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# Health, Risk-Taking Behavior and Sexuality in Swedish Adolescents

LARS I HOLMBERG



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#### **Abstract**

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The overall aims of this research were to develop methods of identifying adolescents with unhealthy and/or risk-taking behavior with special reference to sexuality, and to evaluate support measures for young people in need of such interventions. A further aim was to assess strategies for preventing unhealthy and/or risk-taking behavior. Data were obtained by questionnaires (studies I, III, IV and V) and interviews (study II).

The results showed that young men involved in unintended pregnancies would benefit from active participation in the decision making regarding continuation or termination of the pregnancy, and from support at Outpatient Clinics for Adolescents in Sweden, including information together with the partner (I).

It was also concluded that consideration should be paid to questions and problems, e.g. feelings, apprehensions, moral issues and psychosocial factors, that require individual support from personnel with knowledge and resources to help young men in this difficult situation (II).

Among the most important findings regarding young men who had been involved in an unplanned pregnancy were that in this group a high percentage had previously considered suicide and that anabolic steroids were frequently used, compared with young men without experience of pregnancy (III).

The finding that unprotected intercourse occurred in a fairly high frequency among 13- to 18-year-olds, despite massive education and easy access to contraceptives, gives reason for further considerations regarding appropriate ways of providing information to young people (IV).

Girls and boys in vocational programs in Swedish high schools exhibit more risk-taking behaviors than those in theoretical programs and these two groups differ in clustering and accumulation of these behaviors. This means that preventive interventional strategies need to be elaborated with regard to these differences, with the aim of improving health maintenance among adolescents (V).

Child-and-youth centers with a developmental and research capacity need to be established with the broad purpose of drawing up health prevention programs for children and young people.

*Keywords:* unplanned pregnancy, abortion, adolescents, young men, individual support, Outpatient Clinic for Adolescents, Sweden, decision making, grounded theory, health behavior, risk behavior, sexual behavior, vocational program, theoretical program

*Lars I Holmberg, Department of Women's and Children's Health, Akademiska sjukhuset, Uppsala University, SE-75185 Uppsala, Sweden*

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## List of Papers

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Paper II Holmberg LI, Wahlberg V. The Process of Decision Making on Abortion. A Grounded Theory Study of Young Men in Sweden. *Journal of Adolescent Health* 2000;26:230-234.

Paper III Holmberg L, Berg-Kelly K. Health, health-compromising behaviour, sexuality and involvement in pregnancy among 18-year-old Swedish males: a cross-sectional survey. *Acta Paediatrica* 2002;91:838-843.

Paper IV Holmberg LI, Hellberg D. Teenagers' sexual behavior in Sweden, Europe. *Journal of Reproduction & Contraception* 2005;16:157-166.

Paper V Holmberg LI, Hellberg D. Health, health-compromising behavior, risk-taking behavior and sexuality in female and male high school students in vocational compared with theoretical programs in Sweden. *International Journal of Adolescent Medicine and Health* 2007 (in press).

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## Abbreviations

OCA  
SES

Outpatient Clinic for Adolescents  
Socio-economic status





## Preface

The present thesis is based on five studies conducted between 1995 and 2005.

In the beginning of the 1990s, as a pediatrician at the Outpatient Clinic for Adolescents (OCA) in Borlänge, Sweden, I met some young men with psychosomatic symptoms. After a few consultations, it emerged that they had been involved in unintended pregnancies without being engaged in the decision-making process concerning the question as to whether or not to continue the pregnancy. These experiences had apparently made a contribution to their complaints.

It was well known that girls with positive pregnancy tests were taken good care of at the OCAs. What support possibilities were offered to young men involved in unintended pregnancies at OCAs? What were the staff's opinions regarding the problems of the young men in this situation? To elucidate these questions, a questionnaire was distributed to all OCAs in Sweden in the spring of 1995.

What kind of support would be appropriate for the young men when their girlfriends' pregnancy tests were positive? This group had been largely ignored both in clinical practice and in scientific studies, in contrast to the enormous efforts directed towards pregnant adolescent females. With the aim of obtaining a usable support model, I interviewed young men who had recently been told that their girlfriends had positive pregnancy tests, using a qualitative interview method. The interviews were conducted in my office at the OCA and I came into close contact with the respondents. My primary questions were answered, but the interviews raised new questions; for example "Are young men who are involved in unintended pregnancies different from other young men concerning health, health habits, sexuality, and risk behavior?"

The answers to a Q90 questionnaire used in a previous study covering these fields were available. One of the questions asked there was: "Have you had sexual intercourse?" Another was: "Have you made someone pregnant?" Eighteen-year-old men who had been involved in a pregnancy were compared with men of the same age who were sexually active but had no pregnancy record, and with those who had never had sexual intercourse, and interesting differences were found.

New questions regarding health, health habits, sexuality, and risk behavior were raised. How do these habits change during adolescence? What dif-

ferences are there between boys and girls, and between different youth groups? I distributed the Q90 questionnaire to all students at compulsory schools and upper secondary schools in Borlänge in the fall of 2004. In the research described in this thesis changes in sexual behavior from early to late adolescence and differences between boys and girls were investigated. Differences in health, health habits, sexuality, and risk behavior between students in vocational and theoretical programs at high schools were also analyzed for the purpose of initiating health-promoting programs, adapted for students in different educational programs.

# Introduction

## Adolescence

In psychoanalytic theory the period between childhood and adulthood is named adolescence (1). Adolescence means the psychological development from child to adult and is different from puberty, which refers to the anatomical and physiological changes occurring during development from child to adult.

The definition of adolescence implies that there are no exact age limits for the beginning and end of this development. The following six items have been considered to be characteristic of the completion of adolescence: the attainment of separation and independence from parents, the establishment of sexual identity, the commitment to work, the development of a personal system of moral values, the achievement of a capacity for lasting relationships and for both tender and genital sexual love in sexual relationships, and a return to the parents in a new relationship based upon relative equality. Attainment of each of these capacities is influenced concomitantly by intrapsychic and sociocultural factors (2).

## Adolescent sexual development

Many factors affect the development of an adolescent's sexual identity and sexual life (3). Biological factors, mainly hormone changes, make teenagers physically ready for sexual activities. Depending on individual age differences when this occurs, some adolescents are less prepared emotionally for these activities. Psychological factors include experiences of changes in the boys' and girls' bodies, experiences of pressure to adopt masculine and feminine traits, and possibilities of sharing information with others, mostly peers. Socio-cultural factors affect the development through norms set, for example, by parents, peers, youth culture, media, and religion.

## Risk-taking behavior

Risk-taking behaviors can be distinguished from developmentally exploratory behavior by their potentially serious, long-term, and negative consequences. Whereas adolescent exploratory behavior in a safe or positive context enhances competence and confidence, risk-taking behaviors jeopardize health and well-being (4).

Health habits initiated during adolescence have a great impact on future health. Risk behaviors such as use of tobacco, alcohol, illicit drugs, or anabolic steroids constitute potential threats to the teenagers' health and potentially even to their lives (5). Sexually transmitted diseases and unintended pregnancies are two of many possible consequences of risk-filled lifestyles (5). The heavy financial burden has also been well documented (6,7).

Richard Jessor and his colleagues advanced the concept "problem behavior syndrome" (8). Using sample survey data, they demonstrated the clustering of adolescent high-risk behaviors (e.g., drinking, smoking marijuana, precocious sexual intercourse) and claimed that this constituted a kind of adolescent lifestyle, "an organized constellation of behaviors rather than a collection of independent activities".

Results from an American study of a representative sample from "The National Longitudinal Study of Adolescent Health" have shown that different clusters of risk behavior have connections with factors in the psychosocial adjustment, daily activities, school, and family domains (9). These domains can have positive or negative influences on young people's behavior and the authors consider that these factors should receive attention in the development and/or implementation of prevention programs for youth.

A sample of 808 children in Seattle was surveyed at age 10 years in 1985 and followed up prospectively to age 21 years in 1996 regarding the use of illicit drugs and sexual behavior (10). Specific forms of adolescent substance use significantly predicted risky sexual behavior at the age of 21. Early binge-drinkers had significantly more sex partners than non-binge-drinkers. Late onset binge-drinkers and marijuana users had significantly more sex partners and were less likely to use condoms consistently than those who did not binge drink or use marijuana. Experimenters in cigarette smoking who did not escalate smoking were more likely to use condoms consistently than nonsmokers. In contrast, the use of other illicit drugs in adolescence did not predict risky sexual behavior at the age of 21 years.

Results from a self-report questionnaire study in Italy, distributed to boys and girls aged 14-17, showed that risky driving was not an isolated behavior (11). Boys who displayed risky driving practices were more likely to adopt a lifestyle characterized by high involvement in antisocial behaviors, tobacco smoking, comfort eating, and time spent in non organized activities with

friends. Girls involved in risky driving were more likely to be involved in other risk-taking behaviors, antisocial behaviors, and drug use.

Swedish studies confirm international findings that different health-compromising behaviors form clusters; i.e., young people who display one risk-taking behavior often have other risk behaviors (12). However, it must be acknowledged that experimenting with adult lifestyles by young people is a developmental need, but the borders between healthy exploration and problem behaviors need to be clarified.

### Risk factors and protective factors against risk behavior

Jessor's model for risk-taking behavior includes five major explanatory domains or sources of variance, namely, biology/genetics, social environment, perceived environment, personality, and behavior (13). Taken together, these five domains would constitute a general explanatory framework for risk behavior.

There are also protective factors in each domain. Conceptually, the presence of protective factors explains the fact that many adolescents who seem to be at high risk nevertheless do not succumb to risk behavior, or are less involved in it than their peers, or, if involved, seem to abandon it more rapidly than others. Protective factors are considered to moderate, buffer, insulate against, and thereby mitigate the impact of risk on adolescent behavior and development. They operate within each of the conceptual domains, e.g., a cohesive family in the social environment, peer models for conventional behavior in the perceived environment, a high value on health in the personality domain, and involvement in conventional behavior in the behavior domain.

Protective factors are not the opposite of risk factors but function actively to promote positive behavior and development and have a direct mitigating effect on the impact of risk factors. Their mitigating role can only be demonstrated in the presence of risk.

Jessor's theory emphasizes the great variety of factors influencing young people's risk behaviors and the interactions between them. Furthermore, the model takes into consideration changes over time regarding individual maturity and social context as well as the fact that risk behavior may influence risk factors or vice versa. The cause and effect can work in more directions.

### An explanation model for risk-taking behavior

Irwin and Millstein propose an explanation model for risk-taking behavior, with teenagers' biological maturity as a base (5). Biological development,

characterized by the rapid hormonal, physiological, and somatic changes of puberty, is dramatic and is interwoven with other aspects of maturation. In the Irwin and Millstein model of risk-taking behavior it is suggested that timing of biological maturation directly influences four psychosocial factors: cognitive scope, self-perceptions, perceptions of the social environment, and personal values. Irwin and Millstein hypothesize that these four factors predict adolescent risk-taking behavior, via the mediating effects of risk perception and peer group characteristics.

Further, they claim that different types of risk behavior do not occur in isolation but are mutually correlated. There are gender-specific differences, and peers and family play an important role in the onset of risk-taking behavior.

In terms of psychosocial development, adolescence is a period during which young people face a set of developmental tasks that, if mastered, equip them with the skills to enter adulthood successfully. These tasks include: autonomy/independence, mastery, intimacy, and individuation/identity formation.

In early adolescence (about 11-14 years of age) increased identification with the peer group serves to fulfill the need for separation from the parents. At the same time this identification may provide increased pressure to take risks.

Risk taking in middle and late adolescence (about 13-20 years of age) serves to meet developmental needs related to autonomy as well as needs for mastery and individuation. The pursuit of new activities and practice-taking initiative are positive attributes that can lead to both negative and positive outcomes. Mastery needs are frequently met by experimentation, which often involves testing limits and taking risks.

In addition, adolescence involves a major shift in cognitive functioning. Concrete, egocentric thinking undergoes a gradual transition to more abstract, hypothetical reasoning incorporating sociocentric perspectives.

## Sexual risk-taking behavior

According to Kotchick and her colleagues, an accurate and comprehensive understanding of adolescent sexual risk behavior necessitates some knowledge of both the personal and the environmental factors that may contribute to the decision to become sexually active, and, subsequently, the decision to engage in risk-promoting or risk-reducing sexual behaviors (14). They focus their attention on three systems of influence that are believed to be primary contributors to adolescent sexual behavior: the self, family, and extrafamilial systems. The self system refers to a constellation of factors that belong to an individual person and which have either direct or indirect influence on be-

havior. Familial influences on adolescent sexual activity can be divided into two primary categories: family structure variables and family process variables. For adolescents who are in the midst of developing their own identities and establishing more complex social networks, the point of reference by which they guide their behavior shifts from the family to the social environment, the extrafamilial system.

