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# Use of Pornography and its Associations with Sexual Experiences, Lifestyles and Health among Adolescents

MAGDALENA MATTEBO



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### **Abstract**

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The overall aim of this thesis was to investigate pornography consumption and its relation to sexual experiences, lifestyles, health and perceptions of sexuality and pornography. One qualitative study (focus group discussions) and one prospective longitudinal quantitative study (baseline and follow-up questionnaires) are included.

The core category emerging from the focus group discussions, among personnel working with adolescents, was "Conflicting messages about sexuality". The participants' stated that the message conveyed by pornography was contradictory to the message conveyed by national public health goals and laws. A professional approach was emphasized, and adequate methods and knowledge to improve sexuality and relationship education were requested (I).

Participants at baseline in 2011 were 477 boys and 400 girls, aged 16 years. Almost all boys (96%) and 54% of the girls had watched pornography. The boys were categorized into frequent users (daily), average users (every week or a few times every month) and nonfrequent users (a few times a year, seldom or never) of pornography. A higher proportion of frequent users reported experience of sex with friends, the use of alcohol, a sedentary lifestyle, peer-relationship problems and obesity. One-third watched more pornography than they actually wanted to (II).

There were few differences between pornography-consuming girls and boys regarding fantasies about sexual acts, attempted sexual acts inspired by pornography and perceptions of pornography. Predictors for being sexually experienced included: being a girl, attending a vocational high school programme, stating that boys and girls are equally interested in sex, and having a positive perception of pornography. Boys were generally more positive towards pornography than girls (III).

Participants at follow-up in 2013 were 224 boys (47%) and 238 girls (60%). Being male, attending a vocational high school programme and being a frequent user of pornography at baseline predicted frequent use at follow-up. Frequent use of pornography at baseline predicted psychosomatic symptoms to a higher extent at follow-up than depressive symptoms (IV).

In conclusion, pornography has become a part of everyday life for many adolescents. Frequent users of pornography were mainly boys, and there were minor differences in sexual experiences between the male consumption groups. Frequent use was associated with lifestyle problems, such as the use of alcohol and a sedentary lifestyle to a higher extent than with sexual experiences and physical symptoms. In the longitudinal analyses frequent use of pornography was more associated to psychosomatic symptoms compared with depressive symptoms. Access to pornography will presumably remain unrestrained. It is therefore important to offer adolescents arenas for discussing pornography in order to counterbalance the fictional world presented in pornography, increase awareness regarding the stereotyped gender roles in pornography and address unhealthy lifestyles and ill health among adolescents.

**Keywords:** Adolescents, Pornography, Sexuality, Sexual experiences, Lifestyles, Health

*Magdalena Mattebo, Department of Women's and Children's Health, Akademiska sjukhuset, Uppsala University, SE-75185 Uppsala, Sweden.*

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*To my family*



# List of Papers

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

- I     Mattebo, M., Larsson, M., Tydén, T., Häggström-Nordin, E. (2013). Professionals' perceptions of the effect of pornography on Swedish adolescents. *Public Health Nursing*, [Epub ahead of print] doi: 10.1111/phn.12058
- II    Mattebo, M., Tydén, T., Häggström-Nordin, E., Nilsson, KW., Larsson, M. (2013). Pornography consumption, sexual experiences, lifestyles and self-rated health among male adolescents in Sweden. *J Dev Beh Ped*, 34(7):460-468.
- III   Mattebo, M., Tydén, T., Häggström-Nordin, E., Nilsson, KW., Larsson, M. Pornography and sexual experiences among high school students in Sweden. Accepted. *J Dev Beh Ped*, doi: 10.1097/DBP.0000000000000034
- IV   Mattebo, M., Tydén, T., Häggström-Nordin, E., Nilsson, KW., Larsson, M. Pornography consumption, psychosomatic health and depressive symptoms among Swedish adolescents. *In manuscript*.

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## Additional Papers (not included in thesis)

Mattebo, M., Larsson, M., Tydén, T., Häggström-Nordin, E. (2012). Hercules and Barbie? Reflections on the influence of pornography and its spread in the media and society in groups of adolescents in Sweden. *Euro J Contracept Reprod Health Care*, 17(1):40-49.

Nordfors, C., Grün, N., Haeggbloom, L., Tertipis, N., Mattebo, M., Sivars, L., Larsson, M., Häggström-Nordin, E., Tydén, T., Ramqvist, T., Dalianis, T. (2013). Oral human papillomavirus prevalence in high school students of one municipality in Sweden. *Scand J Infect Dis*, 45(11):878-881.

Mattebo, M., Grün, N., Larsson, M., Häggström-Nordin, E., Dalianis, T., Tydén, T. (2014). Sexual experiences in relation to HPV vaccination status in female high school students in Sweden. *Euro J Contracept Reprod Health Care*, [Epub ahead of print] doi: 10.3109/13625187.2013.878021

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# Abbreviations

|      |  |
|------|--|
| ADHD | Adult Attention Deficit Hyperactivity Disorder                             |
| BDSM | Bondage and discipline and sado-masochism                                  |
| BMI  | Body Mass Index, weight in kilograms divided by square of height in metres |
| CI   | Confidence Interval  |
| CT   | Chlamydia Trachomatis  |
| GLM  | General Linear Model   |
| HIV  | Human Immunodeficiency Virus   |
| OR   | Odds Ratio   |
| SRE  | Sexuality and relationship education                                       |
| STI  | Sexually transmitted infection   |
| UMO  | The online youth friendly clinic (Ungdomsmottagningen på nätet)            |
| WHO  | World Health Organization  |



# Introduction

Adolescents' living conditions have always been interesting and relevant to me. I became a midwife seven years ago, and I have worked clinically with young people at youth centres. During my midwifery education, I came in contact with research related to sexual experiences and pornography consumption among young people, and I became very interested in how sexuality is shaped from messages in imaginary settings. Young people often express the view that there is a lack of relevant forums to discuss sexuality and relationship issues, and that the sexuality and relationship education in school is substandard. When young people rank the sources from which they seek to gain knowledge about sexuality and relationships, pornography is a common source mentioned. At the same time, they note that messages implied by pornography create demands and expectations in terms of how to behave in sexual relations. These messages also create demands on physical appearance and skills in sexual techniques. Girls are expected to be subordinate and slim, and boys are expected to be dominant and to have a muscular physique. Can these perceptions also affect their later development of health (both physical and psychological)? Do adolescents need a counterweight of images to show how women and men can relate to sexuality? I believe that youth centres and school health services can play a crucial role in providing this counterweight as well as constitute support for adolescents with unhealthy lifestyles and/or health problems.

## Adolescence

The World Health Organization (WHO) defines an adolescent as a person between 10 and 19 years of age. The WHO also considers an adolescent as a person in a transitional phase in life and who is living in a critical time of rapid physical, mental, emotional, social and spiritual development (1) with major physical and psychological changes (2). The transition varies between individuals and groups, countries and cultures (1, 2). There are around 1.2 billion adolescents or about one-fifth of the world's population, and this number is increasing (1).

Adolescents are no longer children but not yet adults, and this period of change is full of paradoxes (1, 3, 4). Adolescence encompasses emotional

separation from parents, a sense of autonomy and responsibility, and development of a sexual orientation (1-3). Starting with the physical process of puberty, the individual experiences intellectual development, through which abstract and moral thinking allows new capabilities. At the same time, there are massive changes occurring in social interactions and relationships (1, 3, 4).

The development of identity is a central process during adolescence (5-7). Three different aspects of identity development have been described: self-belief, self-esteem and sense of identity. Self-esteem involves the individual's positive and negative view of him or herself. There are two aspects of self-esteem: fundamental self-esteem and shifting self-esteem. Fundamental self-esteem is not easily affected by situations, whereas shifting self-esteem can change rapidly between situations. At the beginning of the teenage years, self-esteem is often very unstable because of the fast rate of individual and social changes. After the age of 15 years, self-esteem stabilizes and contributes to a more positive development during the late teens. Two aspects contribute to self-esteem during the teens, especially in girls: physical self-esteem and peer-relationships (8-10).

During adolescence, sexual exploration and expressions are common and normal (11-13). Sexual relationships may begin during adolescence. Cultural factors and peer group pressure are some social factors that increase the desire and opportunity for sexual activity. Images from mass media also play a significant role; films, television and music present explicit sexual dialogue, lyrics and behaviour. All of these factors contribute to adolescents' perceptions about sexual and reproductive issues (6, 13).

Sexual self-esteem among teenagers includes attitudes towards sexuality, the relationship with a partner, experience of sexual behaviours, attraction, comparison with peers, and the feeling of being a subject in sexual contexts. In the early teens, strong sexual feelings are probably a central part of pubertal development and the development of sexual identity (8).

Adolescence is a time of opportunity, but also a time of risks (1, 2, 4, 14). It offers a range of possibilities and a time to establish the foundation for achieving healthy adulthood and reducing the risk of health problems in the years that lie ahead (1, 2). Such opportunities could be, for example, prevention of cardiovascular diseases in adulthood through the development of healthy eating and exercising habits. At the same time, adolescence is a period of risk, when health problems that have serious immediate consequences can and do occur, such as sexually transmitted infections (STIs) and unwanted pregnancies resulting from unprotected sexual activity (1). Adolescence is a period when problem behaviours may lead to serious adverse effects on

health in the future. Tobacco smoking and alcohol consumption are often initiated during adolescence (1, 15, 16). On the other hand, taking risks are part of the transition from child to adult and of the construction of a person's identity (6, 17).

## Sexuality and relationship education (SRE) in school

SRE has been compulsory in Swedish schools since 1955 (10). A national review criticized SRE because of the inconsistencies in quality and quantity, both between schools and within schools. The basic foundations of SRE in school are the inviolability of human life, individual freedom and integrity, the equal value of all people and gender equality between men and women (18). It has been recommended that SRE should be comprehensive and address the larger structural and contextual issues such as gender equality, improving sexual health in adolescents and providing guidance on reducing risky sexual behaviours (1, 19-21). Furthermore, SRE should also contribute to a social climate that is tolerant, open and respectful towards sexuality, respect sexual diversity and to be aware of sexual identity and gender roles (22).

In England, school nurses are the main providers of SRE; however, school nurses felt that the teachers were monitoring them during SRE (23). There are substantial and growing efforts to provide adolescents with strategies for basic and effective search methods for obtaining information about sexual health on the Internet. School services as well as youth centres need to be a part of this development. This would ensure that students receive comprehensive sexual health information from credible websites (24). Others have reported that adolescents should be included when designing technological sexual health educational programmes. There is a great potential to provide health education in an interactive format because adolescents are already using the Internet when searching for health information (25, 26). Researchers have reported that adolescents request websites with information about health and sexuality issues (27-29).

When investigating SRE in seven elementary schools in Stockholm it was found that discussion of pornography varied greatly between schools. All but one school discussed pornography with the students. However, at several schools, the teachers discussed pornography only if mentioned by the students (30). When designing an SRE program, a science-based approach has been recommended. This involved identifying public health objectives; specifying goals for behaviour changes; selecting or developing curricula using behavioural/social science research; and integrating evaluation into programme development, adaptation, implementation and assessment (31).

Effective characteristics of SRE to improve sexual health among adolescents include age-appropriate interventions targeted at younger age groups before they become sexually active, focused interventions tailored to the physical and developmental stages, and theory-based educational programmes that focus on the value of relationships and provide skills training and links to contraceptive services. The programmes should be culturally sensitive (32), and personnel providing the interventions should receive adequate training.

Researchers have reported that adolescents often request more straightforward information about sexual contentment, STIs, pregnancy, how to communicate with partners, how to develop the ability to provide pleasure, and feelings related to sex and relationships. Adolescents often ask for non-judgmental information about pleasurable sex and casual sex, as well as information about masturbation and sexual techniques (27). When asked about the communication skills they wished to learn, negotiation skills regarding condom use and communicating about sensitive issues such as what kind of sex they do and do not like, were often mentioned (27-29).

## Youth centres

The first youth centre in Sweden started in 1970. The aim was to prevent physical and psychological ill health among adolescents from a holistic point of view. This meant that the connection between body and soul as well as the connection between an individual and his/her surroundings were to be considered. SRE became a part of the daily work at the youth centre (33). There are about 270 youth centres in Sweden (34). To be defined as a youth centre, the centre should employ midwives, a social worker or psychologist and a medical doctor (35). It has been concluded that the attitudes and skills of the staff are the key to success in providing healthcare for adolescents (34, 36, 37).

Youth centres have a mainly preventive focus on strengthening psychological and physical health, identity and sexuality among adolescents. Youth centres are open to every young person, often with an upper age limit of 23 years for women and 23–25 years for men. It is free of charge to attend a youth centre. Besides offering medical support such as testing for STIs, Human Immunodeficiency Virus (HIV) or pregnancy and guidance and counselling regarding contraceptives, supportive talks (counselling) is offered. Almost all youth centres in Sweden offer some kind of supportive counselling, primarily by a social worker. Approximately half of all youth centres offer group visits. The most common group activity is aimed at young women or young men. Many youth centres offer group visits for adolescents with

a foreign background, those with intellectual disabilities and those with low self-esteem (34).

Researchers have reported that there are many reasons why an adolescent might visit a youth centre. In addition to questions about sexuality and relationships, issues regarding physical and mental health, lifestyle, perceived weight problems and general life satisfaction may be raised by the adolescent (38). Most visitors to youth centres are girls and young women, and only 10–15% are males. Some youth centres have special visiting hours for males to increase the opportunities for boys and young men to take part in the youth centres' programmes (37).

The recommended key components of youth-friendly services include confidentiality, respectful treatment, integrated services, culturally appropriate care, free or low-cost services and easy access (20). Various groups of adolescents from different parts of the world have emphasized two vital, common characteristics: to be treated with respect and to be sure that their confidentiality is protected (1). These components are based on current research and are widely recognized as important components of appropriate clinical services for adolescents and young adults. Part of the challenge for health services is to recognize that adolescents have a variety of needs based on individual circumstances, in particular those from vulnerable groups (20).

