

The knowledge of 9th graders about sexually transmitted diseases and contraceptive methods in Jyväskylä

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Abstract The aim of this thesis was to find out the knowledge of 9 th graders about sexually transmitted diseases and contraceptive methods in Jyväskylä. The material of the thesis was gained from one of the upper elementary schools in Jyväskylä area. The permission for participation in the study was asked from the parents by e-mail. Out of 144 students, 56 got the permission from their parents. 55 of them participated in the research out of which 29 were girls and 26 were boys. The participants filled a form consisting of 25 multiple choice questions. Results from the material were counted as percentages and frequencies from each question by gender. In general the girls answered more correctly more often than the boys. Participants seemed to have quite a bit of information on how to use contraceptive methods and how contraceptives work, but have lacking information on where to get them. Nearly everyone knew that condom is the best way to prevent STDs but when asked about symptoms of STDs, many of them were lost. Adolescents knew different kind of STDs but they did not know their symptoms or that STDs can be asymptomatic. The adolescents also had lacking information on the most common STD in Finland, which is chlamydia, and the fact that it is diagnosed multiple times more often compared to others makes the results worrying. So education regarding contraceptives is well learned but either the adolescents do not pay enough attention to STDs or there are deficiencies when it comes to education regarding them.		
Keywords Adolescents, contraceptive methods, sexually transmitted diseases, knowledge.		
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Tiivistelmä <p>Tämän opinnäytetyön aiheena oli tarkastella yhdeksäsluokkalaisten nuorten tietämystä ehkäisy menetelmistä ja sukupuolitaudeista.</p> <p>Tämän opinnäytetyön aineisto koostuu yhden Jyväskylän alueen yläkoulun yhdeksäsluokkalaisten oppilaista. Lupaa tutkimukseen osallistumiselle kysyttiin oppilaiden vanhemmilta sähköpostitse. Vanhempien luvan osallistumiselle sai yhteensä 56 yhdeksäsluokkalaista oppilasta. Tutkimukseen osallistui 55 oppilasta, joista 29 oli tyttöjä ja 26 poikia. Osallistujat täyttivät lomakkeen, joka koostui 25 monivalintakysymyksestä. Aineistosta laskettiin prosenttiosuudet kullekin vastausvaihtoehdolle sukupuolittain.</p> <p>Tämän tutkimuksen mukaan yhdeksäsluokkalaisten tunnistivat ehkäisy pillerin ja kondomin luotettavimmiksi ehkäisy menetelmiksi. Oppilaat tiesivät kuinka nämä ehkäisy menetelmät toimivat, mutta tietous niiden hankkimisesta ja säilyttämisestä oli suhteellisen vähäistä. Yhdeksäsluokkalaisten tunnistivat sukupuolitauteja, mutta tietämys niiden oireettomuudesta oli vähäistä. Suurin osa yhdeksäsluokkalaista ei tiennyt klamydian olevan Suomen yleisin sukupuolitauti.</p> <p>Tämä tutkimus antoi viitteitä yhden koulun yhdeksäsluokkalaisten tietämyksestä, mutta tulevaisuudessa laajempia tutkimuksia pitäisi tehdä, jotta saataisiin luotettavaa tietoa opetuksesta ja siitä kuinka opetusta voitaisiin mahdollisten tutkimusten perusteella parantaa.</p>		
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1 Introduction

In this research the researchers study the knowledge of 9th graders about sexually transmitted diseases and contraceptive methods. Sexuality and sexual health are a remarkable part of life and it is also one of the current development projects in Finland. By improving sexual and reproductive health the overall wellbeing of the population is enhanced. One of the aims of sexual and reproductive strategy in Finland is to prevent unwanted pregnancies and sexually transmitted diseases among adolescents. (Terveyden ja hyvinvoinnin laitos 2014)

In the 1970's the sexual education and sexual health services improved in Finland which resulted in increased usage of contraceptives. This increase stopped in the 1990's when the funding for school health care system was reduced radically. Contraceptive clinics were closed and after the year 1994 sexual education wasn't part of the mandatory program in schools. More abortions were done in the late 1990s' and more STD's were diagnosed. (Apter 2008.)

