

ADOLESCENT SEXUALITY AND SEXUAL ABUSE

A SWEDISH PERSPECTIVE

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To the apples of my eyes
My very much beloved children
Lina and Daniel

SUMMARY

In the late 1980's, teenage abortions and genital chlamydial infections were increasing adolescent health problems in Sweden, indicating unsafe sex practices among young people. The emergence of HIV highlighted the need for research on adolescent sexual health issues. The cross-sectional questionnaire-based survey SAM 73-90 was conducted in 1990 among 1,943 high school students and 210 school drop-outs born in 1973, response rate 92% and 44%, respectively. Consensual sexual experience was varied. Coital experience was reported by 54% of the boys and by 64% the girls. Factors associated with coital experience were early puberty, not living with both parents, vocational study program or school non-attendance, and risk-taking behavior with regard to smoking, alcohol and drugs. Non-coital sexual experience included cunnilingus and fellatio. Early starters, with the first heterosexual intercourse before age 15, reported risky sexual behavior with multiple partners, casual sex and varied sexual practices as part of a generalized adolescent risk-taking behavior. Consequently, early starters were, compared to later starters, at increased risk for unwanted pregnancy and sexually transmitted infections. School drop-outs constituted a group at risk.

Child sexual abuse was reported by 11.2% of female and 3.1% of male students, and by 28% of female and 4% of male non-schoolers. Alcohol and drug abuse, and suicidal ideation, was reported significantly more often by abused youths of both genders. Girls reporting abuse were overrepresented among the early starters of coital activity. Few adolescents had told any "professional" about the abuse.

Medicolegal examinations of girls alleging abuse confirmed the findings from SAM 73-90. Adolescent girls alleging sexual abuse may exhibit signs of admitted self-inflicted extragenital injury. Diagnosis of alleged non-acute cases of sexual abuse relies on a detailed history. Genital examination confirm that non-penetrative sexual acts leave no lasting signs, but that repeated abusive genital penetration may do. Few cases were taken to court. In cases with a confessing perpetrator, no discordance was found between the testimony of the victim, the medicolegal conclusion and the testimony of the perpetrator.

HIV did not become epidemic in Sweden, and in the early 1990's, teenage abortions and chlamydial infections decreased. Since 1995, a shift has occurred, with a gradual increase of abortions and STDs. The questionnaire-based study SEXSAM-99 was performed among 258 high-school students in a low income multicultural suburb in greater Stockholm in 1999. Participants' mean age was 17 years, response rate 76%. School drop-outs could not be reached. Experience of vaginal intercourse was reported by 56%, with no gender difference. Factors associated with coital experience were the same as in SAM 73-90. Drug use, casual sex, multiple partners, homo- and bisexual experience and anal intercourse was reported more frequently than in SAM 73-90, with no difference with regard to gender or immigrant background. These findings may indicate a shift in adolescent sexual behavior, an issue for further investigations.

Key words: adolescence; health surveys; sexual behavior; gender; puberty; sexual orientation; risk-taking behavior; teenage abortion; contraception; sexually transmitted infections; child sexual abuse; peer sexual abuse; suicidal ideation; medicolegal examination; hymen, injuries.

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CONTENTS

LIST OF PUBLICATIONS

ABBREVIATIONS AND NAMES

1. INTRODUCTION

1.1 Adolescent sexual and reproductive health and rights issues in Sweden

1.2 Adolescence

1.3 Adolescents in Sweden

1.4 Research on adolescent sexuality, methodology

1.4.1 General aspects

1.4.2 Methods

1.4.3 Questionnaire-based studies, reliability and validity

1.4.4 Ethical aspects

1.5 Fields of research on adolescent sexuality in Sweden and Norway

1.6 Adolescent sexual health issues in Sweden

1.6.1 Contraception, abortion and childbearing

1.6.2 Sexually transmitted infections

1.7 Children's and adolescents' sexual rights issues in Sweden

1.7.1 Child sexual abuse, prevalence rates

1.7.2 Possible child sexual abuse-related problems in adolescents

1.7.3 Non-acute medicolegal examination of adolescent girls investigated for sexual abuse

1.7.4 Adolescent peer sexual abuse

1.8 Adolescence in the medical specialities

2. AIMS OF THE THESIS

3. MATERIALS AND METHODS

3.1 SAM 73-90, a national survey on adolescent sexuality in Sweden performed among 17-year-olds in 1990

3.1.1 Background, population and samples

3.1.2 The school sample

3.1.3 The youth center sample

3.1.4 The questionnaire

3.1.5 Procedures

- 3.1.6 Ethical considerations
- 3.1.7 Statistical methods

3.2 SÖT, non-acute medicolegal examinations of adolescent girls investigated for sexual abuse, performed 1990-94

- 3.2.1 The study group
- 3.2.2 History and physical examination
- 3.2.3 Ethical considerations
- 3.2.4 Statistical analyzis
- 3.2.5 Legal outcome

3.3 SEXSAM-99, a study on adolescent sexuality in a high school setting in suburban Stockholm, performed in 1999

- 3.3.1 Study site, sample and data collection
- 3.3.2 The questionnaire
- 3.3.3 Ethical considerations
- 3.3.4 Statistical analyzis

4. RESULTS

4.1 SAM 73-90, Paper I-IV

- 4.1.1 Population, samples and response rates
- 4.1.2 Respondents' comments on the questionnaire
- 4.1.3 External check on validity
- 4.1.4 Paper I. Sexual experience and behavior as reported by 17-year-old girls and boys in Sweden
- 4.1.5 Paper II. Sexual behavior and early coitarche in a national sample of 17-year-old Swedish girls
- 4.1.6 Paper III. Sexual behavior and early coitarche in a national sample of 17-year-old Swedish boys
- 4.1.7 Paper IV. Prevalence and characteristics of sexual abuse in a national sample of Swedish 17-year-old girls and boys

4.2 The SÖT study

Paper V. Adolescent girls investigated for sexual abuse - history, physical findings and legal outcome

4.3 SEXSAM-99

- 4.3.1 Paper VI. Sexual behavior in a multicultural high school setting in Stockholm
- 4.3.2 Respondents' comments on the questionnaire

5. DISCUSSION

5.1 General comments

5.2 Comments on materials and methods, SAM 73-90 and SEXSAM-99

- 5.2.1 SAM 73-90, procedures and data collection
- 5.2.2 SAM 73-90, samples and sample errors
- 5.2.3 SAM 73-90, external check on validity
- 5.2.4 SEXSAM-99, sample, procedures and data collection

5.3 Consensual sexual experience

- 5.3.1 Same-gender attraction and sexual experience
- 5.3.2 Masturbation
- 5.3.3 Non-coital sexual experience with a partner
- 5.3.4 Heterosexual intercourse
- 5.3.5 Coital experience, gender and study program
- 5.3.6 Risk-taking behavior - smoking, alcohol and drugs
- 5.3.7 Teenage abortion
- 5.3.8 Risky sex, STD and the young girl
- 5.3.9 Early sexual relations and sexual satisfaction

5.4 School drop-outs

5.5 Non-consensual sexual experience and sexual abuse

- 5.5.1 Prevalence and characteristics of child sexual abuse
- 5.5.2 Peer sexual abuse
- 5.5.3 SÖT, the study group
- 5.5.4 SÖT, genital findings and medicolegal conclusions
- 5.5.5 Research on the adolescent hymen, a virginal area
- 5.5.6 Comments on the genital findings

IMPLICATIONS FOR VENEREOLOGY

CONCLUSIONS

ACKNOWLEDGEMENTS

REFERENCES

Appendix I

The English version of the SAM 73-90 questionnaire

Appendix II

The English version of the SEXSAM-99 questionnaire

Appendix III

Respondents' comments on the questionnaires

LIST OF PUBLICATIONS

This thesis is based on the following papers, which will be referred to in the text by their Roman numerals.

I. Edgardh K, Lewin B, Nilsson B R. Sexual experience and behavior as reported by 17-year-old girls and boys in Sweden. *Scandinavian Journal of Sexology* 1999; 2(1): 41-60.

II. Edgardh K. Sexual behavior and early coitarche in a national sample of 17-year-old Swedish girls. *Sexually Transmitted Infections* 2000;76(2):98-102

III. Edgardh K. Sexual behavior and early coitarche in a national sample of 17-year-old Swedish boys. (Submitted)

IV. Edgardh K, Ormstad K. Prevalence and characteristics of sexual abuse in a national sample of Swedish 17-year-old boys and girls. *Acta Paediatrica* 2000;88:310-19

V. Edgardh K, von Krogh G, Ormstad K. Adolescent girls investigated for sexual abuse - history, physical findings and legal outcome. *Forensic Science International* 1999;104:1-15

VI. Edgardh K. Sexual behavior in a multicultural high school setting in Stockholm. (Submitted)

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ABBREVIATIONS AND NAMES

Brottsförebyggande rådet, BRÅ	National Institute for Crime Prevention
Centralförbundet för alkohol- och Narkotikaupplysning, CAN	The Swedish Council for Information on Alcohol and other Drugs
CDC	Centers for Disease Control, Atlanta
CIN	Cervical Intraepithelial Neoplasia
CSA	Child sexual abuse
CT	Chlamydia trachomatis
Folkhälsoinstitutet, FHI	The National Institute of Public Health
HPV	Human papilloma virus
HSV	Herpes simplex virus
KAB	Knowledge, attitudes and behavior
OC	Oral contraception
Riksförbundet för Sexuell Upplysning, RFSU	The Swedish Association for Sexual Education
SAM 73-90	National survey on adolescent sexuality in Sweden, 1990
SEXSAM-99	Study on adolescent sexuality in suburban Stockholm, 1999
Skolverket	The National Agency for Education
Skolöverstyrelsen	The Swedish National Board of Education
Smittskyddsinstitutet, SMI	The Swedish Institute for Infectious Diseases
Socialstyrelsen	The National Board of Social Health and Welfare
SRHR	Sexual and reproductive health and rights
Statistiska Centralbyrån, SCB	Statistics Sweden
STD	Sexually transmitted disease
STI	Sexually transmitted infection
SÖT	Study of medicolegal examinations of adolescent girls

1. INTRODUCTION

1.1 ADOLESCENT SEXUAL AND REPRODUCTIVE HEALTH AND RIGHTS ISSUES IN SWEDEN

Sexual and reproductive health and rights issues, SRHR, have been at the top of the agenda at the UN population conferences during the 1990's. These rights are part of the Health for All-programs, and have been summarized by the International Planned Parenthood Federation, IPPF (1). Reproductive health issues are well known and defined, and include availability of contraceptives, contraceptive counseling and safe abortion. STD-prevention and treatment are of vital importance in order to preserve the health and fertility of young people, and – considering the global challenge of HIV – to protect lives. Gender issues are addressed in recent programs by UNFPA, United Nations Family Planning Association, and IPPF (2,3).

Consensual sexual relations may add much quality to adolescent life. But all sexual relations are not consensual. Children as well as adolescents are at risk of sexual abuse, by adults or by peers. The prevention of sexual exploitation and abuse of the young thus belongs to the sexual rights issues, together with defense of the right to develop one's sexuality at an individual pace.

In Sweden, attitudes towards teenage and premarital sexual relations are liberal but value-oriented. The age of sexual consent is 15 years. Family and sexual education has been part of the national curriculum of compulsory school since 1956. The first guidelines for teachers were published in 1977, and provided an ethical foundation for sex education that is still valid (4,5). Contraceptive counseling services targeting young girls were established in the early 1970's, initiated as part of the school health care and at family planning clinics, run by midwives and gynecologists. Today, a network of youth health clinics provide contraceptive counseling and STD check-ups (6). The majority of the visitors are still adolescent girls (7), but new initiatives are being tailored for young men (8,9). A broad adolescent general health perspective is promoted (6,10). Visits are free of charge, and parental consent is not required.

Abortion is safe and free on demand, and more than 90% of the abortions are performed before the 12th week of gestation (11). Teenage abortion rates are relatively low in a global perspective, as presented by the Alan Guttmacher Institute (12). Teenage childbearing is fortunately uncommon: despite a safe medical and social security system, teenage mothers face an increased risk of a less favourable social situation and also premature mortality (13).

As a rule, research on sexuality is undertaken in response to recognized or perceived health problems, or due to moral and legislative issues. During the late 1980's, the main sexual health concern was fear of HIV becoming epidemic among young people in Sweden. A recent increase in teenage abortions and a high incidence of genital chlamydial infections were seen as potential indicators of unsafe sexual behavior (14,15). Sexual abuse of minors was another concern at the top of the agenda: child sexual abuse was recognized as a possible background factor for adolescent emotional and behavioral problems (16,17), but prevalence had not been well investigated (18,19,20). In order to address these sexual health and rights issues, a survey on adolescent sexuality was initiated by the National Agency of Education, and performed in 1990 among youngsters born in 1973. The survey was named SAM 73-90: **SAM** is short for the Swedish word for living together, adolescents born in **1973** were investigated, and the study was carried out in **1990**. A lay report on the survey was published by Edgardh in 1992 (21), and the SAM 73-90 is the basis for the present thesis.

Today, ten years later, the need for health-oriented research on adolescent sexuality in Sweden remains. HIV did not become epidemic in Sweden, but a "new wave" of sexual health problems among adolescents is recognized: the abortion rate among the youngest teenagers is increasing since 1995 (11,22), and genital chlamydial infections have increased with 25% during the last five years (23,24,25). An outbreak of gonorrhoea, a rare infection in Sweden, occurred among teenagers in Stockholm in 1997-98, and an increase of HIV has recently been reported among gay men (25).

Whether and how adolescent sexual behavior has shifted towards more risky practices during the last decade is thus a question of major concern. The situation called for action, and a review of Swedish research on adolescent sexuality was published by Forsberg in 1999, on behalf of the National Institute of Public Health (26). Safer sex practices are a top priority for the improvement of adolescent health according to Swedish experts on adolescent medicine (27,28), and surveillance of adolescent sexual behavior is recommended in the National program for the prevention of STD and HIV in Sweden years 2000-2005 (29). Unfortunately, relationship and sexual education is less taught these days in many schools, especially in high schools and in multiethnic school settings (5,30).

At present, research on sexual rights issues is prompted by the general attention given peer sexual coercion, abuse and rape, and the impact of pornography on attitudes and sexual practices. These issues have recently been given national attention in Sweden after wide media coverage of teenage rape cases. The prevalence of adolescent peer sexual abuse and rape has not been investigated in Sweden, and statistics from the National Institute for Crime Prevention Statistics include sexual abuse against minors only with a victims' upper age limit of 15 year. The issues have recently been addressed in depth by a committee proposing a new regulation of sexual crime, including sexual crimes against children, prostitution, pornography, sex clubs and sexual trafficking (31).

Thus, even in Sweden, with its ample resources with regard to sexual and reproductive education and health services for the young, challenges remain to be met in order to prevent STDs and unwanted teenage pregnancies, as well as sexual exploitation and abuse. Reliable quantitative data are essential for the understanding of current patterns of sexual behavior, and are fundamental to an informed debate about the moral and legislative aspects of sexuality.

This thesis addresses consensual and non-consensual sexual experience as reported by adolescents, with regard to sexual and reproductive health issues and with a

gender-specific perspective. The results are primarily based on the SAM 73-90 survey. The present situation is addressed in a study conducted in suburban Stockholm in 1999, SEXSAM-99. The thesis also includes findings from medicolegal investigations of adolescent girls alleging sexual abuse, the SÖT-study.

1.2 ADOLESCENCE

Adolescence is the period from the onset of puberty in preteen years until adulthood, usually between the ages of 10 and 20 years. It is a period of intense development with profound physical changes, as well as a transition between childhood and young adult life. Ideally, at the end of the period, the young adult is capable of taking care of everyday chores, has a plan for his/her future, has reached some kind of interdependence with parents, has friends and perhaps a close relationship with a girlfriend or boyfriend, and can enjoy his or her sexuality. In spite of all these changes, adolescence is normally not a period of particular turmoil (32).