The National Board of Health and Welfare developed a virtual youth centre (UMO) in 2008 (39). UMO is a website for adolescents and young adults (13–25 years of age) in Sweden that provides information about sex, lifestyles, health and relationships and other important areas. The website had almost 3 000 000 unique visitors in 2013, and the website has 500 000 visitors every month, showing the enormous interest and need for information about sexuality, relationships, bodily function, alcohol, drugs, violence and other important areas (39). Young people considered school health and youth centres as important sources of knowledge and guidance about sexuality (36, 40). In a study performed at a youth centre in Sweden, teenage girls reported weight-control behaviour and less satisfaction with life and sexuality than teenage boys (38). The researcher emphasized that these gender differences should be considered when caring for and treating adolescents. Such gender differences are important to acknowledge when designing youth-friendly clinics (38).

## The Swedish population's use of the Internet

The use of the Internet by Swedish adolescents has increased steadily in the past few years. At the age of six years, nine of 10 children use the Internet, and practically all teenagers use the Internet. Almost 90% of children aged

11 years use the Internet daily. Almost all Swedish children have access to the Internet through smartphones. The Internet has a growing importance for schoolwork, and just over half of adolescents in the age range of 12–15 years use the Internet for schoolwork on a daily basis. The opinion of the importance of using the Internet for schoolwork has increased and, among adolescents aged 16–19 years, 91% considered the Internet to be important or very important for their schoolwork. Among the same group of adolescents, 82% considered the Internet to be important or very important for their private life (41).

The Internet is playing an increasingly crucial role in social contexts. For many individuals, the Internet provides ready access to make contacts easily. Research has reported that it is not unusual that young lesbian, homosexual, bisexual, transgender and queer (lhbtq) individuals experience feelings of loneliness, misunderstanding and lack of social support. The Internet is used as an arena for meeting friends and partners and plays often a more important role for young lhbtq individuals than for other adolescents and young adults in this area (42).

#### *Digital natives and digital immigrants*

Marc Prensky invented the terms *digital natives* and *digital immigrants* (43). Adolescents today are inborn speakers (digital natives) of the digital language in computers, video games, other technical devices such as smartphones and the Internet. Digital immigrants are adults who were not born into the digital world but have adopted and use the new technology. The significance of this difference is that, as digital immigrants learn, some more easily than others, to adjust to the new environment, the immigrants always keep some form of an “accent”, meaning the language from the past. The “digital immigrant accent” can be visible through acts such as searching for information on the Internet as a second instead of first choice or by following a manual for a programme instead of supposing that the programme itself will inform the individual how to use it. One problem with these two populations is that the adult population speaks an outdated language, a language from the predigital age, which the new generation, the digital natives, does not recognize. This causes problems in communication because digital natives speak an entirely new language (43).



## Sexual and reproductive health and rights, and gender equality in adolescents

Sexual and reproductive health and rights form one crucial component of adolescents' health and well-being. The International Planned Parenthood Federation has published a charter on Sexual and Reproductive Rights, which is grounded in international human rights through advocacy and services, especially for poor and vulnerable people (44). These rights are also supported by the WHO and include the right of all persons to be free from ill health, unwanted pregnancy, coercion, discrimination and violence and to have the highest attainable standard of health in relation to sexuality (44). The Swedish public health goal number 8 concerns sexual and reproductive health and rights, and aims at providing healthy sexuality, free from prejudice, discrimination, compulsion and violence (45). In Sweden, as in the European Union and as advocated by the WHO, equality between genders is considered a part of human rights. This is regulated by laws, and the purpose of the *Discrimination Act* in Sweden is to combat discrimination and in other ways promote equal rights and opportunities regardless of sex, transgender identity or expression, ethnicity, religion or other belief, disability, sexual orientation or age (46).

The number of teenage abortions increased between 2000 and 2008 but decreased between 2009 and 2011, although there were significant differences between regions and counties (47). However, the number of repeated abortions among teenagers increased (47, 48). Reported cases of STIs have increased, despite the slight decrease in the number of Chlamydia Trachomatis (CT) cases in 2013. About one-third of reported cases of CT during 2013 occurred among teenage girls and boys aged 15–19 years (49). With an increasing time period between first intercourse and the birth of the first child (50, 51), the high number of CT cases is alarming because of the significant threat to fertility (51). The Swedish National Institute for Public Health is monitoring these areas to ensure that the goals for sexual and reproductive health are met (45).

A review concluded with the criticism that sexual health within public health research has been dominated mainly by a discourse about threats and danger (52). Negative outcomes such as STIs, unintended pregnancy, sexual dysfunction and sexual violence and coercion were mainly reported. In recent years health scientists have conducted research that considers and incorporates the positive aspects of sexual health, including, for example, sexual contentment, sexual self-efficacy, sexual self-esteem and sexual pleasure. Positive views of sexuality or sex positivity were considered important for exerting power over sexual experiences and ideas. Research on the relationship between power and sexuality suggested that sexual contentment, self-

esteem and pleasure were crucial and powerful implements when explaining and understanding multiple dimensions of health. Other researchers have reported that sexual contentment and positive sexual self-esteem increase sexual, mental and physical health outcomes. General well-being was closely integrated with sexual, mental and physical health, and it was crucial that all aspects were considered when assessing general health (52). WHO emphasises that young people need knowledge about sexuality, both in terms of risk and enrichment, in order to develop a positive and responsible attitude towards sexuality (22).

## The development of sexuality and sexual behaviour among adolescents

Human sexuality is shaped by many factors including the cultural, political, legal and philosophical aspects of life, as well as morality, ethics, theology, spirituality and religion. Sexuality is as old as humans, and the interest in sexual activity is typically related to the beginning of puberty and the period of schooling (2, 11, 12, 53).

There are varying explanations of the aetiology of sex differences in human sexuality (11, 54, 55). Researchers have reported that these differences are biologically determined and that, although their brains are very similar, males and females differ in terms of characteristics related to sexuality. Males have a stronger taste for no-string sex with multiple or anonymous partners and are more likely to compete violently. Boys spend more time practising for violent conflicts in forms that psychologists call “rough and tumble play”. The capacity to visualize three-dimensional objects and space in the mind also demonstrates a significant difference in favour of males (54-57).

Characteristics that are similar between sexes include the ability to feel basic emotions, appreciate sex, seek intellectual and sympathetic marriage partners, become jealous, make sacrifices for their children, strive for status and mates, and occasionally commit aggression in pursuit of their interest (55).

Research on the environmental and genetic origins of masculine and feminine personality attributes suggests that genetic influences explain 20–48% of the variation, with the remaining 52–80% of the variation explained by environmental influences (58, 59).

Some researchers have reported that testosterone is crucial to producing sex drive and the active initiation of sexual activity, and that oestrogen is responsible for the passive acceptance of sexual activity. Men have more frequent

and more intense sexual desires than do women. This is reflected by the frequency and diversity of spontaneous thoughts about sex and sexual fantasies, desired frequency of intercourse and number of partners, masturbation, taste for various sexual practices, and initiating versus refusing sex and making sacrifices for sex (56).

The symbolic interaction perspective postulates that sexuality is not only biologically determined but also created in meetings with others and in social interaction between the individual and society (60). The theory of sexual script was developed in the 1970s by Simon and Gagnon. It is based on empirical data from the Kinsey Institute, which were used to theorize and give analytic understanding to the collected data. The authors were highly critical of the behavioural science tradition that used models of stimulation and response when performing research involving humans. Simon and Gagnon wanted to challenge the view that sexual acts were simply a biological drive, which had been the consensus view among sex researchers to that point (61).

National surveys from different countries indicate that adolescents' sexual behaviour has changed over time and that the average age for the first sexual intercourse has declined in recent years (62-65).

The last national survey in Sweden was Sex in Sweden in 1996. Swedish young men and women aged 18–74 years participated. Among both women and men, the average age of first intercourse had declined, and the decline was greater in women compared with men. It was more common to have engaged in sexual relations without having a romantic relationship compared with the previous national survey in the 1960s. Experience of anal sex was 3% among the men and 4% among the women (66).

Just over 15 000 young women and men aged 15–29 years participated in a recent Swedish survey about sexual experiences, lifestyles and use of pornography among adolescents and young adults. Girls were found to be younger (16.4 years) than boys (16.9 years) at the time of their first sexual debut. Just under half reported experience of anal sex, and there was no difference between males and females regarding the number of sex partners. Just over 85% of the young women and 80% of the young men reported experience of oral sex. This study had a response rate of 24%, which hindered generalization of the results (65).

In another study of 16-year-old Swedish adolescents, almost half reported experience of oral sex (given and received) and just over 10% reported experience of anal sex (67). Among adolescents, oral sex has been described as common and an accepted sexual activity, while anal sex is less common (68, 69). Experiences of casual sexual relationships, such as friends-with-benefits

relationships (70) and one-night-stands, have increased, as has the number of sexual partners (62-65). In a Swedish study, about half of the participating 18-year-old male adolescents reported experience of friends-with-benefits relationships (71). In a recent study from New Zealand, the proportion of adolescents who had used a condom during the last intercourse had decreased (72).

Not all sexual experiences are voluntary. A Dutch study found that sexually abused boys and girls reported more emotional problems, behavioural problems, suicidal thoughts and suicide attempts than did non-abused adolescents. In this study, sexual abuse had many more consequences for the abused boys compared with the abused girls in terms of the use of alcohol or drugs, aggressive/criminal behaviour, amount of truancy, and suicidal thoughts and behaviour (73). Sexual abuse was associated with poorer mental and physical health, and with risk-taking behaviour, such as sexual risk, selling sex and the use of alcohol and drugs (74, 75).

## Sex and gender

The terms sex and gender are used inconsistently and interchangeably in health research, and should benefit from clarification. Sex refers to the biological distinction between males and females, more often in connection with reproductive functions. Gender emphasizes the socially constructed differences between men and women that explain masculinity and femininity. The term gender can be applied to individual differences as well as cultural, institutional and structural differences. The term sex emphasizes sex-specific variations in chromosomes and the biological and physiological characteristics that define men and women. The connection between sex-linked biological variation and gender differences in health outcomes will benefit from greater attention to the intertwining of social and biological variation over the life course (76).

## Lifestyles, physical and psychological health among adolescents

### Lifestyles

The prevalence of daily smoking has decreased in the past eight years in the Swedish population. The decrease was found mainly among women. Eleven per cent of females and 9% of males aged 16–29 years reported daily smoking (77). In another Swedish study of second-grade (secondary school) adolescents, 15% of the girls and 9% of the boys reported daily smoking (78). In

the same study, just over half of the boys and just under half of the girls reported high alcohol consumption (78).

A sedentary lifestyle was associated with negative health effects, regardless of age (79, 80). These negative effects included increased risk of mortality from cardiovascular diseases and increased risk of developing a cardiovascular disease or endometrial cancer (77). Among people aged 16–29 years, 13% reported a sedentary lifestyle, which was defined as performing physical exercise such as walking or bicycling for less than two hours every week (77). Among German adolescents in senior high school, 25% reported being physically inactive (exercise less than once a week) (81).

A recent study of adolescents in New Zealand found a decrease in the use of cigarettes and alcohol and attempted suicides over time. However, the same percentages of adolescents reported being overweight or obese, performing less regular physical activity and having clinically significant depressive symptoms during the same time. Compared with Sweden, fewer adolescents in New Zealand used cigarettes regularly, but more were overweight or obese and had experienced a medically attended injury in the past 12 months. A higher percentage of adolescents in Sweden reported their general health as fair or poor compared with adolescents in New Zealand (72).

## Health

There are indications that adolescents' physical and psychosomatic health is moving in an unfavourable direction (82–85). A national public health report in Sweden reported that the prevalence rates of overweight and obesity in the population have increased in the past eight years. Among females aged 16–29 years, 18% were overweight and 6% were obese. Among males, the equivalent numbers were 23% overweight and 8% obese (77). Obesity is a known risk factor for many future illnesses (86, 87). The consequences of paediatric obesity include psychological ill health, diabetes and orthopaedic abnormalities. These can lead to persistent obesity, cardiovascular diseases and premature mortality in adulthood (87). In a US study, overweight and obese adolescents took more sick days from school than did adolescents of normal weight (88).

Epidemiological studies among children and adolescents stated that headache sufferers also reported additional symptoms such as abdominal pain, musculoskeletal pain, dizziness, problems sleeping, tiredness or psychosocial problems such as anxiety, anger and depression (81). Several dietary and lifestyle factors were associated with headache in grammar school students (89). Among adolescents in senior high schools in Germany, 83% reported headache at some time in the preceding six months. More importantly, those

who reported headache also reported musculoskeletal pain and psychic complaints (inner restlessness and brooding). It has been reported that headache is a part of a broad spectrum of health illnesses (81).

In a Swedish study, 6% of boys and 20% of girls were classified as having many psychosomatic symptoms, and 16% of boys and 32% of girls fulfilled the criteria for depression (84). In recent years in Sweden, admissions to psychiatric hospital care have increased among women and men aged 15–24 years. In all other age groups, admissions have decreased during the same time frame. The prevalence of depression and anxiety disorders has increased strongly in this group of adolescents and young adults (77). In a longitudinal study of adolescents in Finland, 39% of girls and 22% of boys aged 14 years reported many psychosomatic symptoms. At the follow-up 10 years later, the participants who reported many psychosomatic symptoms in adolescence reported somatization and anxiety symptoms in early adulthood more often than did the other participants. The women had more symptoms of depression and paranoid ideation, and the men had more interpersonal sensitivity and psychotic symptoms (85). In another Swedish study, more girls reported headache and recurrent abdominal pain compared with boys, and these differences became more prominent with age. Difficulty falling asleep was also associated with headache (90).

## Access to and influence of pornography among adolescents

Different researchers have reported both positive and negative aspects of pornography consumption among adolescents (62, 71, 91, 92) and there are different opinions about how pornography affects adolescents. Concerns have been raised that pornography affects adolescents in many ways (93-95). An American study of male adolescents, with data collected between 1973 and 2010, reported that pornography consumption was associated with more positive attitudes towards adolescent sex, premarital sex and extramarital sex. Pornography consumption was also positively associated with the actual performance of extramarital sex. Consistent with public health researchers' concerns, pornography consumption was associated with having more sexual partners and engaging in paid sex behaviour. The researcher suggested that longitudinal and experimental research is needed to determine the directionality of the associations found (93). The impact of pornography may be important for some individuals whereas others may not be affected by pornography. The effect of pornography may prime some behaviours but only if they interact with other certain risk factors. This may be particularly relevant

to the adolescent population because their attitudes and behaviours are more uncertain and less established than in the adult population (96).