More funding and effort was put to sexual health education after the recession. Health education came back as a proper school subject in the 21st century and the school health care system was improved. More effort was put to sexual health education and counseling. Improvement in the adolescents' sexual health and knowledge could be seen in the decreased rates of unwanted pregnancies and abortions. (Kontula & Meriläinen 2007, 13 & 20)

The National Institute for Health and Welfare claims that the quantity of sexually transmitted diseases has neither increased nor decreased during the past

5 years. The statistics show that Chlamydia is diagnosed over dozens of times more often compared to other STDs and most of the infections were among younger than 25-year olds. Sexual knowledge and sexual education in Finland are also internationally good. Comparing the situation in Europe and Finland, the amount of teenage pregnancies has been lesser only in Netherlands, Belgium, Germany, Italy and Spain. (Kontula & Meriläinen 2007, 9 & 13; Terveys- ja hyvinvoinninlaitos 2014)

There has been some research done before about the sexual knowledge of the 9th graders but there has not been any specific research lately. The purpose of this study is to find out what the adolescents know about prevention of sexually transmitted diseases and contraception when they graduate from the 9th grade. This research aims to provide information that can be used to educate the 9th graders about sexual health.

2 Adolescents and sexual health in Finland

According to Kontula (2001) sex education does not reduce risk taking behavior but it improves the usage of contraceptives. He also states that in the United States where the sex education has been based on abstinence, teenage pregnancies have been about 3 to 5 times more common than in Finland. National Institute for Health and Welfare in Finland (THL) claims in its website that abortions among younger than 20-year old girls has reduced during the last 40 years. In the year 2013 that age group had 10,5 abortions per 1000 girls. (Kontula 2001, 6; Terveys- ja hyvinvoinninlaitos 2014.)

Sexual education in schools has gotten better after health education became a proper school subject in 2000. Surveys done in 2000 and 2006 revealed that the

knowledge of the overall sexual health had gotten better due to overall increase of the hours spend on the sexual education. In addition the timing of the sexual education has gotten earlier and more education material is available for the teachers. Girls' sexual knowledge had gotten better by 2 percentage points and boys' sexual knowledge had gotten better by 6 percentage points. (Kontula & Meriläinen 2007, 62.)

Liinamo, Rimpelä, Kosunen and Jokela (2000) analyzed sexual knowledge of adolescents in 1998 and 1999 in Finland. In the analysis the researchers noticed that in general 9th graders had more knowledge about sexual health than 8th graders. In the arguments concerning pregnancy, sexually transmitted diseases and girls' maturation, the girls' knowledge was considerably better. (Liinamo et al. 2000.)

It is important that adolescents adopt sexual knowledge early even before the knowledge is actually needed. Sufficient knowledge allows the adolescents to form their own attitudes and concepts and it also helps the adolescents to make good choices concerning their own health and wellbeing. Knowledge of sexual health is common knowledge. (Liinamo et al. 2000.)

2.1 Adolescents' sexual development

Adolescence is a time period in human growth from ages 10 to 19 when an adolescent evolves physically and mentally towards adulthood and it is one of the critical transitions in life span and it is characterized by a tremendous pace in growth (World Health Organization, 2015a). The main function during the adolescence period is to become independent. An adolescent has to resolve dilemmas that belong to maturation. At first adolescent has to structure body image, sexual identity and sexuality due to puberty. Secondly an adolescent

has to resort to peers during growth and to break away from childhood parents. (Väestöliitto 2015c.)

The first signs of puberty among boys are the maturation of the testicles and the secretion of strong odor sweat. The next step is the growing of pubic hair and ejaculation. These changes happen between ages 9 to 15. The adolescent growth spurt occurs later in adolescence. Beard usually starts growing last, usually at the age of 18. (Terveyskirjasto 2015a.)

The first sign of puberty among girls is the growing of mammary glands. It usually starts at the age of 10. The adolescent growth spurt among girls happens usually earlier than among boys and the peak of it is in the age of 12. The first menstruation period usually occurs between the ages of 10 to 14. (Terveyskirjasto 2015b.)

