ELENA REGUSHEVSKAYA

Abortions and Sexually Transmitted Infections among Women in St. Petersburg in the Early 2000s

Comparison by population based surveys in Estonia and Finland

ACADEMIC DISSERTATION
To be presented, with the permission of the Faculty of Medicine of the University of Tampere, for public discussion in the Main Auditorium of Building B, Medical School of the University of Tampere, Medisiinarinkatu 3, Tampere, on September 28th, 2009, at 13 o’clock.

UNIVERSITY OF TAMPERE
ACADEMIC DISSERTATION
University of Tampere, School of Public Health
International Postgraduate Programme in Epidemiology
Finland

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www.uta.fi/taju
http://granum.uta.fi

Cover design by
Juha Siro

Acta Universitatis Tamperensis 1450
ISBN 978-951-44-7825-3 (print)
ISSN-L 1455-1616
ISSN 1455-1616

Acta Electronica Universitatis Tamperensis 883
ISBN 978-951-44-7826-0 (pdf)
ISSN 1456-954X
http://acta.uta.fi

Tampereen Yliopistopaino Oy – Juvenes Print
Tampere 2009
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ABBREVIATIONS AND TERMS

CI = confidence interval
FSHS = Finnish student health service
HIV = human immunodeficiency virus
IUD = intrauterine device
OC = oral contraceptives; in the original papers the terms pill, hormonal contraception were also used
OR = odds ratio
REC = research ethics committee
RLMS = Russian longitudinal monitoring survey
STD = sexually transmitted disease
STIs = sexually transmitted infections
UK = United Kingdom
US = United States

reliable contraception = oral contraceptives, IUD or condom
study areas = St. Petersburg, Russia, Estonia and Finland
unreliable contraception = spermicides, rhythm method, syringing, withdrawal
ABSTRACT

Background Abortions and sexually transmitted infections have been very common in Russia while in neighbouring Finland the rates of both abortions and STIs have been stable and relatively low. Estonia, one of the former states of the Soviet Union, has a common history with Russia but different development in reproductive health care in recent decades. Knowing what kind of women are at risk of abortion and STIs helps to organize better health care services.

Objectives The study aims to describe the main characteristics (socio-demographic and sexual behaviour) of women with abortion or with self-reported sexually transmitted infections in the three areas comparing the characteristics within each area and between the areas, with the main emphasis on women in St. Petersburg.

Materials and methods Data from four population-based questionnaire surveys were used. In St. Petersburg a questionnaire was sent to a random sample of reproductive aged women residing in two districts of the city. Response rate was 67%. In Estonia a random sample stratified by age was taken for women aged 16–25, 26–35 and 36–44 years. The response rate was 54%. In Finland two surveys were used. The 1991 study was an interview survey and the 1999 study was a postal survey, the response rates being 78% and 52% respectively. The questionnaires used were very similar. The Russian and Estonian questionnaires were made at the same time using the questions from the Finnish surveys as models.

Logistic regressions within each area were used to examine the association between women’s characteristics and the use of specific contraceptive methods at last intercourse, women’s abortion history and STIs. The regression models were adjusted for age, marital status and parity, or age only, and for estimation of odds ratios (OR) and 95% confidence intervals (95% CI).

Results In St. Petersburg an increase in the mean age of first intercourse from those aged 18-24 to those aged 35-44 was found (Paper I). A notable change was found in condom use at first intercourse which was more common among younger respondents than among older ones (I, III).

In St. Petersburg reliable contraception (OC, IUD or condom) at last intercourse was used by only half of the women. The highest proportion of OC users was found in the youngest age group and among wealthier women. Condom was the most frequently used contraceptive method, especially among the youngest women. Those with a history of no condom use at first intercourse were less likely to report current condom use. Those who lived in poor conditions or had 1-2 children had a higher probability of using unreliable methods (spermicides, rhythm method, syringing, withdrawal, emergency contraception) at last intercourse. Wealthy women were more likely to have had multiple sexual partners in the previous year and concurrent (parallel) sexual relationships. Most women in St Petersburg had at least one risky sexual
behaviour (age at first intercourse <18 years, no using condom at first intercourse, unreliable contraception at last intercourse, multiple sexual partners or concurrent sexual relationships).

In Finland most women in all age groups had had their first intercourse at age younger than 18 years and this was more common than in St Petersburg and Estonia. But the proportion of those using a condom at first intercourse was also higher in Finland than among those in St. Petersburg or Estonia.

The highest proportion of women who had ever had an abortion or repeat abortions was found in St. Petersburg (II, III). Socio-demographic and behavioural risk-factors for abortion were mostly similar in the three areas (III). In all areas women with an abortion history were more likely to have low education, to have children, to start sexual life at an age younger than 18 years and to have a history of multiple partners. However, in St. Petersburg and Estonia the factor most strongly associated with abortion was number of children while in Finland the strongest factor was multiple sexual partners. Contraception use was related to abortion in all areas. The highest rate of unreliable contraceptive use - both at first and most recent intercourse - was found among women in St. Petersburg and Estonia.

The highest prevalence of reporting sexually transmitted infections was found in St Petersburg and the lowest in Finland. In all study areas women mostly shared similar sexual behaviour risk factors for having three STIs (chlamydia, gonorrhoea, syphilis). Those who had had STIs were more likely to have first intercourse under the age of 18 years, have not used condoms at first intercourse, had a large number of lifetime sexual partners and sexual partners in the past year. In Finland cohabiting and well-educated women were more likely to have had sexually transmitted infections than other Finnish women but no significant association was found in St. Petersburg and Estonia. In Estonia, the characteristics of women having had sexually transmitted infections were mostly similar to those in St. Petersburg. No major differences were found among Russian-speaking and Estonian-speaking women.

The women with both abortions and STIs were partly the same women in St. Petersburg but largely different in Estonia and Finland.

**Conclusions** Common use of unreliable contraceptive method or no use in St. Petersburg demonstrate a need to improve reproductive health services, including sexual education and contraceptive provision to a wide range of women of all ages. Even though the sexual behaviour of women in St. Petersburg was more conservative than those in Estonia and Finland the high prevalence of sexually transmitted infections in St. Petersburg suggests a need to take special precautions against STIs, probably due to the epidemic situation. Additionally, the high proportion of those with both abortion and STIs in St. Petersburg should be taken into account in prevention.
TIIVISTELMÄ

Tausta
Venäjällä raskauden keskeytykset ja sukupuolitautit ovat yleisiä, kun taas naapurimaassa Suomessa niin aborttien kuin sukupuolitautien määrät ovat pysytelleet suhteellisen alhaisina. Entisenä neuvostomaana Viro jakaa yhteisen historian Venäjän kanssa, mutta seksuaaliterveyden kehitys on maissa ollut erisuuntaista viimeisten vuosikymmenten aikana. Tieto siitä, millaiset naiset kuuluvat riskissä sukupuolitautien ja raskaudenkeskeytytsten suhteen, auttaa suunnittelemaan parempia terveydenhuollon palveluita.

Tutkimustavoitteet
Tutkimuksen tarkoituksena oli kuvata raskaudenkeskeytyksiin tai sukupuolitautauteihin (ite ilmoitettu) liittyviä sosiodemografisia ja sukupuolikäyttäytymiseen liittyviä tekijöitä suomalaisten, venäläisten ja virolaisten naisten keskuudessa. Tutkimus toteutettiin kolmella alueella tehden vertailuja niin alueiden sisällä kuin niiden välillä. Erityisesti huomion kohteena olivat pieterilaiset naiset.

Aineisto ja menetelmät

Kullakin alueella käytettiin logistista regressio -mallia tutkittaessa naisten taustatekijöiden ja sukupuolikäyttäytymiseen liittyvien tekijöiden, viimeisimmässä yhdynnässä käytetyn ehkäisymenetelmän, raskaudenkeskeytytsten sekä sukupuolitautien välistä yhteyttä. Riskisuhde (OR, luottamusväli 95 %) laskettiin vakioimalla regressiomallit iän, siviilisäädyn ja lasten lukumäärän suhteen että ainoastaan iän suhteen.

Tulokset

Pietarissa luotettavaa ehkäisymenetelmää (ehkäisypillerit, kierukka, kondomi) käytti viimeisimmässä yhdynnässä vain puolet naisista. Ehkäisypillereiden käyttö oli yleisintä nuorimmassa ikäryhmässä sekä parhaiten toimeen tulevien naisten keskuudessa. Yleisin ehkäisymenetelmä oli kondomi, etenkin nuorimpien naisten joukossa. Kondomin käyttö viimeisimmän yhdynnän aikana oli harvinaisinta niiden naisten keskuudessa, jotka
ensimmäisessä yhdynnässään eivät olleet käyttäneet kondomia. Epäluotettavia ehkäisymenetelmiä (spermisidit, rytmimenetelmä, yhdyntänsä kehitys, jälkiiekäisy, emättimen huutelu) viimeisimmässä yhdynnässään olivat todennäköisimmin käyttäneet naiset jotka asuivat huonoissa oloissa tai joilla oli 1-2 lasta. Useita seksikumppaneita viimeisen vuoden aikana ja useita samanaikaisia sukupuolisuhteita oli todennäköisimmin hyvin toimeentulevalla naisilla. Suurin osa naisista raportoi ainakin yhdestä seksuaalielämän liittyvää riskikäyttäytymisen muodosta (ensimmäinen yhdynen alkue 18-vuotiaine, ei käytetty kondomia ensimmäisessä yhdynnässä, epäluotettavan ehkäisymenetelmän käyttö viimeisimmässä yhdynnässä, useita seksikumppaneita tai useita samanaikaisia sukupuolisuhteita).


olivat samankaltaisia niiden keskuudessa joilla oli ollut sukupuolitauti. Virossa eroja ei löydetty myöskään eestin-kielistä ja venäjän-kielistä naisten väliltä.

Pietarissa naiset, jotka olivat tehneet raskauden keskeytyksen ja naiset joilla oli ollut sukupuolitauti, olivat osittain samoja henkilöitä, kun taas Virossa ja Suomessa nämä naiset kuuluivat suurimmaksi osaksi eri ryhmiin.

**Johtopäätökset**

Epäluotettavien ehkäisymenetelmien käyttö tai ehkäisyn kokonaan poisjättäminen pietarilaisten naisten keskuudessa osoittaa, että lisääntymisterveyteen liittyviä terveyspalveluita - mukaan lukien sukupuolivalistus sekä ehkäisyvälineiden tarjoaminen laajalti kaikenikäisille naisille - on tarvetta parantaa Pietarissa. Vaikka naisten sukupuolikäyttäytyminen Pietarissa oli Viroon ja Suomeen verrattuna konservatiivisempaa, sukupuolitautien korkea esiintyvyys osoittaa, että sukupuolitautien ehkäisyyn tähtäävien toimenpiteiden käyttöönottoon on tarvetta. Ennaltaehkäisyssä on kiinnitettävä huomiota myös siihen, että Pietarissa oli paljon naisia, jotka olivat tehneet sekä raskaudenkeskeytyksen että sairastuneet sukupuolitautiin.
INTRODUCTION

Abortions and sexually transmitted infections are major problems in reproductive health. In many countries these problems, in addition to health, have major political and social consequences. They touch questions of fertility regulation, relationships between state and church and indicate country wellbeing and the ways in which policymaking systems work.

Abortion is a widely practised method of fertility control and a sensitive issue. Induced abortion refers to the artificially induced termination of a pregnancy which does not comply with the definition of a birth and in which there is no indication of intrauterine foetal death prior to the termination. Induced abortion has traditionally been made by surgical methods, but since 2000 medical abortion has gained popularity in many countries.

Sexually transmitted infections (STIs) constitute a major reproductive health burden for sexually active individuals. The burden of STIs falls disproportionately on the young, the poor, minorities and women (Aral 2001). STIs include many diseases caused by different organisms, bacteria and viruses. In this study the focus was on syphilis, gonorrhoea and chlamydia. The short-term and long-term consequences of STIs have been well documented and include cancers (Koskela et al. 2000; Anttila et al. 2001), pelvic inflammatory disease (Manavi 2006; Soper 2002; Wiesenfeld et al. 2002), ectopic pregnancy (Bakken et al. 2007; Karaer et al. 2006), infertility (Karaer et al. 2006), depression (Cougle et al. 2003; Reardon et al. 2002), and adverse outcomes of pregnancy including pre-term delivery and low birth weight (Blas et al. 2007; Southwick et al. 2007; Wendel and Workowski 2007).

HIV (human immunodeficiency virus) is a recent worldwide threat to health in many countries and especially in Sub-Saharan Africa. There is an emerging HIV epidemic in Russia. However, HIV is not included in this dissertation for two reasons. Firstly, there are other than sexual contact routes for the transmission of this infection and in many instances HIV is classified as an infection with many routes of transmission. In St. Petersburg until recently HIV has mainly been an infection among intravenous drug users rather than general STIs. Secondly, its control and surveillance are separated from other STIs.

The determinants of abortions and sexually transmitted infections vary between populations and countries. The determinants can be classified into socio-demographic, economic, contraceptive and sexual behaviour (Bankole et al. 1999; Jones et al. 2002; Wilson et al. 2001; Hiltunen-Back et al. 1998; Nikula et al. 2008; Uuskula et al. 2008). However, these factors mostly have been studied in special groups including adolescents and those undergoing termination of pregnancy. For STIs these groups have mostly been patients of venerology clinics, men who have sex with men and commercial sex workers (Amirkhanian et al. 2001a;
Amirkhanian et al. 2001b). These groups usually differ from reproductive age women in general population whose abortion and STI determinants are my primary interest.

My main interest is in socio-economic characteristics and sexual behaviour and their influence on abortions and sexually transmitted infections among reproductive age women in St. Petersburg in Russia. I compare St. Petersburg with Estonia and Finland. I attempt to look at each area and to understand whether the determinants of abortion and STIs are similar or different, without making direct comparisons between countries.

The main focus is the relationships between socio-demographic characteristics and sexual behaviour/contraception (a) (Figure 1), socio-demographic characteristics and abortion (b) and STIs (c); between sexual behaviour/contraception and abortion (d) and STIs (e). I study reliable and unreliable contraception and their relation to abortion. For sexually transmitted infection condom use was included as it is commonly used contraceptive method which can prevent infections.

![Figure 1. Relationships studied](image-url)

As will be later reviewed, although some characteristics associated with abortion and STIs have been studied, no large-scale research has been conducted in Russia. The comparative
approach using the same tools for collecting information have not been used to look at differences between countries with some similarities in history and health care.

For comparison Finland was chosen as a stable country with relatively low rates of abortion and sexually transmitted infections in recent decades. Estonian women were divided into two language subgroups due to the large number of immigrants from the Russian part of the former Soviet Union after the Second World War. The expectation was that Russian-speaking women would show the same characteristics related to abortion and STIs as women in St. Petersburg and that their position would be in between Estonian-speaking women in Estonia and women in St. Petersburg. I believe that such an approach could explain the reasons for the differences in abortion and STIs rates and would be useful for designing preventive measures.
2 REPRODUCTIVE HEALTH SITUATIONS IN THE COUNTRIES STUDIED

2.1 Study areas

The areas are St. Petersburg in Russia, Estonia and Finland. These adjacent areas which have been close in different periods of their histories and had some similarities in development and culture. Finland belonged to Russia from 1809 to 1917, as did Estonia from 1944 to 1991. Estonia and Russia both belonged to the Soviet Union for decades, making it an interest to look at the changes after the collapse of the Soviet Union in 1990.

On the other hand, these three countries are different in area and population size, economic and politics. St. Petersburg is the second largest city of Russia and its population is around 5.5 million. Finland is a rich welfare country with population of 5.2 million. Estonia is the northernmost of the three Baltic states and the population is 1.3 million. It is culturally close to Finland. The official language is Estonian, which belongs to the Finno-Ugric language family and is closely related to Finnish (Haavio-Mannila et al. 2004). Approximately one third of the population is Russian-speaking.

In Russia the majority of people adhere to Russian Orthodox Christianity (Kon 2004). The dominant religion in Estonia and Finland is Evangelical Lutheranism; orthodox people in Estonia belong to the Russian Orthodox Church. However, the religiosity in all these three countries is mostly rather passive or secular (Haavio-Mannila et al. 2004; Kon 2004; Kontula et al. 2004).

2.2 Abortion legislation and regulations

The history of abortion legalization in any country can play a key role in understanding the situation with its current abortion situation. Even though some changes in legislation occurred decades ago the “culture” to retain the same behaviour as it was in the past may still persist in the population.

Before 1920 abortion was punished in Russia. The first law permitting abortion was passed in 1920 and according to it abortion was provided free on request. Later, abortion was prohibited from 1936 to 1955 (Popov 1993). In 1955 it was again legalized.
### Table 1. Abortion laws in Russia, Estonia and Finland

<table>
<thead>
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<th></th>
<th>Russia¹</th>
<th>Estonia²</th>
<th>Finland³</th>
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</table>
| **1980s** | Abortion may be legally performed:  
- on request up to 12 weeks of pregnancy;  
- for social reasons up to 22 weeks;  
- for medical necessity and upon the woman’s consent at any point during pregnancy. | Not available on request, but can be easily obtained up to 12 weeks for socio-medical reason or socio-economic or risk to women's mental health or rape or crime.  
In 1978 termination of pregnancy after 12 weeks requires permission of the Central Administrative Board.  
In 1985 termination of pregnancy possible in case of:  
- illness of the foetus  
- prior to the 24th week of pregnancy (instead of the earlier 20th week);  
- if mother’s life or health is at stake at any stage of pregnancy. | Same as since 1985 |
| **1990s** | Same as in 1980s | 1995 abortion is allowed:  
- on request up to 11 weeks of pregnancy;  
- for medical reasons up to 21 weeks of pregnancy. | Same as since 1985 |
| **2000-2003** | 2003 restriction of social reasons from 13 to 4: rape, being in prison, having a disabled husband or if either partner is judged unfit to be a parent | Same as in 1990s | Same as since 1985 |

¹Popov, 1993, Russian Decree No. 485, 2003; ²Abortion registry, Haavio-Mannila et al., 2004; ³Kontula and Haavio-Mannila, 2004

Nowadays, all countries studied have liberal abortion laws (Table 1). In Russia abortion is allowed on request during the first 12 weeks of gestation. Thereafter, induced abortion is available within 28 weeks from conception on judicial, genetic, vital, broad medical and social grounds, as well as for personal reasons with the special authorization of a commission of local physicians. The most recent changes in abortion policy in Russia in 2003 were the limitation of social indications for abortion from 13 to 4: rape, being in prison, having a disabled husband or if either partner is judged unfit to be a parent (Russian Decree No. 485 2003).

During the time Estonia was incorporated into the Soviet Union abortion policy in Estonia was the same as in Russia. After the collapse of the Soviet Union the first abortion law in
Estonia was passed in 1995 and stated that abortion was allowed on request up to 11 weeks of pregnancy and for medical reasons up to 21 weeks of pregnancy (Table 1).

In Finland abortion was illegal until 1950. In the 1950 Abortion Law the principle for legal abortion was medical but it was possible to take other circumstances, such as woman’s social distress, into account in decision making. According to the Abortion Law of 1970 abortion could be allowed if at least one of the medical, social and ethical circumstances was fulfilled (Table 1) (Kontula and Haavio-Mannila 2004). The medical reasons include the situation when the foetus has mental deficiency, severe illness or handicap, pregnancy is a risk to the woman's life or health; woman's sickness, physical defect or infirmity; mother or father is not able to take care of the child. Social reasons include considerable strain caused by living or other conditions, age below 17 years, age over 40 years, woman has had at least four children. Among ethical reasons are rape, incest and other reasons mentioned in the Penal Law.

Between 1970 and 1978, the upper limit for an abortion was 16 gestational weeks, but a higher limit of 20 weeks was allowed for special reasons or if the reason was the medical condition of the foetus. In 1978, the general limit of 16 weeks was changed to 12. In 1985, the limit of 20 weeks in the case of a foetal medical condition was changed to 24 weeks. Written permission had to be obtained from either one or two physicians. After the 12th week of gestation, in the case of a foetal medical condition or if permission for an abortion had not been obtained from a physician, the National Board of Medicolegal Affairs had the right to grant an abortion. Abortion is not available on request, but in practice can be easily obtained for social reasons up to 12 weeks and for medical reasons up to 24 weeks of pregnancy (Kontula and Haavio-Mannila 2004).

Counselling and waiting requirements allow an abortion to be obtained relatively quickly in all countries.