In Sweden, between 10% and 30% of boys, 18 years of age, reported watching pornography once a week or more often (71, 97, 98). Among adolescents in the Nordic countries, 92% reported having watched pornography. There was a gender difference: 99% of the boys and 86% of the girls reported having viewed pornography. The same gender difference was observed in all countries. About one-third of the responders were considered to be high-frequency users, that is, watching pornography a few times a week (22%) or every day (11%). There were mainly boys in the high-frequency-user group (99). Studies have reported that frequent use of pornography is associated with sexual practices such as friends-with-benefits relationships, anal sex, group sex and sexual debut before 15 years of age (62, 71, 98). On the other hand, other researchers reported that wanted exposure to online pornography was not associated with risky sexual behaviour (defined as experience of sexual intercourse before the age of 15 years, no condom use in the last sexual intercourse, and more than four lifetime partners) (91). High sensation seekers were more likely to be in the wanted exposure group than in the unwanted exposure group (91). Among Dutch adolescents, consumption of sexually explicit material was modestly associated with sexual behaviours suggesting that such consumption was just one of many factors that may influence and shape the sexual behaviours and experiences among adolescents (100).

The most common setting to watch pornography was at home, and most adolescents watched it alone, especially older boys. Younger boys were more likely to watch pornography with friends, but the tendency to watch alone increased with age. Among the girls, the pattern was the opposite; younger girls watched alone and older girls often watched with a partner (99).

Malamuth and Huppin (96) created a model that suggests that the number of risk factors determines the probability that a person will be sexually aggressive following exposure to pornography. The researchers noted that the model also shows the opposite direction, that is, individual differences in risk features may affect to what extent a person chooses to be exposed to pornography, the type of pornography preferred and the degree of satisfaction achieved once exposed to pornography.

Adolescents perceived that pornographic messages created pressure about physical appearance and mastering sex techniques (101, 102). The messages in pornography conveyed the idea that young girls should look sexy; bodily perfection was exemplified by sexualized ideals of young, thin and beautiful

models. The underlying message for boys was that they should be sexually dominant and objectify the female body (103, 104). Among adolescents in the Nordic countries (Sweden, Denmark, Norway and Finland), 45% stated that pornography can improve one's sex life. This belief was especially prevalent among the boys, and a higher proportion of older boys agreed with this statement. There was some variation among the girls between the countries; a higher proportion of the Norwegian girls (42%) agreed with the statement that pornography can improve one's sex life, and a lower proportion in Denmark and Finland (both 29%) agreed with this statement (99).

Researchers have reported that young people develop different handling strategies to deal with the current sexual norm conveyed by pornography (102, 105). These strategies were named liberal, normalization, distance, feminist or conservative. Contradictory feelings were expressed by the adolescents who perceived that sexuality was separated from intimacy (102). Some positive aspects of use of pornography were that adolescent girls expressed an understanding about why pornography is a part of some people's life. They felt that individuals with sexual problems could be helped by watching pornography and that everyone has a right to sexual satisfaction (101). Pornography was also described as a source of information and stimulation (101, 102, 105), a source for sexual arousal, masturbation, curiosity and fun (97, 99, 106).

## Definition of pornography

Researchers use different definitions of pornography. Malamuth and Huppin (96) defined pornography as sexually explicit material with a primary intention of arousing the viewer sexually. There is a blurred line between pornography and sexual material that may be interwoven in nonsexual content (96). Other researchers have defined pornography as media used or intended to increase sexual arousal (53). These kinds of media generally portray images of nudity and depictions of sexual behaviours (107). Peter and Valkenburg (108) used the term "sexually explicit Internet material", which was defined as audio-visual material on or from the Internet that portrays sexual acts in obvious ways and which includes the explicit portrayal of aroused genitals and oral, vaginal and anal penetration.



## Theoretical frameworks

### The sexual script theory

Simon and Gagnon wrote that sexuality studies would benefit from a social and symbolic analytical point of view, and they created a theory called “The theory of sexual script” (60). The sexual script has three major dimensions on different levels, and this script is learned from an early age and over time. The social script involves society, culture, religion and social position. This script may be understood in terms of how sexuality is shaped by constitutional and collective expectations. For adolescents, in the beginning of their sexual career, norms and values in society play an important role in determining expectations and perceptions of sexual practice; for example, expectations about sexual preferences and monogamy (61).

The interpersonal script explains external expectations between individuals, which means that a mutual shared experience allows two or more actors to participate in a complex sexual act, involving mutual dependence. The interpersonal script varies between and within different groups of individuals. It may be influenced by subcultures, different settings and contexts in the social arena and interactions between individuals. The third script deals with the internal, the intrapsychic script, which means that each individual shapes a personal script according to his or her experiences and sexual motivation. This script may be reshaped during life according to increased sexual experiences and can be influenced by and created according to the social and the interpersonal script (61).

All scripts are influenced by society, culture, position, religion, relationships and individuality. These aspects change continually, leading to a constant change in sexuality. The social–psychological meaning of sexual acts must be learned because such acts supply the channels through which biology is expressed, meaning that sexuality is a learned process rather than a biological expression. Simon and Gagnon argued that all human sexual behaviour is socially scripted behaviour. The foundations of sexual arousal are to be found in socio-cultural definitions. The scripts help us to understand whether a certain situation is sexual or not. It is not the physical aspect of sexuality but the social aspects that generate the sexual arousal and organize the act, ultimately providing the sexual script (61).

## Connell

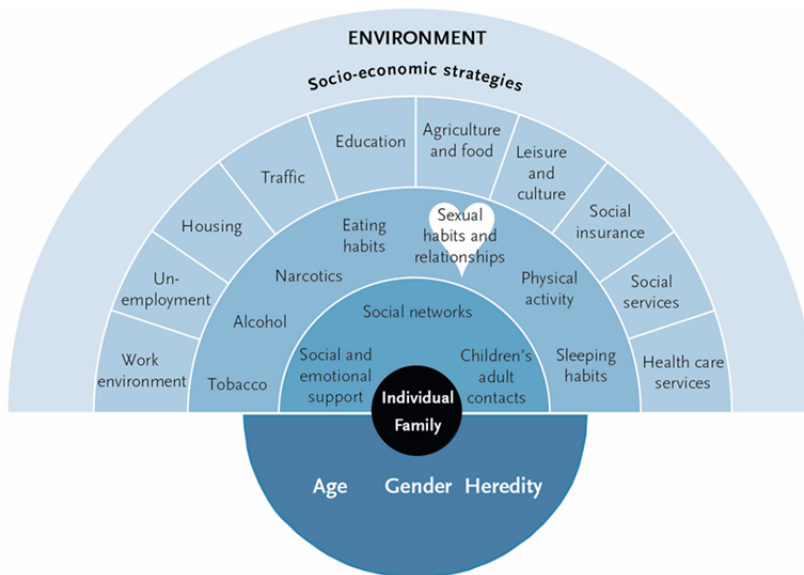
Connell (109), indicates that masculinity is often regarded as fixed, something that proceeds from the male body. The body drives and directs action or sets limits to action. One example is that men are naturally more aggressive than women, and this may lead to rape caused by uncontrollable lust or an innate urge to violence. There are different views about how conceptions of the body are explained. In biological science, the body is described as a natural machine and that gender differences are a product of genetic programming, hormonal differences or reproductive differences between the sexes. In social science, the body is described as a neutral surface upon which social symbolism is imprinted (109).

Connell (110) writes further that most of the discussion of gender in society accentuates a dichotomy. The starting position comes from a presumed biological divide between male and female. Gender is defined as the social or psychological difference that corresponds to, builds on or is caused by that divide. In its most common use, the term gender is used to describe cultural differences between women and men based on the biological division between males and females. Dichotomy and differences are the substance of the attitude. Connell argue against this and claim that gender is mainly a matter of social relations within which individuals and groups act. Gender must be understood as a social structure and not as an expression of biology or a static dichotomy in human life or character. It is a pattern in our social arrangements and in everyday life activities and practices where these arrangements rule (110).

There is no static biological basis for the social process related to gender. Instead, there is an arena in which the body is a part of social processes and our social conduct reflects reproductive differences. Connell calls this the “reproductive arena”. Connell defines gender in the context of solving the paradox of differences. *“Gender is the structure of social relations that centers on the reproductive arena, and the set of practices that bring reproductive distinctions between bodies into social processes”* (110)(p.11). Gender is a multidimensional term, and identity, work, power and sexuality all contribute to the concept of gender. Gender patterns are replicated socially, but not biologically, by the power of structures to form individual acts that lead to unchanging forms.

## Social Model of Health

Health inequalities are preventable and there are unfair differences in health status between populations, groups or individuals. They occur because of unequal social, environmental and economic conditions within societies, which determine the risk of people becoming ill, their ability to prevent sickness or opportunities to access the right treatments. These factors are called the social determinants of health. The Social Model of Health, created by Dahlgren and Whitehead (111), (Fig. 1), illustrates the main determinants of health surrounding the individual. These influences on health can be understood as a series of layers, as shown in the figure.



Source: Dahlgren and Whitehead (1991). Revised by Marlene Makenzius.

*Figure 1.* Social Model of Health by Dahlgren and Whithead (111). Adapted by the Swedish Institute of Public Health. Revised by Marlene Makenzius.

There is an overall structural environment that affects our health. Under this layer are the material and social conditions in which people live and work, such as housing, employment, health care and agriculture. A person's health is affected by access to services and the provision of important facilities and treatments. The next layer comprises lifestyle-related factors such as alcohol consumption, eating habits, physical activity, sexual habits and relationships.

The choices made by the individual within this layer can promote or impair health. Support from family, friends and social networks can be important to health outcomes; by contrast, a lack of support can have a negative impact on a person's health. The final layer comprises fixed factors that we have little control over such as age, sex and heredity.

All of these social determinants may be described in terms of threatening health, promoting health or protecting health. This model can be viewed as an interdependent system for improving health and reducing health threats (111).

## Problem Statement

Previous research has mainly investigated pornography consumption among male adolescents and adults using a cross-sectional design (92). Adolescents have described that messages in pornography create demands regarding sexual techniques, and physical appearance (102, 112) which leads to different conditions to express sexuality for boys and girls. Cross-sectional research has mainly focused on pornography consumption and its associations with sexual experiences. Longitudinal studies are lacking. Many adolescent girls consume pornography but little has been reported about their consumption patterns. The causality between pornography consumption and different outcomes is still unknown and few studies have investigated the relation between pornography use and health. There is a need to fill this knowledge gap and this thesis attempts to add new knowledge that could be useful for midwives and other professionals who work with adolescents.

# Aims

The overall aim of this thesis was to investigate pornography consumption and its relation to sexual experiences, lifestyles, health, and perceptions of sexuality and pornography.

The specific aims were:

I. To gain a deeper understanding of how personnel, who work with adolescents, reason about the effect of pornography and its spread in the media, and to explore how well prepared they consider themselves to be in addressing sexual health and gender equality.

II. To describe patterns of pornography use among high school boys and to investigate differences between frequent, average and nonfrequent users of pornography with respect to sexual experiences, lifestyles and self-rated health.

III. To investigate the differences between high school boys and girls in: 1) use of pornography, 2) sexual experiences, 3) experience of sexual abuse, and 4) perceptions of sexuality and pornography. It also examined the possible predictors of experiencing sexual activities, such as: sex, socio-demographic factors (high school programme, household, and ethnic background), pornography consumption, experience of sexual abuse, perception of sexuality and perception of pornography.

IV. To investigate predictors for the frequent use of pornography and to investigate frequency of pornography consumption in relation to psychosomatic and depressive symptoms among Swedish adolescents.

# Methods

Table 1 summarizes the studies.

Table 1. Design, methods, participants and data analyses in studies I–IV.

| Study design                | Data collection method           | Participants                           | Data analyses   |
|-----------------------------|----------------------------------|--|---|
| I. Qualitative study design | Focus group discussions          | 14 women, 3 men, different occupations | Grounded Theory   |
| II. Cross-sectional         | Classroom questionnaire          | 477 boys and 400 girls, 16 years old   | SPSS 20, descriptive, Pearson's $\chi^2$ , Kruskal–Wallis, ANOVA, internal consistency, binary logistic regression, multinomial logistic regression |
| III. Cross-sectional        | Classroom questionnaire          | 477 boys and 400 girls, 16 years old   | SPSS 20, descriptive, Pearson's $\chi^2$ , Mann–Whitney $U$ test, Student $t$ test, internal consistency, factor analysis, General Linear Model     |
| IV. Longitudinal            | Repeated classroom questionnaire | 224 boys and 238 girls, 18 years old   | SPSS 20, descriptive, General Linear Model  |

# Population, sample and procedure

## Paper I

This study had an explorative and qualitative design based on focus group discussions. The study was performed among professionals working with adolescents. The focus group discussions were audio recorded. A moderator led the discussions, and an assessor observed and took notes. A semi-structured interview guide was used and was altered if any new topics were discussed in the groups. The principles of focus group research were followed (113). The interviews took place during 2009.

Seventeen personnel (14 women and 3 men) agreed to participate. The categories of personnel participating were as follows: midwives (n=6), school nurses (n=2), social workers (n=3), physicians (n=2) and teachers (n=4). The focus groups comprised 3–5 participants; four groups comprised women and one group comprised men. The age of the participants ranged from 28 to 60 years. Different occupations were represented in all groups but one, which comprised teachers only. The discussions were lively and strong opinions were expressed. Some participants had extensive professional experience, whereas others had recently started their careers.

## Data analysis

Grounded Theory was used because it is suitable when exploring social processes and interactions between individuals and between individuals and society (114). The basic principles of Grounded Theory include theoretical sampling and analysis, constant comparison, theoretical sensitivity and saturation. In Grounded Theory, a strategic sampling of participants is recommended to maximize the variations and opinions in the group studied (114).