## The Swedish school system

In Sweden, all children between the ages of 7 and 16 have to attend school. Education is compulsory and free of charge. Every municipality is required by law to offer all students who have completed compulsory school an upper secondary, i.e., high school education. In principle, students in general have a right to choose between vocational and theoretical programs and to receive their first choice of program. There are 17 national programs, all of which cover 3 years. Upper secondary education is free of charge and noncompulsory. It provides students with the basic skills needed to live and work in the community, and is required for further studies (15).

## Outpatient Clinics for Adolescents in Sweden

The association "Sveriges Ungdomsmottagningar", Outpatient Clinics for Adolescents (OCA) in Sweden, established in 1988, stipulates for membership that a clinic must have medical, psychological, and social competence (16). This means that minimally an accepted clinic has to have on the staff a doctor for medical competence and a psychologist and/or social worker for psychological and social competence.

The overall objective of OCA is to promote physical and mental health, to strengthen young people in the development of their identity so that they are able to deal with their sexuality and to prevent unwanted pregnancies and sexually transmitted infections. OCA should be open for all young women and men. No specific lower age limit should be set and the upper age limit is to be adapted to local needs but should be based on the needs of young people. A fundamental principle of the activity is that it takes place on a voluntary basis. Young people generally take the initiative to make contact with an OCA. Most OCAs arrange visits to the clinics for students in compulsory schools in order to inform the students about their activities. There are few similar types of clinics in other countries.

## Abortion in Sweden

In the Swedish Abortion Act introduced in 1974, abortion is defined as an intentional termination of a pregnancy before the fetus is capable of survival outside the uterus (17). The law permits abortion at the request of the pregnant woman until the 18<sup>th</sup> week of gestation, and thereafter only in cases with serious indications.

In Sweden the number of induced abortions among teenage girls (under 19 years of age) in the year 2005 was 6,941, an incidence of 24.3 per 1,000 girls, compared to 1,642 live births, an incidence of 5.8 per 1,000 girls, in that year (18). The majority of teenage pregnancies in Sweden are confirmed at the OCAs.

## Young men and abortion

In a study by Rothstein, 35 adolescent males were interviewed in the waiting room of a US abortion clinic (19). Emotions and conflicts identified in most of the subjects included regressive needs for nurture, striving for maturity and responsibility, and concerns about autonomy and the self as care provider.

In 1987 in Oxford, England, the Court of Appeal turned down a male student's request for an injunction to stop his pregnant former girlfriend from going ahead with a planned abortion (20). This article discusses, among other things, legal aspects of the question: When does a fetus become viable? No distinct answer is given and the article ends with another question: Does viability mean viability with the aid of intensive care or the ability to survive without intensive care?

Robinson summarized about 50 studies with data on teenage fathers' sexual knowledge, behavior and attitudes toward marriage and child rearing, psychological variables, and consequences of fatherhood (21). One of these studies (Redmond 1985), addressed abortion (22). Seventy-four adolescent males living in Ontario, Canada, were administered questionnaires, and one third of the sample had been involved in a teenage pregnancy. The results indicated that most teenage males wish to be included in the decision-making process concerning abortion or continuation of the pregnancy and to receive emotional and social support during this time. When not included, they feel confused and neglected.

The results of a questionnaire distributed among 177 adolescents in Sweden and 223 in Italy indicated that nearly all of the respondents, boys and girls, in both countries were concerned about abortion and its consequences (23). However, their concern was expressed differently according not only to



their religious and cultural norms but also to their sexual education. The descriptions of abortion were more negative and the stated indications for abortion were more restrictive among the Italian adolescents. The Swedish adolescents, on the other hand, more often reported conflicting feelings as a consequence of abortion. The Italian sample consisted of adolescents from Rome and a smaller town in the south of Italy, while all Swedish respondents were adolescents residing in Stockholm, which could be a weak point of the analysis.

A United States national survey of adolescent males aged 15-19 years in 1988, indicated that 13% of the respondents approved of abortion in each of eight specific circumstances, while about 4% disapproved in every instance (24). The respondents were asked if they thought it would be all right for a woman to have an abortion if the woman had been raped, the woman was under age 15, the pregnancy itself seriously endangered the woman's health, there was a good reason to believe the child might be born deformed or mentally defective, the woman felt she couldn't afford to take care of the child, the man would not support the child, the woman wanted the abortion for any reason, and the woman wanted an abortion but the man did not. Sixty-one percent of the adolescent males did not feel that it would be acceptable for a woman to have an abortion if her partner objected, indicating a possible gender conflict of interest over the abortion issue.

Some researchers have focused their attention on the social characteristics and health-jeopardizing behaviors of male teenagers involved in pregnancies (25-27). The 1993 Massachusetts Youth Risk Behavior Survey indicated that a history of a male being involved with a pregnancy clustered with other health risk and problem behaviors to form a "risk behavior syndrome" (28). The survey was conducted on a random sample of 3,054 students in grades 9 through 12. The use of tobacco, alcohol, and other drugs, early and multiple sexual experiences, fighting resulting in injury, and demographic variables were compared between 82 sexually active young men who reported being involved in pregnancy and their 537 counterparts who reported not ever causing a pregnancy.

Another questionnaire study, among adolescent males in Minnesota, USA, in 1993, also indicated that young men never involved in a pregnancy were less likely to have displayed health-compromising behaviors than three other groups of males, namely those who had caused a pregnancy that was carried to term, those who had caused a pregnancy that resulted in abortion or miscarriage, and those who were uncertain as to whether they had ever caused a pregnancy (29).

The conclusion drawn from a blinded self-administered questionnaire answered by predominantly African-American male patients of an inner-city adolescent outpatient clinic in Washington, DC, USA, is that a pregnancy history can be a valuable marker for other risk factors among inner-city African-American males (30). It may be easier to discuss pregnancy history or

fatherhood as opposed to drug abuse and other more sensitive risk factors. The topic can then be used as a gateway for discussion of other risk factors.

As seen above, a number of studies have been performed in North America on involvement of young men in a pregnancy, and have yielded information on attitudes, feelings, and risk behavior. The target populations differ from Swedish young men, for instance regarding culture, sociodemography, and ethnicity. Some of the problems are not universal. There is a need for Swedish studies regarding young men and pregnancy to elicit what is specific in our country. It is especially important to gain knowledge of the attitudes, questions, and problems in decision making on abortion among young Swedish men who have recently been informed that their girlfriends have a positive pregnancy test and what kind of support is available for these young men.

## Adult men and abortion

A Swedish study in 1999 comprised 75 adult men who were involved in legal abortion (31). The men answered a questionnaire concerning living conditions and attitudes about pregnancy and abortion. Apart from wanting children within functioning family units, it was found that regarding the motivation for abortion the desire to have children depended on the ability to provide qualitatively good parenting. More than half expressed ambivalent feelings about the coming abortion.

Twenty-six of these men were followed up one year after the abortion (32). It was concluded from the study that social perspectives legitimate the decision to have an abortion, whilst ethical perspectives complicate this decision. The majority of the sample expressed relief, while simultaneously experiencing the termination of the pregnancy as a loss coupled with feelings of grief and emptiness.

## Norms and attitudes

A widely accepted view of norms is that they are statements that regulate behavior (33). The attitude concept is commonly defined as an internal psychological tendency to look upon a particular entity with some degree of favor or disfavor, stored in memory as mental representations, and activated by attitude objects or cues related to it (34). Both norms and attitudes are of importance regarding young people's life styles, health behavior, and risk

behavior. Thoughts and reflections are guided by norms and attitudes borne in mind by the youngsters.

In the 1970s and 1980s Bandura developed theories about social cognition, and stated that behavior is the result of expectations, incentives or encouragements, and social awareness (35,36). The theories and models place the individual in relation to other humans and the whole social existence.

## The decision-making process

Decision making has been defined as a process leading to a choice between competing courses of action (37). There are different theories regarding decision making, including theories based upon the experimental research tradition, phenomenology, and the psychoanalytic approach.

Tversky and Kahneman define a decision-making problem according to the acts or options among which one has to choose, the possible outcomes or consequences of these acts, and the contingencies of conditional probabilities that relate outcomes to act (38). They use the term “decision frame” to refer to the decision maker’s conception of the acts, outcomes, and contingencies associated with a particular choice. The frame that a decision maker adopts is dependent partly on the formulation of the problem and partly on the decision maker’s norms, habits, and attitudes.

According to the “Image theory” (Beach & Mitchell 1987) the decision maker has to make up his or her mind about what goals to pursue and how to pursue them, and make judgments as to whether adequate progress is being made (39). The decision maker has to make clear his principles about what is the right thing to do, the “first image”, that is, to take into consideration the ethical dimension. The “second image” concerns what is being done to accomplish it, and the “third image” concerns prerequisites and steps that are perceived as necessary to reach the final goal.

Another theory, the “Dominance search theory” (Montgomery 1993), emphasizes the importance of decision strategies, which are strategies that enable the deciding individual to choose an alternative and keep to it (40). The person tries to build a dominance structure in favor of a preferred alternative, which means that one alternative has to be dominant over every other in order to be chosen.

Karlsson found that important themes in decision making were how the person experienced his or her will, his or her competence, and what he or she “should” do, that is, the “sense of obligation” (41). He discusses the concept of project, i.e., something realizable as compared to wish or will. There are different kinds of projects with varying meanings for the person involved.

One such project is the fundamental project, which has a deeper and existential significance for the subject than the other types of projects.

Sloan (1986) questions the free choice in life and considers that certain “major life decisions” bear a special meaning for the deciding individual (42). A major life decision is intimately linked to the question of identity, the “who am I” question, and authenticity. The deciding individual asks him- or herself if the decision to be made is an expression of his or her “true self”. Additionally, Sloan argues, we are often the victims of self-deception and very smart in finding rationalizations for what really is a stereotypical behavior and whose expression has a deep meaning, and which we often do not understand or are aware of.

## Aims of the investigation

### Overall aims:

To develop methods of identifying adolescents with unhealthy and/or risk-taking behavior with special reference to sexuality. To evaluate and suggest support measures for young people in need of these. To assess and suggest strategies aimed at preventing unhealthy and/or risk-taking behavior.

### Specific aims:

- To develop a model for providing support to young men who are involved in the decision-making process regarding abortion or continuation of a pregnancy and to propose support measures (studies I and II; papers I and II).
- To analyze differences in health, health behavior and risk behavior between young men who have been involved in a pregnancy and young men who have not been involved (study III; paper III).
- To analyze differences and similarities in sexual behavior of adolescents, both boys and girls, of ages 13 to 18 years (study IV; paper IV).
- To analyze differences in health, health behavior, and risk behavior between high school students, both boys and girls, in vocational and theoretical programs (study V; paper V).

## Materials and methods

An overview of the studies is presented in Table 1.

Table 1. Designs, methods and participants of the studies included in the thesis

Study	Design	Data collection	Study group	Response rate
I	Cross-sectional survey Descriptive	Questionnaire	All Outpatient Clinics for Adolescents in Sweden (n=150)	81%
II	Qualitative interview study, analyzed by Grounded Theory	Consecutive sampling	18 young men recruited via an Outpatient Clinic for Adolescents	
III	Cross-sectional survey Comparative	Classroom questionnaire	All 18-year-old male students in municipality A (n=1,396)	84%
IV	Cross-sectional survey Comparative	Classroom questionnaire	All students in compulsory and high school in municipality B (n=3,812)	84%
V	Cross-sectional survey Comparative	Classroom questionnaire	All students in high school in municipality B (n=1,816)	80%

## Study I

### Material

The heads of all 150 OCAs received a questionnaire in 1995, to be answered by the staffs. Answers were received from 121 clinics, which meant a response rate of 81%.

### Method

The questionnaire, with both fixed-alternative and open-ended questions, concerned the routines and management of the situation following a positive pregnancy test. The investigation focused on the experiences and impressions of the professionals working in these clinics.

Examples of questions in the questionnaire are, briefly: What professions are represented on your staff? Number of pregnancy tests per year? Estimation regarding age range of the pregnant girls and their partners at your clinic? Is the male partner routinely offered individual support? Examples of questions and problems concerning abortion? Common reasons for abortion? Possibilities for the boyfriend/partner to influence the decision on whether or not to terminate the pregnancy? Examples of worries, common reactions/expressions from the boyfriend?

Together with the questionnaire the head of the clinic received a request that the staff should answer the questions together in order to cover experiences from different staff groups. A reminder was sent to clinics not answering by the stated time.

Data were analyzed by a description of questionnaire answers.

## Study II

### Material

The study group consisted of young men who had recently been informed that their girlfriends had positive pregnancy tests, and who had been offered and accepted an individual visit to me (LIH). The study was carried out at the Outpatient Clinic for Adolescents in Borlänge, Sweden, during the period 1995-1998. Eighteen young men (age range 15 years 4 months - 26 years 5 months, median age 18 years 8 months) were interviewed. Ten were

students, six were employed, and two were unemployed. Twelve were living with both or one of their parents, three lived alone, and three with their girlfriends. The duration of the relationship with the pregnant girlfriend varied from none (casual intercourse) to three and a half years, with a median duration of five months. The ages of the girlfriends were evenly distributed from 15 to 20 years.