Thus, abortion is permitted to save the woman's life, to preserve physical health, to preserve mental health, in case of rape or incest, foetal impairment, for economic or social reason in Russia, Estonia and Finland. On woman's request abortion can be obtained in Russia and Estonia, but not in Finland.

2.3 Differences in abortion statistics

Official statistics on abortion are kept in all study areas, but the quality of some of them in different periods is variable.

The statistical registration of induced abortion in Soviet Russia was unchanged from 1956 to 1991. The quality of data after 1991 was believed to be questionable for several reasons. One of these is the introduction of a new form for data collection and registration in 1991. The
main disadvantage of it was incomparability with the old system that led to an artificial decline in abortion of more than 25% in only two years (Popov 1996).

The other reason is omitting mini-abortion from the official statistics. Mini-abortion is the term used in Russia and in post Soviet Union to refer to abortions performed in outpatient clinics by the vacuum-aspiration method. Mini-abortion is usually done during the first weeks after women have missed the menstrual period. These procedures were officially classified as “regulation of a menstrual cycle by vacuum-aspiration” and were not included as induced abortion. Despite the legalization of abortion in private clinics in 1988, the system for registering them was not properly created. It resulted in a considerable gap in induced abortion statistics in Russia. Another possible reason for underestimation of the real figures on abortion was the existence of different medical statistical sources of abortion maintained and owned by different ministries independently of the Ministry of Health (Popov 1996). This was due to the fact that some health care services, including gynaecological departments, were owned by specific ministries.

In the middle of the 1990s the situation changed. Since that time until now the Federal Office of State Statistics (Rosstat) contains data on abortions registered in the medical institutions of the Ministry of Health, data on abortions registered in medical institutions of other ministries and also data from non-state medical institutions that makes this statistics almost complete. One of the disadvantages in the present system is the presence of information on only overall number of abortions without age-group categorization which is available only through the respective statistical databases of each ministry (Rosstat 2006).

In Estonia the reporting system on abortions during the Soviet era was the same as in the Russian Federation of the Soviet Union. Since 1994 after Estonian independence the Abortion Registry was created and data on abortions are available from 1996. Data are systematically collected from all health care institutions including the private sector, where the abortions have been done or treatment for women who have had an abortion have been provided. The primary document for collecting information is an abortion card, which is filled in for every abortion that has taken place in health care institutions. The abortion card is sent monthly to the Estonian Abortion Registry (Estonian Abortion registry 2006).

In Finland, the National Abortion Register maintained by the National Research and Development Centre for Welfare and Health (since 2009 National Institute for Health and Welfare) collects individual-level data on abortions based on abortion notifications. According to the law, notification of the procedure is sent by every physician to the health authorities within a month. The Abortion Register contains data on abortion, indications, and procedures used, as well as on woman’s social and reproductive background and contraceptive use before abortion.
(STAKES 2008). A study in the middle of the 1990s showed that more than 99% of induced abortions mentioned in hospital records were reported to the register (Gissler et al. 1996). Thus, the Abortion Register in Finland is a reliable source to monitor abortion and its variation.

2.4 Incidence of abortions

In Russia the abortion rate showed a slight decrease from 1970 to 1985 with subsequent fluctuations for several years. Since 1991 the abortion rate has shown a steady decline but is still higher than in Estonia and Finland (Figure 1, Appendix 1). The rate of abortion in St Petersburg repeats the trend in Russia but at lower level and with less fluctuation (Figure 2, Appendix 1).

In Estonia the abortion rate started to decrease slightly after the 1970s. Some fluctuations were seen in the middle of the 1980s with the subsequent accelerated decline. The abortion rate is very close to abortion rate in St Petersburg but somewhat higher (HFA-DB 2008; Figures 1 and 2, Appendix 1).

In Finland the abortion rates have been notably lower than in Russia and Estonia (Figures 1 and 2, Appendix 1). The rate increased right after the abortion law in 1970 was introduced, but this increase may be artificial because until 1970 there were no statistics on illegal abortions and they were more often performed before 1970. The peak was in 1973. Since then the abortion rate has declined. In the early 1990s abortion rates increased among teenagers and young people (HFA-DB 2008; Kosunen et al. 2002). Overall, in the last two decades abortion rate has been comparatively stable and low in Finland (not more than 10 per 1000 reproductive age women).

2.5 Surveillance systems of sexually transmitted infections

Syphilis is a chronic disease caused by Treponema pallidum and affects the skin, central nervous system, cardiovascular system, skeleton, and other organs (Cohen and Powderly 2004). The incubation period is 3-4 weeks. The organism is transmitted from early mucocutaneous lesions, and enters the body through small breaches in the epithelial surfaces of genital, anorectal, oropharyngeal and other cutaneous sites.

Gonorrhoea is caused by Gram-negative cocci, Neisseria gonorrhoea. Humans are the only natural reservoir for N. gonorrhoeae. The organism is highly infectious, and the spread of infection requires direct contact with the mucosa of an infected person, usually during sexual intercourse (Marx 2006). The incubation period is 2-5 days. Women are often symptomless.

Chlamydia trachomatis is a cause of urogenital infection, lymphogranuloma venerum and trachoma. The incubation period is 1 to 3 weeks (Marx 2006). Often, infected persons are symptomless or have only vague, nonspecific symptoms.
A surveillance system is a tool for controlling and monitoring the situation in different health aspects of the population. The STI surveillance system in Russia is kept by the state dermatovenereology service on the basis of mandatory notification of newly confirmed cases by physicians. In the Russian Federation the Committee for the Control of Venereal Diseases was established in the 1920s. According to its regulation specialized dermatovenereology clinics were set up within a vertical system throughout the country. Those clinics had their own laboratories and in-patient facilities (Renton et al. 1999). The dermatovenereology clinics provided free diagnosis, treatment and partner notification.

Before 1993 only syphilis, gonorrhoea and trichomoniasis were notifiable. After 1993 the list was expanded and included chlamydial infection, genital warts and herpes, ureaplasmas, bacterial vaginosis and candidiasis (Order N. 286 1993). Later, in 1999, ureaplasmas, bacterial vaginosis and candidiasis were removed from the list of notifiable diseases.

After the collapse of the Soviet Union the increased patient demands for higher level confidentiality led to the organization of new departments within the state dermatovenereology service (Platt and McKee 2000). Their role was to provide anonymous testing against payment and in some cases treatment. Patients with notifiable infections were diagnosed, treated and followed-up for 1-3 years. This anonymous service was developed as an alternative to the existing system where the patients were required to identify themselves and their partners to increase the confidentiality and patient load to the medical provider. However, according to the study (Platt and McKee 2000) confidentiality was poorly understood among physicians. The authors showed patients believe that high fees for anonymous treatment and the lack of confidentiality in the standard clinics were barriers to timely STIs treatment.

The state dermatovenereology service carries out a programme of compulsory syphilis, gonorrhoea and trichomoniasis case finding and screening among health care users and all employed people. Other compulsorily screened groups are pregnant women, blood donors and all patients in all hospitals. The diagnostic facilities of the dermatovenereology service also provide testing for other specialists who can treat STIs, except syphilis and gonorrhoea, which must be referred to the state dermatovenereology service.

In St. Petersburg the dermatovenereology service is represented by 17 dermatovenereology dispensaries, one in each district of the city. They provide both free and paid services (Benotsch et al. 2004). The data on STIs patients are collected into the St Petersburg Municipal Skin-Venereal Dispensary, which is the largest clinic in the city. It also collects data on all primary cases registered in the dermatovenereology dispensaries of Leningradskaya oblast (Savitcheva et al. 2000). All statistical data of the STIs cases are sent to the Ministry of Health in Moscow.
For as long as Estonia was a state in the Soviet Union the surveillance of STIs was the same as in Russia. After the break with the Soviet Union the centralized state-controlled STIs surveillance system was decentralized. First the funding was poor due to a shift from funding by state revenues to one based on social insurance (Bingman and Waugh 1999, Naaber et al. 2005). Additionally, a strong demand for confidentiality and the requirement to pay for the service which previously had been free had its impact on the ability of the health care system to manage the epidemics and to identify and treat patients with STIs (Wilson et al. 2001). Since 1991, syphilis, gonorrhoea, C. trachomatis, trichomoniasis and genital herpes were notifiable and the data mostly came from the dermatovenerology service. However, misdiagnosis and underreporting were frequent, especially if the diagnosis had been made by urologist or gynaecologist (Uuskula et al. 1997).

In Finland since 1987 the national surveillance of C. trachomatis, syphilis and gonorrhoea has been based on obligatory notifications by physicians to the National Board of Health, and later to the National Public Health Institute, currently the National Health and Welfare Institute (Communicable Disease Act and Decree 1987; Hiltunen-Back et al. 2003). In 1995 a concomitant mandatory notification system for physicians and laboratories was also established. A sentinel network for more detailed epidemiologic data on each individual with infection (source partners, risk-taking behaviour) was established. Since 1997 confirmed chlamydia trachomatis cases have been reported only by laboratories. Overall, the data on the incidence of STIs and characteristics of those with such diseases are extremely reliable (KTL 2005).

2.6 Incidence of sexually transmitted infections 1980-2000s

Syphilis

In Russia after a continuous decline throughout the 1980s, the incidence of syphilis showed a rapid and substantial increase in the 1990s (HFA-DB 2008; Tichonova et al. 1997; Borisenko K 1998) (Figure 3, Appendix 2). The incidence 1998 was seven times higher than at the beginning of the 1990s (State report 1998; State Report 2000). The main reasons for this epidemic are believed to be changes in sexual behaviour and decline in the health service provision (use and effectiveness of diagnostics, treatments and contact tracing) (Tichonova 1995; Tichonova et al. 1997). There was a rapid growth in poor quality treatment in private health care services, and self-treatment. These changes appeared with the breakdown of the Soviet Union with its new economic conditions, changes in standards of living and shift in ideology (Borisenko et al. 1999). The decrease in syphilis incidence started in 1998. The decreasing trend of syphilis incidence continues. However, a great concern arises due to the large numbers of secondary, latent and neurosyphilis (Kubanova 2008) as well as congenital syphilis (Tichonova
et al. 1997; Tichonova et al. 2003). In St. Petersburg the syphilis epidemic occurred a few years earlier. The peak was in 1995 with a gradual decrease from 1998 until the present (St Petersburg Database 2007; Yakubovsky et al. 2006).

In Estonia after the peak in 1976 the incidence of syphilis decreased until the breakdown of the Soviet Union. Like Russia, since the early 1990s Estonia experienced an epidemic of syphilis (Figure 3, Appendix 2). Many young people were affected and cases of congenital syphilis were diagnosed in 1993 (Uuskula et al. 1997; HFA-DB 2008; Rubins et al. 2000). There were two peaks of syphilis incidence, in 1995 and in 1998. These fluctuations have been attributed to the political situation, increased migration, expanded import and a lowering of the morals and ethics of the population 1990 (Renton et al. 1998; Uuskula et al. 2004). Most affected people lived near the border with the Russian Federation and in the capital city (Uuskula et al. 2004). From the beginning of the 2000s the syphilis incidence has decreased until the present day (HFA-DB 2008).

In Finland the reported incidence of syphilis decreased rapidly after the introduction of penicillin in the 1940s and was low and stable for decades (Figure 3, Appendix 2; HFA-DB 2008). A small peak occurred in 1995 and was related to syphilis imported mainly by heterosexual men from Russia and a few from Estonia (Hiltunen-Back et al. 1996; Hiltunen-Back et al. 2002; KTL 2005; Moi 2001). Later the situation stabilised and only sporadic cases have occurred (KTL 2005).

Gonorrhoea

In Russia (HFA-DB 2008) a steep decrease in the gonorrhoea rate occurred in the 1980s with a following increase and peak in 1993 (Figure 4, Appendix 2). It is believed that the epidemic of gonorrhoea was underestimated due to the widespread practice among the population of self-treatment for genital symptoms (Borisenko et al. 1999). In the 2000s gonorrhoea rate has been slowly decreasing (Kubanova 2008).

In Estonia there was a steady decrease of gonorrhoea in the 1980s (Figure 4, Appendix 2; HFA-DB 2008; Uuskula et al. 1997). Later at the beginning of the 1990s the gonorrhoea incidence was high. The most affected population was people under 30 years. The decrease appeared in 1995 which has been attributed to the introduction of quinolones, but it may also be attributed to incomplete case reporting (Uuskula et al. 1997).

In Finland there was a steep decrease in gonorrhoea incidence throughout the 1980s (Figure 4, Appendix 2; HFA-DB 2008; Hiltunen-Back et al. 1998). In the early 1990s, the decrease of endemic gonorrhoea continued and the rate of imported gonorrhoea was constant.
(Hiltunen-Back 1998; Hiltunen-Back 2002). From 1995 to 2004 the incidence of gonorrhoea has slowly decreased (Infectious Disease in Finland 2005; Leinikki et al. 2006).

**Chlamydia**

In Russia a major increase in chlamydia incidence occurred in 1994 (Borisenko et al. 1999) with a slight decrease in the next few years (State Report 2000; Figure 5, Appendix 2). In the 2000s the incidence has been slowly increasing, which could be attributed to widespread testing (State Report 2002; Kubanova 2008).

In Estonia chlamydial infection has been diagnosed since 1990. Testing for chlamydia is primarily conducted on patients seeking treatment. Since the testing started the incidence increased with some fluctuation in the period from 1996 to 2000 (Figure 5, Appendix 2; WHO HFA-DB 2008). The highest rate was among those aged 20-24 people, especially women (Uuskula et al. 1997; Uuskula et al. 2008).

In Finland chlamydia is the most common sexually transmitted infection (KTL 2005; Leinikki et al. 2006). Since 1995 the incidence of genital chlamydia has been increasing. The surveillance data suggest a disproportionate burden occurring among adolescents and young adults, especially women (Hiltunen-Back E et al. 2001; Hiltunen-Back E et al. 2003; KTL 2005). Partly the increase in prevalence is attributable to increasing use of highly sensitive tests (Fenton and Lowndes 2006; Wilson et al. 2002).

### 2.7 Brief overview of contraception use

Unprotected sexual intercourse is associated with the risk of unintended pregnancy and sexually transmitted infections. Sexually active people can prevent unwanted pregnancies by using effective contraceptives.

Contraception is widely used in many countries nowadays, but the acceptance rate and methods used differ. During the last century European populations underwent a transformation from using coitus dependent methods (withdrawal, periodic abstinence, condom and, in case of failure, induced abortion) to coitus-independent means, such as oral contraceptives and intrauterine devices (Pitkanen 2003; Spinelli 2000). One of the reasons for the differences in contraception use is related to the historical and cultural characteristics of each country (Warriner and Shah 2006). Sexually transmitted infections can be prevented by condom use and having a steady partner who is monogamous. Consistent and regular condom use proved to be one of effective method in decreasing the risk of STIs (Holmes et al. 2004) but its consistent use is hard to achieve in populations.

Age at first intercourse is one of the indicators of sexual behaviour changes in the population. The average age at first sexual intercourse has decreased during last decades in many
countries (Haavio-Mannila E 2003; Khryanin et al. 2004a; Kost and Forrest 1992; Rissel et al. 2003; Wellings et al. 2001). Contraception use has also changed in many countries, condom use has increased substantially in recent decades mostly due to the risk of HIV (Bankole et al. 1999a; Dubois-Arber et al. 1997; Forrest et al. 1997; Herlitz and Ramstedt 2005; Gremy and Beltzer 2004; Klavs et al. 2005). Condom use at first sexual intercourse is one of the effective strategies of STIs prevention (Holmes et al. 2004; Ness et al. 2004). It also increases the probability of its use in the future (Klavs et al. 2005; Shafi et al. 2004).

**Contraception in Russia**

Historically, in Russia in the Soviet era modern contraceptives were poorly available. The situation in the 1970s was characterized by many grounds for abortion, low use of modern contraception, lack of contraception information and services (Kon 2004). Oral contraceptives and other modern contraceptive methods were not introduced into common practice mainly due to negative attitudes among health care providers (Visser et al. 1993a; Visser et al. 1993b). As an example, in 1971 Ministry of Health forbade the use of oral contraceptives for contraceptive purposes and they were prescribed only to treat certain medical conditions. A document of the Ministry of Health from 1971 listed around 30 contraindications to the use of oral contraceptives (USSR Ministry of Health 1974). Women were informed about carcinogenic effect of oral contraceptives. Moreover, the USSR Ministry of Health monopolized the import and distribution of medicines (Popov et al. 1993). At that time condoms were available, but were of poor quality and coitus interruptus was the most frequent method of pregnancy prevention (David 1974).

In a situation of absence of sexual education at school or at home and misconception about modern contraception among physicians (Visser et al. 1993b) women usually could not correctly assess their risk of pregnancy and chose suitable contraception. This made them uncertain in contraception choice, especially in a situation of misleading information from medical personnel. As a result wide use of unreliable methods such as rhythm and withdrawal were very common and perceived as a norm. The combination of such beliefs, attitudes and practice which were based on historical and cultural characteristics some researchers call “abortion culture”, which is opposed to changes (Dorman 1993; Warriner and Shah 2006).

After the collapse of the Soviet Union new actors such as private health care providers, Western pharmaceutical companies, commercial mass-media units, international foundations and agencies, new nongovernmental organisations, and the Russian Orthodox Church started to play their role in family planning (Popov 1995). On the one hand, modern contraception became better available, followed by more common utilization of oral contraceptives and IUDs. On the other hand, paid services in obstetrics and gynaecology gain money from abortions, and this may have contributed to reluctance to a wider spread of modern contraception. The Russian Orthodox
Church has opposed sex education at school (Kon 2004) while the mass media supported by the pharmaceutical companies have promoted oral contraception and IUDs. As a result, these conflicting interests may have caused misperception and confusion among potential contraception users in terms of the safety and effectiveness of different types of contraceptives.

In Russia contraception use in early 2000s has not been well studied. One study in the early 2000s showed that Russia had the highest proportion (57%) of women using either no contraception or unreliable methods (Cibula 2008).

**Contraception in Estonia**

In the Soviet era the contraception culture in Estonia was the same as in the Russian Federation. Most modern methods of contraception were irregularly available. Only IUDs were more generally obtainable in the 1980s, but not widely used (Anderson et al. 1994). Since the collapse of the Soviet Union improvement was mainly due to a wider availability of hormonal contraceptives and IUDs. However, at the beginning of the 1990s their high cost was a barrier to their use. On the other hand purchase at discount was introduced for several groups of women, which increased the use of hormonal contraceptives and IUDs (Karro 1997).

Overall, an increase in the use of hormonal contraceptives occurred in the 1990s (Karro 1997). However, because the statistics included only those attending gynaecologists and included no information on women in need of contraception, the true figure for contraceptive use and the consistency of its use was not known. The findings from the Family and Fertility Survey in 1994 showed that 12% among 20-24 to 28% among 40-44 aged women had not used any method. Respectively, 32% and 23%, used traditional methods and around half in all age-groups had used modern contraceptives in the last sexual intercourse.

A recent study (Uuskula et al. 2008) showed that 26% of women who did not intend to conceive used condoms. Other data of this study relate to both men and women and suggest that employing unreliable methods, i.e. withdrawal and douching, was high (34%) while hormonal contraception was reported by 29% and IUD by 10% of respondents.

**Contraception in Finland**

In Finland public attitudes towards birth control and contraception have in general been positive since the beginning of the 20th century (Pitkanen 2003). Even though there was some negative discussion on birth control methods, the sales or advertising of contraceptives was never prohibited in Finland (Pitkanen 2003). In Finland special family planning services were established earlier than in Russia and Estonia. The Primary Health Act in 1972 first legislatively established family planning as a part of health centre duties (Hermanson 1994).
Nowadays there are several types of services available for reproductive age women. Women can get contraceptive counselling in public family planning services, primary health care services including general practitioners, and private gynaecologists. In a 1994 study the availability and choices of contraceptive services were found adequate (Hemminki et al. 1997). Young people can get contraceptive advice and contraceptives through the school health care services (Virtala and Virjo 2005; Haavio-Mannila 2004). There has been an equal accessibility (Kosunen et al. 1995) and comprehensive coverage of young people by family planning services since the late 1970s (Kosunen et al. 1996). The Finnish Student Health Service (FSHS) has existed since 1954 and provides primary health care services, including contraception for all university students in Finland (Virtala and Virjo 2005).

