tyytyväinen
- 2 melko tyytyväinen
- 3 en osaa sanoa
- 4 melko tyytymätön
- 5 erittäin tyytymätön

19. Mikä oli todistuksesi kaikkien aineiden keskiarvo viime jouluna?

20. Suunnitteletko jatkavasi koulunkäyntiä peruskoulun jälkeen?

- 1 ammattikoulussa tai oppisopimuskoulutuksessa
- 2 lukiossa
- 3 muussa koulussa tai opistossa
- 4 en jatka koulunkäyntiäni
- 5 en osaa sanoa

21. Onko Sinulla harrastuksia?

Luettele, minkälaisia.

22. Kuinka paljon käytät aikaa keskimäärin päivässä television katseluun?

_____ tuntia

23. Miten usein kouluajan ulkopuolella vietät aikaasi ystäväsi tai kavereittesi kanssa?

- 1 päivittäin
- 2 melkein joka päivä
- 3 kahtena tai kolmena päivänä viikossa
- 4 noin kerran viikossa
- 5 harvemmin

24. Montako läheistä ystävää Sinulla on?

- 1 ei yhtään
- 2 yksi tai kaksi
- 3 3–5
- 4 useampia

25. Oletko koskaan seurustellut vakituisesti?

- 1 en
- 2 kyllä

26. Mikä on pisin aika, minkä olet seurustellut saman henkilön kanssa?

1 en ole seurustellut

27. Seurusteletko tällä hetkellä?

1 en
2 kyllä

28. Jos Sinulla on jokin suuri henkilökohtainen ongelma, kerrotko kenellekään vaikeuksistasi?
(Rengasta vain yksi vaihtoehto.)

1 en halua kertoa kenellekään
2 minulla ei ole ketään, kenelle voisin kertoa
3 kerron pääasiassa ikäisilleni, ystäville tai sisaruksilleni
4 kerron pääasiassa vanhemmilleni
5 kerron jotkut asiat vanhemmilleni, jotkut ikäisilleni
6 muu, mikä? _____

29. Mikä seuraavista vaihtoehdoista kuvaa parhaiten nykyistä alkoholinkäyttöäsi?
Ota huomioon myös ne kerrat, jolloin nautit hyvin pieniä määriä alkoholia.
Käytän alkoholi juomia

1 vähintään kerran viikossa
2 noin pari kertaa kuukaudessa
3 noin kerran kuukaudessa
4 noin kerran parissa kuukaudessa
5 muutaman kerran vuodessa
6 kerran vuodessa tai harvemmin
7 en käytä lainkaan alkoholi juomia

30. Oletko kuluneen **kevätlukukauden** aikana käyttänyt alkoholia niin, että olet ollut humalassa?

1 en
2 kyllä, kuinka monta kertaa? _____ kertaa

31. Mikä seuraavista vaihtoehdoista kuvaa parhaiten nykyistä tupakointiasi?

1 tupakoin kerran päivässä tai useammin
2 tupakoin kerran viikossa tai useammin, en kuitenkaan päivittäin
3 tupakoin harvemmin kuin kerran viikossa
4 olen lakossa
5 en tupakoi lainkaan

ARVIOINTIA ITSESTÄ JA PERHEESTÄ

32. Seuraavassa on erilaisia Sinuun itseesi ja vanhempiisi (tai vastaaviin) liittyviä väitteitä. **Ren-**
gasta jokaisen väittämän kohdalla yksi vastausvaihtoehto sen mukaan, minkä verran väittäjä
mielestäsi sopii Sinuun itseesi tai elämäntilanteeseesi. Vastaa lähinnä ensimmäisen mieleen-
tulevan vaihtoehdon mukaan.

	Ei sovi ollen- kaan	Ei sovi kovin hyvin	Sopii jonkin verran	Sopii melko hyvin	Sopii täysin
Uskon itseeni ja mahdollisuuksiini	1	2	3	4	5
Tunnen itseni epävarmaksi muiden ihmisten seurassa	1	2	3	4	5
Koen kotini ilmapiirin hyväksi	1	2	3	4	5
Haluaisin olla erilainen kuin olen	1	2	3	4	5
En uskalla esittää omia mielipiteitäni seurassa	1	2	3	4	5
Minulla on selkeitä tulevaisuudensuunnitelmia	1	2	3	4	5
Vietän vapaa-aikani pääasiassa perheen parissa	1	2	3	4	5
Minua vaivaavat alemmuudentunteet	1	2	3	4	5
Riitelen usein äitini kanssa	1	2	3	4	5
Riitelen usein isäni kanssa	1	2	3	4	5
Minusta tuntuu, että muiden on paljon helpompi saada ystäviä kuin minun	1	2	3	4	5
Yleensä vanhempani luottavat minuun	1	2	3	4	5
Olen epävarma tulevaisuudestani	1	2	3	4	5
Olen varmaankin niin ikävyyttävä, ettei kukaan todella viihdy seurassani	1	2	3	4	5
Harrastukset täyttävät lähes kaiken vapaa-aikani	1	2	3	4	5
Minusta tuntuu usein, ettei äitini ymmärrä minua	1	2	3	4	5
Minusta tuntuu usein, ettei isäni ymmärrä minua	1	2	3	4	5
Mielestäni minulla on paljon hyviä ominaisuuksia	1	2	3	4	5