Adolescence can be divided into different developmental stages with certain psychological characteristics (27,33,34). During early adolescence (girls 10-13, boys 11-14 years) the pubertal development increases body awareness and may start the sex drive. A lively imagination, certain signs of liberation from or opposition to parents and family, and feelings of being invulnerable and omnipotent illustrate that the cognitive functioning in terms of realism still needs to be developed (35). During mid-adolescence (girls 13-17 years, boys 14-18 years), puberty comes to an end. Peers may become more important than family and can function as a supportive “substitute family”. The young person shows an increasing independence from parents, and goes through a phase, gaining sexual development with romantic and erotic experience with partner/partners. Late adolescence, from 17 to 20 years, implies full cognitive development and the beginning of a realistic planning of life and future. Emotional stability, with new patterns of interdependence with parents and family can be expected. Late adolescents have a well-established sexual identity, and are able to have an intimate, mutually satisfying sexual relationship, although this

stage may be delayed for certain groups, e.g. homo- and bisexual young people, and young people with serious and/or chronic disabilities.

Puberty, with a growth spurt and the development of secondary sex characteristics, transforms the child into a grown-up in a few years. The bodily changes are described according to the Tanner scale (36,37). It is important for the understanding of adolescents, that more advanced Tanner stages do not correlate with a more mature cognitive process in youngsters of the same age (38). Biological changes may be influenced by social factors: for instance menarche may occur earlier in girls under psychosocial stress (39). Early menarche has been reported to have an impact on both sexual behavior and educational success (40,41). The effects of age at spermarche are less investigated (42). Late onset of puberty, on the other hand, may render a young person uncertain of his or her attractiveness and reduce self-esteem.

Early puberty is related to looking older than one's actual age. The concepts of "high perceived social age" or "looking older than most" are used by Berg-Kelly and Resnick and co-workers (43,44,45). Being perceived as older than one's actual age may have negative psychosocial effects, as people in one's surroundings may expect greater maturity and higher cognitive functioning than have yet been achieved. A high perceived social age, i.e. being perceived as more than two years older than one's chronological age, has been found to be related to health hazardous behavior.

Normal developmental behavior with implications for adolescent health has been described in Swedish surveys by Berg-Kelly and colleagues (43). One characteristic of adolescent behavior is experimentation, which includes taking risks. Without risks, no development. When great risks are taken repeatedly, and within several areas of life, the term "risk-taking behavior" is adequate (46). Risk-taking behavior tends to include several "arenas", and Berg-Kelly and co-workers use the term "clusters", e.g. truancy, shoplifting and substance abuse (44,47). Youth risk behavior scales are used in research initiated at the Centers of Disease Control in Atlanta, and a number of Youth Risk Behavior Surveys, YRBS, have been published (48). Early

experimentation with tobacco and other substance-use can help to identify young adolescents at increased risk for engaging in multiple risk behaviors (49,50). Adolescents engaged in a variety of risk-taking may be at peril also for reproductive health problems, due to careless sexual behavior (50,51).

When risk-taking behaviors cluster, it may be called “problem behavior”, a term introduced in the 1970’s by Jessor and Jessor, and also used by them in the study of adolescent sexual behavior (52). Conversely, health protective factors are of vital interest for the understanding of adolescent behavior, and are described in terms of resilience, coping and empowerment by Berg-Kelly in Sweden and Resnick and co-workers in the US (43,44,45). Connectedness with family and school is one of the background factors preventing health hazardous behavior. The protective interactions within the family are of utmost importance, but little investigated, as pointed out by Rossow (53). Effective supportive interventions at community and school levels have been described in studies from western Sweden (54,55).

Generalized characteristics as sketched above are naturally incomplete. Gender aspects are important, as addressed by Gilligan (56). Analysis of gender differences shows that when problems crop up adolescent girls are more prone to inwardly directed psychiatric symptomatology, such as depression and anxiety, than are adolescent boys (57). Boys are more likely to lash out at their surroundings. While these findings may illustrate common knowledge, less is known about their influence on adolescent sexual behavior and reproductive health.

1.3 ADOLESCENTS IN SWEDEN

Adolescents comprise approximately one million boys and girls in Sweden, a considerable share of the nine million inhabitants (58). Today, approximately 20% of all adolescents have an immigrant background, and social segregation between young people from high-income and low-income residential areas has become a reality. Approximately 70% of 13-17-year-olds live together with both their natural parents.

Attending school is the main occupation of adolescents. The nine year compulsory basic school is followed by upper-secondary school or high school, and all pupils who have finished their nine years basic schooling are expected to attend (59). After a school reform in 1991, youngsters lacking the academic qualifications required for admittance to the standard national programs follow what is called “an individual program”, designed to enable them to take a national program later on. Due to the school reform, schools are now responsible for the activities of the youngsters on the individual program. Before the reform, school drop-outs were enrolled in municipal youth centers. The group of teenagers not enrolled in standard programs has increased, and in certain multicultural parts of Stockholm, they comprise approximately 25% of all youths finishing compulsory school (60,61). School leavers without further education may have difficulties finding a steady job, as unemployment is a problem among the young.

An overview over adolescent health problems is presented by Berg-Kelly in her textbook in adolescent medicine, where sexual health issues are addressed by Andersson-Ellström (27). Self-reported health problems and disease may differ significantly from health profiles according to traditional diagnoses (43). However, adolescent health problems may be due to unhealthy life styles, use of tobacco, alcohol and drugs, and lack of physical activity. National data are collected annually on drug use and abuse, and a substantial increase of drug use was noticed during the 1990's (62). Mental disorders may erupt during adolescence, and depression, suicidal ideation and suicide attempts threaten adolescent health and well-being. Adolescence is also a critical period – medically, psychologically and socially - for young people with chronic disease or disorders, and disabilities.

Young people are addressed by the mass media, and television with MTV, and the Internet are available to a majority of adolescents in Sweden. Nudity and sex are standard components of advertisements, and sex is an intergral part of many mass media products consumed by the young. For example, a glossy weekly magazine

targeting the youngest teenage girls provides readers with sex counseling and articles on how to please and satisfy one's partner with oral sex and otherwise (63).

The influence of the media, and of the easily available pornography, on adolescent sexual values, attitudes and behavior is difficult to evaluate. Studies on the impact of the sexualized media on adolescents have appeared in scientific journals (64,65,66) but no studies have yet been published on the situation in Sweden. An overview of attitudes to and use of pornography in Sweden was part of a national Swedish sex survey among adults conducted by Lewin and co-workers in 1996, but this did not specifically address adolescents (67).

1.4 RESEARCH ON ADOLESCENT SEXUALITY, METHODOLOGY

1.4.1 General aspects

The emergence of HIV in the 1980's highlighted the need for robust research in the fields of reproductive and sexual health. In the US, STDs are recognized as a major adolescent health concern. STD epidemiology has become an important field for research, promoted by Wasserheit and Aral at the Centers for Disease Control in Atlanta (68-74), and by Giesecke and Ramstedt in Sweden (75,76). Teenage pregnancy in various parts of the world is addressed by expertise of the Guttmacher Foundation in New York (12).

Research on adolescent sexuality has specific implications. During adolescence and young adulthood, the first sexual encounters are experienced. The occurrence of the first intercourse, and the first experience of other sexual practices, are part of the general development in adolescence, with biological, psychological and social aspects interacting. Society carries a responsibility for family and sexual education, and for proper health services. Health aspects are important, as risky sexual behavior may predict risky adult behavior (77). However, as sexual research is frequently

fueled by reproductive health problems, sexuality may come to be seen in pathological terms, and teenage sex interpreted as problem behavior both with regard to health consequences and moral standards. On the other hand, sexual issues are often not addressed at all in research on general adolescent health, mental health, or chronic disease and disability.

1.4.2 Methods

In 1994, Johnson, Wadsworth, Wellings, Field and Bradshaw published a detailed account of the British National Survey of Sexual Attitudes and Lifestyles, a survey of 18,876 individuals aged 16-59 (42). The authors thoroughly discuss methodologic aspects of the study of sexuality, and present results concerning a wide range of topics. A few basic aspects will be discussed below.

Research on adolescent sexuality may be conducted as quantitative or qualitative studies, cross-sectional or longitudinal. Sampling and conducting procedures may vary, and many handbooks address survey designs (78,79,80). Research conducted by experts in behavioral sciences or by health professionals may differ in approach: while sociologists design and discuss their research in a conceptual framework of behavioral patterns and interactions, research performed by health professionals may be more focused on quantitative data. Expertise in reproductive and sexual health issues and epidemiology should ideally combine the approaches.

Cross-sectional quantitative studies provide baseline data on e.g. age at first intercourse, experience of different sexual acts, and use of protection. Through repeated surveys, i.e. longitudinal studies, changes can be followed over time for a certain age group, or a cohort can be followed.

Studies aiming specifically at adolescents may be founded on school-based cluster samples, or performed among youth clinic visitors. A high response rate is vital, as the non-participation of pupils sick at home or skipping school may bias the results. School non-attenders and drop-outs may be hard to reach.

Quantitative investigations are usually based on self-administered questionnaires, distributed in schools or clinical settings. The results of surveys may be published without a presentation of the questionnaire, and no “gold standard” questionnaire specifically on adolescent sexuality exists. National and cultural norms about adolescent sexuality determine what is proper to ask and not to ask, and apart from very basic questions, similarity may be difficult to obtain. A recent compilation of questionnaires by Davis et al. covering different issues should be required reading for the researcher (81).

Quantitative studies may focus on **knowledge, attitudes and behavior**, i.e. KAB-studies. The discrepancy between knowledge and attitudes on one hand and behavior and practice on the other hand has been called “the KAB-gap”. Swedish studies on adolescent sexuality have illustrated this KAB-gap-finding (7,82,83).

Qualitative data are gathered through face-to-face interviews, with individuals or groups. The samples are often small, and this is a problem with regard to the generalization of the results. The generalization of results on numbers and prevalences require representative samples, processes however may be relevant for a larger group than the study sample. Thus, qualitative studies may provide knowledge on adolescent sexual experience through retrospective narrative accounts, aimed at a better understanding of the sexual socialization, of interactions on the “sexual arena”, and exploring the relation between attitudes and behaviors. Qualitative studies may thus improve our understanding of the KAB-gap. Swedish examples include surveys performed by sociologists Lewin and Helmius (84,85). Peer abuse and rape have recently been investigated through interviews with a small sample of pupils in compulsory school (86).

Quantitative and qualitative methods can also be combined. Discussions with focus groups and interviews with key persons should be part of the preparation and interactions during a study period, also in health oriented research.

1.4.3 Questionnaire-based studies, reliability and validity

Fundamentally, the term reliability describes the extent to which any measuring procedure yields the same results on repeated trials (87). Reliability can be assessed in different ways, including use of mathematical models and scales, as presented with regard to research on sexuality by Davis et al. (81). A challenge for studies on adolescent sexuality may be to control for the reliability of a new questionnaire, where no “gold standard” exists, and the instrument is thus not “validated”.

Giving the questionnaire a trial run is essential for proper wording for the target group, to avoid misunderstandings and to be “in tune” with the participants. Specific alternatives for non-experience of an issue should be available, to minimize the number of missing answers. Questions with low response rates can thus be kept to a minimum. Data controls of the results can then be performed through “internal controls”. The impact of a long questionnaire, taking time to answer, may be checked through consistency in the answers on the final pages. Answers should be “cross-checked” – if a participant reports experience of intercourse, at least one partner should be reported. If a set of questions is presented, e.g. on sexual abuse, a precise minimum of these questions should be answered and the answers should be consistent, ideally with check questions inserted (e.g. if the perpetrator is reported to be a brother, the question on perpetrator’s gender should be “male”). Participants with inconsistent answers should be excluded.

Validity is defined as the extent to which any measuring instrument measures what it is intended to measure, and may be defined in different ways (87). When sex surveys include aspects on adolescent health investigated elsewhere, e.g. adolescent drug use, established questions and inventories are to be preferred. Diagnostic inventories for e.g. adolescent depression and suicidal ideation are available, and have recently been

discussed by several Scandinavian researchers (88,89). An external validity control compares respondents' answers to reliable information available elsewhere, e.g. demographic data and other register data.

1.4.4 Ethical aspects

Ethical aspects of research on adolescent sexuality are seldom discussed in scientific papers, apart from the short note that ethical approval has been obtained. In contrast, sex surveys may obtain wide publicity and criticism, e.g. for sexualizing the young (42).

Questions on sexuality may implicitly or explicitly convey a message: thus, questionnaires have “meta-messages”. Questions hinting that teenage sexual relations are “bad behavior”, that address abstinence at length, cannot be used in Scandinavia. (Questions on religion have become outdated, as well.) “Meta-messages” in questionnaire-based adolescent sex research have not been investigated, as far as I know.

Ethical issues may be particularly important when data collection is performed with the assistance of staff who lack experience of working with sexual issues. Questions may be provocative to adults, and group dynamics and interactions when questionnaires are distributed and collected may be difficult to handle. The right not to participate may be difficult to use for an individual to assert in a group setting, and group phenomena may influence data quality, e.g. false positive answers or jokingly or more haphazardly answered questionnaires. These aspects are of importance not only for data quality, but also out of respect for participants and staff assisting the investigators. Furthermore, questions on adolescent life and sexuality, both consensual and abusive experience, may also evoke a need for counseling, a need that must be met.

1.5 FIELDS OF RESEARCH ON ADOLESCENT SEXUALITY IN SWEDEN AND NORWAY

The Association for Sexual Education, RFSU, was founded in Sweden in 1933, by Elise Ottesen Jensen, born in Norway. The aims of the organization included a liberalization of the abortion law, access to contraceptives and counseling services and sexuality education in school (90). One of the members was Gustav Jonsson, later a radical child psychiatrist. Jonsson recognized the gender difference with regard to sexual behavior in teenagers: girls were taken into social custody for their sexually provocative behavior, boys were not. Jonsson followed a cohort of these "sex-girls", and found an overmorbidity in reproductive and gynecological disease in adulthood (91,92). Thus, he identified a group of socially disadvantaged girls "at risk" for sex-related health problems, and critically addressed the judgmental and moralizing attitudes towards these girls. The sexual liberation movement with its work for legal abortion contributed to put other aspects of young sexuality into focus. When women became entitled to have a premarital sex life, counseling services that did not stigmatize the sexually active girl were given priority. Less attention was paid at "girls at risk".

During the 1980's and the early 1990's, important population-based research on adolescent sexuality was performed by sociologists Lewin and Helmius. In 1982, Lewin published a questionnaire study performed among 16-year-old pupils in the first year of high school in Uppsala, one of the major cities in Sweden (93). Experience of intercourse was reported by 31% of the boys and 47% of the girls. This gender difference with girls being the most experienced gender was acknowledged for the first time in Sweden: traditionally, boys had gained coital experience at an earlier age than girls according to a national sex survey among adults, carried out in 1969 (94). Pupils on vocational study programs were "earlier" than those on theoretical programs. A national study was designed, based on a combined method of questionnaires and individual interviews, to be carried out in selected schools in different parts of Sweden. The participants were students in the last year in

compulsory school, age 15. Results were presented in a comprehensive report by both authors (84), and later in a thesis by Helmius (85).

Lewin and Helmius discussed adolescent sexuality in terms of sexual socialization, and young people acting out traditional sexual “scripts”, according to sociologist Gagnon (95), and developing the emotional aspects of sexuality according to Buhler (96). According to the valid heterosexual script in the Nordic countries, love is a prerequisite for having sex with a partner. When you are in love, sex is permitted – if you feel “mature enough”. Girls were said to stick to this script more than boys, and thus to emotionalize their sexuality. Boys, on the other hand, were said to sexualize their feeling. However, very young boys’ opportunities to have sex with a partner on a regular basis were limited, and teenage boys were described as sexually deprived. How “scripts” may differ between adolescents with different ethnic backgrounds was later described by Lewin in a study of Latin American youngsters in Sweden (97). The authors did not focus on early age at coitarche in terms of risk-taking or problem behavior.