Those who have given birth or have undergone abortion are given counselling in contraception (Haavio-Mannila 2004b). A study by Heikinheimo et al. (2008) showed that contraceptive choices made at the time of abortion have an important effect on the rate of repeat abortion.
3 REVIEW OF THE LITERATURE

3.1 Aim and method of the literature review The main aim was to review studies on socio-demographic factors and sexual behaviour related to abortions and sexually transmitted infections among reproductive age women in Russia, Estonia and Finland in the period from 1990 to 2008. The main trends in contraception and the determinants for using different contraceptives in the three areas were also of interests.

Population-based, cross sectional, case-control and cohort studies on the determinants of abortions and sexually transmitted infections among reproductive age women in Russia, Estonia and Finland from 1990 to 2008 were searched for. Studies conducted among clients of STD clinics describing their characteristics in the three areas were also included. A more thorough search was done on women with syphilis, gonorrhoea and chlamydial infection. A search was made for the same determinants – socio-demographic characteristics, sexual behaviour, and contraception – that had been studied in this comparative study.

More attention was given to studies conducted in the St. Petersburg area. But because of their limited numbers, the literature describing abortion and STIs in other parts of Russia was used. The results of many large studies in Finland were published in sources other than Medline and in Finnish, but the search was limited to articles in English language. Articles in Russian were included.

Studies conducted among specific groups (men who have sex with men, commercial sex workers, and street youth) and studies on the effectiveness and effects of contraceptives as well as studies not including women 18-44 years old were excluded.

The Medline Database was used for the literature review. The following key words (MeSH Terms) were used: marital status, married, cohabiting, single; sexual partners, intercourse; contraception, intrauterine device, oral contraceptive, hormonal contraception, condom, sterilization; family planning, induced abortion, sexually transmitted diseases, syphilis, gonorrhoea, chlamydia trachomatis; Russia, Estonia, Finland. Additionally, a search for relevant articles through the references of the articles found was performed.
3.2 Use of contraception and its determinants

Use of contraception is mainly studied in population-based surveys and surveys among health care users which are the focus of the literature review in Russia, Estonia and Finland.

**Contraception in Russia**

Using specified criteria 58 articles describing contraception in Russia were found through Medline. Of these 5 studies were included and 53 were excluded. The main reasons for exclusions were no data on contraception use (18), use of specific contraceptives among women with diabetes (3 studies) and cancer (3), among specific groups (15), assessment of the effectiveness and side effects of contraceptives (3), age of participants under 18 years (4), area which does not belong to Russia (3), the period of research before 1990 (3), my own study (1). Additionally 6 articles were found using reference lists. Overall 6 population-based studies and 5 studies among service users were included (Tables 2, 3).

<table>
<thead>
<tr>
<th>Author, publication year</th>
<th>Study design</th>
<th>Participants, year</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entwisle et al., 1995, 1997</td>
<td>RLMS, nationwide longitudinal population-based survey; three-stage cluster design</td>
<td>females, 15–49 yrs (for assessing reproductive health), Russia, 1992 (n=2,820), 1994 (n=2,933)</td>
<td>current use</td>
</tr>
<tr>
<td>Denissenko et al., 1999</td>
<td>cross-sectional survey</td>
<td>university students, male (n=168) and female (n=241), 18–21 yrs, Moscow, 1996</td>
<td>use at first intercourse</td>
</tr>
<tr>
<td>Avdeev and Troitskaia, 1999</td>
<td>analysis of official statistics</td>
<td>&quot;observed users&quot; - women having consultation on contraception, 1987-1996</td>
<td>current use</td>
</tr>
<tr>
<td>Amirkhanian et al., 2001</td>
<td>population based random telephone survey</td>
<td>male and female, 15–55 yrs, St. Petersburg, 1993-1994</td>
<td>consistent condom use</td>
</tr>
<tr>
<td>Bobrova et al., 2005</td>
<td>telephone survey</td>
<td>male (n=474) and female (n=455), 15–29 yrs, Moscow, 2002</td>
<td>consistent condom use</td>
</tr>
<tr>
<td>Gerber and Berman, 2008</td>
<td>RLMS, nationwide population-based survey</td>
<td>male and female 15–49 yrs, Russia, (n=6,517), 2001</td>
<td>use at last intercourse</td>
</tr>
</tbody>
</table>
### Table 3. Surveys among health care users on contraception use in Russia, 1990-2008

<table>
<thead>
<tr>
<th>Author, publication year</th>
<th>Study design</th>
<th>Participants, year</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bannikova and Sannikov, 1998</td>
<td>time series study (non random samples in 1986 and 1996)</td>
<td>women undergoing abortion, Archangelsk, 1986 (n=1,200), and 1996 (n=993)</td>
<td>current contraception</td>
</tr>
<tr>
<td>Chalmers, 1998</td>
<td>cross-sectional</td>
<td>clients of women's clinic, St. Petersburg, (n=917), 1995</td>
<td>current contraception use</td>
</tr>
<tr>
<td>Rankin-Williams, 2001</td>
<td>cross-sectional (convenience sample)</td>
<td>clients of family planning clinics, St. Petersburg, (n=163), 1995</td>
<td>current contraception use</td>
</tr>
<tr>
<td>Fedorova and Banyushevich, 2005</td>
<td>cross-sectional (convenience sample)</td>
<td>women with abortion, urban and rural, (n=333), 2003</td>
<td>current contraception use</td>
</tr>
<tr>
<td>Benotsch et al., 2006</td>
<td>cross-sectional (consecutive sample)</td>
<td>clients of STD clinic, male (n=200) and female, (n=200), St. Petersburg, 2003</td>
<td>last intercourse</td>
</tr>
</tbody>
</table>

Only one national population-based study exists, the Russian Longitudinal Monitoring Survey (RLMS) (RLMS, 2007). It is a series of nationally representative surveys since 1992 designed to monitor the effects of Russian reforms on the health and economic welfare of households and individuals in the Russian Federation. In the frame of this study some data on reproductive health have been also collected. Early survey rounds mostly assessed contraception use in relation to abortion. At the beginning of 1990s RLMS indicated an unmet need for family planning services among married women (Entwisle 1997). At the beginning of the 1990s an increased tendency to use some contraception and an increase in IUD use was found. In 1992-1993, 63% of married women aged 20-49 and 67% in 1994 used some contraceptives in the 30 days preceding the survey (Entwisle 1997) (Table 1 Appendix 3). In 1994, 33% of women used IUD, 18% used traditional methods and 2% reported using contraceptive pills. A later round of the survey in 2001 showed an increase in condom use among young women (Gerber and Berman 2008).

Local studies in different regions in Russia revealed a relatively low prevalence of condom use in the 1990s. As an example, in 1993-94 in a random-digit-dial telephone survey in St. Petersburg 6% of men and women aged 15-59 reported consistent condom use. Seventy-eight percent used condoms seldom or never (Amirkhanian et al. 2001a).

A study in 1996 reported an increase in the use of hormonal contraceptives during a 10-year period, from 1986 to 1996 (Avdeev and Troitskaia 1999). At first intercourse protection was rarely used. A study conducted in Moscow in 1996 among university students showed that more...
than half of students had not used any contraceptives at their first intercourse (Denissenko et al. 1999).

At the beginning of 2000s a telephone survey to assess condom use among Muscovites aged 15-29 showed that almost half of male and female participants consistently used condoms. (Bobrova et al. 2005)

One study on the determinants of contraception use in Russia was found (Bobrova et al. 2005). According to the study condom use was not related to age. Being single rather than married increased condom use and having more than one sexual partner increased the probability of condom use compared to those who had had only one partner in the last year.

Surveys among service users showed frequent usage of unreliable contraceptives in the 1990s and some changes toward increased utilization of modern contraception in later years (Table 2 Appendix 3). Use of hormonal contraceptives had increased. Because convenience samples were used, these studies based on service users may not accurately represent the population.

Studies conducted in St. Petersburg in 1995 (Chalmers et al. 1998) and Archangelsk in 1996 (Bannikova and Sannikov 1998) among women attending woman's clinics have shown a moderate acceptance level of contraceptive methods and high level of awareness about the major methods of contraception such as condoms, IUDs and oral contraceptives. However, high level of awareness does not necessarily predict accurate or comprehensive knowledge and practice. In the study in Archangelsk oral contraceptives use increased from 2% to 20% and condom use from 7% to 26% from 1986 to 1996, while douching and spermicides were rarely used (Bannikova and Sannikov 1998). However, the sampling procedure was not explained and the increase reported can be explained by sampling biases.

A St. Petersburg study conducted in 1995 (Rankin-Williams 2001) showed that despite access to high-quality family planning services women continued to rely on ineffective means of birth control. Among adult women 13% used rhythm method, 13% withdrawal and 9% did not use any method. Only 19% of participants used hormonal contraception and 26% used condoms. Similar results were reported in a study among women with abortion (Fedorova and Banyushevich 2005). Twenty per cent of women used hormonal contraception and 26% used condom. Overall unreliable contraception use was high (Rankin-Williams 2001; Fedorova and Banyushevich 2005).

The most recent study on contraception use showed that among women attending an STD clinic 48% used condom at most recent intercourse (Benotsch et al. 2006).
Contraception in Estonia

Using the specified criteria six articles on contraception use in Estonia were found through Medline, but all were excluded for the following reasons: no data on contraception use (4 studies), the data on contraception use were presented jointly for men and women (1), and the study population was commercial sex workers (1). Additionally a search through the reference lists found four studies (Table 4).

Table 4. Population-based studies and surveys among health care users in Estonia, 1990-2008

<table>
<thead>
<tr>
<th>Author, publication year</th>
<th>Study design</th>
<th>Participants, year</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anderson et al., 1993</td>
<td>cross-sectional interview (hospital records), convenience sample, response rate 73%</td>
<td>women with abortions (n=360), 1991</td>
<td>before the time of conception, ever used contraception</td>
</tr>
<tr>
<td>Haavio-Mannila et al., 2004</td>
<td>cross-sectional survey, response rate 78%</td>
<td>male and female, (n=4711), 1996</td>
<td>use at first intercourse</td>
</tr>
<tr>
<td>Haavio- and Kontula, 2003</td>
<td>cross-sectional, interview, response rate 41%</td>
<td>male and female, (n=1031), 2000</td>
<td>use at first intercourse, last intercourse</td>
</tr>
<tr>
<td>Uuskula et al., 2008</td>
<td>cross-sectional survey, (random sample), response rate 40%</td>
<td>male (n=209) and female (n=343), 2005-2006</td>
<td>condom use at last intercourse</td>
</tr>
</tbody>
</table>

An early 1990s questionnaire survey among service users, Estonian- and Russian-speaking women with abortions, showed rare use of reliable methods (Anderson et al., 1993). Only 1% of women used IUD and 12% used rhythm method before the abortion. The most frequent methods ever used were rhythm (33%), IUD (21%) and condom (29%).

The Estonian Health Interview Survey carried out in 1996 showed that more than half of the young women had not used any contraception at first intercourse and among those who have used it half relied on withdrawal and other “traditional” methods (Haavio-Mannila et al. 2003). Among women aged 20-29 years hormonal contraception use was high. Of women aged 20-24, 62% did not use contraception at their first intercourse (Haavio-Mannila et al. 2004). Around 25% of women of reproductive age used unreliable methods in the time of survey. The use of IUDs was highest among older women with children.

A sex survey was carried out in 2000 (Haavio-Manila and Kontula 2003; Haavio-Mannila et al. 2004). This study showed that among 18 to 34-year-old women the most commonly used
method at first intercourse was withdrawal (25%) and 53% did not use any contraception. Condom use at first intercourse was 20% among women aged 18-34 and 7% among women aged 35-54 years. Thus, even though condom use was common in the younger generation, still relatively few used condoms at their first sexual experience. At the most recent intercourse the most commonly reported methods among the 18 to 54-year-old women were IUD or spermicides (35%), withdrawal (19%) and rhythm method (14%). Only 12% reported using condom and 11% reported contraceptive pills. Very likely most of the combined IUD-spermicides group were spermicides users.

The latest cross-sectional population-based study in Estonia in 2006 showed that among those who (whose partner) did not intend to conceive one third used condom, hormonal contraceptives, or did not use any method and 10% had used IUD (Uuskula et al. 2008). However, the response rate of 40% may limit the study findings. However, it can be concluded that the use of contraception in Estonia seems to have improved since 1990s. Condom and hormonal contraception use increased, especially among young women.

**Contraception in Finland**

Based on search criteria we found 113 studies on contraception use in Finland. Of these I excluded 12 studies among specific groups, 67 which studied effects and effectiveness of different contraceptives, four on opinions and factors relating to use, 21 studies which had no data on contraception use and one not conducted in Finland. An additional search using the references of the articles found resulted in 2 studies. Thus, 10 studies were included (Table 5).

**Table 5. Studies on contraception use in Finland, 1990-2008**

<table>
<thead>
<tr>
<th>Author, publication year</th>
<th>Study design</th>
<th>Participants, year</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population-based studies</td>
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<tr>
<td>Kosunen et al., 1997</td>
<td>population based cross-sectional survey, random sample, response rate 74%</td>
<td>female (n=2,189), 18–44 yrs, 1994</td>
<td>ever used contraception</td>
</tr>
<tr>
<td>Hemminki et al., 1997</td>
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<tr>
<td>Hemminki et al., 1997</td>
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<tr>
<td>Kosunen et al., 1999</td>
<td></td>
<td>females, (n=2,189), 18–34 yrs, 1994</td>
<td>current use</td>
</tr>
<tr>
<td>Kirkkola et al., 1999</td>
<td>cross-sectional survey, random sample, response rate (females) 56%</td>
<td>males (n=395) and females, (n=393), 18–50 yrs, 1997</td>
<td>contraception ever used</td>
</tr>
<tr>
<td>Haavio-</td>
<td>cross-sectional survey</td>
<td>males (n=1104) and</td>
<td>use at first</td>
</tr>
</tbody>
</table>
There are data from four national sex surveys conducted in 1971, 1989, 1992 and 1999 (Haavio-Mannila and Kontula 2003b). Only two recent sex surveys are reviewed. Other nationwide surveys containing data on reproductive health are survey on Family Planning Services in Finland in 1994 (Sihvo and Koponen 1998), a survey on cardiovascular risk factors in the frame of WHO MONICA (Lundberg et al. 1999) and The “Health 2000” Survey (Koponen et al. 2004). All studies suggest a high rate of hormonal contraceptives among young women and common condom use at first intercourse.

The findings from the studies in the 1990s showed frequent use of condom at first intercourse and frequent use of reliable contraceptives (condom, OC, IUD) at most recent intercourse (Haavio-Manila and Kontula 2003a; Hemminki et al 1997b; Kirkkola et al. 1999) (Table 3 Appendix 3). In 1997 the most commonly ever used methods among women were oral contraceptives, condoms, IUDs and sterilization (Kirkkola et al. 1999). Among women aged 18 to 34-year-old the most used methods were oral contraceptives and condom (Kosunen et al. 1999). In other studies in 1992 and 1998 no use of contraception at first intercourse was reported by one-fifth of 18 to 34-year-old women, and at most recent intercourse 5% of women did not use any method (Haavio-Mannila and Kontula 2003a).

Consistent with earlier studies the popularity and frequent usage of OC and condoms were found in a 2004 study among university students (Virtala et al. 2007). Current condom use was reported by half of women in 2001. However, among 18 to 29-year-old women who engaged in casual sex, condom use was inconsistent (Nikula et al. 2007).
Among those requesting abortion a relatively high proportion of women not using any method before the time of conception was found in hospital based study in 1993 (Savonius et al. 1995).

Thus, contraception culture in Finland is characterized by the frequent utilization of different contraceptive methods among women of all ages. The preferred methods are condom, oral contraceptives and IUDs depending on the circumstances and women’s age.

In conclusion, based on available sources we found a slight but increasing use of reliable contraception (condom, OC, IUD) in Russia and Estonia in the 1990s compared to its frequent and stable use in Finland. In Russia population based studies and surveys among service users showed an increase in condom use among young women at the end of the 1990s. In Estonia the most changes concerned increased use of oral contraceptives at the end of the 1990s. At first intercourse many women in Russia did not use any method compared to frequent condom use in Finland.

Determinants of contraception use

Condom use at first intercourse No studies were found on the determinants of condom use at first intercourse in the three areas. However, the tendency for condom use at the first intercourse was shown in several studies. A study comparing sexual behaviour in the countries of the Baltic Sea region, including Finland, has shown wide acceptance of condom at first intercourse since the 1970s when the sexual revolution had begun (Haavio-Mannila 2003b). In Russia the same tendency in condom use started only in the 1990s.

Current contraception Three studies conducted in Russia and one study in Finland were found which had looked at the determinants beyond the basic demographic characteristics. In Russia, two studies showed that those who are young and single were more likely to use condom (Bobrova et al. 2005) (Table 4 Appendix 3). A study among clients from STD clinics in 2005 showed that being single increased the probability of contraception use (Benotsch et al. 2006). In another survey women with university education or student status were more likely to use condoms, but those who were married were less likely to do so (Gerber and Berman 2008).

In Finland a recent population-based study showed a higher probability to use any contraception or condom among those who are cohabiting and with high education (Nikula et al. 2007).

3.3 Risky sexual behaviour and its determinants

A literature search was made in relation to risky sexual behaviour and its determinants. Two studies describing the determinants of risky sexual behaviour were found. One study was
conducted in Russia and one in Finland (Table 5 Appendix 3). Both studies addressed the determinants of having multiple sexual partners.

**Number of sexual partners** Most of the studies describing the factors related to multiple sexual partners focused on a detailed analysis on the year preceding the survey. Probably this was because that reporting period may be short enough to minimize recall bias but long enough to provide meaningful information about the respondent’s life.

In Russia among patients of STD clinics being married or having a stable partner and being older was associated with lower probability of multiple partners (Benotsch et al. 2006). The population was a convenience sample of the clients of an STI clinic. Patients in STI clinics may differ considerably from the general population (Manhart et al. 2004) and generalization of the results of such studies to general population may be limited.

In Finland among women aged 18-29 years unmarried and cohabiting women were more likely to than married women have two or more partners in the year preceding the study (Nikula et al. 2007).

### 3.4 Determinants of abortion

Using specified criteria 22 studies were found related to factors for abortions among reproductive age women in the three areas. Four studies were included in the literature review and 17 were excluded as they did not have results on abortion determinants. Additionally 2 studies were found through a search of the reference list. Overall 6 studies were included in the literature review (Table 6).

<table>
<thead>
<tr>
<th>Author, publication year</th>
<th>Country</th>
<th>Study</th>
<th>Participants, year</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>David, 2007</td>
<td>Russia</td>
<td>cross sectional survey</td>
<td>all consenting repeat abortion clients; n=489 (2000); n=559 (2002); n=527 (2003), 1999-2003</td>
<td>repeat abortion within 1 year</td>
</tr>
<tr>
<td>Sihvo et al., 1998</td>
<td>Finland</td>
<td>population-based postal survey</td>
<td>females, 18–44 yrs, (n=2,189), 1994</td>
<td>any abortion</td>
</tr>
<tr>
<td>Vikat et al., 2002</td>
<td>Finland</td>
<td>register-based study</td>
<td>data on all live births to women&lt;45yrs (n=684,922; women with induced abortion=28,119), 1987-1998</td>
<td>postpartum repeat abortion</td>
</tr>
</tbody>
</table>
In Russia one study showed that young and cohabiting women were more likely to have repeat abortion within one year after delivery (David et al. 2007) (Table 6 Appendix 3) Surprisingly, education failed to show a significant effect on abortion. But this could be mainly explained by lack of knowledge in family planning issues even among highly educated women.

Unintended pregnancies result from no use of contraception, its misuse and contraceptive failure (Heikinheimo et al. 2008). According to one study in three Russian cities (David et al. 2007) women who did not know which contraception method to use after abortion were more likely to undergo repeated abortion within one year. According to many informative but small studies describing contraceptive use in Russia it was not possible to say when different types of contraception were used in relation to abortion and the analytic approach was not performed (Bannikova and Sannikov 1998; Chalmers et al. 1998; Rankin-Williams 2001). However, increased use of reliable contraceptives especially among young women was reported in all studies. In one study contraceptive counselling was expected to decrease abortion in the regions under study, but no significant differences in abortion rates were found (David et al. 2007).

In Estonia there was only one study describing the characteristics of women with abortion (Anderson et al. 1993). However, no definite conclusion can be made on the factors related to abortion (not shown in the table).