## Method

The aim of the study was to obtain or increase the knowledge about variations, structures and processes regarding young men's experiences of an unplanned pregnancy. For this purpose a qualitative method, grounded theory, was chosen in an attempt to answer the questions at issue and draw up a model of the decision-making process.

Grounded theory, a method of generating a theory from data, was developed by the American sociologists B Glaser and A Strauss at the Chicago School of Sociology (43). The theory has its roots in symbolic interactionism, an approach to understand the dynamic connection between society and human behaviour.

The theory has subsequently been discussed and further developed in different directions by Glaser (44,45), Strauss and Corbin (46,47), and Charmaz (48,49), among others. The description below follows essentially the original version, the classical grounded theory method, and the further development by Glaser.

The aim of the grounded theory method is to generate theoretical frameworks and models that explain collected data. Glaser and Strauss distinguish between two kinds of theories, substantive and formal (43). A substantive theory has reference to a particular research question, based on an investigation of phenomena associated with a special situation. A formal theory refers to a greater conceptual area, which requires broader and more numerous bases of informants. The outlines for grounded theory are on the whole inductive, but they are also deductive, as the interpretation of data during the research process indicates the direction of further data collection. New data reinforce emerging categories. The classical grounded theory method implies that the model or theory arises through analysis of the fundamental social processes in the studied area.

Grounded theory uses strategic and theoretical sampling. In order to cover variation of experiences, it is necessary to choose informants strategically; i.e., to compare statements from individuals differing in their points of view, social situations, age, sex, and education. This is followed by theoretical sampling, where the initial analysis and the emerging categories direct the further sampling. It is also important to start with as few preconceived opin-



ions as possible about the studied area. In the present study the young men who were available for an interview directed the sampling; that is, the sampling was consecutive.

Glaser separates two types of coding: substantive or open coding and theoretical or selective coding. Substantive codes are generated to describe the studied area. Theoretical codes consist of formulated ideas regarding relations between a set of substantive codes. The distinction between substantive codes and theoretical codes corresponds to the distinction between description and theory.

The method of analysis in grounded theory is comparative. This implies that the collection and analysis of data occur simultaneously, in parallel, with comparison of different codes and theoretical concepts during the analysis. Substantive or open coding constitutes the first step of the comparative analysis. Phenomena and meaning-making units are named, and these are then compared with each other and with suggested concepts. In this way more categories, including their characteristics, are generated. The open coding continues until the coding leads to one or more main categories. In the present study, for instance, the open coding implied that the statement "It was a shock" was sorted into a category containing statements in which the substance or the bearing elements were similar. The interactive process then ended in sorting of that statement into the category Feelings. Selective coding, the next step of the analysis, starts when outlines of a model or theory grounded in data appear. This means that coding is done in connection with the main categories and with that, the open coding comes to an end. With selective coding, the coding is restricted to concepts related to the main categories that appear.

Saturation is reached when nothing new emerges through data collection.

## Data collection

The interviews were conducted at the OCA in Borlänge. The pediatrician's work there is described in an article from 1997 (50). The young men interviewed were informed about the technical details of the tape recording. The procedure of the interview was explained, and the interview began when the young man felt ready. The interviews generally lasted about 15 - 30 minutes, which was experienced as long enough, as the interviewees were young men in a delicate situation. The collection of data was concluded when a saturation point was reached, i.e., a point at which the most recent interviews did not seem to make any substantial further contribution.

## Theme-guide

Data were collected by interviews consisting of open-ended questions and individually adapted follow-up questions covering the following themes: The participants' experiences of the current pregnancy; secrecy and confidentiality; influence on the relationship and on the young man himself; thoughts on abortion; the young man's own age and fatherhood; organized support.

## Data analysis

The interviews were taped and transcribed verbatim and consecutively analyzed by the open coding method. By open coding a search was made for the substance, i.e., the bearing elements of the text. The next step was an analysis with comparison within the same interview and with the other interviews. The interactive process resulted in classification of the open codes into different categories. Through this procedure, the categories generated a model showing the relationships in the total material, i.e., theoretical coding.

## Study III

### Material

The study group consisted of male students in grade 11 in a Swedish municipality (municipality A, with about 110,000 inhabitants) who answered a questionnaire in 1994 (Q94) and 1998 (Q98). Boys and girls of ages 13, 15, and 18 years had answered the Q90 questionnaire. As it is very unusual for boys of the younger ages in Sweden to be aware of having been involved in a pregnancy, only 18-year-old students were chosen for study III. In addition, young men were chosen from only one municipality as it has been shown that mental health, health habits and risk behavior among young people differ considerably between municipalities. This might be due to differences in public health activities, in addition to local attitudes and cultures (51). No special public health activities directed toward this age group were initiated in the studied municipality in the four-year period between the 1994 and 1998 studies.

The number of male students in grade 11 in 1994 was 563 (88% of all), and in 1998 it was 612 (81% of all), which meant that 1175 (84% of all) were potentially available on the day when the questionnaire was carried out.

The absenteeism on any school day is known to be 10-15% in this age group, mainly due to illness and activities outside school (12). When the materials from Q94 and Q98 were analyzed separately it was found that the background data and distribution of answers were similar. In order to obtain a larger basis for analysis, the data from 1994 and 1998 were combined, resulting in a total of 1175 male respondents. These were divided into three groups: boys who had never had sexual intercourse (group I, n=527), boys who had had sexual intercourse (group II, n=607) and boys who also had been involved in pregnancy (group III, n=41).

## Method

Study III was based on a previously collected material, obtained from a self-report questionnaire called "Q90" on adolescent health, health habits and risk-behavior. The questionnaire, presented in detail earlier (12), covers domains such as family background, puberty, health, illnesses, school performance, peer relations, quality of life, and behavior regarding food, traffic, exercise, sexuality, tobacco, alcohol, and illicit drugs.

The questionnaire was designed for computer processing using the EPI-Info software (52). For testing the significance of differences between the three groups, chi-square tests according to Mantel and Haenszel (53) were used.

## Studies IV and V

### Material

In study IV the self-report questionnaire "Q90" was used. The study was carried out during the autumn of 2004 and comprised all pupils in the 7<sup>th</sup> to 9<sup>th</sup> grades (at ages 13 to 15 years) in compulsory school and all those in the 1<sup>st</sup> to 3<sup>rd</sup> grades (at ages 16-18 years) in high school in a Swedish municipality (municipality B), with a population of about 60,000. Pupils who did not attend school on the day of the investigation were excluded.

The pupils completed the questionnaire during one lesson. There were no personal details, and thus there was no possibility of identifying specific persons. The adolescents answered the questionnaire anonymously and left it in a sealed envelope before it was given to me (LIH). There were multiple-choice questions from two to five response alternatives. A question such as "have you had sexual intercourse" was answered by a yes-or-no alternative.

For other questions, such as “are you homosexual”, there were five alternative answers, from “definitely yes” to “definitely no”.

In total, there were 3812 pupils registered at the time of the study. Because of occupational education, sports events, leisure, etc., 3216 pupils (84.4%) were at school on the day when the questionnaire was carried out. A small number of non-responders could be expected to be truants. In the classroom, practically all participants worked seriously and in silence. All participants did not answer all questions (2.2% to 4.4% missing data). In cases of unanswered questions, however, there were often marks in between the alternatives, to show that the pupil did not know what to answer and had no suitable alternatives.

When the questionnaires had been computerized, a careful check for consistency was made. Any participant who gave unreasonable answers, with no obvious mistakes, was excluded from the analysis. Examples of such answers were an extremely early age at first intercourse, or an unreasonable number of sexual partners at an early age. In other cases, such as boys who answered, “have not had menstruation yet”, only that variable was excluded. In all, 10 participants did not answer the questionnaire at all, 9 were excluded because of inconsistent or unreasonable answers, and 11 were excluded because we did not have information about gender or school. Finally 3186 (99.1%) questionnaires remained available for analysis and were used in study IV (paper IV).

There were 1816 pupils registered in high school when study V was performed (Fig.1). Non-attendance (n=368) because of occupational practice, sports events, leisure, and so on, left 1448 pupils (79.7%). When first- and second-generation immigrants (n=107) had been excluded, because of possible bias, there were 1341 remaining questionnaires. The answers from first- and second-generation immigrants will be reported elsewhere. In all, five participants did not answer the questionnaire at all, and four were excluded because of inconsistent or unreasonable answers, leaving 1332 questionnaires (99.3%) available for analysis in study V, answered by 561 females and 771 males. The discrepancy in number between females and males was mainly due to the fact that some particular vocational programs, such as assistant nurse and hairdresser programs, were only available in neighboring towns. The proportion of missing data for each question ranged from 2.2 to 7.4 %.

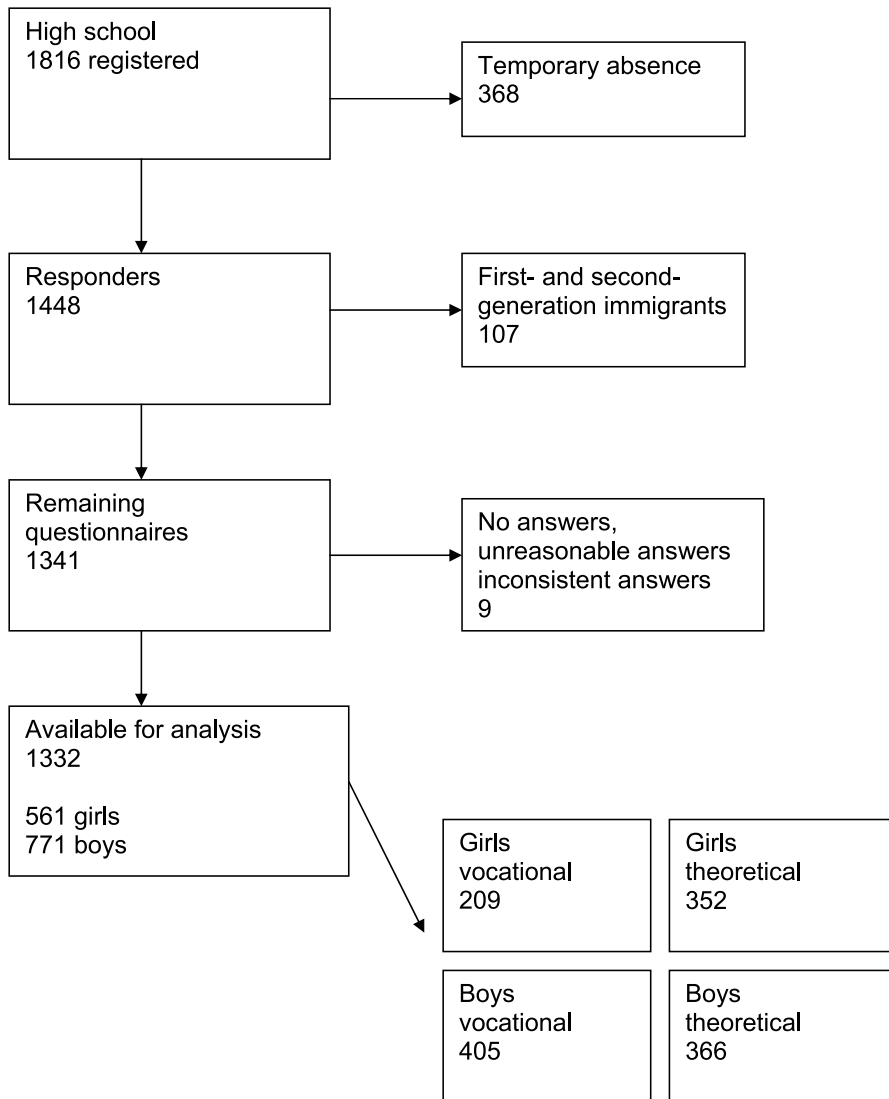


Figure 1. Conceptual model of study V

## Method

“Q90” questions on body development, romances, and sexual behavior were analyzed in study IV. Questions related to school, dietary habits, sport activities, health, risk-taking, and sexual behavior were analyzed in study V.

The JMP statistical program was used for analyses (SAS Institute Inc, Cary, NC, USA 2002). The t-test was used for continuous variables, such as age, and for evaluation of ratings on VAS. All nominal variables were dichotomized. Crude odds ratios (OR), 95% confidence intervals (95% CI) and adjustments were estimated by logistic regression. Fisher’s test was used when five or fewer individuals in a group exhibited a certain behavior.