Mental development among adolescents is slower than physical development. An adolescent can experience strong feelings. Hormonal changes in the body and new kinds of internal and external expectations towards oneself and life cause conflicts. In adolescence a person can have a regression and behave like a child for a moment. It is unavoidable and necessary for the mental growth. An adolescent learns to control feelings by handling them for example by listening to music and by telling others about the feelings. (Mannerheimin lastensuojeluliitto 2015a.)

From ages 15 to 18 adolescents start to emphasize their own gender roles and usually girls have already grown physically as a woman. The puberty among boys usually starts later than among girls so that way the differences in physical and mental maturation generally in 15 year old girls and boys can be remarkable. (Mannerheimin Lastensuojeluliitto 2015b.)

The World Health Organization (2015b) defines sexuality as following:

...a central aspect of being human throughout life encompasses sex, gender identities and roles, sexual orientation, eroticism, pleasure, intimacy and reproduction. Sexuality is experienced and expressed in thoughts, fantasies, desires, beliefs, attitudes, values, behavior, practices, roles and relationships. While sexuality can include all of these dimensions, not all of them are always experienced or expressed. Sexuality is influenced by the interaction of biological, psychological, social, economic, political, cultural, legal, historical, religious and spiritual factors.

During the process of maturation, many adolescents face pressure to begin sexual intercourse at an early age. They may be putting themselves at high risk of getting unwanted pregnancy or getting a sexually transmitted disease. Adolescents depend on their schools, health services and families to get to know skills that help them to make reasonable decisions concerning their own behavior and health. During maturation process adults have an opportunity to influence and help young people with the transition from childhood to adulthood. By offering up-to-date knowledge about sexual health issues it is possible to influence adolescents' way of thinking and supporting their decision making. (World Health Organization 2015a.)

Sexuality and its' development is individual and it develops throughout life. The biggest convulsions in the sexual development occur in adolescence. Sexuality consists of three different parts: feelings, biology and mind. To become sexually balanced adult an adolescent has to cope with every field. An adolescent needs to experience that the responsibility of wellbeing belongs to oneself and that mind has control over the strong feelings and biology. Development of sexuality can be described as a nine step model (Figure 1). Every person is an individual and develops in ones' own phase. The most important meaning of the stairs is to make the adolescents to realize that there is no need to hurry in the stairs and you can either stop on a stair or you may also go

backwards. By getting to know oneself and one's own sexuality slowly, an adolescent can avoid problems that are caused by haste or lack of knowledge. (Cacciatore, Korteniemi-Poikela 1999, 15-17.)