In Finland, the characteristics of women with ever, postpartum and repeat abortions were described in several studies (Nikula et al. 2007; Raatikainen et al. 2006; Sihvo et al. 1998; Vikat et al. 2002; Heikinheimo et al. 2008). All authors showed that unmarried and less educated women were likely to have abortions than married and higher educated women (Table 6 Appendix 3). Women with children (Sihvo et al. 1998) or those with high parity (Vikat et al. 2002) were likely to undergo abortion. One register-based study found older women

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Country</th>
<th>Study Design</th>
<th>Sample Description</th>
<th>Event of Interest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raatikainen et al., 2006</td>
<td>Finland</td>
<td>Register-based study</td>
<td>Women with abortions (n=26976 singleton pregnancies), 1989-2001</td>
<td>Any abortion</td>
</tr>
<tr>
<td>Nikula et al., 2007</td>
<td>Finland</td>
<td>Population-based questionnaire (RR 68%) and interview survey (RR 79%);</td>
<td>Males and females, 18–29 yrs, n=1,894 (females=738), 2000</td>
<td>Abortion, ever</td>
</tr>
<tr>
<td>Heikinheimo et al., 2008</td>
<td>Finland</td>
<td>Prospective cohort, register-based study</td>
<td>Women requested abortion (n=1,269)</td>
<td>Hazard ratio, repeat abortion</td>
</tr>
</tbody>
</table>
(Raatikainen 2002) while in another study younger women had higher risk of abortion (Vikat et al. 2002) that could relate to the type of abortion studied.

3.5 Determinants of sexually transmitted infections

Eleven studies were found related to factors for sexually transmitted infections among reproductive age women in the three areas. Of these 5 studies were included and 6 were excluded as they did not have results on abortion determinants. An additional search through the list of references yielded 3 relevant studies. Therefore 8 studies were included in the literature review (Table 7).

Table 7. Studies on factors related to sexually transmitted infections in Russia, Estonia and Finland in 1990-2008

<table>
<thead>
<tr>
<th>Author, publication year</th>
<th>Country</th>
<th>Study design</th>
<th>Participants, year</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Khryanin et al., 2004a</td>
<td>Russia</td>
<td>cross-sectional, questionnaire survey</td>
<td>women; 16–45 yrs; n=339, 2001</td>
<td>chlamydial infection and gonorrhoea</td>
</tr>
<tr>
<td>Sergevnin et al., 2004</td>
<td>Russia</td>
<td>case-control study</td>
<td>men and women; 18–30 yrs, n&lt;sub&gt;cases&lt;/sub&gt;=29, n&lt;sub&gt;controls&lt;/sub&gt;=116, 2002</td>
<td>chlamydial infection</td>
</tr>
<tr>
<td>Wilson et al., 2001</td>
<td>Estonia</td>
<td>case-control study</td>
<td>men and women (n=301), 18–57 yrs, 1996–1998</td>
<td>chlamydial infection, syphilis, gonorrhoea</td>
</tr>
<tr>
<td>Uuskula et al., 2008</td>
<td>Estonia</td>
<td>cross-sectional</td>
<td>men and women (n=560), 2005–2006</td>
<td>chlamydial infection</td>
</tr>
<tr>
<td>Hiltunen-Back et al., 2001</td>
<td>Finland</td>
<td>sentinel system, questionnaire survey</td>
<td>patients, men and women (n=13,620), 1995-1997</td>
<td>chlamydial infection</td>
</tr>
<tr>
<td>Hiltunen-Back et al., 2003</td>
<td>Finland</td>
<td>register-based</td>
<td>men and women, 1995-2000</td>
<td>chlamydial infection</td>
</tr>
<tr>
<td>Nikula et al., 2007</td>
<td>Finland</td>
<td>population-based questionnaire and interview survey</td>
<td>men and women; 18–29 yrs; n=1,894 (women=738), 2000</td>
<td>condyloma, chlamydial infection, herpes, yeast infection</td>
</tr>
</tbody>
</table>
In Russia the determinants of chlamydial infection and gonorrhoea among reproductive age women have been studied (Khryanin et al. 2004a; Khryanin, 2004b). Young age, low education, being single and first intercourse at age less than 18 years increased the likelihood of having STIs (Table 7 Appendix 3). The authors suggested that condom use did not show a protective effect due to its inconsistent use.

According to a case-control study participants with high income and those who had not used condom in casual relationships were more likely to have chlamydial infection (Sergevnin et al. 2004). The results of this study were partly consistent with earlier research. However, the matching procedure of controls was not mentioned and the data was presented for both men and women.

In Estonia, studies on factors related to STIs are scarce (Table 7 Appendix 3). One case-control study in the middle of the 1990s found those with one of the STIs (chlamydia, gonorrhoea or syphilis) were more likely to be younger than 25 years of age (Wilson et al. 2001). In a recent study having two or more sexual partners in the past year was the strongest predictor of chlamydidal infection (Uuskula et al. 2008).

In Finland, those with chlamydia were younger than those with gonorrhoea (Table 7 Appendix 3). Being single increased the risk of chlamydia or gonorrhoea (Hiltunen-Back et al. 1998; Hiltunen-Back et al. 2003). Additionally those having casual partners had higher risk of gonorrhoea. The findings of this case-control study are based on register data. However, all participants were clients in clinics of Helsinki area only and may not represent others with the same diseases.

A large number of sexual partners is well known risk factor for chlamydia, gonorrhoea and other STIs. This fact is supported by two studies conducted with a several-year interval in Finland (Hiltunen-Back et al. 2001; Hiltunen-Back E et al. 2003). The main factors for chlamydia trachomatis acquisition were young age (15-19 years) and large number of sexual partners in a year.

The factors in a recent study from Finland were slightly different. Women aged 25-29 had a higher probability to have STIs than those aged 18-19. This can be explained by classifying women with any STIs and not only those who have chlamydial infection (Nikula et al. 2007). The study found that being women in the age 25-29 years, cohabiting or single were risk factors for sexually transmitted infections. Having had high education had a protective effect on STIs.

The dissertation is a part of the REFER project (Reproductive Health and Fertility Patterns in Russia – a comparative approach). The REFER project is a multidisciplinary consortium consisting of two projects bound together with related themes, partly joint
researchers and data collection and joint researcher education both in Finland and St. Petersburg. REFER aims to study reproductive health, fertility patterns and family formation in Russia/St. Petersburg after the collapse of the Soviet Union in order to understand the level of and the changes in reproductive health. The comparison is made over time and to another ex-Soviet state, Estonia, having a large Russian population, and to neighbouring Finland, which is a politically and socially stable country. The study in St. Petersburg was conducted in 2004 and the study in Estonia was conducted in 2005. The members of REFER are STAKES (currently THL - National Institute for Health and Welfare, Finland), St. Petersburg Medical Academy for Postgraduate Studies (Russia), the University of Tartu (Estonia), the European University at St. Petersburg (Russia).
4 AIM OF THE STUDY

The aim of the study is to investigate women's reproductive health in St. Petersburg, Estonia and Finland, comparing women within each area and between the areas with the main emphasis on women in St. Petersburg.

The specific objectives of the study are:
1. to describe sexual behaviour and its variation by socio-demographic characteristics among women of reproductive age in St. Petersburg
2. to describe the practices and determinants of contraception and the determinants of abortions among women of reproductive age in St. Petersburg
3. to examine socio-economic characteristics and behavioural risk factors for abortions among women of reproductive age in St. Petersburg compared to Estonia and Finland
4. to examine socio-economic characteristics and behavioural risk factors for sexually transmitted infections among women of reproductive age in St. Petersburg by comparing them to those in Estonia and Finland.
5 MATERIAL AND METHODS

5.1 Description of the surveys in St. Petersburg, Estonia and Finland

Four surveys were used in the present study: a survey in St. Petersburg in 2004, a survey in Estonia in 2004, and two surveys in Finland, in 1992 and 1999 (Table 8; Figure 2).

The survey in St. Petersburg was approved by the Ethical Committee of St. Petersburg Medical Academy of Postgraduate Studies, Russia. The Ethics Review Committee on Human Research of the University of Tartu, Estonia approved the survey in Estonia. The two surveys in Finland were not handled in the REC (research ethics committee); sociological surveys are not customarily reviewed by the REC in Finland.

The self-administered questionnaires in St. Petersburg and Estonia were similar and contained seven parts: background characteristics, dating and sexual relationships, pregnancies and children, health care related to pregnancy and delivery, contraception, values related to childbearing, health and use of health care services. Most questions were taken from the questionnaire used in the surveys in Finland (Reproductive Survey in 1994, Family Barometer (Perhebarometri), Health 2000). The questions were translated from Finnish into Russian and Estonian, and for new questions the master copy was in English. The questionnaire was prepared jointly by Finnish, Russian and Estonian researchers.

Survey in St. Petersburg

Pilot study The feasibility of the study in St. Petersburg was tested by a pilot in the same clinics before the main survey. Forty-seven women aged 18-44 years were randomly selected for the pilot study and the same questionnaire as for the main study was used. Sixty two percent of them participated. Overall, the pilot study showed potential for conducting the main study (Regushevskaya et al. 2003).

Study participants The target population was reproductive age women born between 1959–1985 living in St. Petersburg at the time of the study. For the sake of feasibility we restricted our study to two districts out of 20. In these two districts reproductive age women (n=90 532) were served by the three women's clinics. We chose a random sample of 2.8% (n=2501) out of all fertile women living in the districts. A total of 782
women (31%) were not located. Out of those reached, 1,147 women participated (a response rate of 67%, based on the initial sample size of 1,719 women) (Figure 2).

*Due to the Russian registration system it is not uncommon that people are not living in the place they are registered (non location). No location means that women are registered at an address, but do not actually live there. Some of these women have moved to another city, and some of them are living in another district of St. Petersburg, but they are still registered at their previous place of residence. If we knew that they are living abroad they were classified in a group “other reason”. At the stage of sampling it was impossible to separate these women from those who actually lived in the address (Kesseli et al. 2005; Regushevskaya et al. 2008).

FIGURE 2. Flow chart of the study in St. Petersburg
Survey in Estonia

The sample for the Estonian survey was taken from the national population register (Part et al. 2007). A stratified random sample was taken from the age groups 16-25, 26-35 and 36-44 years. The study was conducted through an anonymous postal questionnaire with a response rate of 54%. For the purpose of this dissertation women 18 years or older were chosen.

Survey in Finland

In Finland the participants for the survey in 1992 were selected randomly from the central population register (Haavio-Mannila and Kontula 2003). This was a sample of men and women aged 18-74. The response rate among women was 78%. For the purpose of this study only women aged 18-44 (n=606) were chosen. The information was collected mainly by personal interview, but sensitive questions were handled using self-report cards. The study in 1999 was administered as a postal survey with a response rate among women 52%. The data from 464 women was used in our study. Overall the number of reproductive age women in the two surveys was 1,070.

Table 8. Description of the surveys in St Petersburg, Estonia and Finland

<table>
<thead>
<tr>
<th>Survey in St Petersburg¹</th>
<th>Survey in Estonia²</th>
<th>Surveys in Finland³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study design</td>
<td>cross-sectional</td>
<td>cross-sectional</td>
</tr>
<tr>
<td>Sample</td>
<td>random, women 18–44 yrs</td>
<td>random, women 16–44 yrs</td>
</tr>
<tr>
<td>Source</td>
<td>database of District Authority Police department</td>
<td>population register</td>
</tr>
<tr>
<td>Data collection</td>
<td>self-administered questionnaire</td>
<td>mailed questionnaire</td>
</tr>
<tr>
<td>Response rate</td>
<td>67%</td>
<td>54%</td>
</tr>
<tr>
<td>Respondents</td>
<td>n=1147 (women, 18-44 yrs)</td>
<td>n=2525 (women 18-44 yrs)</td>
</tr>
</tbody>
</table>

¹For a detailed description see the report on the surveys Kesseli et al., 2005, Regushevskaya et al., 2008; ²Part et al., 2007; ³Haavio-Mannila and Kontula, 2003.
5.2 Data analysis

In St. Petersburg socio-economic characteristics, sexual behaviour and the relationships between socio-demographic characteristics and sexual behaviour were studied.

Abortion was self-reported and women with at least one abortion were classified as women having abortion. Sexually transmitted infections were self-reported and only syphilis, gonorrhoea, chlamydial infection, herpes, HIV and trichomoniasis were included in the analyses. The term "typical STIs" was used for syphilis, gonorrhoea and chlamydial infection. Those with at least one of these infections were classified as women with STIs.

First, analyses of risk factors for abortion and STIs within each area were made. Then the influence of the risk factors between areas was compared. I studied whether the factors for abortions and sexually transmitted infections were the same or different. Less emphasis was placed on the strength of the association because the surveys were not directly comparable.

Means and frequency distributions were used to describe women's socio-demographic characteristics and sexual behaviour. Chi-square was used to assess the statistical significance of differences between the age-groups. Logistic regression analysis was used to examine the association between women’s socio-demographic characteristics and sexual behaviour (Paper I), between women's characteristics and the use of specific contraceptive methods at last intercourse (II), women’s abortion history (II, III) and sexually transmitted infections (IV). Odds ratios (OR) and 95% confidence intervals (95% CI) were calculated. For studying associations between socio-demographic characteristics and sexual behaviour models were adjusted for age. For studying associations between women's characteristics and the use of specific contraceptive methods at last intercourse models were adjusted for age, marital status and parity. For studying the associations between women's characteristics and abortions, and sexually transmitted infections the model was adjusted for age and education. SPSS, version 12, was used to conduct the analyses.
6 RESULTS

6.1 Characteristics of the women studied (Papers I, II, III)

The socio-demographic characteristics of the women were similar in the study areas. In St. Petersburg and Finland, almost half of the women were married (47% and 45% respectively) and fewer were single (38% and 31%). Only 15% in St. Petersburg and 24% of women in Finland were cohabiting. In Estonia, the majority were single (39%) or married (38%) among Russian-speaking and among Estonian-speaking most women were single (39%) or cohabiting (33%).

In St. Petersburg, the majority had 11–13 (42%) or 14-16 years of education (39%). In Estonia, the educational status was almost the same in both language-groups but there were more women with higher education among the Estonian-speaking (15%) than among the Russian-speaking (6%) women.

In all areas, more than half of women had at least one child (56% in Finland, 64% in St. Petersburg, 58% and 53% respectively among Russian and Estonian-speaking women).

Young age at first intercourse was common in Finland in all age-groups with only a small decrease by age cohort (Table 8 Appendix 3). Instead, in both St. Petersburg and Estonia, a noticeable change in the age at first intercourse was seen among young women. In Estonia, the majority of young Russian and Estonian-speaking women reported early age at first intercourse. The difference was in the age group 25-34 years: more Russian than Estonian-speaking women had had their first intercourse when younger than 18 years.

In all areas studied most women had had at least one sexual partner in the year preceding the survey. Having three or more partners was common among the youngest age-group in St. Petersburg, Finland and in all age-groups in Estonia, both among Russian and Estonian-speaking women.

In all areas around one third of women had had six and more lifetime sexual partners and their highest proportion was among the 25 to 34-year-old women. In all areas a similar proportion of women had had parallel (concurrent) sexual relationships outside marriage or cohabiting.
Contraception use at first and most recent intercourse in the areas studied is presented in Table 9 Appendix 3. In Finland condom use at first intercourse was common among women in all age groups. Instead, in both St. Petersburg and Estonia, condom use was common only among the youngest women.

In St. Petersburg, the most common contraception method in the first sexual contact among the youngest women was condom or oral contraceptives. A high proportion of women of other age groups did not use any method.

In Estonia the most prevalent method among young Russian-speaking women was condom or OC, some other method or no contraception among women aged 25–34 and no method among women aged 35–44. Among Estonian-speaking respondents the tendency was the same with only one exception. Almost half of women in the age group 35-44 years had tried some contraception at first intercourse.

In Finland, two-thirds of women in all age groups used condom and few did not use any method at first intercourse.

Protection against sexually transmitted infection at first sexual contact is possible only by using condoms. The proportion of women who used condom in St. Petersburg was less than half among 18-24 years old and even less than that in other age groups. In Estonia in the youngest age group in both Russian and Estonian-speaking women, there was a tendency to use condom more often.

At most recent intercourse reliable methods were commonly used in Finland, while in St. Petersburg a high proportion of women used withdrawal or rhythm method. At most recent intercourse the proportion of those using no contraception was higher among women in St. Petersburg than among Estonian and Finnish women.

Older women used IUD, rhythm method and syringing. Hormonal contraceptives employed by the youngest women.

In Estonia, there was a difference between Russian and Estonian-speaking women. Among the youngest women, condom, withdrawal and rhythm methods were employed by Russian-speaking women while hormonal contraceptives and condoms were used by Estonian-speaking women. In the group aged 25-34 Russian-speaking women used withdrawal and rhythm method more often than Estonian-speaking women.

In Finland unreliable or no contraception were rarely used. At most recent intercourse most women in the two youngest age groups used condoms or oral contraceptives. Among the oldest age group IUD was the most common method.
6.2 Relationships between women's characteristics and contraceptive use at most recent intercourse in St. Petersburg (Paper II)

Those who were older and with many years of education were less likely to use no method at most recent intercourse (Table 9). Those with children and who did not use condom at first intercourse were more likely to use no method. Only one factor influenced the probability of using OC. Wealthier women were more likely to employ this method. Cohabiting women were twice less likely to use condom than married women. Women older than 24 years, with higher education, and 1-2 children were more likely to use rhythm method. Probability to use withdrawal was less among older women. Students were more likely to use this method.

Table 9. Determinants of contraception use at most recent intercourse, adjusted for age, marital status and number of children, in St. Petersburg

<table>
<thead>
<tr>
<th></th>
<th>None</th>
<th>OC</th>
<th>Condom</th>
<th>Rhythm</th>
<th>Withdrawal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-24 (ref)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-34</td>
<td>↓</td>
<td>(↓)</td>
<td>(↑)</td>
<td>↑↑</td>
<td>↓</td>
</tr>
<tr>
<td>35-44</td>
<td>(↓)</td>
<td>(↓)</td>
<td>(↓)</td>
<td>↑↑</td>
<td></td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>married (ref)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>cohabiting</td>
<td>(↓)</td>
<td>(↑)</td>
<td>↓</td>
<td>=</td>
<td>=</td>
</tr>
<tr>
<td>unmarried</td>
<td>(↓)</td>
<td>(↓)</td>
<td>(↓)</td>
<td>=</td>
<td>=</td>
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<tr>
<td><strong>Education, yrs</strong></td>
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<td>&lt;11 (ref)</td>
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<td>11-13</td>
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<td>14-16</td>
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<td>&gt;16</td>
<td>(↓)</td>
<td>(↑)</td>
<td>(↓)</td>
<td>=</td>
<td>=</td>
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<tr>
<td><strong>Employment</strong></td>
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<td></td>
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</tr>
<tr>
<td>employed (ref)</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>unemployed</td>
<td>(↑)</td>
<td>(↓)</td>
<td>(↓)</td>
<td>(↑↑)</td>
<td>(↑↑)</td>
</tr>
<tr>
<td>housewife</td>
<td>(↑)</td>
<td>(↓)</td>
<td>=</td>
<td>(↓)</td>
<td>(↓)</td>
</tr>
<tr>
<td>student</td>
<td>(↓)</td>
<td>(↑)</td>
<td>(↓)</td>
<td>(↓)</td>
<td>↑↑</td>
</tr>
<tr>
<td>pensioner/other</td>
<td>(↑)</td>
<td>(↓)</td>
<td>=</td>
<td>=</td>
<td>(↑)</td>
</tr>
<tr>
<td><strong>Personal income</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>low (ref)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>middle</td>
<td>=</td>
<td>↑</td>
<td>(↓)</td>
<td>=</td>
<td>(↓)</td>
</tr>
<tr>
<td>high</td>
<td>(↓)</td>
<td>(↑)</td>
<td>=</td>
<td>(↑)</td>
<td>=</td>
</tr>
<tr>
<td><strong>Children</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>none (ref)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-2</td>
<td>↑↑</td>
<td>(↓)</td>
<td>↓</td>
<td>↑</td>
<td>(↑)</td>
</tr>
<tr>
<td>3+</td>
<td>(↑↑)</td>
<td>(↓)</td>
<td>(↓)</td>
<td>(↓)</td>
<td>(↓)</td>
</tr>
<tr>
<td><strong>Age at first intercourse, yrs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;18 (ref)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>less than 18</td>
<td>(↑)</td>
<td>(↑)</td>
<td>(↑)</td>
<td>(↑)</td>
<td>(↑)</td>
</tr>
</tbody>
</table>

Only those who are at risk of unintended pregnancy are included. ↑ OR higher than 1.00 but less than 2.00; ↑↑ OR 2.00 or more; ↓ OR less than 1.00; = OR less than 1.20; (↓), statistically non-significant result. Notes: Women were considered to be at risk of unintended pregnancy if they were sexually active, fertile, not sterilized, and not pregnant or breast-feeding a baby younger than two months, and did not want to have (more) children. ref= reference category. OR are given in Paper II, Table 3.
Women who were cohabiting, had middle level of personal income, or had 1-2 children were more likely to have their first intercourse when younger than 18 years (Table 10). Those who had studied 13 years or less were twice as likely to experience first intercourse at an early age as those who had studied 14 years or more.