## Ethical considerations

### Study I

A questionnaire was addressed to the head of the OCA, with a request that the staff should answer the questions together. Application to the Ethics Committee was not made, as no patients were involved in the study. Discussion among the staffs could have caused integrity problems, but instructions from the Council for Humanistic and Social Sciences were followed (54).

### Study II

Young men who had recently been informed that their girlfriend had a positive pregnancy test, were interviewed at an OCA. The girlfriend or a member of the staff had informed the male partner about the possibility of support from me (LIH) as a male pediatrician. They were verbally and written informed about the study, given a guarantee of secrecy and were informed about their right to interrupt their participation whenever they wanted to. Questions of morals and ethics that arose during the interview were discussed and were revised afterwards. All men were offered a follow-up visit to me. The interviews were treated confidentially and there was no possibility of identifying any participant. The Ethics Committee of the Faculty of Medicine of Uppsala University approved the study.

### Study III

A questionnaire was answered anonymously by 18-year-old men in class, after receiving verbal and written information about the questionnaire and the questions. The Ethical Standards Committee of Göteborg University approved the study, as did the local school boards and the Parent-Teacher Associations.

### Studies IV and V

Pupils aged 13 to 18 years answered a questionnaire anonymously in class, after being given verbal and written information about the questionnaire and

the questions. The Ethical Standards Committee of Uppsala University approved the studies. The local political school authorities, the headmasters, and each teacher had been informed in advance, verbally and in writing, about the purpose and methods. Written information was distributed to the parents, who had the opportunity to contact me if they had any questions regarding the questionnaire. None of them did. The responders were invited to get into touch with me (LIH) if the questions caused any concern, discomfort or other thoughts that they wished to discuss.



# Results

## Study I

The questionnaire was answered by 121 clinics, yielding a response rate of 81%. All questions were not answered by all clinics. Open questions and questions concerning experience of offering individual support to boyfriends were answered to a lesser extent. It is not known whether all staff members or only a few of them answered the questionnaire.

Examples of questions asked and problems mentioned by the male partner alone were given by 84 % of the 121 clinics. Examples of worries, common reactions/expressions from the boyfriend were given by 90% of the clinics, 93% estimated the possibilities for the male partner to influence the decision about continuation or termination of the pregnancy, and a similar proportion assessed the number of pregnancy tests. The remaining questions were answered by 98% - 100% of the clinics.

### Individual support

In roughly 25% of the cases the boyfriend/partner accompanied the girl at the visit when the pregnancy test was found positive or at the next visit, according to the staffs' estimations. In most cases both boy and girl together were offered a visit to a midwife (95%) and/or a social worker (78%).

Nineteen (16%) of the 121 clinics offered individual support routinely to the boyfriend/partner. In those cases a visit to a social worker was the most frequent routine (68%), and the next most frequent alternative was a visit to a midwife (53%).

### Questions and problems regarding abortion

According to the impression gained by the staffs of the clinics, the three most common questions or problems mentioned by both the girl and the boy

together (open question) regarding abortion were: concerns about bodily complications, particularly sterility (mentioned by 49% of the clinics), practical questions on the performance of the abortion, and other questions concerning the procedure (47%) and secrecy, information to parents, and anxiety about responses by parents and similar problems (44%).

Examples of common questions or problems mentioned by the boyfriend were a feeling of powerlessness and difficulty in influencing the decision. Reflections and worries concerning their own maturity and age were also common.

### Possibilities of influencing the decision on abortion or continuation of the pregnancy

According to 74 % of the replies from the clinics, the boyfriend/partner was frequently or rather frequently allowed to influence or participate in the decision regarding termination or continuation of the pregnancy.

Twenty-five percent of the clinics mentioned problems in the relationship as one of the three most common reasons for deciding on abortion, out of 7 given alternatives (Table 2). Differences in the type of services offered to the male partners were reflected in the answers to this question. Among clinics offering individual support to the male partner, 47% mentioned problems in the relationship, compared to 22% among those not offering this type of service to the male partner.

Table 2. Staffs' answers to the question: "What do you think is the main reason for deciding on abortion? Put a cross against the three most common alternatives" (119 answering clinics)

	%
Too young	99
Unwanted child	75
Social/financial problems	72
Problems in the relationship	25
Ignorance about contraceptives	6
Health problems	1
Fear of pregnancy/delivery	0

## Common reactions

To the question concerning "common reactions/expressions from the boyfriend" when the girl decided on abortion, 90% of the clinics mentioned relief as a frequent response, 30% mentioned grief and depression as frequently occurring, and 22% mentioned disappointment or irritation.

When the girl chose to continue the pregnancy, 60% of the clinics reported that pleasure, pride, expectation and/or happiness was a common response from the boyfriend, whilst 47% of them mentioned aggression and/or disappointment.

## Study II

One of the aims of study II was to characterize the male partner's process leading to a decision as to whether he wanted the pregnancy to continue or to be terminated.

For the majority of potential fathers the information about a positive pregnancy test came as a shock of varying degrees. It gave rise to conflicting feelings, apprehensions, and considerations of moral concepts. The participants frequently mentioned anxiety and concern for the girlfriend. Possibilities of communication with friends or relatives, including the girlfriend, were important in the decision-making, as well as organized support. Preparedness and qualifications for fatherhood, economic factors and concern about confidentiality were other important factors.

The model emerging from analysis of interview data includes three main categories: Reactions, Impact factors and Tools for Process, and nine categories: Feelings, Apprehensions, Moral conflicts, Quality of relationship, Consideration for girlfriend, Psychosocial factors, Communication, Secrecy/Confidentiality, and Organized support (Fig.2).

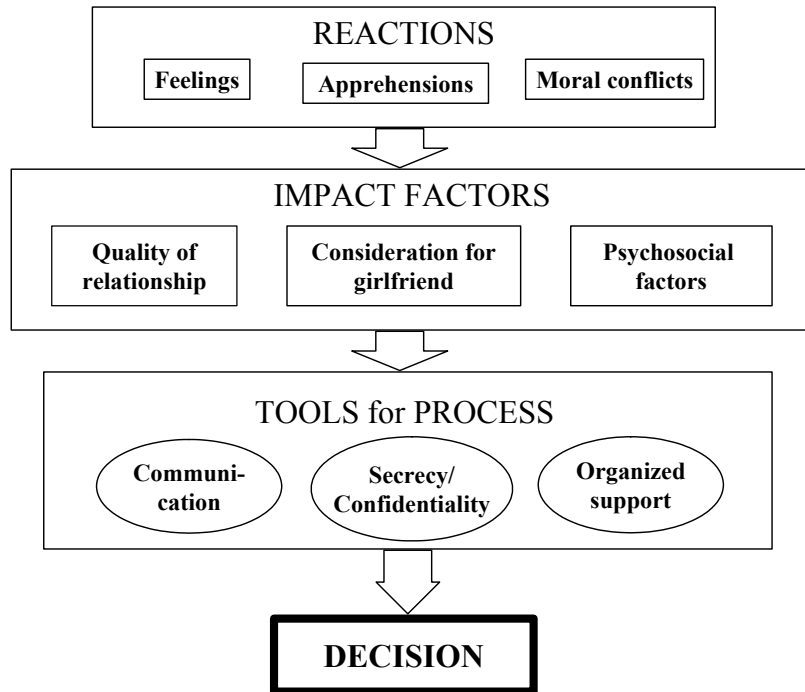


Figure 2. Model of the process of decision-making on abortion by young men

## Reactions

### **Feelings**

The immediate reaction when the girlfriend's pregnancy test was positive differed between individual male partners depending on their personality and age and on the circumstances. Some young men had previously thought the matter over, while others had never done so. The younger the male partner the less prepared was he for the possibility of being a father. As a 16-year-old boy put it, *"It was a shock, it really was"* and another young man said *"A little surprising, perhaps, but not entirely; things like this happen, but no, hardly to us"*.

### **Apprehensions**

Concerns were expressed about possible complications for the female partner. For the most part these were confined to fear of sterility after abortion, but most had confidence in the doctors' skills. Diffuse fears were also expressed: *"Yes, I suppose I worry... at the same time I don't... but there is something"*.

### **Moral conflicts**

It is very unusual in Sweden to choose to continue a pregnancy, instead of termination, for moral reasons. However, the abortion issue gave rise to different lines of thought, ranging from *"I suppose it's the only right thing to do if you think that you will not be able to manage the situation"* to deeper doubts regarding abortion: *"... then you kill it, that is wrong. In fact it was going to become a child, you cannot merely ignore it"*.

## Impact factors

### **Quality of relationship**

The quality of the relationship seemed to be one of the factors influencing the decision-making process. One 18-year-old man said: *"It's important to live together for some time and experience how that is, before you have children"*. Too brief a relationship, as well as the young age of the girlfriend, was also mentioned as a reason for abortion.

### **Consideration for the girlfriend**

A sense of guilt was mentioned by some of the young men as being the initial emotion when they were informed about their girlfriends' positive pregnancy tests. As a 19-year-old boy said: *"She shouldn't have to suffer because of our mistake"*.

### **Psychosocial factors**

As expected, the main reasons for deciding on abortion were of a psychosocial nature. Typical reasons included insufficient financial means, ongoing education, and ambivalence regarding qualifications for fatherhood. The following extract from an interview with a 19-year-old boy summarizes recurrent themes in the conversations: *"I think that you would destroy the best things in life... maybe it would be enjoyable but you shouldn't have a child for fun, it must grow up in a good environment... and we cannot take the responsibility for a good environment... neither of us has a job, the economy... when you get a child you should have moved from home... established your own family. I am too young... I want to see my friends, go out, find out things, you will be very restricted when you have a child"*.

A 21-year-old man, profoundly against abortion but who had accepted this solution, said: *"I think it is wrong that we cannot manage to keep it"*. He was disappointed by the fact that he and his girlfriend had insufficient support to be able to continue the pregnancy.

### **Tools for Process**

#### **Communication**

The girl has the unrestricted right to decide about termination of the pregnancy and this fact is a possible source of conflict. In spite of this, in our study, none of the male partners complained that he had no influence on the decision. *"I think that if you have talked with each other and are honest, then I think that it wouldn't be any great problem"* said one of the participants. Nearly all of the boys mentioned that the decision-making process had led to more openness, nearness, or strength in the relationship. Some of the young men in our sample had expectations of support from relatives. A 16-year-old boy said: *"My mother was pregnant when she was only 14 years old, so she was aware of the feelings in that situation, and she was not upset or angry either"*.

### **Secrecy/Confidentiality**

Two areas of confidentiality are involved in the decision-making process. One concerns secrecy within the clinic and the other is a question of whether or not to inform friends or relatives. There was a high degree of trust in the confidentiality of the clinic. In spite of this a 21-year-old man, having had negative experiences of social security, said: *"I am not worried but I have to choose my words"*.

### **Organized support**

The theme "organized support" was not included in the theme-guide at the start of the interviews, but one of the men said spontaneously when the interview was completed: *"It is very good to have the chance to come and talk with someone"*.

### **Decision**

The preliminary decision seemed to be made directly after the positive pregnancy test became known. Some ambivalent partners made the decision after discussion and a longer period of consideration.

## **Study III**

More than half of the respondents had had sexual intercourse, and 6.3% of these young men had made someone pregnant. Both the mean and the median age increased somewhat from group I (respondents who had never had sexual intercourse), through group II (those who had had sexual intercourse), to group III (those who also had been involved in pregnancy; mean age 17.5 – 17.7 – 18.0 years, median age 17.5 – 17.6 – 17.7 years. The mean age when the pregnancy was confirmed was 16.3 years and the median age 16.0 years.

### **Psychosocial background**

The students who had had sexual intercourse were more likely to come from broken homes (8%) than those who had not had sexual intercourse (4%), particularly the respondents with involvement in a pregnancy (23%). Respondents in groups II (24%) and III (33%) more often lived in rented

apartments than those in group I (16%). There were no significant differences between the groups regarding being born in Sweden or abroad, while it was more likely for students in group III (28%) to come from bilingual families.

The young men in group III, with involvement in a pregnancy, reported earlier pubertal development than those without such experience, but this question was answered by only 51% of the participants. Believing oneself to be perceived as older than one's chronological age was more common in group III (40%) than in group II (18%), in which it was more common than in group I (12%).

The young men who had not had intercourse reported to a greater extent (32%) that they felt successful at school than those who had had intercourse (group II 22%, group III 27%) and they played truant to a lower extent. The participants in the three groups were worried about family members to approximately the same extent. Being bullied was a more frequent experience among students who had not had sexual intercourse (27%) compared to those of group II (17%) and group III (18%).

## Health and health behaviors

Seven questions of relevance regarding health and health behavior were selected.

A much greater proportion of the participants in group III had considered suicide (39%) compared to those in group I (18%) and group II (22%). Young men in group I had been injured less often (29%) during the past 2 years than those in groups II (41%) and III (50%), and there was a tendency toward less frequent hospitalization as the result of an accident. There were no significant differences however, in answers to the overarching question "Do you feel completely healthy?"