During the 1980’s and 1990’s, research on adolescent sex was lively in Norway, conducted by e.g. Wielandt, Sundet, Magnus, Kvalem, Træen and co-workers (98,99,100). Also in Norway, girls were the coitally most experienced gender. Træen and Kvalem used the same conceptual framework as Lewin and Helmius when investigating young people’s motives for intercourse, and Træen and Lewin co-authored a study on adolescent casual sex in 1992 (101). In accordance with findings made by Lewin and Helmius, experience of masturbation was reported more often by boys than by girls. In 1996, Træen and Kvalem published a cross-sectional questionnaire study based on a stratified Norwegian school-based sample comprising 920 students 17-18 years old, and discussed the association between alcohol and teenage intercourse (102,103). Participants reporting use of alcohol at the time for the most recent intercourse, significantly more often reported this intercourse to have “just happened”, and were less emotionally involved with their sex partner. The condom issue was addressed, in these early days of AIDS (104,105).

During the 1980's, genital chlamydial infection had become a major adolescent health problem. It was thoroughly investigated in Sweden by Rahm, and screening programs were launched at the youth health clinics (106). In 1992, Jarlbro and Persson published a survey from 74 of the 99 youth health clinics existing in Sweden at that time, in which they addressed both knowledge and experience of STDs (7). During a two month period, 9,277 youth clinic visitors, mean age 17.5 years, answered a short questionnaire. Response rate was 90%, and 93% of the respondents were sexually active girls. Knowledge about contraception and STD was satisfactory, and the authors recognized a KAB-gap – the difference between the good knowledge and attitudes among the respondents, and their sometimes risky behavior. Pregnancy was reported by 9%, and STD (mostly chlamydia) by 17% of these young respondents. Age at coitarche was lower for respondents with a shorter education, and school non-attenders were identified as a group at risk for unwanted consequences of teen sex. These findings were in accordance with the first results from the SAM 73-90-survey. When contraceptive use was addressed, standard questions were use or non-use and method used at first and at most recent intercourse (7,107). The "mean" reported percentage was approximately a 60% use at first and (at least) 70% at most recent intercourse. A condom was used at the coital debut and oral contraceptives at the most recent intercourse.

The KAB-gap was addressed by Tydén in her thesis based on studies among high school and university students in Uppsala, which took up contraception, "safer sex" and condom-use promoting campaigns (83). This KAB-gap, and the use of tobacco and alcohol as indicators of an "adult life-style", was also addressed by Andersson-Ellström in her studies on teenage girls from Karlstad, which included genital examinations and STD diagnostics (108). The approach with collection of data on sex behavior combined with physical examination including screening for infectious agents was later used among young adult women in Umeå, and provided data on the relation between number of life-time partners and STIs, as presented in a thesis by Jonsson (109).

Youngsters at risk for STDs were identified in Træen's national sample: "particularly sexually active adolescents" were defined as having had more than 15 partners, and constituted 2.9% of the respondents, mostly boys (101). This minority had lower educational aspirations, and high use of tobacco and alcohol. Their lower degree of intimacy with partners was discussed in terms of sensation seeking and impulsivity.

In Sweden, a coordinated approach for the prevention of STDs and abortion was adopted (110). Early sex, lower school connectedness, smoking, alcohol and drug use – was there a complex of interacting factors associated with early sexual experience? Social issues, and the psychology of girls "at risk" for unwanted consequences of sex, were the themes of a book by Edgardh and Crafoord in 1988, published on behalf of the National Board of Social Health and Welfare (111). Adolescent health aspects of teenage abortion were compiled after a seminar arranged by the Swedish Save the Children's Fund in 1993 (112). Time had come to discuss teenage sexuality, and the health of very young teen girls, in a perspective of general adolescent health and wellbeing. A coordinated approach for the prevention of STDs and abortion was adopted (112). A contributing factor was the adolescent health surveys initiatives by Berg-Kelly and colleagues in the Western part of Sweden, where concepts from adolescent medicine were used (43,44). Sexual issues were addressed, risk-taking recognized without a moral stigmatizing of young sex, risk factors as well as protective factors identified. The impact of community interventions on adolescent health behavior were recognized, as well as the needs of school non-attenders (54).

In 1999, Forsberg published her review of adolescent sex research in Sweden, on behalf of the National Institute of Public Health (26). An impressive amount of studies have been conducted, unfortunately often published in Swedish only. Possible changes in adolescent sexual behavior during the 1990's are discussed, and will be referred to in the Discussion section of this thesis.

1.6 ADOLESCENT REPRODUCTIVE HEALTH ISSUES IN SWEDEN

1.6.1 Teenage pregnancy, abortion and contraception

Abortion became free on request in Sweden in 1975, and induced abortion is statutorily notifiable to the Swedish Board of Health. Parental consent is not required for a teenage girl requesting an abortion. Teenage abortions were common during the years before 1975, and considered a major adolescent health problem. The liberation was combined with an expansion of the family planning program with teenage girls as a target group. From 1975 until 1985, the teenage abortion rate decreased from 30/1000 to 18/1000 girls in their teens (11). The decrease was paralleled by a decrease of teenage childbearing, thus indicating an overall decrease in teenage pregnancies. The positive results were related to a general openness in sexual matters, an expansion of family planning services, youth health clinics and the availability of cheap oral contraceptives, OC's. Midwives were trained to give contraceptive counseling, perform gynecological examinations, prescribe OC's and, later, to screen for chlamydial infection. Today, the midwives are responsible for most contraceptive counseling in Sweden.

Over the years, the abortion rate has fluctuated. After 1985, teenage abortions increased, but decreased again after 1989. This peak during the 1980's occurred in several other Western countries, and a changing pattern of contraceptive use has been discussed as a contributing factor, e.g. less use of OC's due to fear of adverse effects, and increased condom use as a means of safer sex with regard to STD (113). In Sweden, the increasing teenage abortion rates were not related to an increase in teenage childbearing (11). During the last twenty years, approximately 70% of all teenage pregnancies have been terminated with an induced abortion; and approximately 90% among 15-16-year-old girls (11).

Since the late 1980's, subsidies for OC's have reemerged, and emergency hormonal contraception has become easily available in Sweden (114), although injectables are

used by adult women only. In spite of this, teenage abortions have again increased since 1995. The abortion rate has increased from 17/1000 to 19/1000 girls aged 15-19 from 1995 to 1999, and is still increasing (11,22), without an increase of teenage motherhood. In 1999, a total of 4,513 abortions were performed among teen girls,

Abortion rates for young adult women aged 20-24 years have since 1975 exceeded those for teenagers, and in 1997 were 27/1000. It should be kept in mind that teenage abortion rates underestimate the risk of unwanted pregnancy among the youngest, as the proportion of coitally active girls in the age group 15-19 is lower than in the age group 20-24 (115).

1.6.2 Sexually transmitted infections

HIV, chlamydia and gonorrhoea belong to the notifiable STDs in Sweden, and registered by the Swedish Institute for Infectious Diseases.

Gonorrhoea is a rare infection in Sweden, epidemiology and clinical features have recently been described by Ruden (116). A mere 211 cases were reported in 1996, but the incidence has risen from 348 cases in 1998 to 431 in 1999 and 588 in 2000 (24). The recent increase was unexpected, and partly due to a spread of gonorrhoea among teenagers in Stockholm, that is, in a much younger age group than usually afflicted with gonorrhoea (117).

Genital chlamydial infection is the most prevalent bacterial STD in Sweden, and affects young people; young age the only identifiable risk factor (76). Chlamydia is a notifiable STD since 1988, when 38.000 cases were reported. Chlamydia related salpingitis has been investigated by Weström (118,119). Screening programs targeting the young have been discussed by Rahm (106), and treatment and partner notification have contributed to a reduction of the incidence of infection, and in 1994, 14.000 cases were reported (24). Consequently, the serious sequelae of chlamydia have decreased: salpingitis first, ectopic pregnancy later, as showed by

Kamwendo (120). Possibly as a result of this, tubal infertility is no longer the main indication for in vitro fertilisation (121).

Unfortunately, the positive trend no longer prevails. In 1998 15,198 cases of genital chlamydial infections were reported, and the increase continues, mainly among teenage girls. 16,711 cases were reported in 1999, 19,284 in 2000, among approximately 320,000 samples taken each year (24). The increase is regarded as a real increase of incidence, and not related to new diagnostic methods, as the highly sensitive nucleic acid amplification techniques have been in use for many years. The increase is steepest among teenagers.

While HIV is rarely reported among adolescents in Sweden, other viral STDs dominate the panorama. There is no national reporting system for infections with human papilloma virus (HPV) and herpes simplex (HSV) infections. Most infections with HPV and HSV are asymptomatic, and not diagnosed. A seroprevalence screening of 1,002 women, conducted at family planning clinics in 1996, disclosed that the proportion of HPV-16-seropositive women increased linearly with their number of partners (122,123). Among women with more than five lifetime partners, HPV 16 was found in 35%. A combined effect of smoking and HPV 16 in cervical carcinogenesis has been described (124). Genital chlamydial infection was also recently reported to be part of the pathogenesis of cervical dysplasia and cancer (125).

Genital herpes infections have become prevalent in Sweden, and the seroprevalence of HSV-2 was 33% among pregnant women in Stockholm in 1989 (126). An increasing number of genital infections caused by HSV-1 and possibly transmitted through oral sex have been reported (127), and HSV-1 was more frequent than HSV-2 in young women with a primary genital infection, according to Löwhagen and co-workers in a recent study from Göteborg (128).

In view of the changing epidemiologic situation, with chlamydia and gonorrhoea increasing, and HPV- och HSV-infections spreading, the decrease in sales of condoms is worrying, and may be an indication of less safe sex behavior. According to RFSU's sales organization, 25 million condoms were sold in 1987, and 17 millions in 1998 (129). This includes condoms distributed to youth health clinics. (However, a slight increase was reported for the year 2000 (90).)

With this background of increasing STIs, whether and how adolescent sexual behavior has shifted towards more risky practices during the last decade, is a question of major concern.

1.7 CHILD AND ADOLESCENT SEXUAL RIGHTS ISSUES IN SWEDEN

1.7.1 Child sexual abuse, prevalence rates

Many studies on the prevalence of sexual abuse of minors have been published since 1980, with a strong North American contribution. Investigations vary with regard to sampling procedures and sample characteristics, mode of interviewing and/or questionnaire administration, definitions of sexually abusive acts and relation to perpetrator, as well as participation rates. Guidelines for prevalence investigation have been published (130). A recent overview of prevalence surveys concludes that the higher a study's response rate, the lower its estimate of the prevalence of abuse (131). The authors estimate that among women, the proportion who have experienced sexual abuse as children is within the range of 12-17%, and among men 5-8%. Potential national differences in the occurrence of child sexual abuse have been discussed. One review, quoting prevalence studies from 20 countries, reported rates in line with comparable North American research, ranging from 7% to 36% for women, and 3% to 29% for men (132). Differences in prevalence rates were attributed to differences in methodology rather than to real national variations. A recent review by Svedin, conducted on behalf on the Swedish Board of Health and

Welfare, presents definitions and criteria, and comments on the fact that lower prevalence rates are presented from Sweden and Norway than from e.g. the US (133).

1.7.2 Possible child sexual-abuse related problems in adolescents

Emotional and behavioral problems, eating disorders, depression and suicidality among adolescents have been discussed as possible child abuse-related phenomena, as have use of alcohol and illicit drugs and risky sexual behavior (16,17,134,135). In reviews of the literature on effects of child sexual abuse, authors emphasize that a "post-sexual-abuse-syndrome" in terms of specific symptomatology, course or outcome cannot be delineated, although the concept of PTSD (post-traumatic stress disorder) has been widely used (136), and child sexual abuse is reported to be associated with alcohol dependence among adult Swedish women (137). A treatment overview has recently been published by Svedin (138).

Offenders are sometimes young, and young boys and men with a history of being sexually abusive are at the focus of interest in Sweden today (139). A review of the research is presented by Långström, on behalf of the Swedish National Board for Health and Welfare (140).

1.7.3 Non-acute medicolegal examination of adolescent girls investigated for sexual abuse

An allegation of rape or suspected child sexual abuse, CSA, may lead to a medicolegal examination. Guidelines for the evaluation of CSA were published by the American Academy of Pediatrics in 1991 (141), and updated in 1999 (142). Guidelines for Sweden were published by the Swedish National Board of Social Health and Welfare in 1991 (143), and by independent Swedish experts in 1994 (144). Several detailed systems have been proposed for the classification of anogenital findings in CSA investigations (145,146,147), also with an interdisciplinary consensus statement on the investigation of child sexual abuse (148).

The literature on physical findings in CSA investigations is large, although young children are more frequently investigated than adolescents, and age groups may be mixed in the presentation of the studies. Wordings from the 1980's such as "The doctor cannot always tell" (149) and "A big issue about a little tissue" (150) indicated difficulties in the interpretation of findings, and forensic expertise has addressed pitfalls in the medicolegal examinations of CSA (151). Physical findings have been summarized in overviews published in 1993, and in 2000 (152,153). Special aspects have been considered, e.g. a longitudinal study of the healing process after CSA (154), and cases with perpetrators' confessions (155). STDs are infrequent but important findings, as pointed out in two recent overviews (156,157). An overview of sexual abuse of boys was published in 1998 (158).

As mentioned, more is known about physical findings in prepubertal than in adolescent girls. A longitudinal study of the hymen of newborns until age 3 has been published (159), but there are no longitudinal studies of the development of labia, vestibulum and hymen during puberty and adolescence. Thus, knowledge of what is "normal" in adolescent girls still is very much left to the clinical experience of the investigators. Recent papers on genital findings in adolescent girls provide crucial information, but are not fully concordant with regard to hymenal findings (160,161).

Several critiques of the literature on the hymen has been published by experts in forensic medicine (162,163,164), all emphasizing the fact that normal hymenal appearance in adolescents is still not well documented.

1.7.4 Adolescent peer sexual abuse

Sexual coercion, peer abuse and rape have recently been given extensive coverage in the mass media, as has the potential negative impact of easily available pornography. Little research has been published on these issues in Sweden, although the national sex survey from 1996 reported that 12% of Swedish women had been forced into sex,

most of them when in their upper teens (67). In the US, adolescent girls are the victims in a majority of reported cases of sexual assault (165), and a mini-review of the literature of date rape presents as wide a range as 20-68% of adolescents having experienced non-consensual sex (166). In Sweden, however, no official age-specific statistics are available on the number of rape cases after age 15, the age of legal consent (31).

2.8 ADOLESCENCE IN THE MEDICAL SPECIALITIES

Adolescent medicine is an age-based medical speciality, like neonatology and geriatrics. The speciality has its origin in the US, and has later been introduced in Sweden. The above mentioned descriptions of the different developmental stages and experimental behavior belong to the issues characteristic for adolescent medicine, adopted from or explored in cooperation with experts from the behavioral sciences. **Adolescent psychiatry** is part of pediatric psychiatry, a speciality where age characteristics have always been respected, and the issues of child sexual abuse are addressed.

Adolescent gynecology is a subspeciality of gynecology in many countries, and there are specialized international organizations for the discipline: FIGIJ (Federation Internationale de Gynecologie Infantile et Juvenile) and NASPAG (National Association of Pediatric and Adolescent Gynecology). Textbooks in English are available (167,168,169) and, in Swedish, papers on different subjects in the field have been compiled by a designated working group composed mainly of gynecologists, TON-ARG (170), at the Swedish Society of Obstetrics and Gynecology.

Adolescent venereology is not an established subspeciality like adolescent gynecology. Nevertheless, the most recognized textbook in venereology, edited by King Holmes, devotes one chapter to adolescents (171). (The sexual health of the adolescent boy is, however, addressed less than that of the young girl.) In order to

understand the epidemiology of sexually transmitted infections, it is essential to understand patterns of sexual behavior. Knowledge of adolescent psychology and risk-taking behavior is a prerequisite for counseling and treating adolescent patients and for ensuring patient compliance. Adolescents are regarded as the key group for information, intervention and thus prevention, as the behavior of the young is possible to influence.