Marital status and middle or high income level predicted having two or more partners in the year preceding the survey. Unmarried and cohabiting women were more likely than married women to report having had multiple partners. Wealthier women were twice as likely to have multiple sexual partners in the previous year than those with low income. Characteristics such as being a housewife, living in poor conditions and having 1–2 children significantly decreased the odds of having multiple partners.

Those with highest personal income had a higher probability of having concurrent (parallel) sexual relationships. Housewives were unlikely to be in concurrent relationships.

Table 10. Relationships between socio-demographic characteristics and sexual behaviour, adjusted for age, St. Petersburg

<table>
<thead>
<tr>
<th></th>
<th>First intercourse before 18 years</th>
<th>Multiple partners in the past year</th>
<th>Concurrent sexual relationships</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>married (ref)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cohabiting</td>
<td>↑</td>
<td>↑↑</td>
<td>(↑)</td>
</tr>
<tr>
<td>single</td>
<td>(↓)</td>
<td>(↓)</td>
<td>(↓)</td>
</tr>
<tr>
<td><strong>Education, yrs</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;11 (ref)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11-13</td>
<td>(↑)</td>
<td>=</td>
<td>(↑)</td>
</tr>
<tr>
<td>14-16</td>
<td>↓</td>
<td>=</td>
<td>(↓)</td>
</tr>
<tr>
<td>&gt;16</td>
<td>↓</td>
<td>=</td>
<td>(↓)</td>
</tr>
<tr>
<td><strong>Personal income</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>low (ref)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>middle</td>
<td>↑†</td>
<td>↑↑</td>
<td>(↑)</td>
</tr>
<tr>
<td>high</td>
<td>(↑†)</td>
<td>↑↑</td>
<td>↑</td>
</tr>
<tr>
<td><strong>Employment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>employed (ref)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>unemployed</td>
<td>(↑†)</td>
<td>(↑)</td>
<td>(↓)</td>
</tr>
<tr>
<td>housewife</td>
<td>=</td>
<td>↓</td>
<td>↓</td>
</tr>
<tr>
<td>student</td>
<td>↓†</td>
<td>(↑)</td>
<td>(↓)</td>
</tr>
<tr>
<td>pensioner/others</td>
<td>(↑†)</td>
<td>(↑)</td>
<td>(↓)</td>
</tr>
<tr>
<td><strong>Density of living</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>one room and more</td>
<td>(↑†)</td>
<td>↓</td>
<td>(↓)</td>
</tr>
<tr>
<td>less than one room</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Children</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>none (ref)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-2</td>
<td>↑†</td>
<td>(↓)</td>
<td>(↓)</td>
</tr>
<tr>
<td>3+</td>
<td>(↑†)</td>
<td>(↓)</td>
<td>(↓)</td>
</tr>
</tbody>
</table>

↑ OR higher than 1.00 but less than 2.00; ↑↑ OR 2.00 or more; ↓ OR less than 1.00; = OR less than 1.20; (), statistically non-significant result. Note: ref=reference category. OR are given in Paper I, Table III.
6.4 Abortions and their determinants in the study areas (Papers II, III)

The proportion of women having had an abortion or several abortions varied between countries and in each area by age (Table 11). The highest proportion of women with abortions was in St. Petersburg, followed by Russian-speaking Estonians and Estonian-speaking Estonians; the lowest rate was in Finland. In all areas younger women had had fewer abortions than older women. Repeat abortions were more common in St. Petersburg and among Russian-speaking in Estonia with the highest rate among older age women.

Table 11. Proportion of women\(^1\) having had abortion by age, %

<table>
<thead>
<tr>
<th></th>
<th>St. Petersburg (n=1103)</th>
<th>Estonian-speaking, Estonia (n=1652)</th>
<th>Russian-speaking, Estonia (n=680)</th>
<th>Finland (n=1070)</th>
</tr>
</thead>
<tbody>
<tr>
<td>any abortion</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-24</td>
<td>25</td>
<td>16</td>
<td>14</td>
<td>8</td>
</tr>
<tr>
<td>25-34</td>
<td>56</td>
<td>32</td>
<td>50</td>
<td>15</td>
</tr>
<tr>
<td>35-44</td>
<td>71</td>
<td>60</td>
<td>83</td>
<td>21</td>
</tr>
<tr>
<td>Total</td>
<td>55</td>
<td>34</td>
<td>47</td>
<td>15</td>
</tr>
<tr>
<td>two or more abortions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-24</td>
<td>7</td>
<td>3</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>25-34</td>
<td>32</td>
<td>13</td>
<td>29</td>
<td>3</td>
</tr>
<tr>
<td>35-44</td>
<td>50</td>
<td>37</td>
<td>60</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>34</td>
<td>17</td>
<td>29</td>
<td>3</td>
</tr>
</tbody>
</table>

\(^1\)Only those who have ever had sex are included in the analysis. Statistical testing refers to the differences between the age-groups.

In all areas the determinants of abortion were similar but the strength of their effects varied (Table 12). In St. Petersburg the determinants of abortions were studied in two different ways – adjusting for age, marital status and number of children (Paper II) and adjusting for age and education (III); both yielded similar results.

In all study areas the number of children and level of education showed the same relation to abortion. Women with at least one child were more likely to have undergone abortion than those without children and higher educated women had fewer abortions.

In all areas young age at first intercourse, high number of lifetime sexual partners and no contraception at first intercourse were risk factors for abortion. In all areas women who did not use any contraceptive methods and in St. Petersburg and Estonia those using methods other than condom or oral contraceptives at first intercourse had an increased risk for abortion.

In Finland multiple sexual partners was the strongest risk factor for abortion, while socio-demographic characteristics except education were less important.

In St. Petersburg having more than one sexual partner in the year preceding the survey did not correlate with abortion, but among Estonian-speaking women in Estonia this increased
the probability of abortion. In St. Petersburg concurrent sexual relationships were not associated with abortion. However, in Estonia both among Russian and Estonian-speaking women, those who had concurrent sexual relationships had a two-fold increased risk of abortion. In Finland the relationships were not statistically significant.

Table 12. Strength of risk factors for abortion by background characteristics, adjusted for age and education

<table>
<thead>
<tr>
<th>Marital status</th>
<th>St. Petersburg</th>
<th>Russian-speaking, Estonia</th>
<th>Estonian-speaking, Estonia</th>
<th>Finland</th>
</tr>
</thead>
<tbody>
<tr>
<td>married (ref.)</td>
<td>(†)</td>
<td>(†)</td>
<td>↑</td>
<td>(†)</td>
</tr>
<tr>
<td>cohabiting</td>
<td>↓</td>
<td>(†)</td>
<td>↓</td>
<td>(†)</td>
</tr>
<tr>
<td>single</td>
<td>(↓)</td>
<td>(↓)</td>
<td>(↓)</td>
<td>(↓)</td>
</tr>
<tr>
<td>Education, years²</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>more than 16 (16+) (ref.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14-16 (13-15)</td>
<td>(↓)</td>
<td>(↓)</td>
<td>(↓)</td>
<td>(↓)</td>
</tr>
<tr>
<td>11-13 (10-12)</td>
<td>(↑)</td>
<td>=</td>
<td>↑</td>
<td>(↑)</td>
</tr>
<tr>
<td>&lt;11 (&lt;10)</td>
<td>↑↑</td>
<td>↑↑</td>
<td>↑↑</td>
<td>↑↑</td>
</tr>
<tr>
<td>Number of children</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>no children (ref)</td>
<td>↑↑</td>
<td>↑↑</td>
<td>↑↑</td>
<td>↑↑</td>
</tr>
<tr>
<td>one or more</td>
<td>↑</td>
<td>↑</td>
<td>↑</td>
<td>↑</td>
</tr>
<tr>
<td>Age of first intercourse</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 or more years (ref.)</td>
<td>↑↑</td>
<td>↑</td>
<td>↑</td>
<td>↑</td>
</tr>
<tr>
<td>under 18 years</td>
<td>↑</td>
<td>↑</td>
<td>↑</td>
<td>↑</td>
</tr>
<tr>
<td>Contraception at first intercourse</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>condom or OC (ref.)</td>
<td>↑</td>
<td>↑</td>
<td>↑</td>
<td>=</td>
</tr>
<tr>
<td>other</td>
<td>↑</td>
<td>↑</td>
<td>↑</td>
<td>=</td>
</tr>
<tr>
<td>none</td>
<td>↑↑</td>
<td>↑↑</td>
<td>↑↑</td>
<td>↑</td>
</tr>
<tr>
<td>Contraception at most recent intercourse</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>reliable (ref.)</td>
<td>=</td>
<td>↑</td>
<td>=</td>
<td>(↓)</td>
</tr>
<tr>
<td>unreliable</td>
<td>(↓)</td>
<td>(↓)</td>
<td>(↓)</td>
<td>(↓)</td>
</tr>
<tr>
<td>none</td>
<td>(↓)</td>
<td>(↓)</td>
<td>(↓)</td>
<td>(↓)</td>
</tr>
<tr>
<td>Number of sexual partners in the past year</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 partner (ref.)</td>
<td>(↓)</td>
<td>(↑)</td>
<td>↑</td>
<td>(↑)</td>
</tr>
<tr>
<td>2 or more partners</td>
<td>(↑)</td>
<td>↑</td>
<td>↑</td>
<td>(↑)</td>
</tr>
<tr>
<td>Lifetime sexual partners</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 4 partners (ref.)</td>
<td>↑</td>
<td>↑</td>
<td>↑</td>
<td>↑↑</td>
</tr>
<tr>
<td>4 or more partners</td>
<td>↑</td>
<td>↑</td>
<td>↑</td>
<td>↑↑</td>
</tr>
<tr>
<td>Concurrent sexual relationships³</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>no (ref)</td>
<td>=</td>
<td>↑↑</td>
<td>↑↑</td>
<td>↑↑</td>
</tr>
<tr>
<td>yes</td>
<td>=</td>
<td>↑↑</td>
<td>↑↑</td>
<td>(↑)</td>
</tr>
</tbody>
</table>

¹ Only those having had sexual intercourse are included; ² in Finland the normative number of education years before university is 12 and in Russia and Estonia 10 years; ³ Only married or cohabiting women are included in the analysis; † OR higher than 1.00 but less than 2.00; †† OR 2.00 or more; ↓ OR less than 1.00; = OR less than 1.20; ( ), statistically non-significant result. Note: ref., reference category. OR are given in Paper III, Table 5.
**6.5 Sexually transmitted infections and their determinants in the study areas (Paper IV)**

The real prevalence of sexually transmitted infections could not be measured, but the proxy data of self-reported STIs was relied on under the assumption that it makes it possible to compare the determinants.

In all areas risky sexual behaviour was related to sexually transmitted infections (Table 13). Women with an STIs history had more often had their first intercourse when under 18 years, had not used condoms during first intercourse, had a high number of lifetime or sexual partners in the preceding year. However, marital status and education were not similarly related in the three areas. In Finland cohabiting and well-educated women were more likely to have had STIs. In St. Petersburg more educated women were less likely to have had STIs and no difference was found in relation to marital status. In Estonia no statistically significant association was found with regard to marital status or education.

In Estonia there were some differences between Russian-speaking and Estonian-speaking women. Among Estonian-speaking women all risky sexual behaviours studied were risk factors for STIs while among Russian-speaking population only having four or more lifetime partners increased the likelihood of STIs.

In Finland, cohabiting, having high education, young age at first intercourse, and having had multiple sexual partners were risk factors for STIs.
Table 13. Strength of risk factors for sexually transmitted infections by background characteristics, adjusted for age¹

<table>
<thead>
<tr>
<th></th>
<th>St. Petersburg</th>
<th>Russian-speaking, Estonia</th>
<th>Estonian-speaking, Estonia</th>
<th>Finland</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>married (ref.)</td>
<td>(†)</td>
<td>=</td>
<td>(†)</td>
<td>↑↑</td>
</tr>
<tr>
<td>cohabiting</td>
<td>(↓)</td>
<td></td>
<td>(↓)</td>
<td></td>
</tr>
<tr>
<td>single</td>
<td>(↓)</td>
<td></td>
<td>(↓)</td>
<td></td>
</tr>
<tr>
<td><strong>Education, years²</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;11 (&lt;10) (ref.)</td>
<td>(↓)</td>
<td>(↑)</td>
<td>(↓)</td>
<td>(↑)</td>
</tr>
<tr>
<td>11-13 (10-12)</td>
<td>(↓)</td>
<td>(↑)</td>
<td>(↓)</td>
<td>(↑)</td>
</tr>
<tr>
<td>14-16 (13-15)</td>
<td>(↓)</td>
<td>(↑↑)</td>
<td>(↓)</td>
<td>(↑↑)</td>
</tr>
<tr>
<td>more than 16 (16+)</td>
<td>(↓)</td>
<td></td>
<td>(↑↑)</td>
<td>1</td>
</tr>
<tr>
<td><strong>Age of first intercourse</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 or more years (ref.)</td>
<td>↑↑</td>
<td>(↑)</td>
<td>↑</td>
<td>↑↑</td>
</tr>
<tr>
<td>under 18 years</td>
<td>↑↑</td>
<td>(↑)</td>
<td>↑</td>
<td></td>
</tr>
<tr>
<td><strong>Condom use at first intercourse</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>yes (ref.)</td>
<td>↑</td>
<td>(↑)</td>
<td>↑</td>
<td>(↑)</td>
</tr>
<tr>
<td>no</td>
<td>↑↑</td>
<td>(↑)</td>
<td>↑</td>
<td>↑</td>
</tr>
<tr>
<td><strong>Number of sexual partners in the past year</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 partner (ref.)</td>
<td>↑</td>
<td>(↑)</td>
<td>↑</td>
<td>↑</td>
</tr>
<tr>
<td>2 or more partners</td>
<td>↑</td>
<td>(↑)</td>
<td>↑</td>
<td>↑</td>
</tr>
<tr>
<td><strong>Lifetime sexual partners</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 4 partners (ref.)</td>
<td>↑↑</td>
<td>↑↑</td>
<td>↑</td>
<td>↑</td>
</tr>
<tr>
<td>4 or more partners</td>
<td>↑↑</td>
<td>↑↑</td>
<td>↑</td>
<td>↑</td>
</tr>
<tr>
<td><strong>Concurrent sexual relationships³</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>no (ref.)</td>
<td>↑↑</td>
<td>(↑)</td>
<td>↑</td>
<td>(↑)</td>
</tr>
<tr>
<td>yes</td>
<td>↑↑</td>
<td>(↑)</td>
<td>↑</td>
<td></td>
</tr>
</tbody>
</table>

¹Only those who had had sexual intercourse were included in the analysis; ² in Finland the normative number of education years before university is 12 and in Russia and Estonia 10 years; ³Only those who are married or cohabiting were included in the analysis; ↑ OR higher than 1.00 but less than 2.00; ↑↑ OR 2.00 or more; ↓ OR less than 1.00; = OR less than 1.20; (), statistically non-significant result. Note: ref., reference category. OR are given in Paper VI, Table 4.
6.6 Relationships between abortions and sexually transmitted infections (Paper IV)

It was not common in any research area that women had had both abortion and STIs (Table 14). The highest ratio of those with both abortions and STIs was found in St. Petersburg and the lowest ratio in Finland.

Table 14. Concordance of STIs and abortions in the study areas: proportions (%) of women and ratio

<table>
<thead>
<tr>
<th></th>
<th>STIs and abortion, %</th>
<th>STI but no abortion, %</th>
<th>Abortion but no STI, %</th>
<th>Ratio¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>St. Petersburg</td>
<td>14</td>
<td>7</td>
<td>41</td>
<td>0.29</td>
</tr>
<tr>
<td>Russian-speaking, Estonia</td>
<td>8</td>
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<td>8</td>
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</table>

¹Ratio expresses the relation of having had STI and abortion to having had had either abortion or STI
7 GENERAL DISCUSSION

7.1 Main findings

Before this study, there was only limited information on the characteristics of women with abortions and sexually transmitted infections in general population in St. Petersburg and Estonia. Earlier studies were conducted in specific groups, mostly young adolescents or clients of STD clinics. Earlier studies and surveys among service users had shown that the protection against unwanted pregnancy and sexually transmitted infections was inadequate. However, there were no extensive studies on the determinants of contraception use in Russia that could help to explain the high abortion rate and prevalent STIs. Comparative data between counties are scarce and often unreliable. The approach used in this study to find differences between neighbouring areas had not been previously employed.

This study provides new information on the numbers and characteristics of women with self-reported abortion and STIs and the differences of their risk factors in three neighbouring areas. A high prevalence of both abortions and self-reported sexually transmitted infections was found in St. Petersburg compared to Finland. The comparisons with Estonia showed a slightly higher rate of abortions in St. Petersburg and almost the same rate of STIs in Estonia and St. Petersburg. In St. Petersburg, although younger women had used condoms more often at the first sexual contact than older women, the proportion of users was still relatively low compared to Finland and Estonia. In St. Petersburg the use of reliable contraceptives at most recent intercourse was low compared to Finland.

In Estonia reliable contraception use differed among the Russian and Estonian-speaking women. Use of unreliable contraception at most recent intercourse was more common among Russian than among Estonian-speaking women. However, the hypothesis that Russian-speaking women in Estonia are in between women in St. Petersburg and Estonian-speaking women was not otherwise supported by the analyses conducted. This suggests that Russian-speaking women in Estonia are closer in most instances to Estonian-speaking women in Estonia.

**Contraception** A difference was found between the age groups in relation to age at first intercourse and condom use at first intercourse in St. Petersburg and Estonia but not in Finland.

The use of reliable contraception at first and most recent intercourse was lowest in St. Petersburg in all age-groups. This could reflect the fact of patients misleading beliefs created from the long-term indirect ban on oral contraceptives (Popov et al. 1993; Zakharov, 2008), their poor quality (Rankin-Williams 2001) and absence of sex education (Bayers and Slattery 1997; Henshaw et al. 1999; Remennick 1991; Shapiro 2001).

In St. Petersburg young women used condom at first intercourse more often than women in older age groups. However, unreliable methods were commonly employed. The proportion of
condom use was slightly less than in Estonia and much lower than in Finland. However, in St. Petersburg and Estonia the difference in condom use between age cohorts was notable while in Finland the proportion of women using condom at first intercourse was similar (high) between age cohorts.

In many European countries increase in condom use started in the middle of the 1980s (Spinelli et al. 2000; Svare et al. 2002; Toulemon and Leridon 1998; Wellings et al. 2006). This has been attributed to the sexual revolution from the 1960s to 1980s (Haavio-Mannila and Kontula 2003; Zakharov 2008). The wide condom use especially at first intercourse in most European countries probably reflects attention to HIV epidemic and awareness of preventing HIV (Herlitz and Steel 2000; Spinelli et al. 2000). Compared to other countries I found only a slight increase in condom use among women aged 18-24 in St. Petersburg. Safe sex campaigns and sex education in St. Petersburg are not very common even though there are efforts to educate young people in special youth clinics (Iur’ev et al. 2001). There is no systematic approach to sex education in Russia (Rivkin-Fish 1999; Shapiro 2001). This may also explain the findings that the length of general education was related to condom use. In other countries it has been found that sex education but not general education increases the probability of using condom at sexual debut (Gremy and Beltzer 2004; Shafi et al. 2004). In St. Petersburg women born in the 1970s and later used reliable contraceptives more often than older women, which could be partly explained by the higher age at marriage in Russia (Zakharov 2008). Unmarried women usually use condoms more often. However, in this study marital status did not show any effect on use of reliable contraceptives.

In St. Petersburg reliable contraceptive use was low compared to Finland and Estonian-speaking women in Estonia. The low use of oral contraceptives and intrauterine devices may be related to the long period of their unavailability, the indirect ban on reliable means (oral contraceptives) (USSR Ministry of Public Health 1974), their poor quality (Rankin-Williams 2001), and negative attitudes of health care providers to oral contraceptive use (Popov et al. 1993; Visser et al. 1993a; Visser et al. 1993a; Zakharov 2008). It is not clear why Russian-speaking women more often rely on unreliable methods but it may be related to differences in the access to contraceptives or to some cultural peculiarities.