Statistically significant differences were found between the three groups of students regarding breakfast habits and the use of a seatbelt. Eighty-six percent of the young men in group I stated that they had breakfast every day (group II 71%, group III 54%) and 74% that they always used a seatbelt (group II 60%, group III 34%). No statistically significant differences were found concerning exercise during leisure time.

## Unhealthy behaviors

Unhealthy behaviors were also differently distributed between the three groups (Table 3). The most striking differences were found in physical fighting, smoking, and use of anabolic steroids, with statistically significant dif-



ferences in frequency from group I to group III. Use of snuff, alcohol habits, and use of illicit drugs showed statistically significant differences between the young men with experience of sexual intercourse (groups II and III) and those with no such experience (group I).

## Sexuality

As expected, non-use of contraceptives at the last intercourse was more frequent among respondents with involvement in a pregnancy (53%) than among those who had had sexual intercourse without involvement in a pregnancy (34%). The former young men also had had venereal diseases more often, 23% compared to 1%. The proportion of young men in group III who had had more than two sexual partners was almost twice as high (81%) as in group II (44%). Also, the young men in group III had had experience of sexually offensive behavior by adults more often (12%) than the young men in group I (1%) and group II (2%). (Answer to the question: "Have you experienced sexual behavior from adults towards you which you found unpleasant, disgusting or frightening?").

Table 3. Unhealthy behaviors among 18-year-old male students in the three groups analyzed in study III

	I n (%) Total 527	II n (%) Total 607	III n (%) Total 41	P value I-II	P value I-III	P value II-III
Have been in at least one physical fight in the last 2 years	170 (32.3)	345 (57.1)	33 (80.4)	<0.0001	<0.0001	0.003
Smoke daily	42 (8.0)	174 (28.8)	20 (48.8)	<0.0001	<0.0001	0.007
Use snuff daily	34 (6.5)	112 (18.7)	8 (19.5)	<0.0001	0.007	n.s. >0.10
Drink alcohol at least twice a week	28 (5.4)	95 (15.8)	9 (22.5)	<0.0001	0.0005	n.s. >0.10
I am drunk more than once a week	11(2.1)	40 (6.6)	5 (12.2)	0.0002	0.0037	n.s. >0.10
Ever used illicit drugs (Q94) Ever smoked hashish (Q98)	279 (53.0)	390 (64.5)	31(75.6)	<0.0001	0.0050	n.s. >0.10
Ever used illicit drugs other than hashish (only Q98)	13 (4.9)	65 (20.0)	7 (33.3)	<0.0001	0.0002	n.s. >0.10
Ever used anabolic steroids	5 (1.0)	26 (4.2)	7 (16.9)	0.0006	<0.0001	0.0031
Skip school at least once a week	12 (2.3)	52 (8.6)	3 (7.3)	<0.0001	n.s. 0.09	n.s. >0.10

n.s. = nonsignificant

## Study IV

The 3186 participants consisted of 848 girls and 887 boys in the 7<sup>th</sup> to 9<sup>th</sup> grades in compulsory school, and 608 girls and 843 boys in the 1<sup>st</sup> to 3<sup>rd</sup> grades in high school.

Significantly more girls than boys of ages 13-15 years (mean age 14.3 years) considered that they had an early pubertal development (28 % vs. 23%). The mean age at menstrual onset in girls was 12.3 years, but 18.6% had not yet had their first menstrual period. More girls than boys in the younger age group had had their sexual debut (intercourse) before the age of 16 (18% vs. 13%), while the mean age at first intercourse was 13.5 years in both girls and boys. Among the sexually active respondents aged 13-15 years, 62% of the girls and 78% of the boys reported use of contraceptives at the latest intercourse, a significant difference (Table 4).

Among the high school boys and girls of ages 16-18 years (mean age 17.3 years), the difference regarding experience of early pubertal development was leveled (26% vs. 23%), compared to the boys and girls aged 13-15 years. The mean age at menarche in the girls of the 16- to 18-year group was 12.7 years. A majority in the older age group had had their sexual debut, but this frequency was significantly higher among the girls than among the boys (62% vs. 52%) (Table 5). The mean age at first intercourse in that age group was 15 years, and there was no gender difference in the proportion with more than five, or more than ten, sexual partners among those who were sexually active. Among the 16- to 18-year-olds, 70% of the girls and 62% of the boys had used a contraceptive at the latest intercourse; this difference was again significant, but in the opposite direction, as compared to the findings in those aged 13-15.

The proportion with experiences of kissing and heavy petting, among both boys and girls, were, as expected, higher in the older than in the younger age group. A majority of those who were 16-18 years old had had these experiences, and significantly more girls than boys. The difference was most pronounced regarding heavy petting (74% vs. 66%).

Significantly more girls than boys, in both age groups, had experienced sexual offence from an adult. (Answer to the question: "Have you experienced sexual behavior from adults towards you which you found unpleasant, disgusting or frightening?").

Experience of pregnancy in the older age group was similar between girls and boys, about 8%. A significantly higher proportion of the girls had had sexually transmitted infections.

Table 4. Sexuality among Swedish girls and boys of ages 13 to 15 years

	Girls (%) n=848	Boys (%) n=887	Odds Ratio	95% CI <sup>1</sup>
I have had intercourse	18.3	13.1	1.48	1.13-1.94
Sexual offence by adult	7.5	0.6	13.6	6.0-39.1
<b>Sexually active teenagers only:</b>				
Age at first sexual intercourse (years)	13.5	13.5	p=0.71	
More than five lifetime sexual partners	12.8	14.2	0.89	0.43-1.86
More than ten lifetime sexual partners	4.4	6.2	0.70	0.21-2.35
Only occasional or never-use of contraceptives	34.0	32.0	1.10	0.64-1.90
Use of contraceptives at latest intercourse	62.3	77.7	0.48	0.26-0.83
Sexually transmitted infection	3.6	3.9	0.91	0.28-2.98
Experience of pregnancy	10.4	2.8	4.08	1.47-14.43

<sup>1</sup>95% Confidence interval

Table 5. Sexuality among Swedish girls and boys, 16 to 18 years of age

	Girls (%) n=608	Boys (%) n=843	Odds Ratio	95% CI <sup>1</sup>
I have had intercourse	62.8	52.7	1.51	1.22-1.87
Sexual offence by adult	9.5	1.7	6.06	3.44-11.42
<b>Sexually active teenagers only:</b>				
Age at first sexual intercourse (years)	14.9	15.0	p=0.05	
More than five lifetime sexual partners	22.8	25.4	0.87	0.63
More than ten lifetime sexual partners	9.6	13.6	0.68	0.42-1.08
Only occasional or never-use of contraceptives	25.8	38.4	0.56	0.41-0.76
Use of contraceptives at latest intercourse	69.7	62.2	1.40	1.04-1.89
Sexually transmitted infection	6.2	2.7	2.39	1.20-5.00
Experience of pregnancy	7.6	8.0	0.94	0.56-1.58

<sup>1</sup>95% Confidence interval

## Study V

The study population was distributed into four groups: girls in a vocational program (n=209), girls in a theoretical program (n=352), boys in a vocational program (n=405) and boys in a theoretical program (n=366). Vocational programs included day nursery care, commerce, art, training for work as an electrician, mechanic, building worker, industrial worker or recreational instructor, and training for work in restaurants or with foodstuffs. Theoretical programs covered natural sciences, social sciences, and engineering.

The variables family living in own house, living with both biological parents, having at least one parent with university education, and both parents going out to work were all inversely correlated with attending a vocational program. These sociodemographic factors were used for adjustments.

Feeling successful at school was less common among participants who attended vocational school (girls 25%, boys 28%) than among those in theoretical programs (girls 35%, boys 38%). Similar figures were found, however, when the four groups rated on a visual analogue scale the extent to which they enjoyed school. There was a significant difference in the variable having bullied between girls in vocational programs (22%) and girls in theoretical programs (12%), but this difference lost its significance after adjustments for sociodemographic factors. The difference was not significant when boys were compared, but became significant after adjustments.

Among girls, the mean body mass index (BMI) did not differ significantly between those attending vocational and theoretical high school (BMI 22.0 and 21.5 respectively;  $p=0.06$ ), but in boys a significant difference was found (BMI 22.7 and 22.0 respectively;  $p=0.0008$ ). Having breakfast on all school days was more common among students in theoretical programs (girls and boys 80%) than among those in vocational programs (girls 56%, boys 67%), but was no longer negatively associated with vocational programs in boys after adjustments for sociodemographic factors had been made. Exercise weekly during leisure time was also more common among students in theoretical programs (girls 91%, boys 89%) than among those in vocational programs (girls 81%, boys 82%), but was no longer negatively associated with vocational programs in girls after adjustments had been made. The frequency of sport activities was higher in pupils in theoretical programs and there were also differences in the kinds of sports practiced. Individual sports were more common among attendees of theoretical programs, but after sociodemographic adjustments the differences between the two programs regarding individual sports were no longer significant. On the

other hand, among girls, practicing sports involving physical strength was more strongly associated with vocational than theoretical programs, when adjustments had been made.

More boys (79% in vocational programs, 76% in theoretical programs) than girls (58% in vocational programs, 61% in theoretical programs) regarded themselves as “healthy”. A higher proportion of boys in theoretical programs (61%) than of those in vocational programs (53%), however, reported tiredness in the last week and the figures regarding depression in the last week were 20% and 14%, respectively. There were only minor changes after statistical adjustments. On the other hand, a lower proportion of girls in theoretical programs (32%), compared with vocational programs (45%), had had stomach pain in the last week and had ever considered committing suicide (32% vs. 52 %). The significance of the differences did not change after adjustments.

Considerable differences were found between the groups in analyses of risk-taking behaviors (Table 6). This was especially true for the frequencies of physical fighting, shoplifting, theft of more valuable goods and vandalizing, which were high among both girls and boys in vocational programs, compared to girls and boys, respectively, in theoretical programs. After adjustments, the lower rate of seat belt use among girls in vocational programs (adjusted [adj.] OR 0.54, 95% CI 0.25-1.16) and the higher rate of physical fighting (adj. OR 2.31, 95% CI 0.79-6.83) became non-significant. The other differences between the two groups of girls remained significant after socio-demographic adjustments: have been driven in a car by a drunk friend (adj. OR 3.50), shoplifting (adj. OR 2.05), theft (adj. OR 5.90), and vandalizing (adj. OR 3.39). The corresponding adjusted odds ratios for males in a vocational program, as compared to those in a theoretical program, were as follows: have been driven in a car by a drunk friend, adj. OR 4.82; seat belt use, adj. OR 0.32; physical fighting, adj. OR 3.51; shoplifting, adj. OR 1.64; theft, adj. OR 1.69; and vandalizing, adj. OR 1.84. All differences were significant after adjustments.

Table 6. Risk-taking behaviors among students in vocational and theoretical programs

	Females			Males		
	Vocational Program n=209 (%)	Theoretical Program n=352 (%)	Odds ratio 95% CI <sup>1</sup>	Vocational Program n=405 (%)	Theoretical Program n=366 (%)	Odds ratio 95% CI <sup>1</sup>
Have been driven in a car by a drunk friend at least once	23 (11.1)	9 (2.6)	4.74 2.22-11.0	60 (14.8)	15 (4.1)	4.07 2.33-7.56
Always or often use seat belt	174 (83.7)	334 (94.9)	0.28 0.15-0.50	329 (81.2)	346 (94.5)	0.25 0.15-0.41
Have been in at least two physical fights in the past 2 years	18 (8.6)	11 (3.3)	2.91 1.37-6.49	87 (21.9)	25 (6.9)	3.80 2.41-6.20
Shoplifting more than once	79 (38.2)	53 (15.1)	3.46 2.31-5.21	144 (36.4)	78 (21.4)	2.10 1.52-2.91
Theft more than once	41 (19.7)	15 (4.3)	5.50 3.02-10.53	67 (16.8)	35 (9.6)	1.91 1.25-2.99
Vandalized more than once	41 (19.7)	19 (5.4)	4.28 2.44-7.75	163 (41.2)	91 (24.9)	2.11 1.55-2.88

<sup>1</sup>95% Confidence interval



Students in vocational programs showed significantly higher frequencies of smoking, snuff use, and alcohol use and had more experience of cannabis use than those in theoretical programs (Table 7). Most of the differences remained significant after adjustments for sociodemographic variables, i.e., for girls regarding regular smoking (OR 4.19), regular snuff use (OR 5.29), regular alcohol use (OR 1.93) and ever use of cannabis (OR 3.62). When parents' permissive attitude to alcohol was included in multivariate analyses, regular alcohol use was no longer significantly correlated to vocational programs in girls (OR 1.42, 95% CI 0.84-2.44). In boys, regular alcohol use did not differ significantly between the two programs when adjustments also included a permissive attitude of parents (OR 1.04, 95% CI 0.66-1.64).