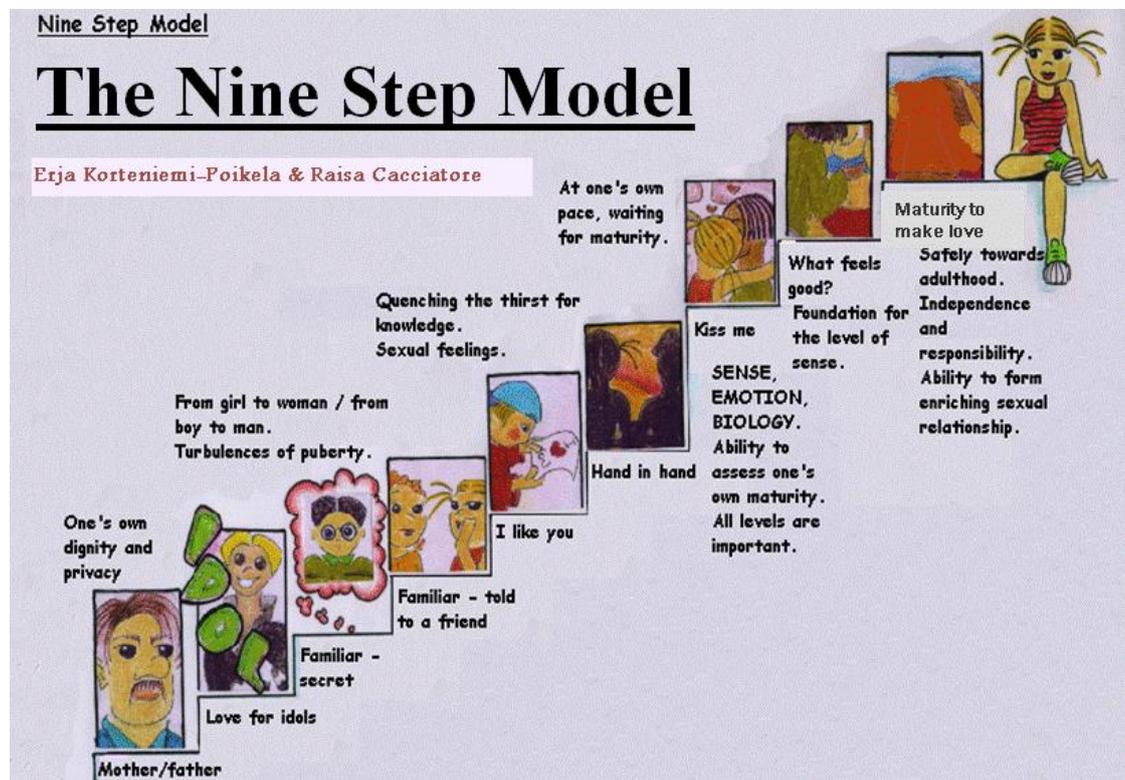


Figure 1. The nine step model (Cacciatore, Korteniemi-Poikela 1999)

2.2 Adolescents knowledge about contraceptive methods

Adolescents' knowledge about contraceptives is not widely researched in Finland. Information has been gathered from Väestöliitto's sexual health quizzes in 2000 and 2006. There has also been few investigative theses done that have studied upper elementary school students knowledge about contraceptive methods.

In general girls' knowledge about contraception in the sexual health quizzes in 2000 and 2006 was a bit better than boys but both groups knowledge was good and had improved a bit in 2006. Both boys and girls knew very well that

contraception is both boys and girls responsibility, one should find out about different contraceptive methods and choose one that fits best and that condoms can be bought freely. In Sutinen's research (2010) 100% of the 8th graders that participated in the research knew that contraception is both boys and girls responsibility. (Kontula & Meriläinen 2007, 74-77; Sutinen 2010, 37.)

In the sexual health quizzes done in 2000 and 2006 about one fifth of the boys was lacking in the knowledge that there is no age limit to buy condoms, best way to prepare for contraception is to always have a condom with you and that withdrawal before ejaculation is the most unreliable way to prevent pregnancies. Girls' knowledge about these was excellent. Boys' knowledge about when to take the emergency contraception pill and where to go to get contraceptive pills and how to take them properly, was only below 70%. In Sutinen's research (2010) done for 8th graders 68% of the girls and 49% of the boys knew how contraceptive pills prevent pregnancies but only 35% of the girls and 9% of the boys knew what is the most reliable way to prevent pregnancies. Sutinen's research also showed that 100% of the girls and 94% of the boys knew that there is no age limit to buy condoms. (Kontula & Meriläinen 2007, 74-77)

Both respondent groups in the sexual health quizzes done in 2000 and 2006 were lacking in the knowledge of how contraceptive pills work and how much a pack of five condoms approximately cost. They also did not know that contraceptive pills have positive effects like less pain during menstruation, regular menstruation cycle and decreased blood loss during menstruation and that contraceptive pill is the most reliable way of preventing pregnancies. Concerning sexually transmitted diseases the adolescents knew quite well that condom is the best contraceptive method if ones sex partners change often. In 2006 about 89% of the girls and 85% of the boys knew this. In Sutinen's re-

search (2010) done for 8th graders 100% of the girls and 97% of the boys knew this. (Kontula & Meriläinen 2007, 74-77; Sutinen 2010, 38.)

In Uusi-Hakala and Vitikka's research done for 9th graders in 2009, 98% of the girls and 94% of the boys knew that condom is the only way to prevent STDs. About 87% of the girls and 73% of the boys knew this in the research done for 9th graders in 2014 by Hangassalo, Hämäläinen and Savolainen. (Hangassalo, Hämäläinen & Savolainen 2014, 34-35; Uusi-Hakala & Vitikka 2009, 47.)