Data were collected, transcribed verbatim, and coded step by step before further discussion. The first step was to make the data comprehensible. The transcripts of the participants' thoughts and reflections relating to the topics in the interview guide were examined line by line. To ensure credibility, the data were analysed independently by three research colleagues. Substantive codes generated from the data were formulated with words used by the participants to stay as close as possible to the participants' own vocabulary (114). Theoretical memos and notes were used to link and confirm the analytical interpretations with the collected data. Similarities and differences in the data were identified and compared systematically, and any emerging theme was discussed until agreement between the researchers was achieved.



Theoretical sampling is used to reach saturation and is guided by the emerging categories. Saturation is reached when new data fit into the categories already devised. Because few studies have described how personnel working with adolescents perceive and reflect on the effects of pornography on sexual experiences and relationships among adolescents, this study took an inductive approach. That is, the data were gathered within an area with a view to describe and analyse a new phenomenon; this approach allows for the later generation of hypotheses about the relationships between phenomena. An unprejudiced approach is required when analysing data to provide full and correct understanding of the context and the main message mediated by the participants (114).

Closely related concepts were formed into categories, and the content was summarized and subsequently labelled. Each category was analysed for possible variations. The core category answering the question, “What is this all about?” was identified, and the other categories were related to the core category. During the analysis, a preliminary model was constructed (Fig. 2) to illustrate how the categories relate to the core category.

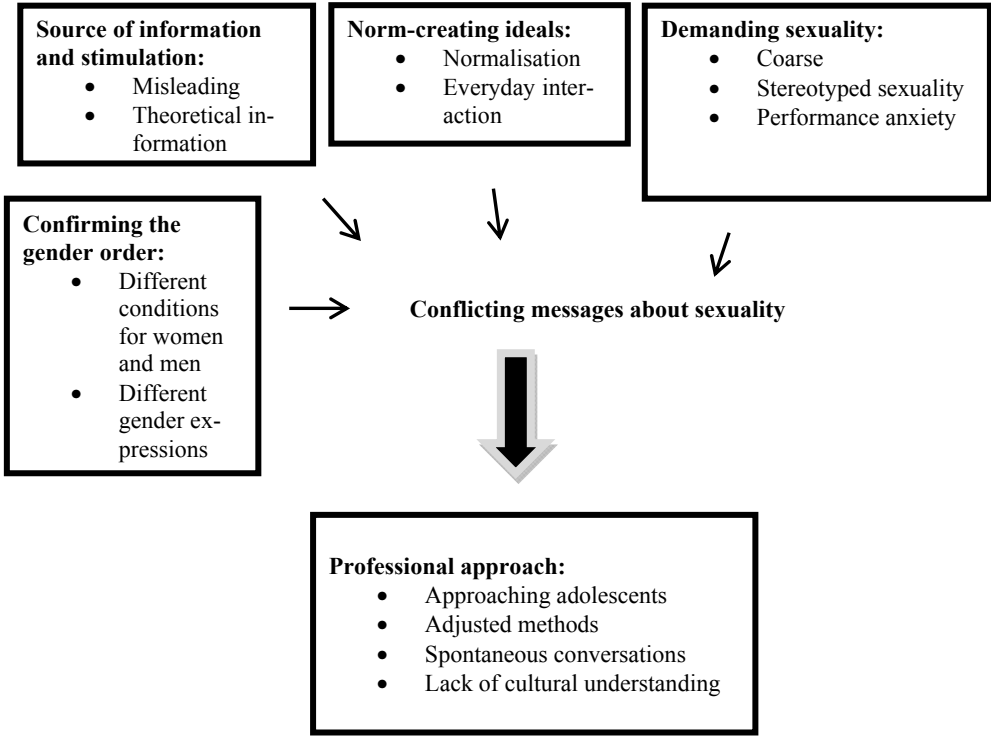


Figure 2. Model of how personnel reason about pornography and its effect on adolescents.

## Papers II and III

A cross-sectional survey in classroom environment was performed in 53 first-year classes in 13 senior high schools in one medium-sized and one small town in the middle of Sweden. A power analysis was calculated based on previously reported psychosomatic symptoms (using the WHO definition) among adolescents in the county of Mid-Sweden where the data collection was performed. The total population of first-year students in both towns was 2562 students (1254 boys and 1308 girls). The power analysis resulted in a sample of 53 randomly selected classes with a total of 1134 students (613 boys and 521 girls). This sample size was determined to be sufficient to detect differences in psychosomatic symptoms between frequent and infrequent users of pornography with a  $p$ -value of 0.05 and a power of 80%. The data were collected in spring 2011. By the time of data collection, 78% ( $n=888$ ) of the students were present, and 877 students (477 boys and 400 girls) participated; three boys and eight girls chose not to participate. Consequently, the external non-response rate was 22% and the internal non-response rate was 1%. The mean age of the participants was 16.6 years old (median 16.0 years, range 16–23). To allow a follow-up study, the participants were asked to provide their name on their questionnaire. The voluntary nature of this study was emphasized, and 7% chose to remain anonymous.

## Paper IV

This study had a longitudinal design. The data were collected in winter 2013 from the same 53 classes described previously. Because of a severe influenza epidemic, attendance in the classroom was 74% ( $n=703$ ). Consequently, 339 girls and 364 boys were available. Two girls and one boy declined participation. The external non-response rate was 26%, and the internal non-response rate was <1% in the classroom. To include participants in the longitudinal analysis, absent students who participated in the first data collection received a questionnaire sent by mail to their home address. A few of the participating schools declined to provide address lists with the students' addresses, and 123 students were thus not available for the second data collection. Consequently, 120 students received the questionnaire by mail, and 30 questionnaires were returned. Three envelopes were returned because of incorrect address. The response rate was 25% and the questionnaires were included with the classroom questionnaire. This resulted in 375 girls and 355 boys participating in the study and, of these, 224 boys (47%) and 238 girls (60%) were included in the longitudinal study.

## Instrument

We did not supply a definition of pornography in any of the studies. Each participant assessed him/herself of what he/she considered as pornography.

### Interview guide

The interview guide was semi-structured and was divided into different themes containing 11 open-ended questions. These themes were: professional experience discussing pornography with adolescents, participants' perceptions of how pornography affects adolescents' sexuality and relationships, and how the participants perceived what adolescents think about gender equality issues.

### Questionnaire I

The questionnaire comprised 64 multiple-choice questions and was divided into parts. The participants were asked to respond to questions about demography, use of pornography, sexual experiences, lifestyles, physical and psychological health, perceptions and experiences of gender equality, and perceptions of sexuality and pornography. Self-reported experiences were ranked with different scales. The alternative "not relevant to me" was available for those who lacked experience relating to the subject in question. A pilot test with a test-retest of the questionnaire was performed in a group ( $n=35$ ) similar to the study group but in another town. Correlation tests including Cohen's kappa (nominal data) and Spearman's rank-order correlation test (ordinal data) were used to analyse questions created specifically for this study, and an acceptable degree of correlations between test and retest (mean value Cohen's kappa = 0.812 and Spearman's rho = 0.618) was found. We used questions previously used in other studies to assess sexual experiences and pornography (67, 71). Validated scales were used to assess health and lifestyles: Health Behavior in School-aged Children (HBSC) (115), Adult Attention Deficit Hyperactivity Disorder (ADHD) Self-Report Scale (ASRS) (116), Depression Self-rating Scale (DSRS) (117, 118), and The Strength and Difficulties Questionnaire (SDQ) (119).

### Questionnaire II

The second questionnaire was modified somewhat and comprised 48 multiple-choice questions. The questionnaire was divided into parts, and the participants were asked to respond to statements about demography, use of pornography, sexual experiences, lifestyles, physical and psychological health,

perceptions of sexuality, STIs, use of contraception, and human papilloma virus (HPV) vaccination.

## Data analyses and statistical methods

Statistical analyses were performed using IBM Statistical Packages of Social Sciences, SPSS 20 Armonk, NY: IBM Corp.

Pearson's  $\chi^2$  test was used to analyse nominally scaled variables, the Mann–Whitney  $U$  test or Kruskal–Wallis test when analysing ordinally scaled variables and the Student  $t$  test or ANOVA when analysing interval-scaled variables. The analysis results were considered significant at  $p < 0.05$ . In the interaction analyses,  $p < 0.1$  was considered significant as suggested by Fleiss (120).

### *Correlation tests (Papers II and III)*

Cohen's kappa (nominal data) and Spearman's rank-order correlation test (ordinal data) were used to assess test–retest correlations. When determining the strength of the relationship a value of 0.5 represents moderate agreement, above 0.7 represents good agreement and above 0.8 represents very good agreement (Cohen's kappa). Furthermore, 0.5–1.0 was considered a medium to strong correlation (Spearman rank order).

Two summation indexes were created and named sexual practices (oral sex, intercourse, anal sex) and casual sex (one-night-stand, friends-with-benefits relationships, group sex) and used in general linear models. We wanted to analyse the correlations between the items in each index and Spearman's rank-order correlation test was used. Oral sex and intercourse had higher correlations with each other than each did with anal sex. One-night-stands and friends-with-benefits relationships had higher correlations with each other than each did with group sex. The correlation tests were performed separately for boys and girls.

### *Binary logistic regression (Paper II)*

We wanted to analyse factors associated with the dependent variable frequent use of pornography, defined as daily use of pornography. We created a dichotomous outcome and used logistic regression. Logistic regression can be used to create models for estimating the probability that an event will occur and it is estimated by an Odds Ratio (OR) with 95% confidence interval (CI), which implied how much greater/ less the probability was for the event to occur, in this case frequent use of pornography. When predicting dichotomous outcomes, it is called binary logistic regression. This test is

used to evaluate how one or more predictor variables can predict a dichotomous dependent variable.

As explanatory variables, the independent variables with  $p < 0.05$  from the univariate analyses were included.

We wanted to analyse associations between genre of pornography and stating sexual behaviour being influenced by pornography and genre of pornography and having tried sexual acts inspired from pornography. Two dichotomous outcome variables were created, agreeing to sexual behaviour being influenced by pornography and agreeing to having tried sexual acts inspired from pornography. Thereafter, these dependent variables were tested in two logistic regression models. The predictor variables tested were: soft porn, hard porn, violent porn, bondage and discipline and sadomasochism (BDSM), gay porn, and lesbian porn.

#### *Multinomial logistic regression (Paper II)*

We wanted to compare frequent and average consumers of pornography with nonfrequent consumers regarding predictive factors for frequent use of pornography. When using a model with more than two categories in the dependent variable, the analysis is called multinomial logistic regression. In this study, this regression was used to analyse predictive factors for frequent use of pornography. As explanatory variables, the independent variables with  $p < 0.05$  from the univariate analyses were included. The result was presented as OR with 95% CI, which implied how much greater/ less probability was for the event to occur, in this case frequent use of pornography.

#### *Factor analysis (Paper III)*

We wanted to examine patterns in the perceptions of pornography among boys and girls. Hence, a factor analysis, was performed.

Factor analysis was used to show the dimensionality of a set of measures to determine how variables; 14 statements about perceptions of pornography, clustered together as unidimensional constructs that were of theoretical interest. Factor analysis reveals the structure of a set of variables by analysing the inter correlations among them. In this study, a factor analysis with varimax rotation with Kaiser normalization criteria with orthogonal rotation was used to delineate the distinct clusters of relationships, in this case identify different perceptions of pornography. Factors with an Eigenvalue over 1 were kept.

The factors extracted were those which accounted for most of the variance in the variables. The first component accounted for the largest possible amount of the variance, and following components accounted for less and less of the

remaining variability. No specific assumptions regarding the underlying structure of the variables were set, such as the number of factors to be obtained. A visual examination of the Eigenvalues displayed the rotated factor matrix of the variables. The components had to include three or more variables with loadings over 0.4 to be counted as a component.

Two factors with Eigenvalues  $> 1$  emerged (factor loadings 0.48–0.90 and 0.42–0.84, respectively), explaining 74% of the variance in the data. Factor one described a positive and personal perception of pornography and comprised six items: *Pornography can be very arousing*, *Pornography can teach you about sex*, *Pornography is good for masturbating*, *I get a kick by watching pornography*, *Pornography is part of adolescents' everyday life*, and *It is natural to watch pornography*.

Factor two described a negative and rejecting perception of pornography and comprised eight items: *Pornography may give a false view of sexuality*, *Pornography is degrading for women*, *Pornography is degrading for men*, *Pornography is a turnoff*, *Pornography may contribute to performance anxiety*, *Pornography is disgusting*, *Pornography can be addictive*, and *Pornography conveys traditional gender roles for men and women*.

#### *Inter-item reliability (Paper III)*

We wanted to analyse factors that predicted sexual experiences. Several summation indexes were created. Cronbach's alpha was used to test the inter-item reliability between the items in each created index.

A summation index of sexual abuse was created to dichotomise responses for having experienced sexual abuse into *No* (0) and *Yes* (1). A range of 0–20 points was calculated and used as an *independent* variable in general linear models. There was high internal consistency between the items (0.772) (boys 0.836 and girls 0.730).

The participants were asked to consider 14 statements about perceptions of pornography previously described. Based on the factor analysis, two indexes were created and used as *independent* variables in general linear models: positive and negative perceptions of pornography. There was high internal consistency between the items included in the *positive* perception of pornography index (0.950), (boys 0.911 and girls 0.946). There was high internal consistency between the items included in the *negative* perception of pornography index (0.929), (boys 0.855 and girls 0.945).

Two summation indexes of sexual experiences were created and used as *dependent* variables in general linear models; sexual practices and casual

sex. The sexual practices index was based on experiences of oral sex, intercourse, and anal sex. It had high internal consistency between the items (0.847), (boys 0.828 and girls 0.861). The casual sex index was based on experiences of one-night-stands, friends-with-benefits relationships, and group sex. It had acceptable internal consistency between the items (0.672), (boys 0.740 and girls 0.560).