2. AIMS OF THE THESIS

The thesis aims to extend knowledge of adolescent sexual experience and sexual abuse in modern Sweden.

The focus has been on the following issues:

- * To gain knowledge about consensual sexual experience in a national sample of 17-year-old students and school non-attenders, with regard to gender and study line.
- * To investigate early coitarche as a potential risk factor for pregnancy and STD in a national sample of 17-year-old students and school non-attenders, with special regard to gender.
- * To investigate the gender-specific prevalence and characteristics of child sexual abuse in a national sample of 17-year-old students and school non-attenders.
- * To review the histories and physical findings and compare with subsequent medicolegal conclusions and legal outcome in a sample of adolescent girls investigated non-acutely for sexual abuse.
- * To investigate adolescent gender-specific sexual experience in a multicultural high school setting in greater Stockholm, with special regard to “risky sex” and non-consensual experience.

3. MATERIALS AND METHODS

The thesis is based on three different investigations:

1. **SAM 73-90**, short for the Swedish “Sex- och **sam**levnadsundersökning bland födda 1973, genomförd 1990”, a national survey on adolescent sexual experience and behavior performed among 17-year-olds in 1990.
2. **SÖT**, short for the Swedish “Sexuella övergrepp, tjejer”, a medicolegal study based on a consecutive sample of adolescent girls referred for non-acute medicolegal examination. The examinations were carried out at the RFSU clinic during the period 1990-94, as part of the investigation of alleged sexual abuse.
3. **SEXSAM-99**, a sex survey in a high school setting in suburban Stockholm, performed in 1999.

3.1 SAM 73-90, a national survey on adolescent sexuality in Sweden among 17-year-olds in 1990

3.1.1. Background, population and samples

SAM 73-90 is a cross-sectional questionnaire-based survey conducted in September 1990 in a national sample of youngsters born in 1973.

The survey was initiated by the Head of the Department for school health at the National Board of Education in 1989. The main objective was to collect information on sexual experience and behavior, together with attitudes and knowledge of these matters, in a national sample of teenage boys and girls. A major concern was that girls who were sexually active at an early age might be at increased risk of teenage pregnancy and STD, and it was thus important to include these girls in the sample.

In 1990, Sweden's 500 upper secondary schools were organized at a national level, under the National Board of Education. The study programs comprised 46 study lines; ten theoretical and the remaining 36 vocational. Most theoretical study lines comprised three years of studies, vocational lines two or three years. Study lines were categorized into six sectors, of which some were strongly sex-segregated. Approximately 10% of each yearly age group were enrolled at municipal youth centers after compulsory school, as school non-attenders or drop-outs.

17-year-olds were identified as the best target group for the survey, 17-year-olds being the oldest group accessible through the schools, and also in a dynamic period of establishing sexual relations. As the study was carried out in 1990, the age-group born in 1973 was chosen. In October 1990, this age-group comprised 112,425 individuals, i.e. 57,517 boys and 54,908 girls. Among these, 94,655 were school attenders, 11,446 were registered at youth centers and 6,314 belonged to neither. The aim was to recruit a representative national sample of the age-group: a school sample and a sample of school non-attenders enrolled at youth centers. The intention was also to secure the participation of girls from female-dominated vocational study lines, according to the hypothesis that they were at increased risk for sexual and reproductive health problems due to early coitarche. School drop-outs were enrolled, as health hazards were assumed to be more prevalent among them.

Estimations performed in order to plan the survey sample were carried out on data from September 1989, and performed on students in the first year in high-school. The first year comprised 109,839 students, most of them born in 1973. The social science sector enrolled 18% of all students, 73% were girls, and the social and health sector enrolled 15% and 90%, respectively. The economic-mercantile sector comprised 20% of the students, 62% girls. The natural science and technical sector comprised 20% of all students, 30% girls, the technical-industrial 25% and 13%, respectively. The agriculture and forestry sector comprised 2% of all students, and 32% were girls.

A sample size of 2% of the population of school attenders born in 1973 was considered appropriate. With this sample size, even small differences between groups in low prevalence issues would be statistically significant on a 95% level. If 15% of the girls had coitarche before age 15, a three-fold increased relative risk of abortions (from 5% to 15%) could be detected at a significance level of 95% and a power of 80%.

A stratified random sampling procedure was designed in cooperation with expertise at the National Institute for Statistics in Sweden, today called Statistics Sweden. It was considered feasible to conduct the study in 100 schools and at 30 municipal school drop-out centers, and the sample was designed accordingly. For study purposes, the social science and natural science programs were categorized as theoretical study programs.

3.1.2 The school sample

A two step procedure was utilized for the sampling of the students.

Step 1. The country's 500 schools were stratified into three strata by use of the cumulative square root of the frequency-method (172). The schools were divided into 10 groups according to the proportion of girls in the schools, the frequency of schools in each group was noted, and the square root was calculated from each frequency. The roots were added and the sum was divided by 3, chosen as the desired number of strata. The three strata arrived at were: I schools with < 38 % girls: 126 schools with 12,436 students;
II schools with 38%-52% girls: 139 schools with 53,836 students and
III schools with \geq 52% girls: 233 schools with 27,792 students.

Among the selected schools, 38 offered both theoretical and vocational programs, and they were all large schools. One school had only theoretical study lines, while the remaining majority provided a wide range of vocational programs. Most of these

programs were within the social and health sector, often in urban areas. A number of small vocational schools in non-urban areas offered programs for agriculture, gardening and forestry.

Stratum I included male-dominated schools with < 38% girls. The stratum contained 126 schools with a total of 12,436 students and a mean of 423 students. Most of these schools were urban, but a few schools in rural areas provided vocational training.

Stratum II included schools with 38%-52% girls, and the stratum contained 139 schools with 53,836 students and a mean of 119 students. Most schools provided programs in the strongly female-dominated health and social sector, and a few small schools provided vocational study lines in rural areas, e.g. for agriculture.

Stratum III included schools with $\geq 52\%$ girls, and the stratum included 233 schools with 27,792 students. Many of these schools had very few pupils, and the mean number of students was 98. The stratum contained schools with vocational programs in the health and social sector, and a few small schools with female-dominated vocational study lines in non-urban areas, e.g. agriculture.

Step 2. 100 schools were selected from strata I-III, utilizing the Neyman allocation method, with the proportion of girls as the allocation variable (173,174). From stratum I, 22 schools were selected, from stratum II, 16 schools were selected and from stratum III, 62 schools were selected. The selected 100 schools comprised a total of 17,326 students. 93 of the 100 schools agreed to participate, i.e. 16,680 students, as presented in Table 1.

One of the selected schools had been closed down. At five of the remaining six schools, the principals declined participation for practical reasons, or, in one single case, refused because she did not sympathize with the idea of a survey on sexual matters. These non-participating six schools had 646 students, 266 boys and 380 girls. Thus, the drop-out rate in this first step was 3.7%, as presented in Table 1.

Step 3. 25 students from each of the 93 participating schools were selected at random. The same number of students was selected from each school, regardless of the total number of students at the school. Individuals were randomly selected among all students born in 1973 by means of a random number list. If the total number of youngsters born in 1973 was 28 individuals or less in one school, they were all included. The total number of selected youngsters was 2,583, Table 1.

The number of student non-respondents was 176: 84 boys and 90 girls and two individuals for whom information on sex was missing. The responding 1943 students represent 2.1% of the student population.

Table 1. SAM 73-90, adolescents born in 1973, alive in 1990; study samples and response rates

	Total no.	Youths in selected units	Youths in participating units	Drop-out rate, first step	Study group	Respondents, no.	Non-respondents, no.	Response rate	Responders, % of study base
Students	94,655	17,326	16,680	3.7% (646/ 17,326)	2,108	1,943	176	92.2%	2.1%
Youth centers	11,446	1,354	475	0	475	210	257	44.2%	1.8%
Neither	6,314		0		0			0	
Total	112,445	18,680	17,155		2,583	2,153	433		

The sampling procedures resulted in the intended high number of girls in vocational training, but also an underrepresentation of schools from Sweden's three major urban areas, Stockholm, Göteborg and Malmö.

The number of respondents according to study line and gender was 271 (1.2%) boys on theoretical programs, 337 (1.3%) girls on theoretical programs, 537 (2.4%) boys on vocational programs, and 784 (3.8%) girls on vocational programs. (Fourteen respondents did not report their study programs.)

3.1.3 The youth center sample

Sweden had 284 municipalities in 1990, and 11,446 individuals born in 1973 were registered at the youth centers. As the population of school non-attenders was smaller than the student population, a compensatory 4% sample of school non-attenders was chosen.

The sampling was performed by a two step random procedure. In step 1, a random sample of 30 of the 284 municipalities was selected, without regard to the size of the municipality. All 30 youth centers allocated to the sample agreed to participate, but one had no youngsters born in 1973 enrolled. In step 2, a random sampling of youngsters enrolled at the 29 centers was performed, in the same way as for students. The sample in the first step comprised 1,354, and in the second, 475 youngsters. Municipalities in the three major urban regions in Sweden were included, i.e. the Stockholm, Göteborg and Malmö areas. The difference between the sample sizes in the two steps is due to the fact that several units had very few youngsters enrolled. Data are presented in Table 1.

From the youth center sample, 210 youngsters responded; 96 boys and 114 girls, representing 1.8% of the population registered at youth centers. There were 257 non-responding youngsters; 143 boys and 114 girls.

3.1.4 The questionnaire

No Scandinavian health-oriented “gold standard questionnaire” on adolescent sexuality existed at the time when the study was set up. Thus, a questionnaire was designed specifically for SAM 73-90, by the investigator in cooperation with expertise at the National Board of Education and a team of experts on adolescent health in Sweden: Kristina Berg-Kelly, pediatrician, MD PhD; the late Sture Cullhed, gynecologist, MD; Frank Lindblad, child psychiatrist, MD PhD; Harald Moi dermatovenereologist, MD PhD and Leena Ruusuvaara, gynecologist, MD PhD. The draft was also discussed with the board of the Swedish Association for Sexual

Education (RFSU), and with staff at the RFSU clinic. Consequently, the questionnaire covered the fields relevant to adolescent general and reproductive health and sexual behavior according to expertise available in Sweden at the time.

The questionnaire was self-administered and comprised 170 questions. Issues pertaining to family, school and leisure preceded questions on puberty and sexual experience, and adolescent health issues were addressed, including mental health problems and suicidal ideation. A clear distinction was made between the part addressing consensual and the part on non-consensual sexual experience. Questions on abuse were put near the end of the questionnaire. Questions concerning sexual knowledge, attitudes and behavior were detailed, issues of contraception, pregnancy and STDs included. Questions concerning different topics were introduced with a short text, and the text at the end of the part with the six questions on abuse included information that help was available if needed, referring to the card **Where to turn**. This pocket-size card, distributed together with the questionnaire, was kept by the respondents and held telephone help-line numbers and the number to the local Youth Clinic. Free space was left on the last page of the questionnaire, for voluntary remarks. The full text of the questionnaire is presented in Appendix I.

3.1.5 Procedures

Ample time was allowed for preparatory investigations and interviews, pilot and feasibility studies. Drafts of the questionnaire were discussed in focus groups with teenagers in a variety of schools, and with school non-attenders and girls in a therapy group for child sexual abuse victims. Feasibility studies were performed in small groups of teenagers. The classroom situation was avoided, the nurse's office available to guarantee quiet for the respondents while answering the questionnaire. The focus groups recommended that a counselor be available for those who filled in the questionnaire. Data collection was to be performed by school nurses and local contact persons at the centers for school non-attenders, i.e. by staff trained to meet adolescent needs on an individual basis. All contact persons were invited to regional

full day seminars with the investigator, to discuss the aims of the survey, the questionnaire, how to conduct the investigation and the possible need of counseling. With few exceptions, the contact persons attended these seminars.

3.1.6 Ethical considerations

Investigations of intimately personal issues require careful scrutiny of ethical considerations, especially when adolescents are involved, and it is vital to secure the integrity of the respondents. This consideration was expressed through avoiding the classroom situation. The teenagers were approached individually by a contact person, who was instructed to care more about the individual's free choice to refuse participation than about a high response rate. Participation was anonymous, questionnaires were handled without any identifying labels. Each respondent put the questionnaire into an envelope and sealed it before handing it in.

A questionnaire conveys a message, in the way it is worded and designed. The intention with this particular questionnaire was to introduce questions on different issues with short texts, to underline the possible individual differences with regard to romantic and sexual experience, and to make a clear distinction between consensual and non-consensual experience. The questionnaire was designed so that proper alternatives were available for all questions, for the sexually "experienced" as well as for "inexperienced" or "less experienced", i.e. less experienced respondents did not have to skip a whole set of questions. The participants were invited to write their comments at the end of the questionnaire, and asked to keep the pocket size card

Where to turn.

The issue of parental consent for participation in the study was discussed with the board of the Parent and Teacher Association, and consent was not considered to be an ethical prerequisite for carrying out the investigation. The study was approved by the Ethical Committee at the Karolinska Institute in Stockholm.

3.1.7 Statistical methods

The school sample was initially designed for weighted analysis. However, this could not be performed, due to a later decision not to note the name of the respondent's school on the questionnaire, in order to ensure the anonymity of the participant.

Analyses were performed with the assistance of statistical expertise, by use of the SPSS computer package version 9.0. Bivariate analyses were assessed by contingency tables and comparisons of means. The possible associations between different sexual experience and associated factors were analyzed bivariately, utilizing Pearson's chi square test and Fisher's test for the null hypothesis of no associations (175,176). Selected possible risk factors were also analyzed by table analyses applying odds ratios and 95% confidence intervals. The impact of a particular chosen background factor with regard to experience of intercourse was analyzed multivariately by logistic regression analyses, estimates given as regression coefficients, standard errors, and adjusted odds ratios (177).

3.2 SÖT, non-acute medicolegal examinations of adolescent girls investigated for sexual abuse, performed 1990-94

3.2.1 The study group

The study was based on 94 consecutively examined pubertal or postpubertal 0-para adolescent girls, where a medicolegal examination was requested by the police or social welfare authorities during the period May 1990 to January 1994. All examinations were performed as non-acute scheduled appointments, and in all cases more than one month after the alleged abuse. The examinations were performed at the outpatient clinic run by the Swedish Association for Sexual Education (RFSU), in consort by a forensic pathologist (Kari Ormstad) and a physician with training in adolescent gynecology and dermatovenereology (Karin Edgardh).

3.2.2 History and physical examination

The referring agencies provided the examining physicians with written information on the alleged abuse. The information was categorized according to types and characteristics of the abuse. A general medical and gynecological history was taken, including consensual sexual experience. The physical examination was carried out in the head-to-toe manner, and hand-lens-aided inspection of the anogenital area was undertaken with the girls in gynecological position. Transparent round-bottomed plastic tubes measuring 8 or 16 mm in diameter were used to facilitate the visual evaluation of the hymen. Vaginal speculum inspection was performed when the introital diameter exceeded 16 mm. Physical findings were documented on body sketches. Colposcopy and photographic documentation were not available.

The ambition to achieve an atraumatic, painless examination contributed to individualized collection of specimens. Neither pregnancy testing nor STD screening were routinely performed, but samples were taken when clinically appropriate according to history, symptoms and signs. Bacterial vaginosis was diagnosed by means of the amine test and microscopic examination of wet mounts; Candida by clinical signs and wet mount, genital Chlamydia trachomatis, Neisseria gonorrhoeae and Herpes simplex virus infections by standard cultures from relevant sites; standard serological screening tests were performed for HIV and syphilis.

Findings considered consistent with abusive vaginal penetration were hymenal distortion including posterior clefts down to the vaginal wall, hymenal or vestibular scarring, and introital diameter permitting vaginal inspection with a 17 mm speculum in the absence of a history of consensual intercourse.

Observations made upon physical examination were co-evaluated with anamnestic information for a detailed medicolegal report to the referring agency. For documentation, findings were classified into three categories according to medicolegal conclusion: apparently normal anogenital region; non-specific findings; and genital findings in accordance with a history of penetrative abuse.