Both females and males in vocational programs were more sexually advanced, including more risk behavior, than theoretical high school students, with the exception of contraceptive use at last intercourse among girls. For some variables, such as have had more than five sexual partners, the differences were pronounced: girls in vocational programs 38% and boys 31%, girls in theoretical programs 12% and boys 13%. With some exceptions, the adjusted odds ratios and 95% confidence intervals showed only minor differences, as compared to the non-adjusted figures. In girls, however, contraceptive use at first intercourse did not differ significantly between the two programs (adj. OR 0.59, 95% CI 0.33-1.06), and this was also true for contraceptive use at latest intercourse (adj. OR 1.06, 95% CI 0.58-1.94) when adjustments had been made. For boys there were only minor changes after adjustments. Girls in vocational programs had a significantly higher frequency of sexually transmitted infections compared not only with girls in theoretical programs but also with boys in vocational programs ( $p=0.0003$ ).

Multivariate analyses were made in two steps. First, all variables were sorted into six areas, namely: [1] school-related factors, [2] diet and sports, [3] health, [4] delinquent and risk behavior, [5] tobacco, alcohol and drug use, and [6] sexuality. All variables that differed significantly between participants attending vocational and those attending theoretical school in each of these six areas were analyzed separately in six initial multivariate analyses. The aim was to exclude confounding factors and only include independent factors in these specific areas for the subsequent final analysis.

In this final analysis, all variables that remained significantly different between attendees of the two school programs after the six initial analyses were included. The aim was to identify factors that strongly and independently correlated to adolescents attending a vocational or a theoretical program.

Table 7. Unhealthy behaviors among students in vocational and theoretical programs

	Females			Males		
	Vocational Program n=209 (%)	Theoretical Program n=352 (%)	Odds ratio 95% CI <sup>1</sup>	Vocational Program n=405 (%)	Theoretical Program n=366 (%)	Odds ratio 95% CI <sup>1</sup>
Smoke at least once a week	69 (33.0)	28 (8.0)	5.69 3.55-9.33	55 (13.7)	10 (2.7)	5.62 2.95-11.88
Use snuff at least once a week	21 (10.1)	8 (2.3)	4.80 2.16-11.73	139 (34.3)	49 (13.5)	3.36 2.35-4.87
Drink alcohol at least once a month	152 (73.1)	211 (59.9)	1.81 1.25-2.65	274 (67.8)	217 (59.5)	1.44 1.07-1.93
Parents have a permissive attitude to alcohol	128 (72.7)	177 (62.1)	1.63 1.09-2.46	267 (79.2)	207 (72.9)	1.42 0.98-2.06
Drink strong beer (export quality)	78 (40.0)	95 (30.7)	1.51 1.04-2.19	270 (73.8)	193 (63.7)	1.60 1.15-2.23
Drink wine	50 (25.6)	74 (23.9)	1.10 0.72-1.66	30 (8.2)	52 (17.2)	0.43 0.27-0.69
Ever used cannabis	31 (14.9)	18 (5.1)	3.23 1.78-6.04	52 (13.1)	28 (7.7)	1.81 1.12-2.97

<sup>1</sup>95% Confidence interval

In girls, in the final analyses variables that were independently and significantly correlated to vocational programs were: at least one parent with a university education (adj. OR 0.43), having regular breakfast (adj. OR 0.54), have been bullied (adj. OR 2.01), regular smoking (adj. OR 2.63), ever had sexual intercourse (adj. OR 1.84), and having had more than five sexual partners (adj. OR 2.92). Suicidal thoughts, shoplifting, and regular alcohol use were no longer significant after these adjustments.

In boys, variables that were independently and significantly correlated with vocational programs were: at least one parent with university education (adj. OR 0.29), feeling tired (adj. OR 0.39), vandalizing (adj. OR 1.84), smoking (adj. OR 3.70), and having had more than five sexual partners (OR 2.21). Breakfast habits, practicing individual sports, and regular alcohol use no longer differed significantly between the two groups of boys.

## Discussion

Public health has been defined as “the science and art of preventing disease, prolonging life and promoting health through organized efforts in society” (55). The main objective is to understand the health of populations and to develop methods to protect and promote their health. According to Lindström less attention is given to the individual and public health should be able to overview the needs and resources of populations but at the same time maintain the sensitivity to the needs of vulnerable groups and the perspectives of the individual (56). There are exposed groups with special needs in the adolescent population. From a public health perspective it is important to identify these groups and individuals in order to work out prevention and promotion programs and to give appropriate support.

Michaud (2005) has pointed out the reasons why dissemination of survey research regarding adolescents is important (57). Teenagers do not use healthcare services to a great extent, and politicians and decision makers tend to view adolescence as an essentially healthy period of life, dismissing the fact that a fairly large proportion of young people suffer from physical and mental problems which are often hidden, or for which they are not ready to seek help and support. Unhealthy lifestyles are often acquired during adolescence, and will have an impact on the quality of life and future health of many individuals. Young adolescents need representatives to increase the awareness of decision makers of their specific health needs and improve their situation. However, adolescent health surveys tend to remain in the hands of researchers, where they can have no real impact on the way critical health issues are dealt with by policy makers or other professionals directly connected to young people in their everyday work.

As research increases the understanding of the social, psychological and other antecedent factors that affect health, school health services and clinics for adolescents become important settings for influencing the health of adolescents. Results from studies have shown that access to care for adolescents has been associated with reductions in risky behaviors and improvements in health (58).

The present studies on sexuality, health, health-compromising behavior, and risk-taking behavior can be considered to represent the aim of public health to prevent disease, prolong life and promote health through organized efforts in society (55). In addition, the studies on young men involved in unintended pregnancies represent the public health aim to “maintain the sen-

sitivity to the needs of vulnerable groups and the perspectives of the individual" (56).

## Study I

The purpose of this descriptive study was to obtain knowledge about the opportunities available to Swedish teenage boys and young men for obtaining advice and support at Swedish Outpatient Clinics for Adolescents during the process of making decisions on abortion in a pregnant girlfriend. A further aim was to obtain knowledge about the impressions of the staffs of the OCAs about male attitudes and feelings regarding abortion.

Some questions in the questionnaire sent to the OCAs in 1995 were left unanswered by the staffs (range 84% -100%), and fewer answers were given to open questions and those requiring experience of individual support to the male partner. It is not known to what extent the questionnaire was answered by members of the staff together or by only a few of those involved. A majority of the answers to the questions were estimates. The questionnaire was answered by 81% of the 150 clinics, but some caution should be observed in generalizing the results.

In this study the staffs' views regarding male attitudes and feelings were based on experiences from only about one-fourth of the male partners. Thus the results are not representative of the group of young men who do not accompany the girl at the visit when the pregnancy test is found positive, or at the next visit.

The majority of the clinics stated that the partner frequently or rather frequently was able to influence or participate in the decision. But the staffs also encountered young men who were not allowed to influence the decision as well as those with feelings of powerlessness and of being excluded, which is in accordance with Redmond's findings in the US (22).

Questions about the practical procedure of the abortion and possible bodily complications, as well as questions about confidentiality and information to others appeared to be of great importance to both the young women and the young men. But, regarding male partners, this finding is based only upon statements from the small proportion of young men who accompanied the girl.

Concerning problems in the relationship as a reason for deciding upon termination, the results differed between clinics with experience in seeing the boyfriend alone (47%) and the remaining clinics (22%). A possible explanation for this difference is that the former clinics, with such experience, may have been more accustomed to discussing relationship problems with the male partner when he was interviewed alone. According to Cullberg

(59), the opportunity to express feelings can strengthen resources and facilitate an appropriate solution to the crisis and thereby diminish problems in the future. From a public health point of view, Antonovsky's concepts "salutogenesis" and "sense of coherence" are of relevance (60). As sense of coherence, i.e., a feeling that life is comprehensible, manageable and meaningful, is of importance for the individual's confidence and mental health. It is therefore desirable that both the girl and the young man receive pertinent information, that they feel that they have possibilities of influencing the decision, and that they consider that the decision is in accordance with their beliefs in what is the right thing to do.

According to the findings of Marsiglio et al (24), the reason for sorrow and disappointment on the part of the male partner, which in the present study was apparent both in cases of continued pregnancy and in planned termination, can be explained by the experience of being excluded, powerless, or in disagreement with the decision. A majority of the clinics noted positive reactions when a pregnancy was to be continued. More secure relationships or partners of a higher age group might explain the reactions in these cases.

Only 16% of the clinics offered individual support routinely to the male partner. But a number of the remaining clinics stated that they were already either planning this or that our questionnaire had raised the idea of providing a similar service, as they had found that there was a need for active care and information to the young men, in agreement with the findings of Rothstein in the USA (19).

The same questionnaire was therefore sent to all 212 registered OCA in the spring of 2005 (61) (study not included in this thesis). Not all the same members of the staffs answered the two questionnaires, because of staff turnover and addition of new clinics, in the intervening ten years. The questionnaire in 2005 was answered by 190 clinics, yielding a reply frequency of 90%. In spite of the interest focused on the question, both scientific and in the mass media, only 22% of the responding clinics offered individual support, an increase of only 6%, from 16% to 22%. But the total number of clinics that offered individual support was more than doubled, from 19 to 41, which is partly explained by the addition of new clinics. Opportunities for obtaining advice and support from a social worker had increased from 68% at the OCAs in 1995 to 93% in 2005, suggesting an increased interest in support. The problems of the young men involved were assessed as being about the same as in the earlier study.

There seems to be a similar situation in Sweden as that disclosed in the American investigations: a willingness for serious participation by the male partner in the decision on abortion, with a need for emotional support, complicated by the right of the girl to determine whether or not to terminate the pregnancy, indicating the possibility of a conflict of interests (19,22,24). The experience of abortion may challenge the boyfriend/partner at a critical time

in his identity formation and moral development. His feelings, if not appropriately dealt with, may create problems for the girlfriend and professionals in achieving a smooth resolution and outcome of the pregnancy.

Very few earlier studies on young men involved in unplanned pregnancies had been carried out before the investigation in 1995, and few later studies have been performed either, possibly for the reason that the main interest is focused on the girl in that situation. Probable reasons for the small increase in the number of clinics offering personal support to the male partner between 1995 and 2005 could be difficulties in implementing new activities at the clinics and the already overstretched economic burden. Nevertheless, it is an important task to improve this kind of service at the OCAs.

## Study II

In Sweden the decision on whether or not to terminate a pregnancy is the woman's prerogative. Nevertheless the young men go through a difficult decision-making process, where it is obviously important that they receive appropriate support, paying consideration to various aspects.

Information about the immediate feelings of young men after being informed about potential fatherhood was obtained by using a grounded theory approach. This area has not been studied previously, and the findings should contribute to the understanding of the decision process, concerning possible termination, a process which includes feelings of unreality, surprise, happiness, guilt and powerlessness.

The young men reported surprise and feelings of shock when informed about a positive pregnancy test. The younger the man, the less was he prepared for the possibility of becoming a father. As pointed out by Irwin and Millstein, young people have difficulties in foreseeing the consequences of risk-taking behavior, leading to increased risk-taking (5). The change in cognition during adolescence results in more abstract and hypothetical thinking, at the same time as the need for control gives rise to risk-taking: "...things like this happen, but no, hardly to us".

Some of the young men had parents who themselves had been young when they had a child. In these cases one can consider influence from three of Jessor's psychosocial domains containing risk factors as well as protective factors: the biological inheritance, the social environment, and the perceived environment (13). The difference between risk factors and protective factors is determined by current norms, which in turn affect the individual's norms and attitudes, leading to what is considered to be acceptable behavior: "*My mother was pregnant when she was only 14 years old, so she was aware of the feelings in that situation, and she was not upset or angry either*".

Data for the study were collected during 1995 - 1998. The 1990s were different from earlier decades in that, for instance, there was a high level of unemployment and a multicultural society with divergent norms. In such an environment there could be difficulties in maintaining an internal psychological tendency to evaluate a particular entity with some degree of favor or disfavor, stored in memory as mental representations, and activated by attitude objects or cues related to them, i.e., an attitude (34).

The psychosocial development during adolescence involves variations in cognitive abilities at different ages and consequently in sets of values (5). Age influences not only the individual's previous experiences but also his or her ability to form an attitude. The young men in this study were in a situation where to a varying extent an attitude to abortion was expected by themselves, their partners and the clinic staff. The remarks "...then you kill it, that is wrong. In fact it was going to become a child, you cannot merely ignore it" reflect the difficulties in decision making, which can be discussed on the basis of different theories.

The "decision frame" theory proposed by Tversky and Kahneman includes the possible outcomes or consequences of the decision process (38). The decision frame includes the decision maker's norms and attitudes, in this case the risk of future ethical problems after a decision on abortion. Another component is the decision maker's idea concerning his possibilities as a consequence of a particular decision. Insufficient economic means, ongoing education, and ambivalence regarding qualifications for fatherhood as a reason for a decision on abortion were common: "... you shouldn't have a child for fun...".