#### *General linear model (GLM) (Papers III and IV)*

We wanted to analyse predictors for having experienced sexual practices and/or casual sex. Initially, univariate general linear models (GLMs) were calculated ( $p < 0.05$ ) to identify associations between predictors and sexual experiences according to the indexes described. Predictors with significant associations were entered into the GLMs. Finally, sex, socio demographic factors (high school programme, household, and ethnic background), experience of sexual abuse, stating equal interest of sex among boys and girls, and positive perception of pornography were used as independent variables.

We wanted to analyse predictors for being a frequent user of pornography, defined as use of pornography a few times every month or more often, between baseline and follow-up. Furthermore, we wanted to analyse associations between frequency of pornography consumption at baseline and its associations with psychosomatic and depressive symptoms at follow-up. Predictors with significant associations were entered into GLMs. Sociodemographic factors were included to adjust for factors known to be associated with psychosomatic and depressive symptoms. The main effects of participants' sex, ethnic background, dwelling, household, mother's and father's occupational status, high school programme, and frequency of pornography consumption (baseline and follow-up), and all two-way interactions were analysed in relation to frequent use of pornography, psychosomatic symptoms and depressive symptoms at follow-up in multivariate GLMs.

The GLM provides regression analysis and analysis of variance to determine the nature of the relationships between one dependent variable and one or several independent variables. It estimates the value of the dependent variable in relation to the independent variable/variables. The dependent variable is measured as a scale, although the independent variables often are categorical.

The F-test indicates if the means of the groups formed by values of the independent variable are different enough not to have occurred by chance. The square of the adjusted correlation coefficient indicates the percentage of the variance in the dependent variable accounted for by the independent variables after adjusting for bias.

The GLM also provides an R-squared measure of how well a regression line approximates real data points and measures the relative prediction power of the model. An  $R^2$  of 1.0 (100%) indicates a perfect fit. The adjusted  $R^2$  adjusts for the degrees of freedom in the model and is used to create a complex linear model, for example the adjustments “punish” models using too many variables.

## Ethical considerations

According to the Swedish Research Council, there are four general demands in science involving humans to consider ethically: information, consent, confidentiality and use of data (121).

In this study, all participants received oral and written information about the project. The information also contained contact information to the researchers involved. It was emphasized in each class that participation was voluntary and that it was possible to withdraw from the study at any point without having to give any reason why. The participants were considered to give consent when a completed questionnaire was handed to the researcher.

The participants were informed that no individuals besides the researchers would have access to the questionnaires, that all results would be reported only on a group level and that no individual could be identified in the reported results.

The use of the data was considered important because there is limited knowledge about pornography consumption in relation to sexual experiences, lifestyles, health and perceptions of sexuality and pornography. The results have been and will be published in scientific journals as well as communicated to professionals working with adolescents as this information and knowledge are requested.

There are other ethical aspects to consider. Questions about sexuality could be sensitive to investigate especially in young people. It is essential to provide a safe environment for the participants when completing the questionnaires about a sensitive topic such as sexuality, especially among adolescents. To ensure a safe atmosphere while the participants completed the questionnaire, no staff members were allowed to remain in the classroom. The alternative “Not relevant to me” was available where appropriate to allow all participants to answer all questions.



The local Ethical Committee at Mälardalen University, Västerås, Sweden, approved study I (Dnr CF33-432/06). The Regional Ethical Review Board in Uppsala, Sweden, approved studies II–IV (Dnr 2010/369).

# Results

## Paper I

One core category and five categories emerged from the empirical data collected in the focus group discussions. The core category “Conflicting messages about sexuality” described the participants’ opinion that pornography conveyed a contradictory message compared with the national public health goals, societal laws and regulations. They thought that pornography contributes to norm-creating ideals and a demanding sexuality, thus, confirming the traditional gender order. The participants opined that a professional approach was required when addressing sexuality and gender equality issues. However, they perceived a lack of adequate tools for improving education about health and sexuality, and they requested better educational material, including those focusing on gender equality aspects and critical media analysis.

## Papers II and III

In the baseline study year 2011, 477 boys and 400 girls participated. The mean age of the participants was 16.5 years (median 16.0 years, range 16–23). There were no differences in socio demographic background between boys and girls except for the study programme ( $p=0.044$ ).

Among the boys, 96% ( $n=453$ ) admitted to having consumed pornography. The participants were categorized into three groups according to the frequency of consumption. Ten per cent of the boys were categorized as frequent users (daily consumption), 63% as average users (a few times every month or every week) and 27% as nonfrequent users (a few times a year, less frequently or never).

In the comparison between frequent users and average and nonfrequent users, a higher percentage of frequent users reported: experience of sex with a friend more than 10 times, greater interest in sex and pornography, use of alcohol in the past 12 months, spending more time at the computer, peer relationship problems, obesity, and watching pornography more than wanted compared with their peers (Table 2).

Four out of ten nonfrequent users (39%), every fourth average user (25%), and every tenth frequent user (11%) had never discussed pornography ( $p < 0.001$ ). Among those who had discussed pornography, male friends were most often mentioned, followed by partners in all groups. All groups rated female friends as the third most common interlocutor.

The most common genre watched among nonfrequent users was soft pornography (29%), followed by lesbian pornography (7%) and hard pornography (3%). Among average users, soft pornography (56%) was the most common genre, followed by lesbian pornography (13%) and hard pornography (13%). Frequent users' first choice of genre was soft pornography (38%), followed by hard pornography (26%) and lesbian pornography (11%). There was a trend for a higher proportion of violent pornography consumption among frequent users (13%) compared with average users (7%) and nonfrequent users (4%),  $p = 0.057$ . Furthermore, frequent users reported more experience of looking at BDSM (frequent users 15%, average users 5%, nonfrequent users 5%),  $p = 0.004$ .

Table 2. Self-rated physical health, lifestyle, sexual experiences and pornography among 16 year-old high school boys (n=477).

| Items   | Total,<br>% (n)<br>(n=477) | Non<br>frequent<br>users<br>% (n)<br>(n=126) | Average<br>users<br>% (n)<br>(n=292) | Frequent<br>users<br>% (n)<br>(n=47) | p-value*     | OR** | CI         |
|---|----------------------------|--|--------------------------------------|--------------------------------------|--------------|------|------------|
| BMI, Obese  | 4 (18)                     | 3 (4)  | 3 (8)                                | 13 (6)                               | 0.04         | 1.91 | 1.12–3.26  |
| Alcohol use in past 12 months                                 | 66 (306)                   | 52 (65)                                      | 70 (205)                             | 77 (36)                              | <0.001       |      |            |
| Sex with friends more than 10 times                           | 4 (18)                     | 2 (2)  | 10 (3)                               | 13 (6)                               | 0.003        |      |            |
| Thinking about sex almost all the time/all the time           | 5 (25)                     | 0 (0)  | 5 (15)                               | 19 (9)                               | <0.001       | 3.54 | 1.12–11.1  |
| More interested in sex compared with peers                    | 8 (40)                     | 7 (7)  | 9 (21)                               | 29 (12)                              | <0.001       | 2.72 | 1.01–7.34  |
| More interested in pornography compared with peers            | 5 (24)                     | 2 (1)  | 6 (13)                               | 24 (10)                              | <0.001       | 3.05 | 1.00–9.29  |
| Tried sexual acts seen in pornographic films                  | 25 (120)                   | 15 (18)                                      | 29 (83)                              | 40 (19)                              | 0.001        | 2.66 | 2.03–5.39  |
| I watch pornography<br>- more than I want to                  | 6 (29)                     | 5 (6)  | 4 (10)                               | 28 (13)                              | <0.001       |      |            |
| Pornography affects sexual behaviour<br>- my own<br>- others' | 9 (43)<br>19 (91)          | 2 (2)<br>19 (23)                             | 9 (27)<br>20 (57)                    | 30 (14)<br>21 (11)                   | <0.001<br>ns | 5.32 | 2.30–12.26 |

\*Chi square, Kruskal–Wallis and ANOVA tests; significance level  $p < 0.05$ ; ns, not significant.

\*\*Binary regression model; odds ratio (OR), 95% confidence interval (CI); factors associated with being a frequent user of pornography.

Among the girls, 54% (n=213) admitted to ever having watched pornography. The mean age for having searched actively for pornography was lower among boys than girls (12.3 years vs. 13.8 years,  $p<0.001$ ). Among the boys, 90% (n=419) consumed pornography compared with 30% (n=124) of the girls, although to a varied extent among both boys and girls ( $p<0.001$ ).

Among this group of pornography consumers of boys and girls, a higher percentage of boys compared with girls fantasised at least once a week (22% (n=92) vs. 9% (n=11),  $p<0.001$ ) about trying sexual acts inspired by pornography. There was no difference regarding what sexual acts boys and girls fantasised about (ns.) and an equal amount of boys and girls, around one-third, had attempted sexual activities inspired from pornography (ns).

Among this group of pornography consumers of boys and girls a higher proportion of boys compared with girls stated that they watched pornography more than they actually wanted (7% n=29 vs. 2% n=2,  $p<0.033$ ), whereas a higher proportion of girls stated that they watched pornography less than they wanted (6% n=24 vs. 12% n=14,  $p=0.019$ ).

Factor analysis was performed to examine patterns in the perceptions of pornography among boys and girls. Two factors emerged and explained 74% of the variance. Factor one described a positive and personal perception of pornography with statements such as “Pornography can be very arousing”, “You can learn a lot about sex by watching pornography” and “Pornography is a natural part of adolescent life”. Factor two described a negative and rejecting attitude toward pornography with statements such as “Pornography is disgusting”, “Pornography is a turn-off” and “Pornography can be addictive”. Perceptions of pornography were generally more positive among boys compared with girls ( $p<0.001$ ; for other examples, see Table 3). When comparing consumers to non-consumers, the perceptions of pornography were generally more positive among consumers, regardless of sex ( $p<0.001$ ).

Table 3. Perceptions of pornography among 16-year-old high school boys and girls.

| Item  | All<br>n (%) | Boys<br>n (%) | Girls<br>n (%) | p-<br>value* |
|---|--------------|---------------|----------------|--------------|
| Pornography can be very arous-<br>ing                     | n=526        | n=378         | n=148          |              |
| - Agree   | 473 (90)     | 356 (94)      | 117 (79)       |              |
| - Disagree  | 53 (10)      | 22 (6)        | 31 (21)        | <0.001       |
| Pornography is good for<br>masturbating                   | n=490        | n=358         | n=132          |              |
| - Agree   | 426 (87)     | 330 (92)      | 96 (72)        |              |
| - Disagree  | 64 (13)      | 27 (8)        | 37 (28)        | <0.001       |
| Pornography is degrading for<br>women                     | n=387        | n=255         | n=132          |              |
| - Agree   | 170 (44)     | 88 (35)       | 82 (62)        |              |
| - Disagree  | 217 (56)     | 166 (65)      | 51 (38)        | <0.001       |
| Pornography is degrading for<br>men                       | n=392        | n=265         | n=127          |              |
| - Agree   | 62 (16)      | 34 (13)       | 28 (22)        |              |
| - Disagree  | 330 (84)     | 230 (87)      | 100 (78)       | 0.022        |
| Boys and girls are equally inter-<br>ested in pornography | n=868        | n=472         | n=396          |              |
| - Yes   | 146 (17)     | 84 (18)       | 62 (16)        |              |
| - Boys more interested                                    | 713 (82)     | 378 (80)      | 335 (84)       |              |
| - Girls more interested                                   | 9 (1)        | 9 (2)         | 0 (0)          | 0.013        |
| Boys and girls are equally<br>interested in sex           | n=868        | n=474         | n=397          |              |
| - Yes   | 550 (63)     | 283 (60)      | 267 (67)       |              |
| - Boys more interested                                    | 311 (36)     | 182 (39)      | 129 (32)       |              |
| - Girls more interested                                   | 10 (1)       | 8 (2)         | 2 (1)          | 0.035        |

\* Chi-square test, Fisher's exact test, significance level;  $p < 0.05$ , ns; non-significant.

Overall, girls had more experience of oral sex (performed and received), intercourse and anal sex compared with boys. Almost twice as many girls reported experience of anal sex compared with boys. There were no differences in experience of one-night-stands, friends-with-benefits relationships or group sex (Table 4).

A higher proportion of boys, compared with girls, stated that boys are more interested in sex whereas a higher proportion of girls stated that boys and girls are equally interested in sex (Table 3).

Table 4. Sexual experience among 16-year-old high school boys (n=477) and girls (n=400).

| <b>Item</b>                         | <b>Total<br/>n (%)<br/>n=877</b> | <b>Boys<br/>n (%)<br/>n=477</b> | <b>Girls<br/>n (%)<br/>n=400</b> | <b>p-value*</b> |
|-------------------------------------|----------------------------------|---------------------------------|----------------------------------|-----------------|
| Oral sex (received)                 | 457 (53)                         | 225 (48)                        | 232 (58)                         | 0.001           |
| Oral sex (performed)                | 429 (49)                         | 202 (43)                        | 227 (57)                         | <0.001          |
| Intercourse                         | 530 (61)                         | 268 (57)                        | 262 (66)                         | 0.004           |
| Anal sex                            | 127 (15)                         | 50 (11)                         | 77 (19)                          | 0.001           |
| One-night-stand                     | 266 (31)                         | 147 (31)                        | 119 (30)                         | ns              |
| Friends-with-benefits relationships | 227 (26)                         | 122 (26)                        | 105 (26)                         | ns              |
| Group sex                           | 48 (5)                           | 32 (6)                          | 16 (4)                           | ns              |

\*Chi-square test:  $p < 0.05$ ; ns, not significant.