3.2.3 Ethical considerations

The ambition was to create a friendly atmosphere at the clinic, where the girl could feel free to ask questions and express emotions, preferably with a supportive adult companion. The character of the physical and gynecological examination was explained, and the outcome of the examination was described to the examined girls. As examination techniques followed established medicolegal routines, formal ethical approval was not required. Nevertheless, the publication of data has been cleared by the Ethical Committee at the Karolinska Institute.

3.2.4 Statistical analysis

Analyses were performed with the assistance of statistical expertise, and bivariate associations were assessed by use of the Fisher test and Pearson's chi square test and chi square exact test for trend. Student's *t*-test was used to compare differences between means.

3.2.5 Legal outcome

In 1994, a questionnaire was distributed to all referring authorities in order to gain information on the outcome of the legal procedures. If a verdict had been reached, the relation between medicolegal conclusions and legal outcome was noted.

3.3 SEXSAM-99, a study on adolescent sexuality in a high school setting in suburban Stockholm, performed in 1999

3.3.1 Study site, sample and data collection

The study was questionnaire-based and cross-sectional, carried out in two high schools in a low income multicultural suburb of Stockholm, in September 1999. One aim of the study was to investigate the prevalence of peer sexual abuse, and a sample size of 400 subjects was considered appropriate: it would allow detection of a 6% increase of the occurrence of non-consensual sexual experience, i.e. from 8% as reported in SAM 73-90 to hypothesized 14% in 1999, when peer abuse was first addressed, and at a significance level of 5% and power of 80%.

The study sample comprised 407 youngsters, mean and median age 17 years, range 15-20 years. Students from the second year, representing all available national standard programs were included, together with all youngsters enrolled in the special program for school drop-outs. Data collection was performed in half classes, and conducted on two separate occasions. The questionnaire was filled out anonymously. A card with help-line phone numbers was distributed with the questionnaire, and kept by the respondents.

Among students, 258/340 responded, i.e. the response rate was 75.9%. Only 14/70 school drop-outs participated, response rate 20%. Thus, results had to be calculated on students only.

3.3.2 The questionnaire

A 31-page questionnaire comprising 124 multiple choice questions was designed after discussion in a teen focus group, and with expertise from the National Institute of Public Health. One hundred questions were selected from the national survey SAM 73-90 and 24 questions were added on sexual harassment, non-consensual sexual experience and pornography. Informative meetings were arranged at the participating study sites, and data collection was to be managed by teachers. (The questionnaire is presented in Appendix II.)

3.3.3 Ethical considerations

The same ethical considerations were made as for the SAM 73-90 survey, see paragraph 3.1.6. However, data collection was performed by teachers. The study was approved by the Ethical Committee at the Karolinska Institute in Stockholm, a prerequisite being data collection in half classes.

3.3.4 Statistical methods

Statistical analyzes were performed as described for SAM 73-90, see paragraph 3.1.7.

4. RESULTS

4.1 SAM 73-90, Paper I-IV

4.1.1 Population, samples and response rates

Population, study groups and response rates are presented in chapter 3.1.2, Table 1. Response rate among students was 92.2%, and of the 1,943 participants 814 were boys, and 1,129 were girls. Response rate in the youth center sample was 44.2%, and of the responding 210 participants 92 were boys and 118 girls.

4.1.2 SAM 73-90, external check of validity

An external control of the results was considered important, and the validity of the results was evaluated through a comparison between the total number of legal abortions reported for the year 1990, among the age group born in 1973, and the number reported by the female respondents in the school and youth center sample.

In the school sample of 1,129 girls, 712 (63.0%) reported coital experience and 46 (7%) had had an abortion. The abortion rate for the whole group of 1,129 girls is thus 4.1%. Extrapolated to the whole group of 47,332 female students in Sweden, this would give 1,893 abortions. In the youth center sample of 114 girls, 98 had experienced intercourse and 14 (14%) had had an abortion. The abortion rate for the whole group of 5,723 girls is thus 12.2%. Calculated on the approximated total number of girls registered at youth centers, this equals 686 abortions. The estimated number of abortions in the school and youth center population is thus 2,579. The total cumulative number of abortions performed on all girls born in 1973, as reported to

the National Board for Health and Welfare by the end of 1990, was 2,469 (112). Thus, the results of the study appear reliable.

4.1.3 Respondents' comments on the questionnaire

Eleven percent of the respondents wrote comments on the questionnaire: 64 boys and 141 girls from the school sample, and 12 boys and 19 girls from the youth center sample. The majority of the comments were positive, 13 were negative and 23 respondents had comments on certain questions and issues not covered by the questions. A selection of the comments is presented in Appendix III.

4.1.4 Paper I. Sexual experience and behavior as reported by 17-year-old girls and boys in Sweden

The aim of this paper was to provide gender-specific baseline data on adolescent sexual experience related to study program or school non-attendance, and to report the prevalence of STD and abortion, using data from the SAM 73-90-survey.

Falling in love with and being attracted to the opposite sex was reported by more than 90% of both male and female students, uncertainty of preference or same sex orientation by less than 2% of both genders. Among the boys 76% and among the girls 79% had been going steady.

Among the students, the most frequently reported sexual experience was masturbation, reported by 89% of the boys and 64% of the girls, with onset at the same median age at first ejaculation reported by boys, and two years after median age at menarche among girls. Experience of sex with a partner was collected stepwise, and 54% of the boys and 64% of the girls had had their first vaginal intercourse. The first intercourse had been with a steady sweetheart for 63% of the boys and 77% of the girls, but the second intercourse had been with another same partner for 37% and 27%, respectively. An "early start", i.e. coitarche before age 15, had occurred for

16% of both genders, and girls only became “the most experienced gender” after age 15.

The choice of a theoretical study program, which was associated with higher parental education and thus indicating higher socioeconomic status, had an impact on students’ sexual experience, and gender differences. To be enrolled on a vocational program implied a higher risk, or chance, for coital experience at age 17: OR 1.79 (95% CI 1.45-2.22). Boys on vocational programs had their first intercourse at a lower age than girls on theoretical programs. Living together with both biological parents was a factor postponing coitarche for both genders and on both study programs, OR 0.51 (95% CI 0.41-0.65). No differences were found with regard to urban residence or to immigrant background. Daily smoking, binge drinking and illicit drugs were health hazards more often reported by youths with coital experience.

Sexual practice was varied: giving oral sex was reported by 43% of the boys with coital experience and 51% of the girls; receiving by 41% and 60%, respectively. Anal intercourse had been experienced by 8% of the boys and 11% of the girls. “Risky sex”, defined as five or more sexpartners, was reported by 20% of the coitally experienced boys and 19 % of the girls, and as first date intercourse twice or more, reported by 12% of both genders. Sixty percent of the boys and 68% of the girls reported contraceptive use at their first intercourse, and 69% and 81% at the most recent intercourse, respectively. STD was reported by 5% of the coitally experienced boys and 9% of the girls, more often among early starters. Induced abortion was reported by 7% of the girls, and was also related to coitarche before age 15. Among the boys, 4% reported they had gotten a girl pregnant.

Coital experience was high among respondents from the youth centers; 90% of the boys and 98% of the girls had had coitus. Five or more partners were reported by 33% of the boys and 43% of the girls, casual sex by 23% and 20%, respectively.

Abortion was reported by 14% of the girls, and STD by 19% of the girls and 2% of the boys.

Responding youngsters from both samples chose alternatives signaling both sexual excitement and intimate and tender feelings to describe their sexual experience.

To conclude, voluntary sexual experience among 17-year-olds is heterogenous. Social background is reflected in the enrollment at study programs, and living together with both parents is associated with later coitarche. Girls become the most experienced gender after age 15, but at age 17, more boys on vocational programs than girls on theoretical programs have experienced intercourse. Girls on vocational study programs (68%) and female school drop-outs (98%) reported the largest experience of intercourse, and constitute the group at risk for unwanted consequences of sex.

4.1.5 Paper II. Sexual behavior and early coitarche in a national sample of 17-year-old Swedish girls

The aim of this paper was to evaluate sexual behavior in 17-year-old girls, with special regard to age at coitarche and associated factors, using data from the SAM 73-90-survey. A total of 1,121 student girls and 118 school non-attenders responded. Data from the two groups are treated separately.

Experience of vaginal intercourse was reported by 64% of the student girls, and 16.7% were "early starters" with coitarche before age 15. Background factors for coitally experienced girls were not living with both biological parents, early puberty and high perceived social age, vocational study program, frequent truancy and use of tobacco, alcohol and illicit drugs, all factors with a statistical significant difference of $p < 0.001$ according to chi square analysis. Child sexual abuse and suicidal ideation was reported more often by sexually experienced girls, early starters than by later. Factors more common among "early starters" than "later starters" were early puberty, high perceived social age, truancy and use of tobacco and illicit drugs. Experience of

alcohol inebriation ("getting drunk") did not differ between the groups. Mental health problems were indicated by suicidal ideation and self-inflicted injuries being more often reported by early starters. Child sexual abuse was reported by 20.2% of the early and 10.9% of the later starters, $p=0.002$. Emotional relation to first coital partner did not differ between the groups. No differences were found with regard to urban residence or immigrant background between early and later starters.

The number of sexual partners was five or more for 38.0% of the early starters compared to 7.2% for later starters, $p<0.001$. Experience of sex on the first date was 22.6% and 8.0% respectively, $p<0.001$. More early starters than later starters had experienced oral and anal sex: 93.8% and 10.1% in early starters, compared to 83.0% and 8.2% in later starters, $p<0.001$. Contraception had been practiced at the most recent intercourse equally by both groups, 81.3% and 81.4%, respectively.

Abortion was reported by 13.7% of the early starters and 6.0% of the girls with coitarche after age 15, $p<0.002$. STD was reported by 15.2% of the early starters, compared to 5.4% of the later starters, $p<0.001$.

Among school non-attenders 83% had experienced voluntary intercourse, and 48.5% were early starters. Five girls were mothers. Induced abortion was reported by 14%, and STD by 19%. Contraception had been used at the most recent intercourse by 69%. The number of coital partners was five or more for 43%. Sexual abuse was alleged by 28% of the girls. Within this group, no significant differences were found with regard to age at coitarche. Daily smoking and use of illicit drugs was more common than among student girls. Mental health problems were indicated by self-inflicted injuries being more often reported by early starters, and child sexual abuse was reported by 28%.

To conclude, among 17-year-old girls, early menarche, a high perceived social age, vocational study program, sexual abuse and self-inflicted injuries were reported more often by girls with coitarche before age 15 than by later starters. Health hazardous

risk-taking like daily smoking and experience of illicit drugs were of concern. High number of partners and first date intercourse put early starters at increased risk for STD and unintended pregnancy. Risky sexual behavior can be interpreted as a part of a generalized adolescent risk-taking.

4.1.6 Paper III. Sexual behavior and early coitarche in a national sample of 17-year-old Swedish boys

The aim of this paper was to evaluate sexual behavior in 17-year-old boys, with special regard to age at coitarche and associated factors, using data from the SAM 73-90 survey. A total of 910 boys responded: 814 students and 92 school non-attenders. Data from the two groups are treated separately.

Experience of vaginal intercourse was reported by 54.2% of the student boys, and 16.7% were "early starters" with coitarche before age 15. Background factors for coitally experienced boys included not living with both biological parents, early puberty and high perceived social age, vocational study program, frequent truancy and use of tobacco, alcohol and illicit drugs, all factors with a statistically significant difference of $p < 0.001$ according to chi square analysis. Suicidal thoughts were also reported more often by sexually experienced boys, but child sexual abuse was not. No differences were found with regard to urban residence or immigrant background. Factors more common among "early starters" than "later starters" were early puberty, high perceived social age, truancy and use of tobacco and illicit drugs. Emotional relation to first coital partner did not differ between early and later starters..

The number of lifetime partners was higher among early than later starters: 39.8% and 11.8%, respectively, reported five or more sex partners, $p < 0.001$. First date intercourse twice or more was reported by 16.7% and 9.7%, respectively. Oral sex and anal sex was also reported more often by early starters than by later. No difference was found with regard to condom use at the most recent intercourse.

STI was reported by 4.1% of coitally active student boys, and impregnating a girlfriend by 4.3%. More than ten partners was reported by 14.6% of early starters, and was found predictive for STI according to logistic regression analysis (OR 5.4, 95% CI 1.5-19.7), as was first date intercourse more than twice for teen pregnancy (OR 14.4, 95% CI 3.8-54.5). Binge drinking and use of illicit drugs were factors strongly related to risky sex, with STD and teen pregnancy as negative outcomes.

School non-attenders reported less stable family background, high prevalence of substance use and suicidal ideation, a very high use of tobacco, alcohol and illicit drugs, together with an early experience of intercourse and risky sex. STD was seldom reported, but 12.7% (seven boys) had gotten a girl pregnant. One boy was a father.

To conclude, coital experience reported by 17-year old boys was associated with not living with both parents, early puberty and high perceived social age, vocational study line, lower school connectedness and more extensive use of drugs compared to peers without coital experience. These factors all belong within the cluster of adolescent risk-taking behavior. Early starters reported more varied sexual practices and “risky sex” than later starters; however, only a very high number of sex partners and first date intercourse were found to indicate STD and impregnating a girl. Obviously, sexually active teenage boys, both early and later starters, need health care that covers sexual issues in a social and psychological context. School non-attenders constitute a group at risk.

4.1.7 Paper IV. Prevalence and characteristics of sexual abuse in a national sample of Swedish 17-year-old girls and boys

The aim of this study was to investigate the students’ and school non-attenders’ experience of child sexual abuse, and possible abuse-related problems, using data from the SAM 73-90 survey.

Six out of 170 questions dealt with personal experience of child sexual abuse, defined as unwanted sexual experience initiated by someone at least five years older than the respondent. The respondents reporting abuse were asked to state the types of abusive acts and ten choice alternatives were given. Among male students 3.1%, and among female students 11.2%, reported sexual abuse. When exhibitionism as the only act of abuse was excluded, sexual abuse was reported by 2.3% of the male and 7.1% of the female students. Age at onset for abuse, exhibitionism excluded, was 9.1 (SD 4.3) years for the boys, and 9.0 (SD 3.9) years for the girls. Abusive vaginal intercourse was reported by 18% (23/126) of the abused girls, repeated abuse by 17%. Genital fondling was the most common act of contact abuse reported by boys, and 28% of these (5/18) reported repeated abuse.

Living in an urban area was more common among abused student girls, as was experience of foster custody, indicating family instability. Suicidal attempts, or other acts of self-harm, were reported by 30% of the abused girls, compared to 9.1% of girls not reporting abuse, $p < 0.001$. Among the male students, 33% (8/24) reported suicidal attempts or other acts of self-injury, compared to 5.1% of boys not reporting abuse, $p < 0.001$.

Use of alcohol at an early age and/or experimentation with illicit drugs, and – for girls – sleeping and eating disorders and risky sexual behavior were more common among abused than non-abused youths. Among students, consensual intercourse before age 15 was reported by 28.6% of the girls reporting abuse, compared to 14.4% of non-abused girls, $p < 0.001$. This difference was not found among the boys.

Among school drop-outs 4% of the boys and 28% of the girls reported sexual abuse, abusive vaginal intercourse reported by 49% (16/32) of these girls. Suicidal attempts, or other acts of self-harm were reported by 63% of the abused girls.

No abused boys and few abused girls had told a teacher, health professional or social worker about their ordeal.

To conclude, results from the student sample should be interpreted as markers of "minimum prevalence", as female school non-attenders report significantly higher prevalence of sexual abuse. Abused students of both genders reported a high suicidal ideation, and self-intended injury. Girls reporting abuse were overrepresented among the early starters of coital activity. The fact that so few adolescents have told any "professional" about the abuse, in spite of severe symptoms and signs of distress, underlines the need to address sexual abuse in social, medical and psychiatric history taking among adolescents.

4.2 The SÖT study

Paper V. Adolescent girls investigated for sexual abuse – history, physical findings and legal outcome

The aim of the SÖT study was to review the history of assault and record the results of medicolegal examination in adolescent girls involved in investigations of alleged sexual abuse, and to gain information on the outcome of the legal process.