According to the "Image theory" the decision maker has to determine what goal to reach and what is the right thing to do, within the frame of his or her set of ethical values (39). The "Dominance search theory" implies an attempt to create a "dominating" structure in favor of one of the alternative decisions (40). One strategy may be emphasis of advantages of one alternative, for instance: "... neither of us has a job, the economy... I am too young...", thus with argumentation in favor of abortion. According to Karlson's theory, the young men felt that they should keep the child, out of a sense of obligation, and wanted to keep it (41). However, despite the fact that an abortion could have a fundamental and deeper existentialist meaning to them, they did not have the competence for or possibilities of keeping the child, in their present situation. Sloan's psychoanalytic theory questions the free will of man (42). The question as to whether to have an abortion or not can be regarded as a "major life decision", implying a particular meaning for the individual and intimately linked to identity and the individual's "true self". Rationalizations are common in decision-making processes, according to Sloan.

It might be expected that an experience of fatherhood would influence the decision. A young man who is already a father has greater possibilities of



predicting the consequences of the decision and of judging his capacity, resources and possibilities for caring for a child, and the obstacles against this decision. Redmond found in his questionnaire study that teenage fathers had more liberal attitudes toward abortion (22). They were more likely than non-fathers to consider that pregnant teenagers should be allowed to have an abortion, to accompany them when going for an abortion, and to provide emotional support after the procedure.

In the model suggested in the present study, the decision-making process comprises three concepts: Reactions, Impact factors, and Tools for Process (Fig. 2). I believe that it is important to help the young man with his reactions to facilitate his considerations in the remaining part of the process leading to the Decision.

### Study III

In this study differences were found between the three studied groups: boys who had never had sexual intercourse (group I), boys who had had sexual intercourse (group II), and boys who also had been involved in pregnancy (group III). Almost every kind of unhealthy behavior and risk behavior showed its highest frequency in group III and lowest in group I, which is in agreement with international experiences (28-30).

Especially disturbing was the frequent use of anabolic steroids in group III. It is well documented that this kind of abuse causes injuries to both body and mind (62,63). Furthermore, there are reports that steroid use can lead to violence to others, particularly to girlfriends (64-66).

Another finding of great concern is the high rate of reports of being a victim to sexual offences in group III compared with groups I and II. The differences were statistically significant. A study from the USA in 1998 showed that a history of forced sexual contact was associated with a higher risk of male high school students being involved in pregnancy (67). The authors highlight the importance of asking not only about health risk and problem behaviors but also about a history of forced sexual intercourse, when talking to sexually active young men, in an effort to prevent teenage pregnancy and childbearing.

As might have been expected, the use of contraceptives was less frequent in group III than in group II. This was also true regarding the experience of sexually transmitted diseases.

Social factors have a substantial impact on health and illness. The social and economic divide has increased in Sweden during the nineties. Many young people have experienced family breakdowns. There has been a great deal of immigration to Sweden. The results regarding psychosocial back-

ground factors showed a difference between the three groups regarding risk behavior and health-compromising behavior. These findings give reason to reflect on how to achieve better contact with young men who have potentially compromising factors, such as living in broken homes or in immigrant families, in order to carry out adequate health promotion.

Early pubertal development, which in turn can cause young people to be perceived as older than their chronological age, is associated with the "risk-behavior syndrome" in girls (5). Data from the present study indicate that early-maturing boys could also be at risk.

There was a lower rate of being bullied in groups II and III, i.e., among young men with experiences of intercourse. It is possible that their early physical development and the fact that they may look older than their chronological age are factors that protect them from harassment.

The second most common cause of death among male adolescents in Sweden, next to accidents, is suicide. The fact that a high percentage of the young men in group III had considered suicide might indicate that they were aware of their risky situation and worried about it. There could also be an association with other risk factors, such as illicit drug abuse.

The social environment in which one grows up is generally considered to be important in regard to healthy behavior. Three items concerning healthy behavior, possibly generated in the family environment, were studied.

There could be many reasons for not having breakfast every day, for instance a casual lifestyle or a less caring family environment. Large differences regarding breakfast were found between the groups. Group differences were also found concerning the use of seatbelts. These differences could be due to parents' disinterest, gaps in education and information or, again, a casual lifestyle. The use of seatbelts is compulsory in Sweden and in normative studies it was found that approximately 60% of adolescents always used their seatbelt (12). Most respondents seemed to want to be in good shape. It is not known whether there were differences between the groups concerning their kind of physical exercise, which would be of interest to know, as well as the distribution of body builders, considering the frequency of anabolic steroids used. A Swedish study of the connection between smoking and exercise revealed that boys at 15.5 years of age who exercised intensively, four times a week or more, and those who did not exercise at all outside school smoked less often, while among the boys in between these extremes there was a high proportion of smokers (68). This indicates that participation in physical exercise is not necessarily equivalent to a healthy lifestyle in general.

The validity of questionnaire material, using the "Q90", was examined in a previous study (12). It was reported that in several areas, official statistics and informal information from social workers supported the adolescent's answers regarding matters such as teenage pregnancy and abortion, alcohol use, etc. Areas where the answers deviated from the expected behavior were

scrutinized more carefully, but there was no reason to doubt the sincerity of the students. Written comments from the students indicated that they took the study very seriously and did their best to answer.

It is uncommon in Sweden for 18-year-old boys to brag and lie about experiences of sexual intercourse, since sexual intercourse at that age is common and accepted. Results from a Swedish study from 1990 support this view (69).

Questions regarding Psychosocial background were left unanswered by 0.2-2%, except for the question about early puberty, which was not answered by 48.9%. Questions in the areas Health and health behavior were unanswered by 0.1-0.8%, Unhealthy behavior by 0.1-0.2% and Sexuality by 0.5-2.5%. There were no great differences in unanswered questions between the three groups. No questionnaires were discarded.

The no responses would not have distorted the differences between the groups, since it could be expected that there may have been some school skippers among those absent on the survey days and that these would have more health-compromising behaviors, including sexual.

The results have to be interpreted with some caution, since they are derived only from one Swedish municipality. But findings from the USA support the suggestion that there are differences in other municipalities as well (25-30).

It is concluded from this study that there were differences in health, health behavior and unhealthy or risk-taking behavior between young men who had been involved in a pregnancy and young men who had not had that experience. There were also differences between young men who had not had sexual intercourse (group I), those who had had intercourse (group II) and those who also had been involved in a pregnancy (group III), with an apparent tendency toward riskier lifestyles from group I to group III, via group II.

## Study IV

The development of sexual identity and sexual life in adolescents is influenced by biological, psychological and socio-cultural factors (3). The biological component was evident from the results, with the short period between onset of menstruation (mean age 12.3 years) and age at first intercourse (13.5 years in both girls and boys) in the age group 13-15 years. An early menarche has been associated with early sexual onset (70,71), which in turn is associated with having multiple sexual partners, non-contraceptive use, pregnancies at an early age, smoking, heavy drinking and non-participation in sports (72).

The mean age at coitarche was 14.9 years in girls and 15.0 years in boys in the age group 16-18 years. The proportion of adolescents who have sex for the first time at a certain age has been estimated in a number of Swedish studies (70,73-75). A rough summary shows that about one third of adolescents have had sexual intercourse by the time they leave compulsory school and about two thirds have done so by the time they reach the third year of high school. These studies also show, as in the present study, that girls have sex for the first time slightly earlier than boys, but this difference is small.

The sexual debut among Swedish adolescents does not seem to have come earlier in the last decades. But when average figures are broken down on the basis of different background variables, a more comprehensive picture appears. Among other things, an immigrant background on the group level is a significant factor with regard to when adolescents have sex for the first time (76). A study from the United States even found a postponed sexual debut among high school students during the 1990s (77).

The proportion of female and male teenagers in compulsory school who had had at least six sexual partners (13% vs. 14%), and of teenagers in high school who had had at least eleven sexual partners (10% vs. 14%), seems rather high. Comparisons with other studies are difficult, but our figures seem to be higher than those in earlier Swedish studies (75,78).

Number of sexual partners is a variable widely used to measure sexual risk taking (71,72,75,77-82). Among teenagers with a large total number of sexual partners, there are subgroups with different kinds of sexual behavior. Teenagers who change partners frequently, 'serial monogamy' (83), belong to one of these groups. Short but steady relationships with medical check-ups at initiation of a new relation do not carry the same risks of sexually transmitted infections as casual sex with a previously unknown partner (82), often accompanied by alcohol consumption, but with a similar total number of partners.

The "fuck buddy" is a concept that is used relatively often when young people discuss sexuality. "Fuck buddy" means having sexual intercourse now and then with a friend without having a real love relationship. Whether or not this is a new phenomenon is uncertain, as it has not been studied until recent years and we did not ask about it in the present study. It seems, however, to be a well-known behavior among adolescents and about one third of sexually active girls and half of such boys in a Swedish study of third grade high school students in 2005 had experience of having had a fuck buddy (84). The consequences in terms of health and risks should be an area of future research.

The reported use of contraceptives at the latest intercourse, on average about 70% of the sexually active students, is lower than in some previous Swedish and international studies (78,79), but equal to that in others (75,85). The increase from compulsory school to high school in the proportion of girls using contraceptives at the latest intercourse (62% vs. 70%) could be

due to more frequent use of oral contraceptives among older adolescent girls. This fact can also explain the decrease regarding boys (78% vs. 62%), as they trust the girls to use oral contraceptives from a sense of responsibility. Another explanation might be underreporting by the boys of the use of contraceptive pills if they thought that the question only referred to condoms. Oral contraceptives for teenagers are subsidized in Sweden, and prescriptions are easy available at the Outpatient Clinics for Adolescents, as also are condoms, at a very low price. The rather high frequency of use of no contraceptive in this sexually active, very fertile, population would indicate a high rate of unwanted pregnancies and sexually transmitted infections.

Preventive action to combat unwanted pregnancies increased in Sweden in connection with the introduction of the Swedish Abortion Act (17), which became effective from 1975. This has since been supplemented by the expansion of the Outpatient Clinics for Adolescents and the introduction of subsidized contraceptives to young people in most Swedish counties. In the 30 years that have passed since the Act came into force, the rates of pregnancy, abortion, and birth have all varied somewhat. Seen overall, the pregnancy rate in the age group under 19 years has gone down, from about 55 pregnancies per 1,000 girls in 1975 to about 30 per 1,000 in 2005 (18). In comparison, the figures in the present study were relatively high, as 8 per cent of the study group above 16 years of age reported having been pregnant. The total number of adolescents undergoing abortions has also risen in Sweden, and in 2005 about one fifth chose to have their babies, whilst the rest in this age group chose to have an abortion (18). In a 2002 Swedish study, the most common reasons why young women chose to have an abortion was that they considered themselves to be too young, they wanted to study first, and they assess their financial situation as too weak and unstable (86).

Six per cent of the girls and three per cent of the boys in the older age group admitted having had a sexually transmitted infection. The figures are similar to regional medical statistics, which is a further indication that the study group gave honest answers. Other reports confirm the levels that were found in the present study (75,87).

An important finding in this study, from a risk behavior point of view, was that the sexual partner change in teenagers was equal among girls and boys, but during the early teens the girls were slightly ahead with sexual activity. Another finding was that unprotected intercourse occurred in a rather high frequency, despite massive education and easy access to contraceptives. How can the frequency of condom use be raised? Health authorities in Sweden should take this aspect into consideration when planning for expensive human papillomavirus vaccination programs. Analyses of cost-effectiveness regarding Swedish conditions are lacking and analyses from other countries are not conclusive (88,89).

A cross-sectional survey conducted in Iceland showed that both genders were more likely to use contraceptives if they recognized the seriousness of

pregnancy and easiness of making contraceptive plans (90). Teenage girls were more likely to use contraceptives if they were older at the time of their sexual debut, were in a steady sexual relationship, considered the contraceptive services good, believed in not taking chances, and if their parents knew about contraceptive use. The authors' conclusion is that preventive strategies should primarily be targeted on those teenagers who start sexual activity early, are not in a steady relationship, and are not receiving parental support.

## Study V

The results of study V indicate that 16- to 18-year-old girls and boys in vocational programs in Swedish high schools exhibit a large number of health-compromising behaviors, as compared to those in theoretical programs. These findings point to a target group at high risk for unhealthy behavior or risk behavior and suggest that preventive interventional strategies should take into consideration the cluster and accumulation of health-risk behaviors, not only isolated behaviors such as smoking.

In different studies on specific risk behaviors such as physical inactivity (91), smoking (92-94), and sexual risk behavior (75), high school program has been included as one of many variables. Only rarely has the relation to high school programs been investigated as such. In a Japanese study the investigators found that students from vocational high schools showed an accumulation of health risk behaviors (95). The number of variables in that study was more limited than in ours, but the conclusions were similar.