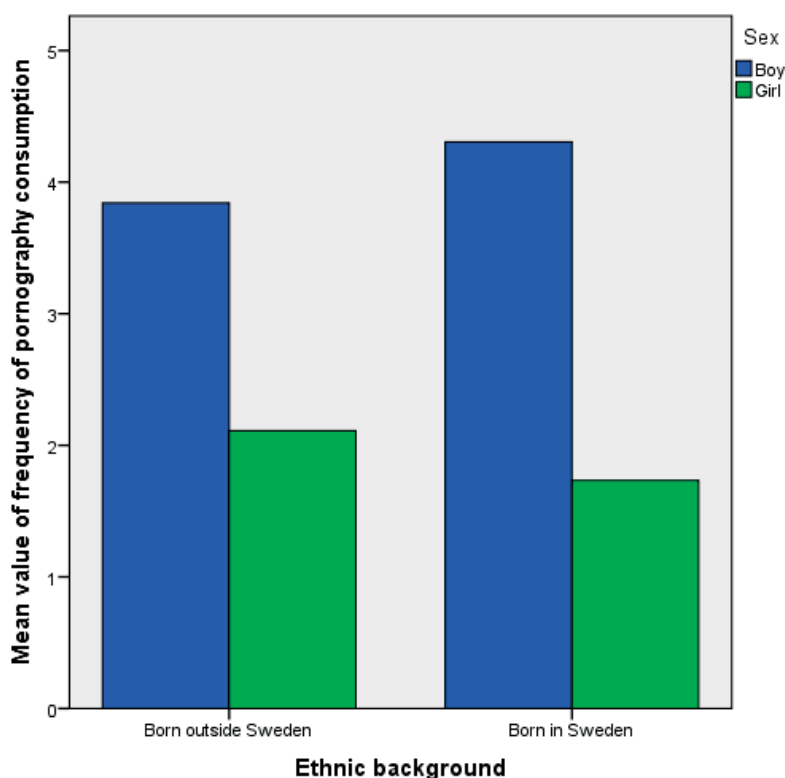
In general linear models, performed in a backward stepwise manner, omitting the non-significant variables according to the p-value order, the predictors were investigated in relation to a) sexual practices (oral sex, intercourse and anal sex) and b) casual sex (one-night-stands, friends-with-benefits relationships and group sex). In model a, the predictors for having experienced sexual practices were: being a girl, attending a vocational high school programme, living with separated parents, having experienced sexual abuse, stating that boys and girls are equally interested in sex and having a positive perception of pornography (Adj.  $R^2 = 0.166$ ).

In model b, the predictors for having experienced casual sex were: being a girl, attending a vocational high school programme, living with separated parents, having experienced sexual abuse, stating that boys and girls are equally interested in sex, frequent use of pornography (daily consumption), having a positive perception of boys having sex with many different partners, having a positive perception of agreeing to have sex when the partner wants it within a relationship, and a positive perception of pornography (Adj.  $R^2 = 0.145$ ).

## Paper IV

This was a longitudinal study. A GLM showed that the predictors of frequent use of pornography at follow-up were: being a boy, being born outside Sweden, living in a parent-owned dwelling, attending vocational high school programme and being a frequent user of pornography at baseline. There were several interaction effects; girls born outside Sweden had a higher consumption than did girls born in Sweden, whereas the opposite pattern was found among boys (Fig. 3). Boys had a more changing pattern of consumption compared with girls; that is, girls who had started watching pornography were more likely to retain their pattern and girls who did not watch pornography at baseline had not started to watch pornography at follow-up. Among boys, it was more common to change from infrequent use at baseline to frequent use at the follow-up.





*Figure 3.* The interaction between sex and ethnic background in association with frequent use of pornography.

GLMs were used to analyse frequency of pornography consumption in relation to psychosomatic and depressive symptoms. We found that being a girl, living with separated parents, attending a vocational high school programme and being a frequent user of pornography at baseline had main effects on psychosomatic symptoms at follow-up. There were several interaction effects. Among frequent users, there was a lower frequency of psychosomatic symptoms regardless of the high school programme. Participants with a changed frequency of pornography consumption, from frequent use at baseline to infrequent use at follow-up, had more psychosomatic symptoms than did those whose frequency did not change.

Being a girl and being an infrequent user of pornography at baseline had main effects on depressive symptoms at follow-up. There were several interaction effects. Boys and girls born outside Sweden reported more depressive symptoms compared with adolescents born in Sweden. Sex had interaction effects with frequent use of pornography at baseline. Girls with a frequent use of pornography at baseline reported more depressive symptoms at the follow-up.

# Discussion

The main findings of this thesis were that frequent use was associated with lifestyle problems, such as the use of alcohol and a sedentary lifestyle to a higher extent than with sexual experiences and physical symptoms. In the longitudinal analyses frequent use of pornography was more associated to psychosomatic symptoms compared with depressive symptoms. Predictors for frequent use of pornography at the age of 18 were: being a boy, being born outside Sweden, living in a parent-owned dwelling, attending a vocational high school programme, and being a frequent user of pornography at baseline (16 years). There were minor differences in sexual experiences between the male consumption groups. Furthermore, agreement with the statement that boys and girls have an equal interest in sex was a predictor for being sexually experienced, suggesting a gender-equal perception of sexuality among sexually experienced adolescents. Perceptions of pornography were generally more positive among boys than girls, although perceptions of pornography were generally more positive among consumers than nonconsumers, regardless of sex.

There were minor differences regarding sexual experiences between the consumption groups among the male participants. This is in contrast with other research where frequent users of pornography often have reported sexual experiences to a higher extent (62, 71, 98, 122). One explanation may be that the adolescents in this study were 16 years old and participants in other studies often are older. Another explanation may be that consuming pornography is common among almost all adolescent boys and the amount of pornography is not decisive for sexual experiences to the same extent that previous research has reported. This development will be important to follow over time.

A higher proportion of girls than boys were sexually experienced in oral sex, intercourse and anal sex, consistent with previous research in the Nordic countries (65, 67, 71, 123). The mean age of first intercourse was lower among girls than boys. By the age of 16, more than half of the boys and girls in Sweden have experienced vaginal intercourse (62, 64, 65). A previous study confirmed that girls tend to have older partners (123). This may be a natural reflection of the biological differences between boys and girls, as researchers report that boys are approximately two years younger in maturity

than same-aged girls due to the effect of testosterone on the male brain (124, 125). This may be one reason why boys have a higher mean age of first intercourse.

One of the predictors for having experienced sexual practices (oral sex, intercourse, anal sex) was being female. Twice the proportion of girls had experienced anal sex. There were no differences between boys and girls regarding the experience of casual sex (friends-with-benefits relationships, one-night-stands, or group sex). This may indicate that these adolescents experienced sexual practices with other partners than same-aged peers. It is possible that the girls practiced sex with older boys, which could confirm the biological differences (124). One reason why boys and girls were equally experienced regarding casual sex could be that these adolescents mainly have sex within steady relationship or that, among peers the attitude toward girls having sex with many partners was mainly negative, which may have contributed to a reluctance among the participating girls to report experience of casual sex.

Humans are sexual beings during their entire lifespan. In different phases of life there may be demanding changes and sexual development markers to be achieved if sexual health is to be accomplished or preserved. The phases of sexual development are a human developmental process involving biological and behavioural mechanisms (12, 14, 126). Sex has always been of curiosity for young people (11-13). The Nordic countries have a history of being more accepting of adolescent sexuality than several other Western industrialized countries, and are often considered to represent liberated cultures (123, 127, 128). One study of a group of young adults found that only age at first exposure to pornography predicted sexual risk-taking among both women and men. The findings did not support the idea that pornography use alone causes sexual risk-taking in young adults, but suggest that early exposure to sexually explicit material, together with being a high sexual sensation seeker, are additive risk factors for sexual risk-taking (129).

There is, however, criticism that previous research about sexuality has been dominated by a discourse of threats and danger focused mostly on risk-taking behaviour in relation to sexuality. Recently, health scientists have become interested in the positive aspects of sexual health, and it is reported that sexual health is a crucial part of general well-being (52). Sexual activity among teenagers may be a source of physical and mental suffering if it is forced, or leads to unwanted pregnancies, STIs, social isolation or stigma. On the other hand, it can also be a source of pleasure, contentment and development. Additional research is requested to understand the specific individual, relational and social circumstances under which sexual exploration plays a positive role in adolescent development (130). It is also important to

acknowledge the dramatic hormonal changes affecting the adolescent body and brain (124, 125), which have a major impact on behaviour such as striving to find a partner (55).

Every third participant had experience of one-night-stand and every fourth participant had experience of friends-with-benefits-relationships, with no differences between boys and girls. This can be referred to as casual sex (51, 131, 132). The attitude towards casual sex among the public in Sweden has become more permissive. The percentage of adolescents and young adults who have had intercourse on the “first night” has risen during the last decade (51). Simultaneously, the use of condom when having a new partner has decreased (51, 64). Sweden has high rates of reported Chlamydia Trachomatis infections, with one-third of cases during 2013 occurring in adolescents aged 15–19 years (49). This means a significant cost for society as well as individual suffering and possible long-term health consequences. There are also higher rates of abortion in Sweden than in other Nordic countries and countries in Western Europe (48, 133). It is therefore not surprising that public health research focuses on risks related to sexual behaviour. Nevertheless, it is interesting to consider why adolescent sexuality is mainly considered as a risk in health research. Negative focus may be frightening for young people and may not respond to their need for information and skills and sometimes has no relevance to their lives (22). It may be wise to emphasize both positive and negative aspects of sexuality to obtain well-balanced and nuanced information that will assist adolescents to make informed and empowered decisions based on individual choices and values. One important context for this could be SRE in school. There is no reason to believe that talking about positive aspects of sex will lead to sexual risk-taking. Aspects that should be included are, for example, sexual contentment, sexual self-efficacy, sexual self-esteem, sexual pleasure and sexual identity. Talking about these perspectives together with the negative outcomes may make it easier to deliver messages such as prevention of STIs, HIV, unwanted pregnancies and the importance of shared consent. In this way, a holistic perspective of sexuality can be presented and discussed, in accordance with WHO recommendations (1, 22).

Almost no male participants had ever discussed pornography with an adult. Among those participants that had discussed pornography, male friends were most often mentioned, follow by partners and female friends were rated as the third most common interlocutor. Because of technological developments, it has never been easier to search for information and knowledge about sex. Adolescents seek web pages where they can easily ask questions and find answers in plain language (27-29). The national online youth friendly clinic (umo.se) has 500.000 visitors every month, which emphasizes the need for adequate and reliable information about sexuality directed to adolescents and

young adults. The young generation of new technology users has not yet reached adulthood, and they need to develop their own strategies to deal with all the messages that overwhelm them every day. These young people are digital natives and are now expected to interact and communicate with older generations that could be seen as digital immigrants (43). This could inhibit the possibility of communication between adolescents and personnel working with adolescents. Almost 90% of the 11-year-olds in Sweden use the Internet daily and almost all Swedish children have access to the Internet through smartphones (41), which enables access to pornographic web sites. However, it is not necessary for personnel to become experts in the field of pornography to be able to support and help adolescents in need. The most important aspect is to be able to talk about and discuss the consequences unequal messages about sexuality may have and how they may be a part of the process of adolescent sexuality development. To allow personnel working with adolescents to take on this important role, they need education and relevant methodological tools based on scientific research and adequate resources. They also need to reflect on their personal norms and values, and on adolescent norms and values (101, 102), in both social (61, 109, 110) and biological (55, 56, 58, 59) regards. This should be part of the curriculum for teachers and for health-care personnel who meet and counsel adolescents.

Boys had generally more positive perception of pornography compared with girls. However, among consumers perception of pornography was generally more positive compared with nonconsumers, regardless of sex. In this group, we found no differences between girls and boys regarding fantasies about trying pornography-inspired sexual acts, or actually having tried them, and similar numbers of boys and girls stated that pornography affected their own sexual behaviour to a large extent. This implies that boys and girls who watch pornography have similar thoughts and are affected by pornography to the same extent. Furthermore, girls with frequent use at baseline kept their pattern of pornography use to a higher extent compared to frequent male users at baseline implying that among girls the patterns of pornography use is more stable over time. This is further supported as male infrequent users at baseline stated frequent use of pornography to a higher extent at follow up, while female infrequent users remained infrequent to a higher extent.

The pornography business is a global multi-billion dollar industry (96). This of course implies a great interest in pornography and an enormous customer base. Previous research has reported that, generally, boys are positive and girls are negative towards pornography (106, 134, 135). There are probably many reasons why girls are less positive towards pornography than boys. One reason could be that society has expectations that boys should consume pornography and like it, whereas girls are expected to reject pornography and consider it negative (136). Even though watching pornography is more

common among boys (66, 71, 107, 137), it is important not to be judgemental about girls (and boys) who appreciate pornography. Just over every tenth girl in the pornography consuming group, stated less use of pornography than wanted. It may not be as socially acceptable for girls to watch pornography; such norms could prevent girls from being open about their interest in it and create views that female adolescents should reject pornography and consider it as negative.

Sexual acts in pornography may be a reality that some boys and girls recognize and some do not. One possible reason why some adolescents are positive towards pornography is that they may have developed the skills to handle messages conveyed from a fictional world (102, 105, 136) and to watch pornography with a critical approach without feeling pressured by it. On the other hand, one-third of frequent male users stated they watched pornography more than they wanted. Apart from social expectations about having to be negative towards pornography, it cannot be denied that some adolescents are addicted to watching pornography. In one study of young Swedish men and women, frequent use of pornography was associated with problematic Internet sex use (138). It is important that the development of such use of pornography among adolescents is followed over time, and we suggest that youth centres should be equipped to handle adolescents who consider themselves to “over-consume” pornography.

Every tenth male participant reported constant headache, every seventh reported constantly feeling stressed and every fifth reported constant insomnia. There were no differences between the pornography consumption groups on these variables. Among the 16-year-old boys, there were no differences between frequent and average or nonfrequent pornography users in reported depressive symptoms, even though 11% of all boys reported depressive symptoms. Frequent use of pornography at baseline predicted psychosomatic symptoms at follow-up to a higher extent than depressive symptoms. Furthermore, being a girl and being a frequent user of pornography at baseline had main effects on psychosomatic symptoms at follow-up. The mental health of Swedish adolescents is moving in an unfavourable direction (83) and just over one-third of teenage girls and one in seven boys reported depressive symptoms (84). Psychosomatic symptoms in adolescence might be important indicators of mental health problems and should be taken seriously in school health care and general primary care (82, 85). Headaches, stress and insomnia could also be a part of deprived mental health. There are, of course, many factors that shape and affect mental health among adolescents today. Some concerns have been raised that pornography consumption is affecting public health (139, 140) and individuals watching sexually explicit material reported more depressive symptoms and mentally diminished days (139). Our results partly confirm these earlier findings even though the rela-

tionship between psychosomatic symptoms and frequent use of pornography remains unclear. Further studies are needed to evaluate how pornography consumption over time may affect psychological and psychosomatic symptoms.