The study group comprised 94 girls. Ages ranged from 9 to 22 years, median age 15.0 years. Ninety-nine percent of the girls were postmenarchal, the others had reached at least Tanner stage 2. The family situation was unstable for the majority of the girls. Four girls had disorders or handicaps requiring close medical attention; heavy somatization characterized the history of one girl. Twelve girls admitted to self-inflicted injuries. Anorexia nervosa, suicidal attempts and substance abuse were also reported. Psychiatric inpatient care had been required for seven girls.

Consensual intercourse was reported by 30% (28/94) of the girls; of these, four girls had undergone induced abortion and five other girls had been treated for STDs (genital chlamydial infection and condylomas). All pregnancies and STDs appeared to be consequences of consensual sexual relations.

For 82% (77/94) of the girls, referring agencies provided examining physicians with a detailed and consistent history of abuse. Intrafamilial abuse was alleged by 81% of these 77 girls, with onset prior to menarche reported by 53%. Repeated abuse was alleged by 74%. Abusive genital penetration was reported by 77%, and anal penetration by 19%. Sequelae after self-inflicted injury were found in 15%.

Deep clefts (down to the vaginal wall) of the posterior hymen were found in 26% (20/77) of all the girls, and these girls all had a history of abusive vaginal penetration. Deep clefts were found in none of the 20 girls with experience of consensual intercourse but who denied abusive genital penetration. Of the 24 girls who reported consensual intercourse all but one could be examined with a 25 mm speculum, the exception was a girl who had tried intercourse but failed. Of girls without experience of voluntary vaginal intercourse but reporting abusive genital penetration, 47% (17/36) exhibited a vaginal opening exceeding 16 mm, and they could also easily be examined with a 17-25 mm speculum, compared to none of the thirteen girls with a history of non-penetrative abuse, $p < 0.001$.

The medicolegal conclusion supported a history of abusive genital penetration in 41 (69%) cases; findings were non-specific in eleven cases and a normal anogenital status was found in 25 cases. No specific STDs were found.

The alleged abuse of 34 of the 77 (44%) girls was tried in court. One suspect was acquitted, and 32 suspects were convicted of the abuse of 33 girls. Eleven perpetrators admitted abuse, and their testimonies were in accordance with the girl's history as well as the medicolegal conclusions.

To conclude, firm medicolegal diagnosis of alleged non-acute cases of sexual abuse relies on a detailed history. Adolescent girls alleging abuse may exhibit signs of self-inflicted extragenital injury. The findings confirm that non-penetrative sexual acts leave no lasting genital signs, but that repeated abusive genital penetration significantly more often than non-penetrative abuse does so. In cases with a

confessing perpetrator, no discordance was found between the testimony of the victim, the medicolegal conclusion and the testimony of the perpetrator. The fact that few cases were taken to court requires further investigation.

4.3 SEXSAM-99

4.3.1 Paper VI. Sexual behavior in a multicultural high school setting in Stockholm

The aim of the present cross-sectional questionnaire-based study was to investigate gender-specific sexual experience in a multicultural low income high school setting in suburban Stockholm, addressing consensual as well as non-consensual sexual experience. The study was conducted in September 1999.

The study sample comprised 407 youngsters, mean and median age 17 years, enrolled on the national standard programs in the second year and on the special program for school drop-outs in two high schools in suburban Stockholm. Response rate was 75.9% (258/340) for students. Only 14/70 school drop-outs participated, response rate 20%. Thus, results are calculated on students only.

An immigrant background with at least one of the parents born outside Sweden was reported by 48.8%, a non-Scandinavian by 43.2%; however, 90.7% had received all their education in Sweden. Living with both biological parents was reported by 53.5% of the participants. Being enrolled in the natural science program was reported by 25.6% and was related to higher parental educational level. Weekly truancy was reported by 16.5%, and frequent emotional distress, insomnia and intentional self-harm by 11-14%. Substance use and abuse was frequently reported: 22.4% were daily smokers, 50.4% reported alcohol intoxication to occur “sometimes or often”, and 24.5% had tried illicit drugs. No gender differences were reported with regard to these background factors, or to health hazardous behavior.

Most students, 95.5%, had been in love, and 24.4% of the boys and 30.8% of the girls reported an ongoing steady relation. A homosexual preference was reported by 5.2%, and a bisexual by 6.4%, with no gender difference. Homo- or bisexual preference was reported by 11.6%, with no gender difference.

Experience of heterosexual vaginal intercourse was reported by 55.5% (141/254): by 59.8% of the boys and 50.8% of the girls, $p=ns$. Being an “early starter” was reported by 16.9% of all students, with no significant difference between the genders or with regard to immigrant background. The first coital partner was a steady sweetheart for 54.7% of the participants, and 56.8% had their second intercourse with the same partner.

Associated factors for coital experience were not living with both parents, RR 0.76 (95% CI 0.607-0.953), weekly truancy RR 0.505 (95% CI 0.289-0.882), and use of illicit drugs, with no significant differences between early and later starters, nor between youngsters with or without an immigrant background.

Among coitally experienced participants, five or more sex partners was reported by 29.8%, first date intercourse more than twice by 20.0%, casual sex while travelling by 17.2%, anal sex by 22.1%, homo- and/or bisexual experience by 14.0%, with no gender difference. “Early start”, i.e. coitarche before age 15, was a risk factor for having had five or more sexual partners, RR 1.84 (95% CI 1.153-2.937), but not for casual or anal sex. Neither truancy, drug use nor emotional distress was reported more frequently by early starters. Among the coitally experienced respondents, about 60% had used a condom at their first intercourse, 45% of the girls reported protection by OC’s at the most recent intercourse, and 45.2 % of the girls had used hormonal emergency contraception. STD was reported by four students, three of them girls, but no case of chlamydia was reported. Two girls had had an abortion.

Sexual abuse was reported by 7.4%, and 3.1% with a same age perpetrator, girls being at highest risk. To have been verbally sexually harassed in school was reported by 14.% of the boys (“fag”) and 10.3% of the girls (“slut/whore”).

To conclude, the participants constitute a group with a risk-taking behavior with a high level of truancy, together with smoking, and use of alcohol and illicit drugs. Vaginal intercourse was reported by 55.5%, with no gender or ethnic differences. “Risky sex” – a high number of sex partners, casual sex, bi- and homosexual practice, and anal intercourse – was frequently reported . No increase in the prevalence of non-consensual sexual experience compared to the findings in SAM 73-90 was reported. However, the participation rate among students was lower than for SAM 73-90.

The non-participation of youngsters on the individual program was disadvantageous, as school non-attenders have earlier been recognized to be at risk for sexual abuse, health hazardous behavior and unsafe sex.

4.3.2 Respondents’ comments on the questionnaire

Fifty youngsters, 19.4% of the participants, commented on the questionnaire, 22 boys and 28 girls. The majority of the comments were positive, with a short remark – it was OK - or with a more elaborate comment. Ten comments were very negative, a few of them consisting of a single curse. A selection of the comments are presented in Appendix III.

5. DISCUSSION

5.1 General comments

Issues addressed in this thesis cover a wide range of aspects of adolescent sexuality, consensual as well as abusive. These issues all belong within the concept of SRHR, sexual and reproductive health and rights. While “reproductive health issues” can easily be defined, the concept of “sexual health” is more difficult. Definitions have changed over time, and quickly become obsolete, as described by Danish sexologist Preben Hertoft (178). However, the heart of the concept of sexual health is that everyone has a right to enjoy sexual experience and relations, without the exploitation or abuse of others, and to have access to health care and counseling facilities when needed, preferably on a public health basis.

The thesis is focused on health problems related to sexuality, and risk factors for sexual health problems, an approach I think is typical for a clinician. I do not think that adolescent sexual relations should “in general” be viewed as problem behavior, in spite of the fact that clustered adolescent risk-taking may well include risky sex. The value and power of young experience of love and sex escapes the researcher’s tables and paragraphs. Behind the descriptions of behavior patterns are the lives and emotions of young people. A certain behavior may correspond to a wide variety of needs and feelings, characteristic for each individual, as described from a girl-specific perspective by the late psychologist Karin Crafoord in our book on teenage girls from 1988 (111).

The following discussion will address certain key issues from the SAM 73-90, SEXSAM-99 and SÖT investigations.

5.2 Comments on material and methods, SAM 73-90 and SEXSAM-99

5.2.1 SAM 73-90, procedures and data collection

The survey SAM 73-90 was initiated when HIV was identified as a new sexually transmitted health threat, and before it was clear that HIV would not become epidemic in Scandinavia. The investigation was performed with adequate funding, and the initiating agency, the Department for School Health Care at the former National Board of Education, was ideal for the task due to its contact with schools all over Sweden. The rationale for the survey was clear, due to media coverage of the rise of teenage abortions and fear of HIV.

Ample time was allotted for preparatory investigations and interviews, piloting and feasibility studies. It was considered a prerequisite to have a counselor available for those who filled in the questionnaire, and as data collection was performed by school nurses, this requirement was fulfilled. Furthermore, school nurses are used to working with young people and sexual health issues. The regional seminars with the investigator, with discussions on the aims of the survey, the questionnaire and how to conduct the study, served to prepare the local data collectors on how to proceed. The avoidance of the classroom situation may have contributed to the high response rates, and the coherently answered questionnaires. Questions on issues that can be regarded as sensitive, e.g. experience of masturbation and intercourse, were answered by 98% and 99% of the respondents, respectively. Answers were coherent, and no questionnaires had to be rejected, except for the analysis of child sexual abuse experience.

Feedback was given to local staff at a national meeting and through a short preliminary report in spring 1991. Unfortunately, the National Agency for Education was shut down shortly after the completion of the data collection, leaving a large amount of information on adolescent health not analyzed.

5.2.2. SAM 73-90, samples and sample errors

A systematic multistage sample design was chosen, a simple random sample of individuals not a viable possibility for practical reasons. Clusters of schools were selected, schools within clusters, individuals within schools. The sample design was planned for a compensative weighting to be performed. A later decision excluded weighting: due to respect of the anonymity of the participants, the name of the school was not registered on the questionnaire.

Small schools were overrepresented in the second step in the sampling procedure, as vocational programs were more frequent in smaller schools in non-urban areas. The sampling procedures thus resulted in an underrepresentation of pupils from large schools in Sweden's three metropolitan areas, Stockholm, Göteborg and Malmö. However, when the results were analyzed for biases due to the skewed sample, not compensated by weighting, the reported rates of e.g. consensual sexual experience (vaginal intercourse) did not differ according to urban or non-urban residence, nor to immigrant background.

Since the statistical analysis has been performed separately for boys and girls, the total overrepresentation of girls does not represent a limitation. Girls on vocational programs were purposely overrepresented in the school sample, as more reproductive health problems were expected in this group. This was found to be the case, and the sample size allowed a more detailed analysis. Study program was chosen as an indicator of socioeconomical status as a student's choice of a theoretical study indicates a longer parental education.

School drop-outs were included in the survey because early experience of sex was expected, although the low response rate does not allow definite conclusions. The sampling procedure of school drop-outs also resulted in an underrepresentation of youngsters from the major cities. Due to the difference in response rates, the two study samples have not been compared statistically.

5.2.3 SAM 73-90, external check of validity

A comparison with register data on induced abortions, and self-reported rates of abortion, was performed as an external validity control. Self-reported rates of abortion in SAM 73-90 were in close approximation to the national figures on the cumulated number of abortions registered for females born in 1973 (179). In the total population of 47,332 girls born in 1973, 2,469 (5.2%) abortions have been registered. In the study populations of 1,183 girls, 60 (5.1%) abortions were reported. The additional contribution of 6,314 teenagers born in 1973, not part of the study populations as they were neither enrolled in schools nor belonged to the youth center sample, could not be evaluated. The external validity control was considered satisfactory.

Comparisons between study results and national data on legal abortions in order to assess external validity for sex surveys is discussed in the UK survey from 1996, and was chosen as one of the validity controls for that study (180).

5.2.4 SEXSAM-99

The initial rationale for the SEXSAM-99 study was local concern about the increasing number of adolescents not admitted to the national standard educational programs, and indications of increasing sexual risk-taking among the young. The rationale was partly fueled by a public discussion on moral and legal aspects of teenage sexuality, sexual harassment, peer abuse and the impact of pornography. If adolescent sexual behavior patterns were changing, it was considered relevant to study a group at risk, i.e. youngsters in a low income metropolitan area.

SEXSAM-99 was carried out on a low-budget scale and with a short period for preparation, in a local low-income community with recognized adolescent health problems. Teachers were data collectors for the study, and informative meetings were arranged to introduce the aims and procedures. The questionnaires evoked concern

among some teachers, and one of the them refused to conduct the study, holding the opinion that the questions were oversexualized. This may have influenced the participation. However, the response rate was acceptable among students on the national programs. The comments from the respondents were more explicitly negative, when negative, than in 1990, see Appendix III. Partly, this could be due to the classroom situation.

The most serious shortcoming of SEXSAM-99 was the non-participation of youngsters on the individual program. According to the staff responsible for the program, the explanation was truancy: none of the absent youngsters were said to be busy doing practical work, apprenticeship or other apparently extramural activities.

Results from the study were considered a warning signal due to the high truancy rate, and the extensive use of tobacco, alcohol and drugs reported by the students, and the verbal sexual harassment that was reported to be part of the everyday life in school. The findings were summarized in a report to the National Institute of Public Health in (181).

5.3 Consensual sexual experience

5.3.1 Sexual same-gender attraction and experience

In the SAM 73-90 and SEXSAM-99 questionnaires, questions on love and attraction preceded questions on sexual experience with a partner, and expressions used were “falling in love with” and “being attracted to” somebody of the opposite or your own sex. In 1990, a heterosexual orientation was reported by 95% of the male and 97% of the female students, and a clear same-gender orientation was reported by less than 2% of both genders. Few respondents were not sure, and a few answers were missing. In SEXSAM-99, a same-gender or bisexual preference was reported by 11.6%, with no difference with regard to gender or immigrant background. Thus, in 1999, the reported same-gender or bisexual attraction exceeds what has been reported in the national survey on sexual behavior among adults in Sweden (67).

Sexual attraction and sexual experience may differ: in SAM 73-90, no boys who had had sex with a male partner reported a same-gender attraction, and all boys reporting a same-gender attraction were without sexual experience with a male partner. In SEXSAM-99, sexual experience with a partner of the same sex was reported by 14% of the participants, with no significant difference between boys and girls.

Is this a change over time, perhaps valid also for other groups of young people? During the 1990's and in the era of AIDS, different sexual preferences have become widely recognized and accepted in Swedish media, and specifically so in media targeting young people. The very successful movie "Fucking Åmål" is an example, describing young lesbian love (182). This may have had an impact on adolescent attitudes, with an increasing awareness of homo- and bisexual feelings and practices.

The recognition of same-gender attraction and orientation has a psychological importance. Homosexuality is still stigmatized, and in spite of increasing openness, emotional distress and suicidality is reported as a part of life for many young homosexuals of both genders, according to a recent Norwegian study by Hegna and coworkers (183). Hopefully, the situation for young gays, lesbians and bi-sexuals in Sweden is more favorable than might be judged from the violence, drug abuse and prostitution reported in US papers (184,185). However, homophobic hate crimes occur also in contemporary Sweden.

STI and HIV are risks for gay men also in Sweden, and early encounters may include risk-taking according to a recent study from the US (186). Research on young sexual behavior among bi- and homosexual youth is scarce in Scandinavia. Prevention programs and health services need to be tailored to address the needs of a new generation of young people with a homosexual and bisexual practice. Also non-consensual sexual issues are of importance: child sexual abuse has been reported among gay men as a factor associated with unsafe sex (187), and gay men may report rape (188). Lesbian women may be at risk of genital infections as well, as

they, or a female partner, may have sexual encounters also with men, and possibly with bisexual men (189).