Socio-demographic characteristics and contraception use at most recent intercourse

Education did not influence the probability of reliable contraception use in St. Petersburg. This is in contrast to Western European countries (Spinelli et al. 2000; Toulemon and Leridon 1998). However, longer education decreased the probability of not using any contraception. Personal income affected use of oral contraceptives; women with higher income were more likely to use them. Thus, the cost of OC may be a barrier to their use. The cost of oral contraceptives was
around 6% of the monthly minimum living wage in 2003. This should be taken into account while improving family planning services.

In St. Petersburg, unprotected most recent sexual experience was associated with having children and no condom use at sexual debut. This finding is in line with earlier studies showing high subsequent condom use if used at first intercourse (Klavs et al. 2005; Shafi et al. 2004). I did not ask why women with children at risk of unintended pregnancy did not employ any method, but this may be related to financial barriers, misperception of modern contraception due to long-term ban of OC or poor awareness of the consequences of terminating unintended pregnancy.

**Abortions and their determinants** In St. Petersburg the prevalence of abortion was high compared to Finland. Even young women relatively often reported having had at least one abortion. Repeat abortions were also more prevalent in St. Petersburg. Such findings are not surprising due to the long-term mass “abortion culture in Russia” (Zakharov 2008). Even after the changes in family policy at the beginning of the 2000s and implementation of “maternal capital” for those with a second child in 2007 (Zakharov 2008), abortions still play a key role in sustaining low replacement fertility in the country. The reasons for high abortion rate in the Soviet era were mostly related to poor quality and lack of contraception (David 1974; Popov et al. 1993; Turner 1992; Warriner and Shah 2006; Zakharov 2008). Nowadays contraceptives are widely available in Russia, and knowledge of contraception and abortion was relatively good in the population at the end of 1990s (Chalmers et al. 1998). However, good knowledge does not always lead to correct use (Chalmers et al. 1998).

The strongest predictor of having an abortion in St. Petersburg and Estonia was having children. Descriptive studies in Russia (Fedorova and Banyushevich 2002) and Estonia (Anderson et al. 1993) have shown that women with abortion had already had children. The explanation for this may be a combination of early marriage, desire for only one or two children, and rapid fulfilment of childbearing intentions soon after marriage.

In St. Petersburg more educated women were less likely to have abortions, which is in line with the findings from earlier research in Finland (Raatikainen et al. 2006; Sihvo et al. 1998). On the other hand, it was not found that more highly educated women were more likely to use reliable contraceptive methods in St. Petersburg, even though they used less no contraception. This relation between education and reliable contraception use concurs with other studies from Eastern Europe where women may be generally well educated, but poorly educated in family planning issues (Warriner and Shah 2006).

Overall contraception use at first and most recent intercourse correlated with abortion in all study areas independent of age and education.
In Finland women with lower education were more likely to have undergone abortion. This corresponds to the results from earlier research (Raatikainen et al. 2006; Sihvo et al. 1998). Another factor relating to abortion was having four or more lifetime sexual partners, which increased the probability of abortion. The relation of multiple partners to having abortion has been shown in the UK (Barret et al. 1998).

In Finland reliable contraceptive use was high in all age-groups. However, contraceptive use at most recent intercourse was not related to abortion. This may be related to the cross-sectional design of the study, in which the time sequence of the events could not be assessed. Use of contraception at most recent intercourse was later than abortions and abortions may influence women’s decisions about using contraceptive methods. A prospective cohort study among Finnish women requesting abortion showed that using IUD and oral contraceptives or condoms decreased the risk of repeat abortion (Heikinheimo et al. 2008). This study was based on very reliable register data.

In all study areas first intercourse under 18 years of age was related to abortion, as shown previously in other European countries (Svare at al. 2002; Barret et al. 1998). Although the time elapsing from first intercourse to abortion was not studied, the correlation found supports the idea that young women are inexperienced in contraception and fail to use contraceptives consistently (Gerber and Berman 2008).

**Repeat abortions** In all study areas the strongest risk factors for repeat abortions were almost the same as for having at least one abortion. Like other studies in Russia, cohabiting women were more likely to have repeat abortions than married women (David et al. 2007). In contrast to the study by David et al., the level of education increased the probability of repeat abortions. This may be explained by the different populations in the two studies.

**Sexually transmitted infections (STIs) and their determinants** A relatively high rate of self-reported sexually transmitted infections was found in St. Petersburg and Estonia compared to Finland. This finding corresponds to the official statistics except for chlamydia. According to the official statistics the highest rate of chlamydia is in Finland and lowest in Russia (HFA-DB 2008). In Finland, the incidence of chlamydia has increased and since 2003 its rate has been higher than in Estonia and Russia. Although chlamydia is a silent infection its highest rate in Finland is mostly related to active diagnostics and attention to this infection among young adults in recent years. In Estonia and Russia an increasing trend of chlamydia had been reported at the beginning of the 1990s when laboratory diagnostics were more easily available (Domeika et al. 2007). In St. Petersburg the exact number of different providers of STI services is unknown and their contribution to the epidemiological surveillance is unclear.
Moreover, the reliability of the official data is unclear due to self-treatment with antibiotics and the use of suboptimal laboratory tests (Domeika 2007).

In all study areas the rate of chlamydia was higher than syphilis and gonorrhoea that corresponds to the official statistics. The high rate of chlamydial infection in all study areas may reflect the fact of more easily available diagnostics for this infection since the middle of the 1990s.

In Finland a higher proportion of women with gonorrhoea than expected was found. This may be a real finding, or then women had mixed the term used in survey with some other infection.

In St. Petersburg and Estonia marital status did not relate to STIs. In Finland cohabiting women were more likely to report STIs, which is in line with the findings from another Finnish study (Nikula et al. 2007). The relationships between marital status and having had STIs have varied in earlier studies. In earlier Finnish (Hiltunen-Back et al. 1998) and Russian (Benotsch et al. 2006) studies being single increased the probability of STIs.

In contrast to St. Petersburg more educated women in Finland had a higher probability of self-reporting a history of STIs. One of the possible reasons for the findings from Finland is that more educated women could be more concerned about health and more willing to be tested and know the infections they have had. Another explanation is the difference in the rates of STIs in the study areas. In St. Petersburg and Estonia, high STIs rates can result in a high proportion of women of different educational levels having STIs. In St. Petersburg study (Paper I) those with a higher education had a higher probability of using condoms during their first sexual intercourse, but they were not likely to have fewer sexual partners. However, another Finnish study showed that more highly educated women were less likely to have STIs and were more likely to have used contraception at most recent intercourse (Nikula et al. 2007) and our findings may be due to bias caused by low response rate.

The proportions of women who had first intercourse under age 18 and who used condom at first intercourse were higher in Finland than in St. Petersburg or Estonia. The high prevalence of STIs in the population and no condom use by young women in St. Petersburg placed them at risk of contracting STIs. Moreover, in St. Petersburg a higher probability for STIs was found among those who had had their first intercourse before the age of 18 years. This is in line with an earlier study among women of reproductive age in Russia (Khryanin et al. 2004a).

In all study areas, having multiple sexual partners increased the probability of STIs. This has previously been shown in Russia (Benotsch et al. 2006) and Finland (Hiltunen-Back et al. 2001). However, the prevalence of risk factors for STIs except having multiple sexual partners was highest in Finland. This suggests that the extent of risky sexual behaviour in the population
can not explain the different STIs rates in the three areas. Baseline prevalence seems to be one of the reasons for this difference.

Generally this study suggests that preventive measures with regard to abortion and STIs should be taken among a wide range of women with different characteristics and not only among high-risk groups.

It is hard to predict future trends in abortion and sexually transmitted diseases in St. Petersburg. In the last decade there have been several governmental efforts to influence the low fertility level and high abortion rate and much discussion on contraceptive availability. The restriction on social indications for abortions in 2003 and implementing maternal capital in 2008 have been made to decrease abortion. In 2008 buying antibiotics without prescription was prohibited. This may have a positive influence on the diagnostics of STIs. However, changes in the economic situation and in the priorities of the young people makes the prediction of future trends difficult.

7.2 Strengths and limitations of the study

The strength of this study was the comparability of the research instrument. The REFER Project was conducted in collaboration among Russian, Estonian and Finnish partners. The questionnaire for the studies in St. Petersburg and Estonia was made during joint meetings. Most of the questions were taken from previously conducted surveys in Finland and translated into Russian and Estonian. All work was done through mutual agreements and discussions that helped us to use a comparative approach. The characteristics of women in the three areas were similar, which enabled to make comparisons.

The calculation of the response rate in St. Petersburg was made with women actually living in the city at the time of the survey. This is closer to a population based calculation than using as the denominator all women having an address in the area.

The approach to studying abortion and STIs and their determinants within each study area and then to compare relations between the study areas was used. This diminished the impact of the methodological differences in the surveys. Among other population based studies in the study areas our comparative study was the first to use this approach. Comparative approach helped to understand the extent of the problem and the main differences related to the determinants of abortions and STIs.

There are some limitations in the study. All surveys were cross-sectional and this design does not allow conclusions about the causality of the phenomena studied.

The response rates differed from one study to another. It is likely that among non-participants there were women with more risky sexual behaviour, higher numbers of abortions
and sexually transmitted infections. This may have led to underestimation of the proportion of women with risky behaviour, abortions and STIs. Non-respondents with abortions and history of STIs may also have different characteristics from participants with abortions and STIs. The highest response rate was in St. Petersburg, and this may increase the number of those with risky behaviour, abortions and STIs.

Information bias may affect the results because sexual behaviour, abortions and sexually transmitted infections were self-reported. It is impossible to know the true occurrence of STIs based on self-reporting without laboratory measurements. However, our aim was not to measure the real prevalence but to ascertain the characteristics of women having STIs. Participants may have given socially desirable answers on sensitive topics. However, self-reporting is the only way to study these questions. The use of an anonymous questionnaire may have reduced this bias. Underreporting can result in underestimation of the extent of the determinants of abortions and STIs. Analysis was made within each area, assuming that social expectations and values did not differ notably across the study areas.

Memory bias may occur because women may not correctly remember diseases occurring a long time ago. It is also possible that older women may remember differently than younger women what happened during their first sexual intercourse and how many partners they had had but having an abortion is likely to be well remembered.

Two Finnish surveys having different data collection and year were combined. The different techniques used in the combined surveys may weaken the comparison to the other two areas. However, the self-report cards used in the interview survey in 1992 may decrease possible differences.

The question about abortion in Finland differed from those used in St. Petersburg and Estonia. However, the prevalence of abortions in our study was comparable to that in another Finnish study where the question formulation was similar to that in St. Petersburg and Estonian studies (Sihvo et al. 1998).
8 IMPLICATIONS AND RECOMMENDATIONS

8.1 Implication for health services

1. This study provides data on the occurrence of abortions and sexually transmitted infections and their determinants among women of reproductive age. It can be useful to policy makers to plan preventive measures on the basis of the results. The focus of prevention should be on a wide range of women (cohabiting women, the low educated, those with low income, with children) and not only those belonging to known high-risk groups.

2. Increasing but still relatively low condom use at first intercourse in St. Petersburg suggests that more attention should be paid to activities in the promotion of condom use and in the prevention of risky sexual behaviour among young people.

3. The low use of reliable contraceptives in St. Petersburg suggests a need for better information on modern contraceptives and improvement in their availability. When improving family planning services the cost of contraception, especially oral contraceptives, should be taken into account.

4. Timely start of sex education and more attention to correct and systematic contraception use are needed. Other topics can include information on condom use at first intercourse, avoiding having multiple sexual partners and other protective strategies.

5. Women at risk for repeat abortions may need counselling or other support to encourage them to use reliable contraception.

6. To decrease the base-line prevalence of STIs in prevention at population level, proper diagnostics and treatment are needed.

8.2 Implication for future research

1. The findings provide a basis for future surveys at population level to monitor reproductive health, risky sexual behaviour and contraceptive use.

2. Further studies in other parts of Russia on reproductive health and contraceptive practices are needed.

3. Studies on contraception provision and the barriers to using reliable contraception in Russia are needed.
ACKNOWLEDGEMENTS

The study is a part of the REFER Project (Reproductive Health and fertility patterns in Russia - a comparative approach) which was based at STAKES (currently National Institute for Health and Welfare, Finland). The collaborating institutions involved were St. Petersburg Medical Academy for Postgraduate Studies in Russia and Tartu University in Estonia. The survey in St. Petersburg was financially supported by grants from the Academy of Finland (Russia in Flux Programme, projects Nos. 208180 and 208186) and the Baltic Sea Task Force (PH030). The survey in Estonia was financially supported by the Estonian Science Foundation (grant 5456), the Academy of Finland, the Estonian Ministry of Education and Science (SF0182641 and SF940026s07) and the Baltic Sea Task Force.

In addition I have received financial support from Centre for International Mobility (CIMO), Finland and I was a part of the International Postgraduate Programme in Epidemiology (IPPE), and Doctoral Programs in Public Health (DPPH) at the University of Tampere.

First, my deepest gratitude is due to my supervisor, Research Professor Elina Hemminki of the National Institute for Health and Welfare, who constantly supported me giving her advice on many of my questions, on writing scientific articles, valuable comments on an enormous number of my drafts, sharing her knowledge and experience in the field of epidemiology and research. Her guidance during the study process and my life in Finland was extremely valuable and helped me to reach what I have only dreamed about. My special thanks go to my other supervisor, Adjunct Professor Riitta Luoto of the University of Tampere, for her trust and always finding the time in her tight schedule to comment my writing.

The research team of the REFER Project had many members from Finland, Estonia and St. Petersburg. During the project we had a number of meetings and discussions without which sharing experience would be impossible. I would like to express my appreciation to Professor Emerita Elina Haavio-Mannila of the University of Helsinki who, in addition to sharing her experience, kindly provided the data of her surveys without which my study could not have been accomplished and also for her kind discussion on our joint papers. I thank Professor Olga Kuznetsova of the St. Petersburg Medical Academy for Postgraduate Studies for giving me the opportunity to study in Finland. I would like to specially to thank Tatiana Dubikaytis of the St. Petersburg Medical Academy for Postgraduate Studies for her support at the beginning of my study with statistical analysis of the data and for her friendly support during the study process. I would like to thank co-authors of the articles, Professor Olga Kuznetsova, Tatiana Dubikaytis, Minna Nikula, Professor Helle Karo and Made Lanpere for their input and kind help. I am very grateful to each member of the team.
I thank my reviewers, Professor Emerita Aulikki Nissinen and Adjunct Professor Sinikka Sihvo, both from the National Institute for Health and Welfare, for their prompt communication and valuable comments on my thesis.

I also wish to express my thanks to all professors and teachers on the International Postgraduate Program in Epidemiology at Tampere School of Public Health from whom I learnt about epidemiology and life in Finland, especially to Professor Suvi Virtanen, Professor Arto Palmu, Professor Anssi Auvinen, senior academic assistant Susanna Kautiainen. I thank them for giving me the opportunity to have a wonderful studying year in Tampere, their support and help with many questions on epidemiological research and organisation. My warm thanks go to the coordinator of International Postgraduate Program in Epidemiology, Catarina Stähle-Nieminen and my ex-classmates at the Tampere School of Public Health. I warmly thank the researchers of the research group with whom it was my pleasure to work at the National Institute for Health and Welfare, especially to Tuula Väänänen, Eija Raussi-Lehto, Hannamaria Kuusio, Meri Larivaara, Minna Nikula, Marja Lampola, Liina-Kaisa Tynkkynen, Qian Long and many others, with whom I did not feel lonely in foreign country.

Ms Virginia Mattila of the University of Tampere revised the English language of this dissertation. I sincerely thank her for her quick checking of the manuscript.

I would like to thank all the women who participated in the surveys in St. Petersburg, Estonia and Finland.

My warm and loving thanks go to my mother, Vera Aleksandrovna, and father, Vladimir Ivanovich who live so far away but who were always so close to me, for their constant love, moral support and understanding. I am also sincerely thankful to dear Martin Vögeli for his optimism, giving me the power of positive thinking, and his constant support with any of my questions and a million other things without which my life would be very different.
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Sterilization Act 283/1970 with amendments, Finland


Appendix 1. Abortions

FIGURE 1. Induced abortions per 1000 15 to 49 year-old women in the areas studied
Data sources: World Health Organisation Regional Office for Europe, Health for all database (calculations by Mika Gissler, STAKES)

FIGURE 2. Induced abortion per 1000 15 to 49 year-old women in the areas studied
Appendix 2. Sexually transmitted infections

FIGURE 3. Incidence of syphilis in Russia, Estonia and Finland, 1980-2006
Source: World Health Organisation Regional Office for Europe, Health for all database

FIGURE 4. Incidence of gonococcal infection in Russia, Estonia and Finland, 1980-2006
Source: World Health Organisation Regional Office for Europe, Health for all database
FIGURE 5. Incidence of chlamydial infection in Russia, Estonia and Finland, 1990-2007

Source: World Health Organisation Regional Office for Europe, Health for all database
Table 1. Results from population-based studies on contraception use in Russia, 1990-2008, %

<table>
<thead>
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<th>Condom</th>
<th>Any contraception</th>
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HC, hormonal contraception

Table 2. Results from studies among service users on contraception use in Russia, 1990-2008, %

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HC, hormonal contraception
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<tr>
<td><strong>Survey among health care users</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Savonius et al., 1995</td>
<td>(4)</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>26</td>
</tr>
</tbody>
</table>

HC, hormonal contraception
<table>
<thead>
<tr>
<th>Author, year</th>
<th>Country</th>
<th>Study</th>
<th>Participants</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bobrova et al., 2005</td>
<td>Russia</td>
<td>cross-sectional telephone survey,</td>
<td>men and women, 15-29 yrs; n=1,203 (women=609)</td>
<td>condom use: marital status: single ↑s, ref. married</td>
</tr>
<tr>
<td>Benotsch et al., 2006</td>
<td>Russia</td>
<td>questionnaire survey,</td>
<td>men and women (patients of STD clinic), 14-64 yrs, n=400 (n women=200)</td>
<td>condom use: age, yrs older ↓s</td>
</tr>
<tr>
<td>Gerber and Berman, 2008</td>
<td>Russia</td>
<td>Russian longitudinal monitoring population-based survey, 1850 counties in 1992-2003 (multistage sampling)</td>
<td>men and women, 14-49 yrs; n= 6,517</td>
<td>condom use: age (-0.054**), university education (0.228*), student status (0.596**), married (-0.511**)</td>
</tr>
<tr>
<td>Nikula et al., 2007</td>
<td>Finland</td>
<td>population-based questionnaire and interview survey</td>
<td>men and women, 18–29 yrs; n=1,894 (n women=738)</td>
<td>any contraception: marital status: cohabiting ↑↑s, single ↑↑s; ref. married education: middle education ↑↑s, high education ↑↑s; ref. low condom use: marital status: single ↑↑s; cohabiting ↑↑s; ref. married</td>
</tr>
</tbody>
</table>

*p<.05, **p<.01, ***p<0.001; ↑ OR higher than 1.0 but less than 2.00; ↑↑ OR 2.00 or more; ↓ OR more than 0.5 but less than 1.0; ↓↓ OR less than 0.5; = OR less than 1.20; s, statistically significant. Note: ref=reference category
<table>
<thead>
<tr>
<th>Author, year</th>
<th>Country</th>
<th>Study</th>
<th>Participants</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benotsch et al., 2006</td>
<td>Russia</td>
<td>questionnaire survey</td>
<td>men and women (patients of STD clinic), 14–64 yrs; n=400 (n women=200)</td>
<td><strong>age, yrs</strong>: older age ↓↓s</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>marital status</strong>: married/cohabiting ↓↓s</td>
</tr>
<tr>
<td>Nikula et al., 2007</td>
<td>Finland</td>
<td>population-based questionnaire and interview survey</td>
<td>men and women, 18–29 yrs; n=1,894 (n women=738)</td>
<td><strong>2+ last year</strong>: cohabiting ↑↑s; single ↑↑s; ref. married</td>
</tr>
</tbody>
</table>

↑ OR higher than 1.0 but less than 2.00; ↑↑ OR 2.00 or more; ↓ OR more than 0.5 but less than 1.0; ↓↓ OR less than 0.5; = OR less than 1.20; s, statistically significant.