Male frequent users of pornography more often reported peer-relationship problems than their peers. The Social Model of Health (111) indicates that health inequalities are preventable, and identifies unfair differences in health status between populations, groups and individuals. The Model is described according to different layers that influence health. One layer consists of lifestyle factors, such as use of alcohol, eating habits, physical activity and sexual habits and relationships. Another layer represents structural factors that could affect our health. The choices of the individual in this layer could either promote or negatively influence health. Support from family, friends and social networks may positively affect health outcomes, but lack of support may have a negative impact on the individual's health (111, 141). These social determinants may be described in terms of threatening health, promoting health and protecting health (111). Belongingness appears to have several and strong effects on emotional patterns and on cognitive processes. Absence of attachments is related to a diversity of ill effects on health, adjustment, and well-being (141). If peer-relationship problems are present in life, a natural solution may be to spend time at the computer, where it is easy to make contact with people from all over the world without having to face them but still be able to interact with other people. By spending more time at the computer, it may also be easier to come into contact with pornographic web sites. It is impossible to analyse whether peer-relationship problems lead to more extensive Internet use and thereby frequent use of pornography, or if spending a lot of time at the computer leads to peer-relationship problems, perhaps by leaving less time for meeting peers in person. Adolescents with few friends may have less chance to acquire social skills which may lead to difficulties in relating to others. This often preserves isolation and it is understandable that the cyber world could offer a sanctuary for individuals with peer-relationship problems.

Male frequent users spent a considerably greater amount of time at the computer, reported use of alcohol last 12 months to a higher extent and were twice as likely to report obesity compared with peers. In the whole group of participating boys, 21% reported being overweight or obese. Awareness of the sedentary lifestyle many adolescents are developing is important (79, 80), and previous research has reported secondary diseases due to being overweight or obese (77, 88, 142). WHO considers that childhood overweight and obesity have reached epidemic proportions in most Western countries (86) and it is alarming that overweight/obesity is already so frequent among 16-year-old boys. The relationship between pornography con-

sumption and overweight or obesity is still unknown, but it is unlikely that pornography consumption in itself leads to this physical state. Nevertheless, it is important to follow this factor over time, as a sedentary lifestyle may create health problems in a long-term perspective.

Almost 90% of participants considered girls having many different sex partners negatively, and just over half considered boys having many different sex partners negatively. Approximately 75% of the boys stated that a partner should agree to sex within a relationship, while the corresponding proportion for girls was 26%. A higher proportion of girls stated that girls and boys are equally interested in sex, and stated that boys are more interested in pornography than girls. Furthermore, a similar proportion of boys and girls stated that boys and girls have an equal need for sex and tenderness. According to Simon and Gagnon (60, 61), there are sexual scripts that individuals in society relate to in sexual situations. These scripts are likely to be different for boys and girls, as attitudes towards sexuality in girls are not as positive as attitudes towards sexuality in boys. In the sexual script society, culture, position, religion, relationship and individuality are present.

Connell (110) indicates that differences in sexuality are often explained by factors such as bodily functions, sexual desire, and character, and that gender is a multidimensional social structure combining identity, work, power and sexuality. Gender involves much more than one-to-one relationships between bodies; it involves a vast and complicated institutional and cultural order. Connell claims that there is no obvious biological foundation for explaining gender differences and those reproductive differences are created by social behaviour in an arena where our bodies are used in social processes.

None of the sex differences yet revealed applies to every individual. This means that generalization about a sex will always be incorrect for many individuals. Expressions such as “suitable role” or a “natural place” are scientifically pointless and give no foundation for limiting freedom (55). The process of reaching sexual maturity lasts through an entire lifespan. It is influenced by biological maturing and aging, and by development through the socially defined stages of childhood, youth, adulthood and old age. It is also shaped through relationships with others, including family members, friends and intimate partners. These forces form gender and sexual identities, sexual attitudes and sexual behaviour among individuals (12). It is, of course, impossible to investigate how biology, society, culture and religion each contribute to shape individuals’ sexuality, but it is most likely that sexuality is shaped by all aspects. It is also likely that different aspects have different effects for different individuals. Pornography will presumably play a large part in the shaping of sexuality for many individuals in the current young generation, since many consume pornography regularly during their adolescent years.



The core category that emerged from the analysis of the focus group discussions was that messages in pornography conveyed contradictory messages about sexuality; the participants indicated that traditional gender roles create different ways for women and men to express sexuality. Different unspoken norms and ideals shape the way boys and girls are allowed to experience their sexuality (12, 101-103). The effects of social influence on sexuality are important, especially specific attitudes that define particular behaviours as acceptable or unacceptable (12). Simon and Gagnon's sexual script theory proposes different levels of interplay in any sexual situation (60, 61). Sexuality is not only biologically determined but is also created in interactions with others and with society. Pornography plays an important role for many adolescents (143), who also see it as a common source of information and inspiration about sex (99, 100). The previously described social influences, unspoken norms and ideals on how boys and girls are allowed to experience their sexuality may inhibit the way they would like to express their sexuality, without prejudiced and external expectations. Considering how common pornography consumption is among adolescents, it is impossible to ignore the likelihood that expressions of sexuality in pornography will contribute to the creation of norms about how boys and girls should interact and behave in sexual acts and what their physical appearance should be. One problem may be that even though consumers do not have the perspective that women are being portrayed in a subordinate position purely for male pleasure, these messages may affect the consumer anyway.

There was a trend towards a higher proportion of male frequent users watching violent pornography, and a higher proportion watched pornography featuring BDSM. Furthermore, a higher proportion of frequent users than average and infrequent users had never discussed pornography. There are some concerns that pornography consumption alters attitudes to being more tolerant to violence against women (95, 144, 145). This, of course, is alarming, even though no relationship between pornography consumption and positive attitudes towards violence against women has been established. Other researchers did not find any association between pornography consumption and negative attitudes towards women (146, 147). However, it is of concern that a group of 16-year-old male adolescents watch violent pornography without discussing the content with anyone. Even though no directionality between watching pornography and a more tolerant attitude towards violence against women has been demonstrated, it is very important that this aspect is brought up for discussion. The Swedish Discrimination Act (46) clearly states that every person has equal rights, regardless of sex, transgender identity or expression, ethnicity, religion or other belief, disability, sexual orientation or age. The message conveyed in violent pornography is the exact opposite to that expressed in the Discrimination Act. Gender equality issues

should be included in the school curriculum, preferably before high school, because the mean age when the male participants first started to search for pornography was 12 years (96, 99, 134). By the time discussions about the messages that pornography conveys start in the mid-teens, many male adolescents will already have been consuming pornography for several years. Parents also need to be informed and aware that it is common to consume pornography during adolescence and that some adolescents consume rather advanced forms of pornography, such as pornography featuring violence and BDSM.

The directionality of the relationship between use of pornography as an adolescent and its associations with sexual experiences, lifestyles, health and perceptions of sexuality and pornography later in adulthood may be hard to establish. Nevertheless, the findings in this thesis imply that it is crucial to follow development over time to discover the possible negative and positive outcomes of frequent use of pornography that are not yet known or established.

## Strengths and limitations

This thesis has strengths and limitations. In the focus group discussions, different professions were represented to allow a broad perspective on how messages in pornography may affect adolescent sexuality and relationships. To broaden the selection of participants and to increase transferability, trustworthiness and credibility, the participants were recruited from different workplaces and different cities. Each group discussion was carefully transcribed, read, and independently analysed and subcategorized. Before each new discussion, the need to revise the topic guide to ensure that new angles and topics were covered was evaluated, resulting in a constant comparison technique. Many of the professionals who were invited to take part in the qualitative study chose not to participate, and therefore the participants may have been more interested and positive than non-participants in talking and discussing how pornographic messages may affect adolescents. Another bias is that the group consisted mainly of women. However, this reflects the situation in Sweden, where women are over-represented in the school environment and among midwives who work with adolescents. To secure dependability and credibility, three researchers analysed the data independently. This decreased the risk of skewing data with bias from the co-researchers.

We were able to recruit a large sample of participants in studies II and III. One of the strengths was that the participating high school classes were randomly selected from different schools in middle-sized and one small town. Thus, we believe that the sample was representative of medium and small

towns in Sweden, and could be generalized to all Swedish adolescents. Almost all teenagers in Sweden have access to the Internet after school, and therefore possible access to pornographic web sites.

Sexuality could be a sensitive topic to investigate. It is crucial to create a safe atmosphere when asking adolescents to participate in such surveys. It was emphasized in all classes that participation was voluntary and that it was possible to either leave the classroom or merely pretend to fill in the questionnaire. The desks were separated to create a feeling of privacy. The aim of the project was presented in each class and every adolescent received an accompanying letter explaining the research project. The letter included the research group's contact information. Even though the participants were introduced to the project leader, they may have felt insecure giving personal information to a stranger. To reduce this feeling of insecurity the participants were asked to insert the questionnaire in an envelope and seal it before handing it to the researchers. It is possible that some students were hesitant about answering some questions in the school setting. It is also possible that they found it difficult to decline participation in front of university representatives, because such people could be regarded as authorities and create feelings of insecurity among the adolescents. It was crucial that all participants understood why this research was being conducted and how they were contributing, while at the same time knowing that participation was voluntary.

The questionnaire consisted of questions from validated instruments together with study specific questions. Even if a test-retest is performed, it is more difficult to generalize study-specific questions, as external validity is hard to assess. When using a self-reporting questionnaire, the reliability of the answers should always be considered. However, a test-retest evaluation of the questionnaire in a similar study group was used with an acceptable degree of correlation between the two sets of results. Both questionnaires were quite extensive in their design, and some students may have been fed up or tired by the end of the questionnaire. However, the internal drop-out rate was low (1–5%), with no differences between the beginning and the end of the questionnaires.

Fewer girls than in other studies reported ever having consumed pornography. This could be either a genuine aberration or caused by reluctance to report pornography consumption, because students were requested to mark the questionnaire with a personal identification number. Approximately 22% of the students were absent at baseline and 26% were absent at follow-up. We had no opportunity to perform a non-response analysis on the absent students, but previous research has reported that absent students are often more troubled (148), and it is likely that there were girls (and boys) who had consumed pornography in the absent group.

Recall bias cannot be excluded, as the participants were asked about experiences that could have happened years ago. However, external validity was strengthened by comparing some of our study results to other scientific findings.

The last study had a longitudinal design with two data collections, which enabled longitudinal analyses as advocated in the literature. Both boys and girls participated in the study, and the analyses were adjusted for sex; firstly to avoid sex biases and secondly to investigate interactions of sex, which enabled possibilities to draw conclusions based on sex differences. Knowledge about the patterns of pornography consumption among girls is limited; this study contributes to increasing that knowledge. However, because the participation rate was low for male participants (48%) and fair for female participants (63%), there is a higher insecurity of error when generalizing the results for boys.

## Conclusion and implications

This thesis describes and analyses different perspectives of pornography consumption among adolescents. Some aspects need to be followed over time. Personnel working with adolescents believe sexuality has become coarser, with stereotyped traditional gender roles creating performance anxiety. At the same time, pornography is used as a source of information and stimulation among adolescents, which could create false expectations of what sexual acts should include. Almost all of the boys and more than half of the girls had consumed pornography. Predictors for frequent use of pornography were: being a boy, being born outside Sweden, living in a parent-owned dwelling, attending a vocational high school programme, and being a frequent user of pornography at baseline. There were minor differences in sexual experiences between the male consumption groups. Frequent use was associated with lifestyle problems, such as the use of alcohol and a sedentary lifestyle to a higher extent than with sexual experiences and physical symptoms. In the longitudinal analyses frequent use of pornography was more associated to psychosomatic symptoms compared with depressive symptoms. Furthermore, a higher proportion of frequent users reported peer-relationship problems. When comparing pornography-consuming boys and girls we found no differences regarding fantasies about trying sexual acts observed in pornography or sexual acts inspired by pornography. Regardless of sex, perceptions of pornography were generally more positive among consumers than non-consumers. However, when comparing all girls and boys, boys were generally more positive about pornography. Girls had more sexual experience than boys in oral sex, intercourse and anal sex. Casual sex

(one-night-stands, friends-with-benefits relationships and group sex) was equally common among boys and girls. A positive perception of pornography predicted sexual experience. A higher proportion of girls than boys had experience of sexual abuse. Being a frequent user at baseline predicted frequent use of pornography at follow-up. Frequent use of pornography was more highly associated with psychosomatic symptoms than with depressive symptoms.

These results imply that almost all adolescents are affected by messages and ideals conveyed by pornography, voluntarily or involuntarily, to a varied extent. This is of relevance to midwives, as aspects of sexual health, as well as other health problems, among adolescents are important parts of the profession. Many midwives meet adolescents in their daily work and these results may help to increase the understanding of how use of pornography is associated with sexual experiences, lifestyles, health and perceptions of sexuality and pornography. Increased knowledge and better understanding could form a base for discussing pornography with adolescents.

There are also many other professionals working with adolescents, as well as parents and adults involved in adolescents' leisure time, who could use these results to increase their understanding and knowledge about adolescents' use of different media channels. SRE in schools needs to be holistic, age-appropriate and embedded as a crucial part of the daily curriculum. SRE should be a continuous subject, rather than being restricted to a thematic day once a year. It is also crucial that the professionals' own norms, beliefs and personal attitudes are set aside when addressing adolescents on issues regarding sexuality and relationships.

As teachers are responsible for SRE in school, they should have SRE embedded in their own education. Adequate tools and methodological materials are requirements for high-quality SRE. It is not likely that access to pornography will decrease, and therefore it will be even more urgent to recognize the need to discuss pornography to help adolescents remain with a critical approach when they come in contact with it. Empowering girls and boys to help them make healthy choices based on their own preferences rather than on external expectations will probably enhance their capability of achieving a critical approach.