5.3.2 Masturbation

Masturbation was addressed in the SAM 73-90 survey with the objective of recognizing masturbation as a "real" sexual experience, in order not to equate having sex or being a sexual individual with having sex with a partner. Masturbation was the sexual experience most often reported by student boys (89%), and was reported often (64%) by girls. In previous research from the 1980's by Helmius, the rate for girls was lower, and coital experience preceded masturbation in a sample of very young teenagers (84,85). A proposed reason was that a restricted view on sex could keep a girl from manipulating her genitals: she needed a partner in order to discover her own sexuality. However, as pointed out by Helmius in the Swedish national sex survey from 1996 (67), a change has occurred over time, and masturbation has become part of the female sexual repertoire. Popular media may have made a contribution by providing technical information on female masturbation and orgasm, and by spreading the attitude that a girl should have a sound knowledge of her body and genitals, and be prepared to share this with her future partner/partners.

5.3.3. Non-coital sexual experience with a partner

According to results from SAM 73-90, sexual experience with a partner is collected stepwise. Precoital sexual experience can be considerable, and may include cunnilingus and fellatio. The old expression "sexual debut" is definitely outdated as a synonym for "the first penile-vaginal intercourse". According to the British sex survey, orogenital contact is experienced by increasing proportions of those who have not yet had vaginal intercourse (190). Oral sex is also more frequently reported by younger respondents than older age groups in the national Swedish sex survey among adults (67). The same findings are reported from studies among young people in the US (191,192,193). Oral and non-penetrative sex may have become more acceptable

in the recent era of "safer sex" practices, which has focused on risk reduction strategies in the face of AIDS and other STDs. Oral and non-penetrative sex have been encouraged as alternatives to sexual practices that are riskier in terms of unwanted pregnancy and infections. However, cunnilingus and fellatio are seldom performed with a condom, as reported in a recent paper. Thus, STD may occur in an adolescent without experience of intercourse, and related to orogenital sex, i.e. genital HSV-1 infections.

Noncoital sexual interactions may be part of a general risk-taking behavior among young adolescents, as discussed by Jakobsen and colleagues in a Norwegian survey on adolescent health (194).

The stepwise collection of sexual experience with a partner/partners may be prolonged, and for many adolescents, periods of abstinence from partner sex are common. If the first oral sex experience has the same quality of a "rite of passage" as the first intercourse, has not been investigated.

5.3.4 Heterosexual intercourse

Since decades, adolescent girls have been considered "the sexually most experienced gender" in Sweden, as well as in the other Scandinavian and northern European countries (67,99,100,195-200). This gender difference was also recognized in SAM 73-90. In SEXSAM-99, however, it was not reported. This SEXSAM-99 finding of "sexual gender equity" has not been reported in other Scandinavian studies on adolescent sexual behavior, and requires further investigation. Is it a finding typical for a metropolitan multicultural suburb? Does it indicate a more general shift towards gender convergence with regard to sexual behavior?

If sexual behavior patterns are changing, the impact of the "love script" is a relevant issue for investigation. According to the love script, intercourse should take place within a romantic relationship, and preferably with a steady partner (84,85,198).

There are indications of a change in adherence to the “love script” between the studies. In the SAM 73-90 survey, a majority stuck to the script: 63% of the boys and 77% of the girls had their first intercourse with a steady sweetheart. The partner for the second intercourse was the same partner for 62% of the boys and 73% of the girls. A casual first partner was reported by 21% and 13%, respectively. In the SEXSAM-99 study, the first coital partner was a steady sweetheart for 55% of the participants, and 57% had their second intercourse with the same partner with no gender differences. A casual first partner was reported by 33%, with no gender difference.

The SAM 73-90 participants seemed happy about their experience of sex. Among a selection of words for emotions and sexual pleasure, positive words were chosen to describe the experience of the first intercourse, as well as for a more total experience of sex. In SAM 73-90, 89% of coitally experienced participants described their coital experience as “sexy”, 84% of the boys and 91% of the girls as “loving”, and 76% of both genders as “wonderful”. In SEXSAM-99, the words “sexy”, “loving” and “wonderful” were selected by 50%, 57% and 45%, respectively.

These findings may indicate a shift in the pattern of adolescent sexual behavior, a shift towards less emotional involvement with the first sexual partner, possibly an inclination towards more casual early sexual encounters. However, the process of the sexual socialization of adolescents is complex: family structure, age at puberty, perceived social age, study program and school connectedness are factors intertwined in the process.

5.3.5 Coital experience, gender and study program

Results from the SAM 73-90 survey illustrate some of the many different factors influencing and associated with the sexual socialization of adolescents, summarized in an overview of adolescent sexuality (201).

Self-assessment has been recognized as reliable with regard to pubertal maturity (202). In SAM 73-90, mean age at menarche was 12.8 years, with no difference between the study lines. Early menarche, before age 11, was associated with coitarche before age 15. This finding is in accordance with recent overviews of adolescent sexual behavior, and with the Swedish national sex survey (67,201). Early biological maturity in girls may postpone social and cognitive maturity during adolescence, affecting educational options (38,39,40,41). For the boys in the SAM 73-90 survey, mean age at first ejaculation was 13.4 years (203,204), and an association was found between low age at first ejaculation and early coitarche. The relation between age at spermarche and coitarche is less investigated than for menarche, and the actual onset of sperm production is studied in urine samples (203,204). Early puberty is associated with a high perceived social age, appearing "older than most", a factor associated with risk-taking behavior (43,44,45).

Living under the same roof as both natural parents was associated with higher age at coitarche in SAM 73-90 and SEXSAM-99, as discussed in studies from the UK and the US (198,201). This phenomenon has been less addressed in Sweden.

The gender difference, with girls being the "sexually most experienced gender", was not without exceptions, when gender specific experience was analyzed according to study program. Some boys – those on vocational programs – were more experienced than some girls, i.e. those on theoretical programs. Thus, gender and SES factors overlap. Among the earliest starters, with coitarche before age 15, there were as many boys as girls.

5.3.6 Risk-taking behavior - smoking, alcohol and drugs

Surveys on sexual behavior as a rule address smoking habits, and use of alcohol and drugs. Early sexual experience is strongly associated with an early start of smoking, a phenomenon commonly recognized in studies of adolescent sexuality (45,47,50,83), and sometimes addressed in terms of "adult lifestyle" (205).

Use of alcohol is an accepted part of the Swedish lifestyle, for both genders. But teenagers' access to alcohol is restricted, and parents are discouraged from offering their youngsters beer, wine or spirits. However, from the annual surveys carried out by the Swedish Council for Information on Alcohol and Other Drugs, it is known that many young people use alcohol from early adolescence, and that binge drinking can occur already at ages 13-14 (62,206,207). In the early 1990's, 34% of the boys and 28% of the girls in grade nine reported having ingested some alcohol during the last week. The SAM-respondents had considerable experience of alcohol; more among coitally experienced than among coitally unexperienced. Unexpectedly, no significant differences were found between early and later starters with regard to alcohol. The majority of both groups had not tasted any alcohol when they had their first intercourse, and few used alcohol regularly when having sex.

The association between alcohol and casual sex has been discussed by Træen: alcohol is a background factor when sex "just happens" (101). To "let it happen" on a regular basis is reported in studies among older teenage girls and young adults in Sweden (83,109). Alcohol - or the effects of being intoxicated - facilitates casual sex, thus increased the number of sexual partners and, consequently, the risk of sexually transmitted disease.

A steep increase in the use of illicit drugs, e.g. amphetamine, is reported in Sweden since 1992 (208). Teenagers in metropolitan areas are at risk. The increase is parallel to increasing unemployment and cut downs in the public sector, as pointed out in a report from The Swedish Council for Information on Alcohol and other Drugs (208). The increased use of drugs during the 1990's is a warning sign with regard to adolescent health and well-being, and school non-attenders are possibly a group at high risk. Swedish and British reports, as well as reports from the US, underline the same finding: smoking, an increased level of alcohol consumption and drug use are strongly associated with early age at coitarche, and multiple sexpartners (209,210). Thus, early smoking, heavy consumption of alcohol and experiments with illicit

drugs among teenagers are better interpreted as risk-behavior, or even as problem behavior, than as an "adult lifestyle". Early smoking is an early signal of this risk-taking, vital to address in community and school health programs.

5.3.7 Teenage abortion

An unwanted pregnancy is by definition a negative outcome of having sex, but an abortion is the "wanted" choice made by almost all pregnant young teenagers in Sweden. The median age at the first delivery is about 27 years and approximately 70% of all teenage pregnancies end in induced abortion. Thus, adolescents and young adults are expected to use contraceptives effectively during a long period of high fertility. When contraception fails, abortion is a choice.

As has been presented in the introduction, the abortion rate for teenage girls have fluctuated considerably since 1975, with a steep decrease at first, a peak in 1989, and a new increase since 1995, unparalleled by an increase of teenage childbearing (11).

The interpretation of these variations, and the use of different contraceptive methods, is only briefly addressed in this thesis. Teenage contraceptive choices and compliance are discussed in a report from a working committee in the Swedish Society for Obstetrics and Gynecology (170). Hormonal emergency contraception was introduced in the 1990's and has come to stay (114). Unwanted adolescent pregnancy and abortion are not random, e.g. spread evenly in the whole group of coitally active teen girls. Early starters are at increased risk, i.e. girls with an earlier physical maturity, lower family stability, lower socioeconomic status and lower educational aspirations and school connectedness. Thus, teenage abortions may be discussed in terms of girl-specific psychosocial problems in Sweden, an approach presented by Ruusuvaara in studies conducted in Helsinki in the 1980's (211).

A young girl requesting an abortion has the right to decide for herself, although the counselor's goal is to aid the adolescent in communicating with her parents, when required. It is proper not to stigmatize anyone who requests an abortion, a common

and safe procedure. But, a young teenager is not a miniature adult. To identify risk-taking and problem behavior, and awareness about lack of parental support, can be of importance, in order to optimize counseling and intervention. A single paper has been published on family counseling for young teenagers seeking abortion (212). The boyfriend has also been quite invisible, although an effort to include him has been initiated at a youth clinic in Sweden (213). An approach to involve the partner and family has also been presented in the proceedings from a multidisciplinary seminar arranged by the Swedish Save the Children Fund in 1992 (112).

To share the first intercourse with a steady partner has a positive influence for contraceptive use (198). If early teenage casual sex becomes more common, it may imply less efficient contraceptive use among the youngest. In the US as well as in Norway, use of the injectible DepoProvera is regarded a positive choice for teenage girls in their early sexual life; however, not a routine in Sweden (214).

The quantity and quality of sexual education in school have recently been investigated in Sweden, and shortcomings identified (26). Knowledge is usually not a prioritized issue when sex education is discussed in Sweden, in order to favour attitudes, feelings and personal relations. For future investigations, the students' basic knowledge of reproduction, contraception, STD and sexual health issues should be addressed.

5.3.8 Risky sex, STD and the young girl

The spread of HPV and genital herpes infections, and the increasing number of genital chlamydial infections, signal that sexual practice among youngster is not "safer sex". The recent increase of chlamydia is alarming: a 25% increase during the last five years, and with 19.284 cases reported in 2000 (23,24,25). The increase among teenagers occurs in spite of the network of clinics that contributed to reduce chlamydial infections during the 1980's and early 1990's, and in spite of new initiatives targeting young men, and non-invasive sample collection. However, the

number of samples taken have not increased in parallel with the increasing prevalence.

Casual sex, and “risky sex” with multiple partners, first date intercourse, casual travel sex, homo- and bisexual encounters and anal sex were reported more often in SEXSAM-99 than in SAM 73-90, and with few gender differences. The findings are in accordance with data from a repeated cross-sectional mail survey on HIV-related sexual health issues, conducted by Herlitz in Sweden three times since 1987 (215). The youngest respondents in that survey reported an increasing number of partners and casual sexual contacts during the 1990:ies, but they also reported increasingly positive attitudes towards condom use. However, the protective effect of condom use, both with regard to contraception and STI, is related to the consistency of its use. The impact of condom use on the spread of STI is analyzed in a Norwegian study by Stigum and coworkers, and it is pointed out that the prevalences of STIs with high transmission rates are not reduced by inconsistent condom use (216). It was also pointed out that late coital debut and one lifetime partner were predictors for high condom use, i.e. when STD is a minimal risk.

In the SAM 73-90 survey, early coitarche predicted a higher number of sexual partners, more first date intercourse, and ”advanced” sexual practices. Adolescent sexual behavioral patterns have been shown to be predictive also of risky adult (female) sex habits, both in American surveys (77,217) and in studies from Sweden (109). According to the British sex survey, first intercourse before age 16 is associated with multiple partnerships, in all age groups and later in life (67,109). (Anal intercourse was most frequently reported by young respondents, and those with multiple partners.) Thus, the sexual behavior and risk-taking of young people are of particular concern.

Adolescent girls are vulnerable to STDs. The cervical transformation zone in the young girl has a rapid rate of metaplastic change (219), a significant risk factor for the development of low-grade intraepithelial lesions in young women. Cervical

biological immaturity, smoking, a high number of lifetime partners and a history of Chlamydia trachomatis infection are reported risk factors for the development of CIN, cervical intraepithelial neoplasia, in young women (125,220,221), together with HPV 16 (222). A combined effect of smoking and HPV 16 in cervical carcinogenesis has been described (223). Unfortunately, smoking is a health hazardous habit adopted by an increasing number of teenage girls in Sweden. Early coitarche and smoking are intercorrelated, and infection with HPV 16 together with smoking increase the risk for cervical dysplasia.

5.3.9 Early sexual relations and sexual satisfaction

In a review on adolescent sexuality, Ruusuvaara has pointed out that researchers on teenage sexuality focus on negative risks, and show little concern about how to promote communicative, pleasurable and egalitarian sexual relations among teenagers (224). In a study from Finland, young age at coitarche was positively correlated with sexual satisfaction among women (225), a finding also in the SAM 73-90 survey. Very late starters, on the other hand, are reported to face difficulties in finding sexual pleasure and satisfaction, according to the Swedish sex survey (67).

5.4 School drop-outs

During the last few years, the number of teenagers not enrolled on standard national programs have increased in Sweden, with large local variations (60). During the same time, education and school health care have suffered economic cut downs. The organizational changes that have taken place, shift the responsibility for school drop-outs from specific centers to each individual school. Whether this is an improvement for the school drop-out group is questionable, and yet not evaluated. The situation of this hard-to-reach group but growing group of school non-attenders has not been investigated recently.

The results from the SAM 73-90 sample of school drop-outs have been presented only shortly, due to the relatively low response rate of 42%, compared to the 92% response rate among students. School non-attenders constitute a group that is hard to reach, as recognized in a survey of health risks among 16-year-old non-schoolers from Australia, published in 1997, and with a 20% response rate (226).

Family and school connectedness belong to the major protective factors with regard to risk-taking behavior among young people (45). For school drop-outs, family life may be disrupted, and community interventions are of major importance. In SAM 73-90, high use of alcohol and drugs was reported by school drop-outs, as well as suicidal ideation and attempts. Early abuse of alcohol is a factor behind later substance abuse in both genders. Suicidality in alcohol- and drug abusers is strongly associated with a shattered childhood, as discussed by Rossow (227). Psychiatric disorders may debut during adolescence and early adulthood, with school non-attendance, and with associated sexual risk-taking (228) According to Scandinavian studies, alcohol use in young men is related to violence and crime (229), and adult sexual victimization and alcohol dependence in women is recognized more often when child sexual abuse belongs to the life history (230)

The girls in the school SAM 73-90 school drop-out were at risk for sexual abuse, as reported in the presentation of general reported prevalence from both students and school drop-outs. The prevalence rates for students are discussed by Svedin in his recent review of child sexual abuse in Sweden, as well as in a recent Swedish investigation of sexual offences, but unfortunately not the results concerning female school drop-outs (133,31). In the review of therapeutic options, few initiatives targetting adolescents are presented (138).