Note: ref.=reference category
Table 6. Risk factors of abortion in the study areas 1990-2008

<table>
<thead>
<tr>
<th></th>
<th>Age</th>
<th>Marital status</th>
<th>Education</th>
<th>Having children</th>
<th>Contraception</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Russia</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>David et al., 2007</td>
<td><strong>young age ↑↑s</strong>; ref. old age</td>
<td>cohabiting ↑↑s; ref. married</td>
<td>–</td>
<td>–</td>
<td>have not thought about method ↑↑s; ref. yes, thought</td>
</tr>
<tr>
<td>Sihvo et al., 1998</td>
<td>–</td>
<td>–</td>
<td>9-12yrs ↓s; &gt;12yrs ↓↓s; ref. &lt;9yrs</td>
<td>having birth ↑s; ref. no birth</td>
<td>–</td>
</tr>
<tr>
<td>Vikat et al., 2002</td>
<td>&lt;20 ↑s; ref. 20-24 yrs</td>
<td>cohabiting ↑↑s; divorced ↑↑s; ref. single</td>
<td>–</td>
<td>2 children, 3 children ↑↑s, ≥4 children ↑↑s; ref. 1 child</td>
<td>–</td>
</tr>
<tr>
<td>Raatikainen et al., 2006</td>
<td>aged 35 + had had abortion more often (15.5% vs. 11.7%; p&lt;0.05)</td>
<td>–</td>
<td>low educated have abortions more often (31.5% vs. 21.2%; p&lt;0.001)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Nikula et al., 2007</td>
<td>20-24 ↑; 25-29 ↑; ref. 18-19yrs</td>
<td>single ↑↑s; ref. married</td>
<td>middle ↓, high ↓; ref. low</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Heikinheim et al., 2008</td>
<td>25–29 yrs ↓↓s; 30–34 yrs ↓↓s; 30–34 yrs ↓↓s</td>
<td>–</td>
<td>–</td>
<td>having child ↑s; ref. no children</td>
<td>IUDs/implants ↓↓s; ref. OCs and condom</td>
</tr>
</tbody>
</table>

↑ OR higher than 1.0 but less than 2.00; ↑↑ OR 2.00 or more; ↓ OR more than 0.5 but less than 1.0; ↓↓ OR less than 0.5; = OR less than 1.20; s, statistically significant.

Note: ref.=reference category
Table 7. Risk factors related to sexually transmitted infections in the study areas

<table>
<thead>
<tr>
<th></th>
<th>Age</th>
<th>Education</th>
<th>Marital status</th>
<th>Income</th>
<th>Age at first intercourse &lt; 18 years</th>
<th>Condom use</th>
<th>Sexual partners</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Russia</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Khryanin et al.,</td>
<td>&lt;25 ↑↑s</td>
<td>secondary education↑</td>
<td>single ↑</td>
<td>–</td>
<td>↑↑s</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>2004a</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sergevnin et al.,</td>
<td>–</td>
<td>–</td>
<td>single: 75% controls vs. 83% cases (p&gt;0.05)</td>
<td>55% with high income vs. 16% with low income (p&lt;0.05)</td>
<td>–</td>
<td>no condom use: 52% cases vs. 22% controls (p&lt;0.05)</td>
<td>–</td>
</tr>
<tr>
<td>2004</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Estonia</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wilson et al.,</td>
<td>&lt;25 yrs</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>2001</td>
<td>compared to controls without STI ↑↑s and compared to controls with STI ↑↑s</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uuskula et al.,</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>2008</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2+ last year 12% and with one partner 4% (prevalence ratio=3; 95% CI 1.5-6.6)</td>
</tr>
<tr>
<td><strong>Finland</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hiltunen-Back et</td>
<td>mean age of women with gonorrhoea was 25-28 yrs compared to mean age 23–</td>
<td>–</td>
<td>respectively, 57% to 77% women with gonorrhoea and 76% to 85% of women with</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>53% to 60% women with gonorrhoea and 41% to 17% (p&lt;0.001) women with</td>
</tr>
<tr>
<td>Study</td>
<td>Age Group</td>
<td>Sexual Activity</td>
<td>Chlamydia Rate</td>
<td>Chlamydia Incidence</td>
<td>Other Variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-----------</td>
<td>-----------------</td>
<td>----------------</td>
<td>--------------------</td>
<td>-----------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hiltunen-Back et al., 2001</td>
<td>23.7 (95% CI 23.0–24.3)</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>28.4 (95% CI 28.0–28.7)</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt;5 sexual partners: women with chlamydia 14% (95% CI 12.1–16.3) compared to women without chlamydia 9.8 (95% CI 9.2–10.4)</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hiltunen-Back et al., 2003</td>
<td>10-19 yrs ↑</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>20-29 yrs ↑</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5 year increase of having 5 or more partners among women aged 10-29 yrs from 8% (95% CI 5.7-11.5) to 19% (95% CI 16.3-21.6)</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nikula et al., 2007</td>
<td>25-29 yrs ↑</td>
<td>middle ↓, high ↓↓; ref. low education</td>
<td>cohabiting ↑↑; single ↑↑; ref. married</td>
<td>–</td>
<td>–</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>18-19 yrs</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

↑ OR higher than 1.0 but less than 2.00; ↑↑ OR 2.00 or more; ↓ OR more than 0.5 but less than 1.0; ↓↓ OR less than 0.5; = OR less than 1.20; s, statistically significant.

Note: ref.=reference category
<table>
<thead>
<tr>
<th></th>
<th>St Petersburg</th>
<th>Russian-speaking, Estonia</th>
<th>Estonian-speaking, Estonia</th>
<th>Finland</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>18–24 (n=268)</td>
<td>25–34 (n=344)</td>
<td>35–44 (n=489)</td>
<td>18–24 (n=261)</td>
</tr>
<tr>
<td>First intercourse</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>when &lt; 18 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>50</td>
<td>41</td>
<td>17</td>
<td>67</td>
</tr>
<tr>
<td>Sexual partners</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>last year</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>3</td>
<td>7</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>1</td>
<td>65</td>
<td>73</td>
<td>75</td>
<td>64</td>
</tr>
<tr>
<td>2</td>
<td>19</td>
<td>10</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>3 and more</td>
<td>11</td>
<td>4</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>Lifetime sexual</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>partners</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>17</td>
<td>17</td>
<td>28</td>
<td>23</td>
</tr>
<tr>
<td>2</td>
<td>15</td>
<td>14</td>
<td>13</td>
<td>10</td>
</tr>
<tr>
<td>3–5</td>
<td>38</td>
<td>34</td>
<td>37</td>
<td>36</td>
</tr>
<tr>
<td>6 and more</td>
<td>30</td>
<td>35</td>
<td>22</td>
<td>31</td>
</tr>
<tr>
<td>Concurrent sexual</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>relationships¹</td>
<td>(n=120)</td>
<td>(n=226)</td>
<td>(n=355)</td>
<td>(n=114)</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>21</td>
<td>24</td>
<td>18</td>
</tr>
</tbody>
</table>

¹Only those who are married or cohabiting are included in the analysis
Table 9. Contraception use among women of reproductive age in the three areas by age, %

<table>
<thead>
<tr>
<th></th>
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<th>Estonian-speaking, Estonia</th>
<th>Finland</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Contraception at first intercourse(^1)</strong></td>
<td>(n=268)</td>
<td>(n=344)</td>
<td>(n=489)</td>
<td>(n=261)</td>
</tr>
<tr>
<td>condom or (OC)(^2)</td>
<td>44</td>
<td>24</td>
<td>12</td>
<td>56</td>
</tr>
<tr>
<td>other nothing</td>
<td>31</td>
<td>33</td>
<td>26</td>
<td>30</td>
</tr>
<tr>
<td><strong>Contraception at last intercourse(^3,4)</strong></td>
<td>(n=201)</td>
<td>(n=238)</td>
<td>(n=330)</td>
<td>(n=232)</td>
</tr>
<tr>
<td>nothing</td>
<td>10</td>
<td>7</td>
<td>16</td>
<td>3</td>
</tr>
<tr>
<td>sterilization</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>IUD</td>
<td>2</td>
<td>5</td>
<td>16</td>
<td>8</td>
</tr>
<tr>
<td>hormonal contr.</td>
<td>17</td>
<td>13</td>
<td>8</td>
<td>19</td>
</tr>
<tr>
<td>Condom</td>
<td>48</td>
<td>47</td>
<td>35</td>
<td>47</td>
</tr>
<tr>
<td>unreliable emergency cont</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>spermicides</td>
<td>4</td>
<td>8</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>rhythm method</td>
<td>6</td>
<td>16</td>
<td>24</td>
<td>16</td>
</tr>
<tr>
<td>syringing</td>
<td>8</td>
<td>10</td>
<td>16</td>
<td>8</td>
</tr>
<tr>
<td>withdrawal</td>
<td>31</td>
<td>26</td>
<td>21</td>
<td>43</td>
</tr>
</tbody>
</table>

\(^1\) From those who have ever had sex, IUD is not included because there was no such option in the questionnaire and it is not used at first intercourse; \(^2\) Practically all was condom users, see paper I (table II); \(^3\) Sums in the columns may be greater than 100% because the respondents could choose several alternatives; \(^4\) From those who have ever had sex and at risk of unwanted pregnancy; na, not available
Appendix 4. Invitation letter
Invitation

Dear __________________________________ (First name)

Saint-Petersburg Medical Academy for Postgraduate Studies (MAPS) with the collaboration of National Research and Development Center for Welfare and Health (STAKES) is conducting a survey to study women’s health in St Petersburg. The aim is to identify ways of further developing social and medical care for women of childbearing age.

We strongly need your participation

You are invited to visit Women’s Clinic #15
Address: Komendantskij pr, 34 kor 1

At the clinic you should fill in the questionnaire given by a physician. You can undergo a gynecologist’s consultation and examination if you so require.

A small gift will be offered to you after filling in the questionnaire in as a sign of our gratitude for your participation.

To clarify a convenient date for your visit we will contact you by phone in the coming week.
You are welcome to contact us, use the following phone numbers:
307-3119  Head of women’s clinic #15
598-52-22  staff member of Family Medicine Department in MAPS

Objectives of the project
1. To assess the prevalence of socio-economic and psychological risk factors which affect women’s health
2. To describe patient knowledge, attitudes and practice regarding contraception
3. To measure patient satisfaction with medical care
4. To assess women’s satisfaction with social care
5. To evaluate women’s needs in curative and preventive medical care

Dear __________________________________________

This invitation is only addressed to you, because you belong to a list of women which was created randomly (by chance) out of the population served by women’s clinic #15.

Vice rector of international affairs pf SPb MAPS.
Prof. Kuznetsova O.Yu.
Appendix 5. Instructions for home visits

Invitation

Dear __________________ ______________________ (First name)

Saint-Petersburg Medical Academy for Postgraduate Studies (MAPS) with the collaboration of National Research and Development Center for Welfare and Health (STAKES) is conducting a survey to study women’s health in St Petersburg. The aim is to identify ways of further developing social and medical care for women of childbearing age.

We strongly need your participation

We ask you to fill in the questionnaire delivered by a physician. A small gift will be offered to you after filling in the questionnaire in as a sign of our gratitude for your participation. To answer all of your questions we will contact you by phone in the coming week.

Objectives of the project
1. To assess the prevalence of socio-economic and psychological risk factors which affect women’s health
2. To measure patient satisfaction with medical care
3. To identify the necessity of financial support for development of social and medical care

INSTRUCTIONS

In the questionnaire you will find some points which may cause misunderstanding. For example, you will be asked to describe what you have at home and how large your income is as well as the size of your apartment. This is because the questionnaire is created to identify the real cause of women’s problems. It is well known that both poor medical care and low socio-economic status and insufficient level of knowledge about healthy life styles could be responsible for some issues. This is the reason for such extensive collection of information.

HOWEVER, if you feel uncomfortable while answering some questions, please, do not hesitate to skip them, answer what you can. We will get at least approximate information.

IF YOU DO NOT WANT TO PARTICIPATE IN THIS SURVEY, PLEASE, SEND US AN EMPTY QUESTIONNAIRE AND INDICATE THE REASON FOR YOUR REFUSAL

We would greatly appreciate your opinion.

Dear __________________ ______________________

This invitation is only addressed to you, because you belong to a list of women which was created randomly (by chance) out of the population served by women’s clinic #15.
Appendix 6. Questionnaire

1. Background information

Answering date________________________

1. In which year were you born? Year _____________

2. Are you currently (you can choose several alternatives):
   1. Married
   2. Cohabiting
   3. Divorced
   4. Married, not living with spouse
   5. Widow or widower
   6. Single

3. How many marriages or cohabiting relationships have you had? (Cohabiting, which has lead to a marriage is considered as one)
   Number _________________________

4. What is your citizenship? ____________________________

5. Which is your mother tongue? ____________________________

6. Please, list the people whom you live with.

<table>
<thead>
<tr>
<th></th>
<th>1.No</th>
<th>2.Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I live alone</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2. Husband</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3. Cohabiting partner</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>4. Children under 18 years old</td>
<td>1</td>
<td>2 persons</td>
</tr>
<tr>
<td>5. Children over 18 years old</td>
<td>1</td>
<td>2 persons</td>
</tr>
<tr>
<td>6. Daughter-in-law, son-in-law, grandchildren</td>
<td>1</td>
<td>2 persons</td>
</tr>
<tr>
<td>7. Parents (yours or your husband's)</td>
<td>1</td>
<td>2 persons</td>
</tr>
<tr>
<td>8. Sisters/brothers (yours or your husband's)</td>
<td>1</td>
<td>2 persons</td>
</tr>
<tr>
<td>9. Other relatives (yours or your husband's)</td>
<td>1</td>
<td>2 persons</td>
</tr>
<tr>
<td>10. Friends, acquaintances</td>
<td>1</td>
<td>2 persons</td>
</tr>
<tr>
<td>11. Tenants</td>
<td>1</td>
<td>2 persons</td>
</tr>
<tr>
<td>12. Other</td>
<td>1</td>
<td>2 persons</td>
</tr>
</tbody>
</table>

7. With how many people are you living together (how many persons belong to the same household including yourself)?
   Number of persons _________________

8. How many years all together you have studied including both, basic education at school and any full-time studies after basic education? _______ years
9. What is your education?
   1. Basic (3 years at school)
   2. Intermediate (8 years at school)
   3. Intermediate (10 years at school)
   4. Occupational school
   5. Technical college
   6. Unfinished higher education
   7. Current student of higher education
   8. Completed higher education

10. What is your current economic activity?
    1. Employed
    2. Unemployed
    3. Housewife
    4. Full-time student
    5. Pensioner, not employed. At what age did you retire? ____________ years old
    6. Other, what ________________

11. What is your present or latest (previous) occupation? ___________________________

12. What was your main life-time occupation? _________________________________

13. Do you, in addition to your studying, primary occupation or other activity have another job?
    1. Yes
    2. No

14. What is your total monthly income after taxes and income transfers have been deducted?
    Approximately ___________________________

15 a. What is the total monthly income of your family (who share the income), after taxes and income transfers have been deducted?
    1. Approximately _____________________
    2. I don't know

15 b. How many people, including children, share your family income? ___________

16. Do you have difficulties with paying bills (for housing, electricity, heating etc)?
    1. All the time
    2. Often
    3. Sometimes
    4. Rarely
    5. Never
17. Below is a list of various items, which of the following do you have in your household?

Circle the right answer

<table>
<thead>
<tr>
<th>Answers</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Microwave</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2. Video recorder</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3. Television (colour)</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>4. Washing machine</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>5. Dishwasher</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>6. Car</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>7. Freezer</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>8. Cottage (for holidays / weekends)</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>9. Videocamera / camcorder</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>10. Satellite / cable TV</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>11. Telephone</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>12. Mobile phone</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

18 a. How many rooms does your family have, excluding kitchen? ______________
18 b. How many people are living in these rooms? ______________
2. Gender relationships and sexuality

19. How old were you when you started regularly dating with a person of the opposite sex (with or without sexual relationship)?
   1. I was ____________ years old
   2. I have never been dating regularly

20. How old were you when for the first time you had sexual intercourse (including only vaginal and/or anal sex)?
   1. I was ____________ years old
   2. I have never had intercourse (skip to question 25)

21. How old was your partner?
   1. ____________ years old
   2. I don't know

22. What contraceptive methods did you use in the first sexual intercourse to prevent pregnancy (you can choose several alternatives)?
   1. Nothing
   2. Coitus interruptus (withdrawal, "a man is cautious")
   3. Condom
   4. Contraceptive pill
   5. Morning-after pill
   6. Rhythm method
   7. Contraceptive ointments, gels, candles, sprays
   8. Some other method, what (for example douching)? ______________________________
   9. Cannot remember

23. Altogether, how many sexual partners have you had in YOUR LIFE SO FAR?
   _______________________ persons

24. How many sexual partners have you had WITHIN THE PAST 12 MONTHS, even if you had sexual intercourse with him only once?    _______________________ persons

25. At the moment, do you live together with your spouse in marriage, or are you cohabiting, or do you have any other type of regular sexual relationship with someone (of the opposite sex) (you can choose several alternatives)?
   1. Yes, in marriage
   2. Yes, cohabiting
   3. Yes, I am having another type of regular sexual relationship
   4. I do not have any regular sexual relationships

26. How long have you been in the current marriage/cohabiting; period of entering into a regular, serious relationship until this moment?
   1. ____________ years ____________ months
   2. I am not married/cohabiting
27. What do you think of your present sexual relationship? It is,
1. Very happy
2. Quite happy
3. Not very happy
4. Unhappy
5. Very unhappy
6. At the moment I do not have any sexual relationship

28. Is it difficult to engage in talking about sex (about sexual matters and contraception) with your current partner?
1. Very difficult or impossible
2. Quite difficult
3. Not very difficult once we get started
4. Not difficult at all, open and easy
5. At the moment I don't have sexual relationships

29. Have you had parallel sexual relationships during your marriage (cohabitation)?
1. No
2. Yes, temporarily
3. Yes, continuously
4. Yes, both temporary and continuously
5. I am not married or cohabiting

30. When was the last time that you had sexual intercourse?
1. During the last 24 hours
2. 1-2 days ago
3. 3-4 days ago
4. 5-7 days ago
5. 1-2 weeks ago
6. 3-4 weeks ago
7. 1-3 months ago
8. 4-12 months ago
9. 1-2 years ago
10. 3-10 years ago
11. Over 10 years ago
12. I have never had sexual intercourse (skip to question 32)

31. Did you drink alcohol (for example beer, vine, vodka) before the last sexual intercourse?
1. Not at all
2. Yes, a little
3. Yes, moderately
4. Yes, much
5. I do not remember

32. People are sometimes sexually interested in persons of their own sex. Are you at the moment sexually interested in:
1. Only males
2. Mainly males
3. Both sexes (males and females) equally
4. Mainly females
5. Only females

33. Have you had sexual experiences with a person of the same sex (arousing fondling or intercourse)?
   1. No
   2. Yes, once
   3. Yes, many times

34. Have you ever been propositioned to intercourse with money or economic advantages?
   1. No
   2. Yes, but I've said no
   3. Yes, and I've said yes
   4. Yes, and I've said yes many times

35. Did you receive sex education in your childhood home?
   1. Yes, more than enough
   2. Yes, sufficiently
   3. Yes, but not enough
   4. No, but I would have wanted to
   5. No, but I would not have wanted to

36. Did you receive sex education at school?
   1. Yes, more than enough
   2. Yes, sufficiently
   3. Yes, but not enough
   4. No, but I would have wanted to
   5. No, but I would not have wanted to
3. Pregnancies and children

37. Are you pregnant at the moment?
1. No
2. Yes

38. Are you breastfeeding at the moment?
1. No
2. Yes, exclusively
3. Yes, together with other feeding

39. How old is the child (months)? ___________ months

40. How many pregnancies have you had previously? (Put 0 if you haven't had any) ___________

41. How many of these pregnancies ended in:
1. ________ miscarriage/spontaneous abortions, in years: ____________________
2. ________ ectopic pregnancies, in years: _____________________
3. ________ induced abortions, in years:
4. ________ childbirth

If you have not given birth, skip to question 50.