We suggest that school health and youth centres co-operate regularly regarding SRE in school settings to allow different aspects to be covered. Different professions have different expertise, and adolescents could benefit from meeting various professionals who can inform, discuss with and counsel them about sexuality and relationships. Issues about sexuality are likely to be considered private by many adolescents, and some may be reluctant to share

thoughts and questions with teachers they meet every day. The use of appropriate personnel at youth centres may make it easier for some adolescents to ask questions and be open about sensitive perspectives such as sexual techniques, sexual identities and questions about the body.

## Future studies

The digital society is developing rapidly. New technical devices that allow constant access to the Internet are frequently launched. This causes effects and creates possibilities that may be hard to predict. The development of pornographic web sites allows anyone to easily come into contact with pornographic content, both voluntarily and involuntarily. It is still a rather new phenomenon, and the generation that is now growing up has consumed pornography in a way that was not experienced by previous generations. Existing research describes associations between extensive use of pornography and sexual experiences and perceptions, mostly among male consumers. This research often has a cross-sectional design, and the literature requests longitudinal research. Longitudinal research provides the opportunity to follow development over time to measure how extensive pornography consumption may affect not only sexual experiences and perceptions of sexuality, but also physical and psychological health and the perception of equality between genders. It is also important to include adolescent girls, as many of them also consume pornography, although to a lesser extent than boys. However, more than half of all teenage girls have consumed pornography, and it would be a mistake to leave them out of future research by assuming there will be fewer associations between pornography consumption and sexual experiences, lifestyles, health, perceptions of sexuality and pornography, and gender equality issues among girls.

Future studies need to focus on longitudinal designs, preferably beginning in the early teens with recurrent studies following development over time. This may help us to understand how extensive pornography consumption among adolescent boys and girls affects lifestyles, physical and psychological health, and the perception of sexuality and gender equality issues. It is also important to conduct interviews with adolescents to deepen our understanding of their experiences of pornography in relation to sexual behaviour and relationships. Furthermore, new interviews with different categories of personnel working with adolescents would be beneficial to increase our understanding about their role in addressing pornography, sexuality and gender equality issues with adolescents.

## Svensk sammanfattning (Summary in Swedish)

Det övergripande syftet med avhandlingen var att undersöka pornografikonsumtion i relation till sexuella erfarenheter, livsstilsfaktorer, hälsa och inställning till sexualitet och pornografi. Fyra delstudier ingår i avhandlingen, en kvalitativ studie (fokusgruppdiskussioner) och tre kvantitativa (prospektiv kohortstudie inkluderande två datainsamlingar) studier.

Pornografin har genom den digitala utvecklingen blivit lättillgänglig och billig att konsumera. Det har även medfört möjligheter att förbli anonym som pornografikonsument. Nästan alla 11-åringar i Sverige idag har tillgång till internet och 90% använder internet dagligen. Flera studier visar att nästan alla tonårspojkar och merparten av tonårsflickor konsumerar pornografi. Forskning har visat att manliga högkonsumenter av pornografi, de som konsumerar varje vecka, i större utsträckning har sexuella erfarenheter, dricker alkohol och använder tobak i större utsträckning. Vidare visar forskning att manliga högkonsumenter i högre utsträckning anger pornografi som inspirationskälla till egna sexuella erfarenheter. Det finns begränsad forskning avseende pornografikonsumtion och samband med livsstilsfaktorer, hälsa samt inställning till sexualitet och pornografi bland pojkar och flickor. Longitudinella studier är efterfrågat. Det finns även mycket begränsad forskning om flickors pornografikonsumtion. Detta projekt fyller delar av den kunskapsluckan.

I delstudie I intervjuades personal som arbetar med ungdomar dagligen (14 kvinnor och 3 män) i fokusgrupper. Barnmorskor, läkare, kuratorer, skolsköterskor, sjuksköterskor och lärare deltog. Deltagarna diskuterade hur de upplevde att pornografins budskap påverkar ungdomars sexuella erfarenheter och relationer. Fokusgruppdiskussionerna analyserades med hjälp av Grounded Theory då det är en lämplig metod när samhällsprocesser ska beskrivas samt samspelet mellan individer och mellan individ och samhället. Personalens huvudbudskap var att ungdomar får paradoxala budskap om sexualitet där budskapen om sexualitet i pornografi är ojämförbara med en överordnad man och en underordnad kvinna. De budskapen står i kontrast mot lagar och förordningar (Diskrimineringslagen SFS 2008:567) där allas lika värde oavsett kön, könsöverskridande identitet eller uttryck, etnisk till-

hörighet, religion eller annan trosuppfattning, funktionshinder, sexuell läggning eller ålder betonas.

Vidare uppgav deltagarna att pornografi används som teoretisk information och sexuell stimulans bland ungdomar. Genusstereotypa könsroller bekräftas vilket medför olika villkor för att uttrycka sexualitet för pojkar och flickor. Budskapen medför en råare sexualitet med prestationsångest som följd, både gällande förväntningar i den sexuella situationen men även beträffande utseende och kroppsideal. Deltagarna betonade vikten av ett professionellt bemötande med hänsyn till grupp, klass och individ. Metoderna anpassades utifrån behov och det var viktigt att fånga upp spontana samtal i korridor, väntrum eller efter lektion. Deltagarna efterfrågade relevanta utbildningsinsatser och utbildningsmaterial för att kunna genomföra sex och samlevnadsundervisning och rådgivning med hög kvalitet.

I delstudie II och III deltog 477 pojkar och 400 flickor i första året på gymnasiet (medelålder 16.6 år). I delstudie II framkom att 10% av pojkarna var högskonsumenter (konsumtion varje dag), 63% medelkonsumenter (konsumtion varje vecka/några gånger per månad) och 27% (konsumtion mer sällan). Bland högkonsumenterna rapporterades kompissex, alkoholbruk, kamratproblematik och fetma i högre utsträckning. Högkonsumenterna spenderade 10 timmar i sträck vid datorn flera gånger i veckan i högre utsträckning än medel och lågkonsumenter. Bland alla deltagande pojkar uppgav nästan var tionde pojke ständig huvudvärk, var sjunde pojke ständig stress och var femte pojke ständiga svårigheter att sova. Var tionde pojke uppgav depressiva symtom och var femte pojke uppgav ADHD symtom. Det fanns inga skillnader i fysisk eller psykisk hälsa mellan konsumtionsgrupperna.

Nästan 40% av högkonsumenterna hade aldrig diskuterat pornografi med någon annan och av de som hade diskuterat pornografi var killkompisar följt av partners och tjejkompisar de vanligaste att samtala med om pornografi. En högre andel högkonsumenter uppgav att de tänkte på sex hela tiden och det var tre gånger högre odds för en högkonsument att uppges mer intresserad av pornografi än jämnåriga kamrater. En tredjedel av högkonsumenterna uppgav att de tittade på pornografi mer än de själva ville. De tre vanligaste genren som pojkarna tittade på var mjukpornografi, hårdpornografi samt lesbisk pornografi. En högre andel högkonsumenter tittade dessutom på våldspornografi och BDSM.

Bland flickorna uppgav 54% att de någon gång konsumerat pornografi. Medelåldern bland pojkar var lägre avseende första gången de sökt pornografi själva aktivt (12.3 år resp. 13.8 år för flickor). Bland pojkarna uppgav 90% att de tittade på pornografi i jämförelse med 30% av flickorna. I gruppen



pornografikonsumenter fantiserade pojkarna om att prova sexuella handlingar de sett i pornografi i större utsträckning än flickorna. Däremot fanns ingen skillnad avseende vilka sexuella fantasier pojkarna och flickorna hade, eller att ha provat sexuella handlingar inspirerat från pornografi. En högre andel pojkar uppgav att de tittade mer på pornografi än de ville medan en högre andel flickor uppgav att de tittade mindre på pornografi än de ville. En lika stor andel pojkar och flickor i konsumtionsgruppen uppgav att pornografi påverkar deras sexuella beteende i hög utsträckning. Av alla pojkar och flickor i studien, var pojkar generellt mer positivt inställda till pornografi än flickor medan konsumenter var positiva i högre utsträckning än icke konsumenter, oavsett kön.

Nästan alla pojkar (96%) och de flesta flickor (90%) definierade sig själva som heterosexuella. Nästan 70% av flickorna hade erfarenhet av samlag medan motsvarande siffra bland pojkarna var 57%. En högre andel av flickorna hade även erfarenhet av oralsex och dubbelt så många flickor som pojkar hade erfarenhet av analsex. Erfarenhet av one-night-stand, kompissex och gruppsex var lika mellan pojkar och flickor. För att studera faktorer av betydelse för att vara sexuellt erfaren gjordes två index som analyserades i general linear models. Ett index innehöll oralsex, samlag och analsex och namngavs "sexual practices". Det andra indexet innehöll one-night-stand, kompissex och gruppsex och namngavs "casual sex". I resultatet framkom att vara flicka, gå på praktiskt gymnasieprogram, bo med skilda föräldrar, ha erfarenhet av sexuella övergrepp, ha åsikten att pojkar och flickor är lika intresserade av sex samt ha en positiv inställning till pornografi var faktorer av betydelse för ha erfarenhet av oralsex, samlag och analsex. Faktorer av betydelse för erfarenhet av "casual sex" var förutom ovan beskrivna faktorer; högkonsumtion av pornografi, samt positiv inställning till att partner bör ställa upp på sex när den andra vill i en relation.

I den uppföljande studien två år senare då deltagarna var 18 år gamla, var syftet att analysera faktorer av betydelse för att vara en högkonsument av pornografi över tid, samt vilken betydelse pornografikonsumtion har för psykosomatiska samt depressiva symtom vid uppföljningen. I resultatet framkom att vara pojke, vara född utanför Sverige, gå på praktiskt gymnasieprogram och uppge högkonsumtion vid första mätningen var faktorer av betydelse för högkonsumtion av pornografi vid mätning två. Dessutom fann vi flera interaktionseffekter; flickor som var födda utanför Sverige rapporterade högre konsumtion än flickor födda i Sverige medan det motsatta mönstret fanns hos pojkarna. Pojkarna hade ett mer föränderligt konsumtionsmönster, det vill säga, flickor som uppgav pornografikonsumtion vid mätning ett behöll sitt konsumtionsmönster medan flickor som inte hade börjat titta på pornografi vid mätning ett hade heller inte börjat konsumera pornografi vid mätning två. Bland pojkarna var det mer vanligt att ändra från icke

konsumtion vid mätning ett till att ha påbörjat konsumtion vid mätning två, och tvärtom.

Avseende psykosomatiska symtom framkom det att vara flicka, bo med skilda föräldrar, gå på praktiskt gymnasieprogram, och uppges högkonsumtion vid mätning ett var faktorer av betydelse för psykosomatiska symtom vid den uppföljande mätningen. Det fanns flera interaktionseffekter; det var lägre grad av psykosomatiska symtom bland högkonsumenter, oavsett gymnasieprogram och deltagare med ett förändrat konsumtionsmönster, från högkonsumtion vid mätning ett till ickekonsumtion vid mätning två uppgav fler psykosomatiska symtom än de deltagare som inte förändrade sitt konsumtionsmönster på det viset.

Avseende depressiva symtom framkom det i resultatet att vara flicka och uppges lågkonsumtion vid mätning ett var faktorer av betydelse vid uppföljande mätning. Det fanns flera interaktions effekter; pojkar och flickor födda utanför Sverige uppgav depressiva symtom i högre utsträckning än pojkar och flickor födda i Sverige. Högkonsumerande flickor vid mätning ett uppgav depressiva symtom i högre utsträckning vid uppföljande mätning.

Avhandlingsarbetet visar att pornografi har blivit en del av många ungdomars vardagsliv. De flesta pojkar samt merparten av flickor har konsumerat pornografi någon gång under tonåren. Högkonsumenterna av pornografi fanns mestadels bland pojkar och de redovisade något fler sexuella erfarenheter, en mer riskfylld livsstil såsom alkoholkonsumtion, stillasittande livsstil samt psykosomatiska symtom i högre utsträckning i jämförelse med fysiska symtom även fast fetma var mer vanligt förekommande bland högkonsumenter. Det är troligt att pornografi kommer att fortsätta vara fullt tillgängligt och det är av största vikt att erbjuda ungdomar olika arenor där de kan diskutera pornografi med andra vuxna som kan erbjuda en motbild till den låtsasvärld som pornografien visar upp. Det är också av största vikt att ge ungdomar kunskap och information och öka medvetenheten avseende mediebudskap vilket kan stärka ungdomars möjlighet att göra informerade val baserat på egna behov och möjligheter istället för utomstående förväntningar.

Barnmorskor arbetar med olika aspekter av sexuell och reproduktiv hälsa såväl som med andra hälsoproblem bland ungdomar. Många barnmorskor träffar ungdomar i sitt dagliga arbete och resultaten kan underlätta förståelsen för relationen mellan pornografikonsumtion och sexuella erfarenheter, livsstilsfaktorer, hälsa samt inställning till sexualitet och pornografi. Utökad kunskap och bättre förståelse kan utgöra en bas för diskussioner med ungdomar.

Vi föreslår att elevhälsa, skola och ungdomsmottagningar fördjupar sitt samarbete avseende sex och samlevnadsundervisning i skolan. Olika yrkesgrupper har olika expertkunskaper och genom samarbete kan ungdomar få ta del av olika perspektiv. Frågor och funderingar kring sexualitet kan vara känsligt och privat för vissa ungdomar och att träffa personal som inte finns med regelbundet i deras vardagsliv kan medföra en öppenhet som annars kanske inte skulle uppnås.

Framtida forskning bör fokusera på longitudinella studier för att följa eventuella förändringar över tid. Det är även viktigt att inkludera flickor i framtida studier eftersom flickors pornografikonsumtion studerats i mycket begränsad omfattning. Vidare bör nya intervjustudier, både med ungdomar och personal, genomföras eftersom det medför en fördjupad kunskap hur ungdomar upplever att pornografi påverkar deras sexuella erfarenheter och relationer och om hur personal upplever att de kan stödja dem.

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