In SAM 73-90, high use of alcohol and drugs was reported by school drop-outs, as well as suicidal ideation. Also abortions and STDs were commonly reported by school drop-outs. These results from the SAM 73-90 survey had deserved a more focused presentation. Closer attention to the health of young people 'at risk' is

needed, in a broad perspective of adolescent health and well-being, sexual issues included. According to the National Program for the prevention of STD and HIV in Sweden, future sentinel surveillance of adolescent sexual behavior is warranted, with special efforts to include young people not enrolled on the national standard study programs.

5.5 Non-consensual sexual experience and sexual abuse

5.5.1 Prevalence and characteristics of child sexual abuse

The SAM 73-90 study meets the criteria for a reliable investigation of adolescents' memories of child sexual abuse: it is population-based, has a high response rate among students and includes a group at risk. The classroom situation was avoided, to guarantee peace and quiet for the respondents while answering the questionnaire. The difference between consensual sexual activity and abusive sexual acts was explicitly defined in the questionnaire. Peer abuse among teenagers was excluded, by definition. Sexually abusive acts were specified. Data control was performed on all results for the respondents reporting abuse, as only those giving consistent answers were classified as abuse cases.

In comparison with the results from other surveys, our prevalences are low (138,231,232). But low prevalence rates co-vary with high response rates (233), and with clear definitions of child sexual abuse. Our definitions were narrow, as they excluded verbal harassment as well as peer sexual abuse. Our findings of repeated and penetrative abuse are in concordance with a recent Swiss study, investigating a random school sample of 1,116 boys and girls aged 14 to 16 (234), potential high-risk groups not included.

For SAM 73-90, the difference in abuse prevalence between the genders was expected, but the higher prevalence of abuse reported by student girls in urban residential areas than in rural was unexpected. The finding requires further

investigation. The high number of girls from the SAM 73-90 school drop-out sample reporting abuse, and penetrative abuse, is alarming. These girls belong to a group of youngsters with more family disruption than reported in the school sample. The high rates of self-harm, and emotional and behavioral problems they report, are a reminder that sexual abuse does not take place in a vacuum.

The histories of the girls in the SÖT-study, the consecutive sample of girls under investigation for sexual abuse, serve as closeups of the results of child sexual abuse in SAM 73-90. Disrupted families, severe emotional disturbances, physical self-harm and early consensual sexual encounters were characteristic for the SÖT- girls. School non-attendance was the rule.

The reported mental health and behavioral problems are serious. It may be that these troubled young people have contact with counselors, but still the issue of sexual abuse may not have been addressed. Few abused young people in the present studies have confided in a professional. This is in accordance with the low number of cases of sexual abuse of minors being reported to the police authorities.

This thesis addresses reproductive health problems, unwanted pregnancy and STD as negative outcomes of consensual adolescent relations. The finding that child sexual abuse was more prevalent among girls with early coitarche than with later coitarche is thus relevant for teenage gynecology and venereology in Sweden, and may be so also in the other Scandinavian countries.

5.5.2 Peer sexual abuse

Little has been investigated on peer abuse in Sweden. The issues of peer sexual coercion, peer abuse and rape are addressed in the recent Swedish investigation of sexual offences (31). It is pointed out that young male rapists as a rule have a criminal record including other aggressive crimes (31,139). It is also pointed out that no increase of rapes with multiple perpetrators is reported during the last years.

Sexual experience may be coercive, and regretted. According to the mentioned investigation, telephone help lines receive an increasing number of calls concerning sexual coercion and abuse. For teenagers, alcohol may facilitate both romantic and sexual contacts, but also contribute to experiences that are later regretted, and may increase the risk of peer abuse. (In this female-specific perspective, only the aspect of victimization is addressed, not the alcohol-related risk of committing sex crimes.) In a dissertation in sociology from 1998 by Jeffner (86), dealing with young teenagers' interpretation of the reality behind the word "rape", the interviewed respondents held strong views on alcohol: a male perpetrator, when young and a peer, may be excused for negative sexual acts committed under the influence of alcohol. A female victim, on the contrary, has herself to blame, and may be blamed, if "negative sex" occurs when she is drunk. Despite all the talk about equality between sexes, there are still differences in how vulnerable boys and girls are to moral condemnation (also by peers) and sexual abuse.

In SAM 73-90 and SEXSAM-99, an equal low percent of coital debuts were reported to be non-consensual (all data not shown). In the 1980's, Lewin remarked that teenage boys did not experience sexual coercion and abuse by peers or adults. Times may have changed. In SEXSAM-99, two boys reported that their first (heterosexual) intercourse had not been consensual, but were experienced as coercive. Another boy had been sexually abused by his male partner. Today, health personnel should recognize that all young male sexual experience is not consensual.

5.5.3 SÖT, the study group

The girls investigated for alleged sexual abuse were laden with heavy family and psychosocial problems, e.g. expressed somatization, self-inflicted injuries, suicidal attempts and need of psychiatric care. Very early consensual coital activity, unwanted pregnancy and STD were common. As few cases of sexual abuse are reported to social and police authorities compared to the estimated number of victims, it is

impossible to determine how representative the investigated girls are as abuse victims. However, the emotional and behavioral problems among the girls alleging abuse are in concordance with the abuse-related problems reported by the girls in the SAM 73-90-study, although even more severe.

Of the 94 investigated girls, 77 girls told a clear and consistent history. Among the remaining girls, some changed their stories, and some girls clearly denied being abused. Changed histories could be interpreted as “false allegations” as well as “false withdrawals” (139), although the cases where the histories were changed were not further investigated by us after the physical examination. The girls who clearly denied being abused were examined because siblings or close friends were being investigated by the police or social authorities, in order to minimize the risk that an alleged perpetrator might get away with having assaulted several children, as has been reported (235,236).

5.5.4 SÖT, genital findings and medicolegal conclusions

A medicolegal diagnosis of alleged non-acute cases of sexual abuse relies on a detailed history of the investigated abuse (237). The examination should include a detailed medical history and an inspection of the whole body, as young girls alleging abuse may exhibit signs of admittedly self-inflicted extra-genital injury (238).

Our findings confirm that non-penetrative sexual acts leave no lasting genital signs. Repeated abusive genital penetration significantly more often than non-penetrative abuse leaves deep posterior hymenal clefts and/or vestibular scarring, and a hymenal opening allowing examination with a 17-25 mm speculum also in girls without experience of voluntary intercourse. The medicolegal conclusion supported a history of abusive genital penetration in 41 (69%) cases; findings were non-specific in 11 cases and a normal anogenital status was found in 25 cases. No specific STDs were diagnosed.

In cases with a confessing perpetrator, no discordance was found between the history of the victim, the medicolegal conclusion and the testimony of the perpetrator. The results are in accordance with other series with confessing perpetrators (239,240), although our cases are few. The reasons why many cases were not taken to trial should be further investigated.

Not using colposcopic photodocumentation is a disadvantage from the point of view of presentation of findings, but our earlier clinical experience was in line with published studies on colposcopy, i.e. that colposcopy adds little to the unaided examination (241,242,243). It is not possible to make a firm diagnosis based on retrospective examination of colposcopic photos of the estrogenized hymen, as all details cannot be visualized because of the folds in the redundant tissue. This aspect is pointed out in a paper on genital findings in adolescent girls referred for suspected sexual abuse, based on the retrospective evaluation of charts and colposcopic photos (244). In some Norwegian as well as certain American centers, colposcopic video documentation of the physical examination is routinely used, which provides better information on details and elasticity of tissues than snapshots.

Medical examinations are performed less frequently today than during the 1990's. My opinion is that a medicolegal exam should be a mandatory part of a police investigation of alleged sexual abuse, and that it could even be beneficial for a victim of abuse (245).

5.5.5 Research of the adolescent hymen, a virginal area

Manuals with detailed recommendations on the documentation and interpretation of genital findings in CSA investigations have been published (141-148). A problem is that knowledge of the normal genital anatomy of pubertal and adolescent girls is less detailed than the recommendations, which are more applicable to prepubertal girls.

The Tanner staging (36,37) does not include genital development. In a paper on the relation between the Tanner staging of the breast and genital development, the estrogenized redundant hymenal tissue corresponds to Tanner stage 3-4 (246). As the study was performed on a small sample of abused girls, described details of the hymenal configuration and vaginal opening must be interpreted with caution. A study on the elasticity of the vaginal opening (247) was in accordance with how speculum examinations are described in the standard textbooks of pediatric and adolescent gynecology (167). The vaginal opening is elastic and the elasticity is due not only to the soft hymenal tissue, but to the muscle tension in the pelvic floor. It can be impossible to tell whether intercourse has occurred or not.

A variety of terms have been used to describe the configuration and/or distortion of the hymen: attenuation, "rim lower than 1 mm", absence of tissue; clefts (which can be called deep or not), tears and transections, bumps and notches. The terms as a rule refer to findings in the posterior half of the hymen, the part exhibiting more variations than the upper part according to the findings in newborns and little girls (159).

A paper on the hymenal findings in 300 18-year-old unabused adolescent women, related hymenal configuration to tampon use and consensual intercourse (160). Of the 100 coitally active girls, 84 were reported to have deep clefts in the posterior part of the hymen. Among the 200 "virgins", 20 exhibited deep clefts, slightly more common in tampon-users than pad-users. The authors' conclusion that hymenal clefts cannot be caused by the use of tampons has been questioned by forensic expertise, recalculating numbers from the mentioned study (162). Another study on adolescent girls reported fewer posterior clefts and tears (161): a series of 204 young girls, ages 9-17 years, were retrospectively evaluated after referrals for suspected abuse with alleged genital penetration. Charts and colposcopic photos were examined. Only 8 of the 204 girls presented with deep clefts/transections of the posterior hymen. Another response came from the forensic scientists, with a review of the literature, called "What is an intact hymen?" (163). However, clefts in the posterior part of the hymen, reaching down to the vaginal wall and situated around the 6 o'clock position, are

found more often among young rape victims without experience of consensual intercourse than in the coitally experienced in the same age group (248,249,250).

To my knowledge, no studies have been published on the normal variations of the width of the hymenal rim, although an attenuated and low rim is categorized as consistent with penetrative sexual abuse according to an international consensus statement (148).

To conclude, further investigations, and preferably longitudinal, are required for a better knowledge of female genital development during puberty, with special focus on hymen.

5.5.6 Comments on the genital findings

The SÖT study was initiated prior to the mentioned studies of the adolescent hymen. The examiners' opinion is that the history of abuse as disclosed by the victim is the most important basis for diagnosis, in spite of increased knowledge of physical findings associated with suspected and confirmed child sexual abuse. When the SÖT-study was planned, the criteria chosen for findings consistent with abusive genital/vaginal penetration were founded on what was then current published literature, together with the examiners' clinical experience. The criteria were later found to correspond to the summarized criteria in the overview of the CSA medicolegal examinations by Bays and Chadwick (152). In recent literature and recommendations (148,161), it is underlined that the size of the hymenal opening is outdated as an estimate of abusive vaginal penetration in child sexual abuse examinations. In my opinion, however, the vaginal opening size still belongs among the physical signs that should be noted for the evaluation of sexual abuse, also for adolescent girls.

Advice on the documentation of child sexual abuse investigations, guides to clinical decision-making and reports on intercorrelation among different physicians' assessments have been published (251,252,253).

7. IMPLICATIONS FOR VENEREOLOGY

Teenagers and young adults are at risk of sexually transmitted infections. In order to understand the epidemiology of STDs, knowledge of sexual habits and sexual contact patterns in the population is essential and constitutes the basis for intervention and prevention. Young core groups exist. Youngsters with a homo- or bisexual orientation may be at risk. Sexual behavioral patterns initiated in early and midadolescence have been shown to be predictive for later sexual behavior.

Adolescent patients are not miniature adults, and knowledge of adolescent psychology is essential for cooperation with and achieving compliance of youngsters. Adolescents will also ask questions about sex. As venereologists examine their patients' genital organs, they are consequently presumed by their patients to have a knowledge of how genitalia "work", and thus of sexuality. To meet with this, venereologists need to be familiar with sexology, and counseling in sexual matters pertinent to adolescents.

Venereologists also meet subjects with special needs, like those with experience of sexual abuse and rape (254,255). Special knowledge of child sexual abuse is required of those who diagnose and treat genital infections and STD in children, in order to handle the psychological, medical and legal implications of potential abuse (156,157).

Information is available. Reviewing Medline in April 2001, a search for literature on "adolescent sexuality" produced 3,048 hits, "adolescent sexuality and STD" produced 1,070 hits, "sexual behavior and STD" 4,974 hits and "core group and STD" 394 hits.

8. CONCLUSIONS

In the late 1980's, teenage abortions and genital chlamydial infections were increasing adolescent health problems in Sweden, indicating unsafe sex practices among young people. The emergence of HIV highlighted the need for research on adolescent sexual health issues. The national cross-sectional questionnaire-based survey SAM 73-90 was conducted in 1990 among youngsters born in 1973; high school students and school drop-outs.

Sexual experience was varied. Heterosexual coital experience was reported by 54% of the student boys and 64% of the student girls. Factors associated with coital experience were female gender, early puberty, high perceived social age, not living with both parents, vocational study program or school non-attendance, and risk-taking behavior with regard to smoking, alcohol and drug abuse. However, respondents with coital experience were in general happy with their experience. Non-coital sexual experience included cunnilingus and fellatio, experienced also as a practice preceding coitarche. Early starters, with the first intercourse before age 15, comprised 16% of both genders. Early starters reported risky sexual behavior with multiple partners, casual sex and varied sexual practices as part of a generalized adolescent risk-taking behavior. Consequently, early starters were, compared to later starters, at increased risk for unwanted pregnancy and sexually transmitted infections.

Connectedness with family and school are protective factors for adolescent health and well-being. School drop-outs reported lower family stability than the students, together with mental health problems and a health hazardous risk-taking. Early sexual experience and unwanted consequences of sex were reported more frequently than by students.

Child sexual abuse was reported by 11% of female and 3% of male students, and by 28% of female and 4% of male school non-attenders. Alcohol and drug abuse, and suicidal ideation and attempts, were reported significantly more often by abused youths of both genders. Girls reporting abuse were overrepresented among the

early starters of coital activity. Few adolescents had told any “professional” about the abuse.

Medicolegal examinations of girls alleging abuse confirmed the findings from SAM 73-90. Adolescent girls alleging sexual abuse may exhibit signs of admitted self-inflicted extragenital injury. Reliable diagnosis of alleged non-acute cases of sexual abuse relies on a detailed history. Genital examination confirmed that non-penetrative sexual acts leave no lasting signs, but that repeated abusive genital penetration may do. Few cases were taken to court. In cases with a confessing perpetrator, no discordance was found between the testimony of the victim, the medicolegal conclusion and the testimony of the perpetrator.

HIV did not become epidemic in Sweden, and in the early 1990’s, teenage abortions and chlamydial infections decreased. Since 1995, a shift has occurred, with a gradual increase of abortions and STDs. Thus, unsafe sex among young people is a question of major concern. The SEXSAM-99 study was performed among high-school students in a low income multicultural suburb in greater Stockholm, and focused on sexual risk-taking. Coital experience was reported by 56%, an early start by 17%, with no gender difference. Smoking, and use of alcohol and drugs, was frequently reported: 25% had tried illicit drugs. Factors associated with coital experience were the same as in SAM 73-90. Drug use, casual sex, multiple partners, homo- and bisexual experience and anal intercourse was reported more frequently than in SAM 73-90, with no difference with regard to gender or immigrant background. Sexual abuse was reported by 7%, and 3% reported a same age perpetrator, girls being at highest risk. The findings regarding consensual sex may indicate a shift in adolescent behavior, an issue for further investigations.

School drop-outs could not be reached for participation, due to truancy. No recent investigation has targeted this group at risk, a growing group and a group of vital interest to address in times of increasing drug abuse and sexual and reproductive health problems. The National Program for the prevention of STD and HIV for the

years 2000-2005 explicitly focus on youngsters enrolled on the individual program. Interventions on school and community levels are essential for the promotion of general health and well-being among teenagers..

Issues on sexuality are important in general history taking and clinical work among young people. Special knowledge of adolescent psychology and behavior is required for achieving compliance of youngsters, together with the recognition that a certain behavior may correspond to a wide variety of needs and feelings.

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