More students in vocational programs reported poor results at school. Interestingly, it has been reported that school achievement only correlates to intellectual ability in children with a low social status, while parental involvement is a stronger predictor of good achievement in children with a high social status (96).

A higher proportion of female students in vocational programs reported not only being bullied but also having bullied, as compared to those in theoretical programs, while corresponding differences regarding boys were not significant. To have bullied was no longer significant among girls after adjustments, but was significantly more common among boys in vocational programs compared to those in theoretical programs. In this study, bullying therefore seems to be a reflection of socio-demographic characteristics. It has been shown that among their classmates bullies enjoy a high social status, while their victims are socially marginalized (97). Bullying might be one way to attempt to gain respect.

Good dietary habits, sport activities, and a normal body mass index have been linked in several previous studies (91,95,98,99). The results of the pre-

sent study confirmed these findings, and it is to be noted that the formal sports programs in vocational and theoretical school programs in Sweden are identical. Regular physical activity is generally viewed as having a favorable influence on the growth, biological maturation, and mental and physical fitness of children and adolescents (100). Most of the inverse correlations to girls and boys in vocational programs compared to those in theoretical programs, in the present study, remained significant after adjustments for socio-demographic variables. This indicates that other socio-cultural factors than family conditions contributed to our findings. Peer relations seem likely to be one of these factors. Improving physical fitness in adolescents of low socioeconomic status has been shown to decrease anxiety and improve self-esteem (101). Students in a Swedish high school underwent physical tests: one test to predict maximal oxygen uptake, strength tests, flexibility tests, and a balance test. Students in vocational programs had a lower physical capacity than students in theoretical programs, among both girls and boys (102). This stresses the importance of tailoring methods to promote physical activity, which may also prove useful for influencing other health habits in these groups of adolescents.

Compared to boys, girls in both types of high school programs more often reported that they did not feel entirely healthy, had had stomach pains in the last week, felt depressed, and had considered committing suicide at least once. In a previous study in which living with both parents was used as a measure of social conditions, it was found that living with one parent was correlated to suicidal thoughts and psychosomatic symptoms and that these were more likely to occur among girls than among boys (103).

Experience of being driven in a car by a drunk friend, no seat belt use, physical fighting, shoplifting, theft, and vandalism were significantly correlated to vocational programs at school, in both girls and boys, as compared to theoretical programs, even after adjustments for sociodemographic factors. In a study carried out in Ireland, Israel, Portugal, Sweden, and the United States (104) physical fighting was correlated to not living with the father, disliking school, and poor academic achievement. In the final multivariate analysis in the present study, vandalism, as one measure of delinquency and aggression, still correlated to being a male student in a vocational program. This indicates that there are sociocultural differences between students in vocational and those in theoretical programs, which we were not able to identify.

Smoking, alcohol use, and use of illicit drugs have been found to be related to socioeconomic status (105,106), attendance at a vocational program (92), risk behaviors such as violence (104), lack of physical exercise and overweight (107), and sexual risk behavior (75). All these risk behaviors correlated to adolescents attending a vocational program in this study, also after adjustment for sociodemographic factors. In the final analyses, including both smoking and regular alcohol use, only smoking remained signifi-

cantly correlated to vocational school students. Smoking might begin at an earlier age than regular alcohol use, making the former habit appear to be a stronger predictor of vocational school attendance, which was in fact found in a German study (92).

Both girls and boys in vocational programs displayed substantially more risky sexual behavior than those in theoretical programs. Sexual risk behavior has been correlated to a number of variables that were investigated in this study, e.g., low socioeconomic status (108), smoking and drinking (93), depression (79), and physical inactivity (72). An earlier age at sexual debut among vocational, as compared to theoretical students, has also been reported (75,109).

Age at sexual debut was not markedly earlier among vocational students, 0.7 years earlier in girls and 0.4 years in boys, when compared with the large differences in general in the numbers of lifetime sexual partners. It is noteworthy that 20% of the girls in vocational programs reported having had more than ten sexual partners, on average three years after their first intercourse. Other factors that indicate a higher sexual risk, i.e., contraceptive use at first, but not latest, intercourse, pregnancy, and acquiring sexually transmitted infections, all correlated to being a female vocational student. In the present study adolescent pregnancy was almost three times as frequent among girls in vocational as compared to theoretical programs. In the United States, teenage pregnancy has been associated with a low socioeconomic status and a variety of risk behaviors (109). This is in accordance with the findings in study III indicating that involvement in pregnancy among teenage boys correlated to a risky lifestyle.

In another Swedish study a higher proportion of students in vocational programs were found to have had coitarche, and these adolescents had had more sexual partners and had used contraceptives more rarely at their first intercourse compared to students in theoretical programs (78). Girls and boys were not analyzed separately, however, possibly because of the relatively small study size.

One limitation of the current study is its cross-sectional design, which means that the results do not permit conclusions about the causality of factors. Another limitation is that we could not include income among the sociodemographic characteristics. It is well recognized that the family environment creates the context in which certain lifestyle habits take place (91,110) and a relationship to socioeconomic status has been demonstrated (96,98,105-107). Obtaining information on family income from adolescents is difficult, but parental education and work patterns, as were used in this study, are known to correlate well with household income (106).

The results must be interpreted with some caution, since they are derived from only one municipality. Nevertheless, in each specific area regarding health, health-compromising behavior or risk-behavior reported in this study, the adolescents in vocational programs were worse off than those in theoretic-



cal programs. These findings suggest that preventive interventional strategies should take into consideration the differences between students in vocational and theoretical programs, including the cluster and accumulation of health-risk behaviors. When planning these strategies one should take into account the fact that selection to different high school programs starts early.

Living a good life with a high quality of life and healthy habits is beneficial both for the individual and for society from many aspects. The cost efficiency for society is high if preventive and promotional work aiming at sound habits is successful, as shown by Swedish as well as international studies (6,7,111).

Lifestyle factors are mainly the results of influence by the social environment in which young people have been raised. Several investigations have pointed to the connection between social environmental factors and health-related behaviors, for instance the relation between adolescent use of anabolic-androgenic steroids and psychosocial factors (112). One Swedish study (in 2004) was focused on the attitudes of young people toward noise and their use of hearing protectors at discos and pop concerts (113). The conclusion to be drawn was that hearing protection use differed according to the socio-economic status (SES). Study participants with a high SES expressed more negative attitudes toward noise and used ear protection to a greater extent than those with a lower SES. This result might indicate differences in the development of future auditory problems among individuals of different socio-economic status.

Public health researchers tend to focus on negative adolescent health-related behaviors, while positive adolescent behaviors have received relatively little political and research attention. But a US study from 2005 indicates that there is a more complex relationship between risk factors, protective factors, negative behaviors, and positive behaviors than has previously been recognized (114). In a French study from the same year the tendency to occasional risk taking was compared with the tendency to frequent risk taking in young people (115). The results support the idea that the two tendencies distinct from each other and are not controlled by the same determinism.

Most prevention theories recognize the need for multidimensional approaches centering on family, school, and community. They build on our understanding of the interrelatedness of problem behaviors. Hawkins and his colleagues have promulgated the “social development model” to prevent a range of deviant behaviors (116). Their research has led them to believe that the existence of strong social bonds to others exhibiting prosocial behaviors is an essential component of healthy childhood experience.

Peer influence can enhance positive behaviors and diminish risk behaviors during the whole life cycle (117,118). Peer environment is not restricted to any specific geographical locality, but exists in many connections. However, schools play a vital role in the lives of adolescents. They are one of the places where teenagers in principle have unlimited access to daily interac-

tions with peers (119). Young people tend to choose friends who are like themselves. Those who are high alcohol consumers choose friends who also drink often and a lot. It is assumed that friendships between young people give rise to social processes leading to similarity between peers. Different school-based intervention programs have been worked out in order to change behaviors in existing peer environments and to alter the school structure and organization (120).

As research helps us to understand the social, psychological, and other antecedent factors that affect health, schools accordingly become an increasingly important setting in influencing the health of adolescents (121). Bremberg analyzed the effects of two models of school health services on the health of schoolchildren in Sweden: one traditional model, characterized by routine programs, and one alternative, based on program development (122). The author questions the value of routine school health examinations as promoters of adolescent health in a society like Sweden. The alternative model was found to have positive influences in producing behavioral effects by means of a student-centered health counseling approach.

Some studies over time have indicated that unhealthy behavior, mental and psychosomatic complaints, and risky sexual behavior among adolescents have become more frequent. The results from a study in the USA showed that adolescent smokers in 2003 were even more likely to engage in risky sexual behavior and risky alcohol-related behaviors, and not to use a seatbelt or bicycle helmet, than adolescents in 1991 (123). The proportion of Swedish schoolchildren reporting psychosomatic complaints and psychological symptoms in classroom surveys has increased in both sexes in recent decades (124). Repeated cross-sectional studies, performed in 1989, 1999 and 2004, regarding sexual behavior and contraceptive use of Swedish female university students showed that contraceptive use remained stable over time (125). There was a trend, however, toward more risky sexual behavior with more sexual partners, more unprotected first-date intercourse, and more self-reported sexually transmitted infections.

## Conclusions and recommendations

Young men involved in unintended pregnancies would benefit from active participation in the decision making regarding continuation or termination of the pregnancy, and from support at Outpatient Clinics for Adolescents in Sweden, including information together with the partner. Consideration should also be paid to those questions and problems, e.g. feelings, apprehensions, moral questions, and psychosocial factors, that require individual support from personnel who have the knowledge and resources to help them in this difficult situation.

Among the most important findings regarding young men who had been involved in an unplanned pregnancy were that in this group a high percentage had previously considered suicide and that anabolic steroids were frequently used, compared with young men without experience of pregnancy. This knowledge is an essential point when offering individual support at the OCA. Questions about the young men's way of life should be discussed, as well as possible use of anabolic steroids.

Early pubertal development, which in turn can cause young people to be perceived as older than their chronological age, is associated with the "risk-behavior syndrome" in girls (5). The reported high rate of being a victim to sexual offences among males involved in pregnancies indicates that early-maturing males could also be at risk. This finding should be further investigated by interviews with a qualitative design. In the school health program, observation of pubertal development and social age should be an indispensable component of the medical examination with the intention of promoting health.

There is apparently a need for additional activities at OCAs in Sweden concerning individual support to a male partner whose girlfriend has become pregnant, or when the man has a sexually transmitted disease. OCAs should direct broadly health-promoting activities toward these young men, and knowledge from the present studies could form a basis for the development of models for suitable support.

There is also a need to reflect on how to connect better with young men who have potentially compromising factors such as living in broken homes or in immigrant families, in order to carry out adequate health promotion. It is a delicate task to direct preventive activities toward particular populations, and this should be an important challenge for school health services, possibly in cooperation with OCAs. The finding that un-protected intercourse

occurred in a fairly high frequency, despite massive education and easy access to contraceptives, gives reason for further considerations regarding appropriate ways of providing information to young people, another field for cooperation between OCAs and school health services.

After various adjustments there are still differences between students in vocational and theoretical programs that need to be considered, including differences in clustering and accumulation of health-risk behaviors. This means that preventive interventional strategies need to be elaborated with regard to these differences, aimed at improving health maintenance among adolescents.

Private, confidential time, during health care encounters with school health services is necessary to promote healthy, responsible behavior, and to provide accurate information about health risks, so that young people at risk can be identified and offered appropriate help, i.e., a combination of prevention and health promotion (55,56,126). This is of particular importance, as risk behaviors at young ages are potentially preventable and changeable (35,36).

By interventions it is possible to increase the adolescent's knowledge, but the goal of changing attitudes and behavior that influence health is much harder to achieve. Peer groups can play an important role in these processes as one part of school-based programs (120). Smoking was found to be significantly correlated to attendance at vocational programs in study V, even after the multivariate analyses, and may begin at an early age. Smoking habits might therefore be an early marker for risk-taking behavior in adolescence.

A high frequency of sexual activities, including sexual risk taking, was linked to other risk-taking behaviors among young men who had been involved in unintended pregnancies, as well as among both boys and girls in vocational programs. This link gives rise to important questions of relevance to prevention activities, as this risk taking can have serious consequences. Does the sexual activity have a strain-releasing effect? Is it a result of a need for nearness? Are there different norms and group pressures? Are there different views regarding individuals of the opposite sex? To answer these questions further research is necessary, preferably by means of qualitative as well as quantitative methods.

There is a need to strengthen the knowledge of personnel regarding adolescent medicine, especially concerning health-compromising and risk-taking behaviors among adolescents, for instance at pediatric clinics, Outpatient Clinics for Adolescents and in School Health Services in Sweden. Child-and-youth centers with a developmental and research capacity need to be established with the broad purpose of drawing up health prevention programs for children and young people.

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