Children having been born

<table>
<thead>
<tr>
<th></th>
<th>1st child</th>
<th>2nd child</th>
<th>3rd child</th>
<th>4th child</th>
<th>5th child</th>
<th>6th child</th>
<th>7th child</th>
<th>8th child</th>
</tr>
</thead>
<tbody>
<tr>
<td>42. In which year was the child born?</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Indicate the year</td>
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<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>43. The child born is (Circle the right alternative):</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1. living</td>
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<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
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<td>2. dead</td>
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<td>44. Which was born?</td>
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<td>1. girl</td>
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<td>2</td>
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<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>2. boy</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>45. The child is still living with you?</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1. yes</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
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<td>2</td>
<td>2</td>
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</tr>
<tr>
<td>2. no</td>
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</tr>
<tr>
<td>46. If the child is not living with you, in which year did he/she leave home?</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Indicate the year</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>47. Did you live together with the father of the child in marriage or were you cohabiting at the time when the child was born?</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1. yes</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>
48. Did you live with some other adult person (friend/acquaintance/relative) at the time when the child was born?

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>1</th>
<th>1</th>
<th>1</th>
<th>1</th>
<th>1</th>
<th>1</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>yes</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

49. How many months did you breast-feed your last child, also including partial breast-feeding (together with other feeding)? (Include also breast-feeding less than one month).

1. I did not breast-feed at all
2. Less than one month
3. __________ months
4. I am breast-feeding at the moment

50. Who takes/took care of your child before school age, when you were at work? *(You can choose several alternatives)*

1. I am not working/did not work but take/took care of the child by myself at home.
2. Father takes care of the child at home.
3. Grandmother/grandfather takes care of the child.
4. Other relatives take care of the child.
5. My child was in a public kindergarten
6. My child was in a private kindergarten
7. Other way, what? ______________________________________
8. I have no children.

51. If you have used baby-sitter services, where did you find them? *(You can choose several alternatives)*

1. Via acquaintances (friends)
2. Via neighbours
3. Via relatives
4. Via a special agency
5. Via an announcement
6. I have not used baby-sitter services

52. Who took care of you, when you were a child under school age? *(You can choose several alternatives)*

1. Mother or father took care of me at home.
2. Grandmother/grandfather took care of me.
3. Other relatives took care of me.
4. I was in a public kindergarten
5. Other alternative, what? ______________________________________
4. Pregnancy and delivery care

*If you are not pregnant, skip to question 64.*

53. Which health care provider did you have visit during your last/current pregnancy? *(You can choose several alternatives)*
   1. Women's clinic
   2. Public health centre / aid station
   3. Private health centre
   4. Some other place, what? ______________________________
   5. I do not remember

54. How many times did the midwife from the women’s clinic visit you at home after your last delivery? ________ visits

55. What do you think, how useful have these visit been?
   1. Very useful
   2. Useful
   3. Not very useful
   4. Useless
   5. Difficult to say
   6. The midwife did not visit me at home.

56. During any of your pregnancies, have you had:

a. Toxaemia (protein in urine and increased blood pressure after 20 weeks of pregnancy / after the second half of pregnancy)
   1. Yes, year _________
   2. No
   3. I don't know

b. High blood pressure? (>140/90 Hg mm)
   1. Yes, year _________
   2. No
   3. I don't know

c. Protein in urine?
   1. Yes, year _________
   2. No
   3. I don't know

d. High blood sugar values?
   1. Yes, year _________
   2. No
   3. I don't know
The following questions are about abortion. If you have sometimes had an abortion, please, answer the questions, by choosing an alternative related to your last abortion. If you have never had an abortion, skip to question 64.

57. Have you ever become pregnant while using contraception and decided to terminate the pregnancy?
1. Yes
2. No

58. Where was the abortion induced?
1. Women's clinic, day hospital
2. Hospital gynaecological department, maternal house
3. Family planning centre
4. Private clinic
5. Somewhere else, where? ________________

59. Did you pay for the abortion or have other expenses related to it?
1. Yes, official payment
2. Yes, unofficial payment
3. Yes, both official and unofficial payment
4. Other expenses
5. No

60. When you had your abortion, did you receive contraceptive counselling from the health care staff which performed the abortion?
1. Yes
2. No
3. I don't remember

61. Were you satisfied with the treatment you received in the hospital or clinic which performed the abortion?
1. Very satisfied
2. Slightly satisfied
3. Slightly dissatisfied
4. Very dissatisfied
5. Cannot say

62. Which of the following reasons affected your decision to have an abortion? (You can choose several alternatives)
1. I was not ready to take responsibility to bring up a child.
2. I did not want to take responsibility of a child alone.
3. I already have children and I did not want to risk the relationship with my husband or the unity of our family.
4. Unstable and problematic relationship with the husband.
5. I did not want to have a child from that partner.
6. My partner or parents pressured me.
7. Financial difficulties.
8. My apartment was too small / not suitable for a big family, and I could not have another one.
9. It was necessary for me to finish my studies.
10. The situation at work did not let me to have a child.
11. I was not mature enough to become a mother.
12. I was too young.
13. There was nobody who could have helped us to take care of a child.
14. I did not have time to take care of a child.
15. Other reason, what? ________________________________

63. Did you discuss the abortion with your partner beforehand?
1. No
2. Yes

64. Have you had time periods, when you have tried to become pregnant, but have not succeeded or it has taken over 12 months to become pregnant?
1. Yes
2. No (skip to question 67)

65. Have you had medical examinations or treatment because of childlessness/infertility?
1. Yes, which year (last time)? ______
2. No

66. If you haven't sought medical help for infertility, why not? (You can choose several alternatives)
1. I still want to wait and try to become pregnant naturally
2. I don't want outside interference
3. I haven't been aware of the availability of infertility treatment
4. I'm too old to get treatment
5. Treatments are too expensive
6. Hospital and infertility clinics are too far away
7. Other reason, what? ________________________________

Other gynaecological questions

67. How old were you when your periods started? __________ years old

68. Have you had any of the following infections?

<table>
<thead>
<tr>
<th>infection</th>
<th>Yes</th>
<th>Don't know</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Genital herpes infection</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2. Condyloma</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3. Chlamydia infection</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4. Genital candidosis</td>
<td>1</td>
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<td>3</td>
</tr>
<tr>
<td>5. Gonorrhoea</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6. Syphilis</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>7. HIV/AIDS</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>8. Trichomonosis</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>9. Ureaplasma, mycoplasma</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>10. Other genital infection, what</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
69. Imagine yourself thinking that you have got HIV or other sexually transmitted infection. What would you do? *(You can choose several alternatives)*

<table>
<thead>
<tr>
<th>Answers</th>
<th>Illness</th>
<th>HIV</th>
<th>Other sexually transmitted disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I would wait and hope that it goes away by itself</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2. I would start treatment by myself</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3. I would consult my friends</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4. I would consult my parents</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5. I would visit a private doctor or private clinic</td>
<td>5</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>6. I would visit a women's clinic</td>
<td>6</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>7. I would visit dermatology/venerology clinic</td>
<td>7</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>8. I would visit other public medical institution</td>
<td>8</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>
5. Contraception

If you never have had sexual intercourse, skip to question 75.

70. What contraceptive method did you use in your last sexual intercourse? (You can choose several alternatives)
1. I/we don't use any contraceptive method, I/we don't need any contraceptive method.
2. The pill
3. Coil, intrauterine device
4. Condom
5. Spermicides: cream, foam, suppositories
6. Diaphragm
7. Hypodermic contraceptive capsules
8. Sterilization (own or partner's)
9. Rhythm method
10. Withdrawal, coitus interruptus
11. Douching
12. "Morning-after pill"
13. Other, what? ___________________________________

71. Who decided about using contraception in your last sexual intercourse?
1. You
2. Your partner
3. You together with your partner
4. Somebody else, who? _________________________________
5. I don't know, I don't remember
6. We didn't use contraception in the latest sexual intercourse.

72. If you didn't use any contraceptive method in your last sexual intercourse, why not? (You can choose several alternatives)
1. I don't have information about contraceptive methods
2. I don't want to
3. My partner doesn't want to
4. We wouldn't mind if I got pregnant
5. We don't use contraception due to religious beliefs
6. I'm pregnant or breastfeeding
7. I don't need it, because I or my partner cannot have children

73. If you are using/have lately used condom, it is because:
1. Mainly to avoid getting pregnant
2. Mainly to avoid sexually transmitted diseases
3. Both reason are equally important
4. Other reason, what? _________________________________
5. I have not used a condom.

74. Have you earlier used contraceptive pills?
1. Yes
2. No, I have never used them
75. Are you familiar with the contraceptive method called morning after pill (hormonal tablets after sexual intercourse, e.g. Postinor)?
1. Yes
2. No

76. Are you satisfied with the method which you are using at the moment?
1. Fully satisfied
2. Quite satisfied
3. Not very satisfied
4. Very dissatisfied
5. At the moment I don't use contraception.

77. Did the cost affect your decisions on using contraception during the last year? *(You can choose several alternatives)*
1. No
2. I did not use the method I would have liked to because of the cost
3. I have not visited a doctor as often as I consider necessary
4. I have not had the laboratory tests needed
5. I don't know
6. Other, what? ______________________________________________
7. I don't need contraception at the moment

78. When was the last time you visited a doctor, public health nurse or midwife due to contraception?
1. Less than 6 months ago
2. 6-12 months ago
3. More than one but less than two years ago
4. 2-5 years ago
5. More than 5 years ago
6. I have never visited one
7. I don't remember

79. During your last visit to a medical institution, how satisfied you were with the services related to contraception? *(Circle one alternative from each row)*

<table>
<thead>
<tr>
<th>I was:</th>
<th>1. very satisfied</th>
<th>2. mostly satisfied</th>
<th>3. slightly dissatisfied</th>
<th>4. very dissatisfied</th>
<th>5. don't know / remember</th>
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</thead>
<tbody>
<tr>
<td>1. Friendliness</td>
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<td>2. Competence</td>
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<tr>
<td>3. Confidentiality</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. Adequacy of time</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
80. Do you think that a woman can refuse sexual intercourse with her partner in the following situations? (circle the proper alternative)

<table>
<thead>
<tr>
<th>Answers:</th>
</tr>
</thead>
<tbody>
<tr>
<td>yes</td>
</tr>
<tr>
<td>1. Woman has given birth recently</td>
</tr>
<tr>
<td>2. Woman thinks or knows, that her husband/partner has a sexually transmitted disease or AIDS</td>
</tr>
<tr>
<td>3. Husband/partner hits her</td>
</tr>
<tr>
<td>4. Husband/partner is drunk</td>
</tr>
<tr>
<td>5. Husband/partner has a sexual relationship with another person</td>
</tr>
<tr>
<td>6. Woman is tired and doesn't want to have intercourse</td>
</tr>
<tr>
<td>7. Woman is unwilling to have intercourse</td>
</tr>
</tbody>
</table>

81. It has been said that men participate very little in contraception and childbirth. In your opinion, should men's role/involvement be changed in regard to: (Circle one alternative from each line)

<table>
<thead>
<tr>
<th>1. increase a lot</th>
<th>2. somewhat increase</th>
<th>3. no change necessary</th>
<th>4. decrease</th>
<th>5. cannot say</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Responsibility for contraception?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circle the right alternative</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
<td>4.</td>
</tr>
<tr>
<td>2. Responsibility for costs of contraception?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circle the right alternative</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
<td>4.</td>
</tr>
<tr>
<td>3. Concern with woman's health during the pregnancy?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circle the right alternative</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
<td>4.</td>
</tr>
<tr>
<td>4. Participation in childbirth?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circle the right alternative</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
<td>4.</td>
</tr>
<tr>
<td>5. Responsibility in induced abortion?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circle the right alternative</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
<td>4.</td>
</tr>
</tbody>
</table>
6. Ideal number of children; intentions and attitudes to having children

82. If you ignore your personal situation and think about the following issues in general terms, in your opinion,
1. What is the ideal number of children in a family? ______
2. What is the suitable period between child births? _____ years
3. In which age (ideally) should men and women have their first child?
   a. The ideal age for a woman to have her first child ________ years
   b. The ideal age for a man to have his first child ________ years

83. In your opinion, what is the most suitable number of children for your family? ________

Questions 84 - 85 are for those who do not have own children:

84. If you don't have a child so far, would you please state, for what reason? (You can choose several alternatives)
   1. I have not found a man with whom I would like / I could have a child
   2. In spite of trying, I haven't succeeded in having a child
   3. I wanted to finish my studies first
   4. My husband wanted to finish his studies first
   5. I wanted to get a permanent job first
   6. My husband wanted to get a permanent job first
   7. I wanted to make a career
   8. I didn't feel myself mature enough to take responsibility for a child
   9. I didn't think that my husband was mature enough to take responsibility for a child
   10. Income is not sufficient
   11. I want to solve the problems with accommodation/housing first
   12. Because of problems in my marriage/cohabiting
   13. Other reason
   14. I don't know

85. If you choose several alternatives, which of them is the most important one?
   1. Alternative number _____________
   2. I don't know

86. Do you have plans to have a child in the future?
   1. No (skip to question 90)
   2. I don't know, I'm not sure (skip to question 90)
   3. Yes; I have plans to have ______________ child/children
   4. I am pregnant; after that I plan on having ______________ more child/children

Questions 87 - 89 are for those who intend to have their own child/children:

87. When do you wish to have your own (first/next) child?
   In ______________ years
88. For what reason (s) you would like to have a child/children? *(You can choose several alternatives)*
1. My child/children need(s) a brother or a sister
2. I want to have a daughter
3. I want to have a son
4. I enjoy watching a child grow and develop
5. Life continues only through children
6. My husband wants a child / children
7. I want to have a child with the man with whom I now live
8. A child is an important expression of love between husband and wife
9. I miss a child in my life
10. For the benefit of the Russian nation, more children are needed
11. I want to have a child so that I would not be alone in my old age
12. Children help in domestic work
13. I want to take care of a child and love him
14. I want to have a family with many children
15. I want to experience giving birth (once more)
16. I want to experience being a mother
17. A person should have as many children as God wants
18. A child / children give meaning for life; someone for whom to live and work
19. Children provide diversity in life
20. Other reason, what? ____________________________________________
21. I don't know

89. If you chose several alternatives, which of them is the most important?
1. Alternative number _____________
2. I don't know

Questions 90 - 93 are for those who hesitate or don't intend to have (more) children:

Others → skip to question 94

90. If you have decided not to have (more) children or if you are hesitating whether to have a child or not, what is the reason? *(You can choose several alternatives)*
1. I'm not married /cohabiting and I don't know a man who would be a suitable father for a child
2. My husband doesn't want to have (more) children
3. My husband doesn't participate in taking care of the children and in domestic homework as much as I would like him to
4. Because of problems in my marriage / cohabiting
5. I want to have time to spend together with my husband
6. I probably cannot have children of my own
7. I could not work or study (as much as now)
8. I'm worried that I wouldn't have enough time and attention for the children I already have
9. I'm worried that my life will become too difficult
10. I don't want to be tied to small children (any more)
11. I don't want to experience pregnancy and/or delivery (any more)
12. I'm not young enough to have a child
13. I would like to dedicate myself to other things
14. I/we cannot afford to have children
15. My apartment is too small / not suitable for a bigger family, and I cannot have another one
16. I / my husband is not certain of a permanent job

106
17. Uncertainty about childcare in daytime
18. Society doesn't support families with children sufficiently
19. I'm worried about the overpopulation in the world
20. I'm sick, or there is a hereditary disease in the family
21. Other reason, what? ________________________________
22. I don't know

91. If you chose several alternatives, which of them is the most important?
  1. Alternative number _____________
  2. I don't know

92. Could any changes in society or in your personal life change your mind from not having children or stop your hesitation and make you to give birth? (You can choose several alternatives)
  1. My/our own financial situation would be better or more secure
  2. It would be possible to have a larger apartment
  3. Sufficient financial benefits that would allow me to look after my child/children at home
  4. Sufficient financial benefits that would allow to organize childcare the way I/we wish
  5. Families with children would receive more benefits than now
  6. Children would have secure and safe childcare near home
  7. More equal share of domestic tasks between men and women
  8. I would be able to maintain my job after my delivery
  9. Working hours would be shorter and more flexible
 10. Russia would become a safer place to live
 11. Alarming population decrease in Russia
 12. People would have more positive and kind attitudes to children
 13. Problems threatening the future of the world (ecological problems, wars etc.) would be diminished
 14. I cannot have children
 15. Other reason, what? ________________________________

93. If you chose several alternatives, which of them is the most important?
  1. Alternative number _____________
  2. I don't know
7. Health behaviour and use of health services

94. How satisfied are you with your health?
1. Very satisfied
2. Satisfied
3. Neither satisfied nor dissatisfied
4. Dissatisfied
5. Very dissatisfied

95. How would you rate your quality of life?
1. Excellent
2. Good
3. Average
4. Poor
5. Very poor

96. Do you have any permanent or chronic illness or any defect, trouble or injury, which reduces your working capacity or functional ability?
1. No
2. Yes, what? ________________________________

97. How tall are you? _________ cm

98. How much do you weigh? _________ kg

99. Have you, because of your own illness (or pregnancy or delivery), seen a doctor during the past 12 months? (Do not include the times you have been in a hospital as an inpatient.)
1. No
2. Yes, how many times?
   1. Health centre doctor? _________ times
   2. A hospital outpatient department? _________ times
   3. A doctor in occupational healthcare? _________ times
   4. A private medical centre? _________ times
   5. Met a doctor at your home? _________ times
   6. Seen a doctor somewhere else? _________ times

100. Have you during the past 12 months been an inpatient in a hospital ward because of your own illness (or pregnancy or delivery)?
1. No
2. Yes, how many times altogether? _________ times

101. At what age did you visit a gynaecologist for the first time?
1. _________ years old
2. I have never visited one
102. Have you had the following health examinations: Circle the right number

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
<th>During the past 5 years</th>
<th>Sometimes earlier</th>
<th>Never</th>
<th>I don't know/remember</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Mammography (X-ray of the breasts)</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
<td>4.</td>
<td></td>
</tr>
<tr>
<td>2. Palpation of the breasts</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
<td>4.</td>
<td></td>
</tr>
<tr>
<td>3. Ultrasonic examination of the breasts</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
<td>4.</td>
<td></td>
</tr>
<tr>
<td>4. PAP test (exfoliative cytology of the cervix)?</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
<td>4.</td>
<td></td>
</tr>
<tr>
<td>5. A gynaecological examination</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
<td>4.</td>
<td></td>
</tr>
</tbody>
</table>

103. Who would you prefer to visit with questions related to contraception? (Choose one alternative in every group.)

A.
1. The same doctor I visit for other health problems
2. Some other doctor
3. It doesn't matter whether I know the doctor or not
4. Cannot say

B.
1. Gynaecologist
2. General practitioner / family doctor
3. Doesn't matter
4. Cannot say

C.
1. Male doctor
2. Female doctor
3. Doesn't matter
4. Cannot say

D.
1. Private clinic
2. Public health centre
3. Women's clinic
4. Doesn't matter
5. Cannot say

104. Have you ever smoked regularly, at least one cigarette (cigar or pipe tobacco) daily for at least one year?
1. I have never smoked
2. I have smoked earlier, but not any more
3. I smoke daily
4. I smoke occasionally
105. How often do you consume alcohol to become drunk (when you start losing control)?
1. Daily
2. A couple of times a week
3. Once a week
4. A couple of times a month
5. About once a month
6. About once in two months
7. 3-4 times a year
8. Once a year or less frequently
9. Never

106. Have you ever in your life used any drugs?
1. No
2. Yes, intravenously
3. Yes, some other way

107. During the past 12 months, somebody:
(You can choose more than one alternative)
Circle the right answers

<table>
<thead>
<tr>
<th>Questions</th>
<th>Partner</th>
<th>Husband</th>
<th>Somebody else</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Threatened to beat you or harm you some other way</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>2. Pushed, shook or threw something at you</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>3. Bet you with something, which harmed / could have harmed you</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>4. Threatened you with a knife, arms or with another instrument</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>5. Physically forced you to have sexual intercourse against your will</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>6. Threatened or frightened you to make you agree to sexual intercourse</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>7. Forced you to any sexual activity against you</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>8. nobody</td>
<td>0.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

108. In addition, how many times during the past 12 months after fighting with your partner/husband you have had

<table>
<thead>
<tr>
<th>Note the right answer</th>
<th>not once</th>
<th>1-2</th>
<th>3-5</th>
<th>6-10</th>
<th>11-20</th>
<th>more than 20</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Bruises or pain</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Wounds or fractures</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Visited a doctor or a clinic because of being beaten</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

109. Have you ever told anybody about what happened?
1. No
2. Yes, who? ____________________________________________________________

Thank you for your time and co-operation. Your answers will help to improve health services in St. Petersburg.

Please give your comments for the researchers (e.g. was it easy to answer the questions, how did you feel answering the questions):

________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________