32. jatkuu

Ei sovi ollen- kaan	Ei sovi kovin hyvin	Sopii jonkin verran	Sopii melko hyvin	Sopii täysin
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Vanhempani antavat minun päättää omista
asioistani 1 2 3 4 5

Tunnen kipeästi, että minulta puuttuu itse-
luottamusta 1 2 3 4 5

Vanhemmillani on paljon keskinäisiä ongelmia . . . 1 2 3 4 5

Tunnen itseni vapautuneeksi vieraassakin
seurassa 1 2 3 4 5

Minusta tuntuu usein, että olen erilainen kuin
vanhempani toivoisivat 1 2 3 4 5

Pystyn siihen mihin muutkin 1 2 3 4 5

Vanhempani eivät ole kiinnostuneita mieli-
piteistäni 1 2 3 4 5

Vanhempani toivoisivat minun menestyvän
koulussa paremmin 1 2 3 4 5

Pidän siinä määrin juttelemisesta, että keskustelen
miehelläni aivan vieraidenkin kanssa 1 2 3 4 5

Minulla on ystäviä, joita vanhempani eivät
hyväksy 1 2 3 4 5

Olen usein tyytymätön itseeni 1 2 3 4 5

Äitini on minulle läheinen 1 2 3 4 5

Isäni on minulle läheinen 1 2 3 4 5

Saan eloa ikäväänkin porukkaan 1 2 3 4 5

MILLAINEN MINÄ OLEN?

33. Jokaisella meistä on määrätty kuva itsestämme. Pyydämme Sinua kuvaamaan esitettyjen sanojen avulla, millaisena pidät itseäsi. Sanat ovat tavallaan vastakohtaisia ja edustavat ääripäitä jostain piirteestä.

Sanojen välissä on viisi viivaa. Merkitse rasti sanojen välisille viivoille, sitä lähemmäksi jompaa kumpaa sanaa, mitä enemmän katsot sen sopivan tai kuvaavan juuri Sinua.

Esimerkkejä:

hilpeä — — — — surullinen
Tällä osoitat olevasi lähinnä surullinen.

vaalea — — — — — tumma
Tällä osoitat olevasi enemmän vaalea kuin tumma.

Vastaa avoimesti, millaisena todella pidät itseäsi. Älä vastaa sen mukaan, millainen haluaisit olla tai millaisena muut ehkä Sinua pitävät. Työskentele nopeasti äläkä takerru liikaa yksityiskohtiin. Käytä rohkeasti ääripäitäkin ja tee rasti keskiviivalle vain, jos molemmat ominaisuudet ovat yhtä paljon tai yhtä vähän Sinua kuvaavia.

etevä	— — — — —	vähemmän etevä
määräilee muita mielellään	— — — — —	tottelee muita mielellään
rauhallinen	— — — — —	häilyvä, ailahteleva
jännittynyt	— — — — —	vapautunut
helposti kiihtyvä	— — — — —	mielenmalttinsa säilyttävä
tunnevaltainen	— — — — —	asiavaltainen
lahjakas	— — — — —	vain keskinkertainen
sitkeä, energinen	— — — — —	kesken jättävä
tunteen ja sydämen varassa toimiva	— — — — —	harkinnan ja pään varassa toimiva
huolestunut, usein alakuloinen	— — — — —	huoleton, reipas
noudattaa mielellään toisten ohjeita	— — — — —	ottaa mielellään johdon omiin käsiinsä
jännittää asioita etukäteen	— — — — —	rohkea, ei sure etukäteen
uuttera, sitkeä	— — — — —	väsyvä
ei kovin älykäs	— — — — —	hyvin älykäs
puuskittainen, kärsimätön	— — — — —	tasainen, kärsivällinen
johtava	— — — — —	johdettavissa oleva
kestävä	— — — — —	helposti väsyvä
unelmoi mielellään	— — — — —	pysyy aina tosiasioissa
tyytyväinen ulkonäköönsä	— — — — —	ei pidä ulkonäöstään
viehättävä	— — — — —	ei viehättävä
suosittu	— — — — —	ei kovin suosittu

LOPUKSI KYSYMMME HUOLISTASI JA TOIVEISTASI

34. Minkälaiset asiat huolestuttavat Sinua?

1. _____
2. _____
3. _____

35. Entä, jos saisit esittää kolme toivomusta, mitä toivoisit?

1. _____
2. _____
3. _____

KIITOS SINULLE YHTEISTYÖSTÄ!