In Hangassalo and colleagues' research (2014) the 9th graders were mostly lacking in knowledge about when to take the emergency contraceptive pill, where to keep the condom, age limit and permission to buy contraceptives. Only 51% of the girls and 36% of the boys knew that the emergency contraceptive pill cannot be taken after a week of intercourse. About 32% of the girls and 38% of the boys knew that the condom cannot be kept in the wallet. Only a bit over half of both groups knew that there is no age limit to buy contraceptives and a bit less than half of both groups knew that you do not need a guardians' permission to get contraceptive pills. (Hangassalo et al. 2014, 34-35.)

Ala-Venna and Nikkari's (2011) research was done for 7th graders. This research showed that 100% of the respondents were familiar with condom or had heard about it before. 84% knew the contraceptive pill, 47% knew the emergency contraceptive pill, 22% knew the contraceptive patch and contraceptive ring, 18% knew the contraceptive capsule, 11% knew the hormonal intra uterine device and 9% knew the copper intra uterine device. 27% of the respondents did not know what emergency contraception is. Only 10% answered that contraception should be used in every intercourse and that condom should be used to prevent both pregnancies and STDs. This research showed that the 7th graders were lacking in the knowledge about the usage of

contraceptive pills, contraceptive ring and contraceptive capsule. (Ala-Venna & Nikkari 2011, 31-37.)

2.3 Contraceptive methods

There are many different ways to prevent pregnancies but only one way to protect oneself against sexually transmitted diseases (STDs). Condom is the only contraceptive method that protects against both, unwanted pregnancies and STD's. This is why condom is the primary choice for adolescents when thinking of contraception. When condom is combined with another form of contraception like for example contraception pill the protection is the most certain. When the adolescents need for contraception is continuous it is good to consider long term contraceptive methods. Different methods can be divided into hormonal and non-hormonal contraceptives. It is important for the adolescents to know about different contraceptive choices and have skills and knowledge on how to use them properly. It is also very important for them to know what cannot be used to prevent pregnancies and STDs. (Väestöliitto 2014a; Väestöliitto 2015a)

Hormonal contraceptives can contain combination of two hormones; estrogen and progesterone, or they can only contain one hormone; progesterone. There are three choices of contraceptives that use combined hormones; contraceptive pill, contraceptive ring and contraceptive patch. These three have the same principle of usage. They are used or taken for 21 days after which there is one week break when the girl has her period. Combined hormone contraceptives do not only prevent unwanted pregnancies but they also have many other positive effects like for example they decrease the amount of bleeding, shorten the bleeding period and decrease the period pains. They can also have positive effects on acne and hair. Because of their positive effects, the combined

hormonal contraceptives are a very good choice for adolescents. These methods require a doctor's prescription. If the adolescent has trouble remembering to take the contraceptive pills every day then the ring or the patch are good alternatives. (Kivijärvi 2014; Sannisto, Kuortti, Kuukankorpi & Niitty 2012; Väestöliitto 2015a; Väestöliitto 2015d; Väestöliitto 2015e.)

Combined hormone contraceptives can also have side-effects like headache, tender breasts, mood changes and nausea. These should go away or decrease over time but if they continue and are strong, other options should be considered. Good options can be contraceptives that contain only progesterone. These options are minipills, implants and hormone intra uterine device. Out of these three the intra uterine device is usually recommended and more common with women who have given birth. It is put in place by the doctor. The minipills are taken every day and they do not have all the positive effects as the combined hormone contraceptives do but they are a good choice if the adolescent cannot use combined hormone contraceptives. The contraceptive implants are small capsules put under the skin by the doctor and they work for 3 to 5 years and are a good choice for the adolescents if they forget to take the pills or if the combined hormone contraceptives are not a suitable option. All contraceptives that contain only progesterone can affect the menstrual cycle and make it irregular. (Sannisto et al. 2012; Väestöliitto 2014a; Väestöliitto 2015e.)

The most well-known non-hormonal contraceptive is the male condom which is the only contraceptive method for males. There is also a female condom that can be bought from pharmacies whereas the male condom can be bought also from the grocery stores, gas stations and kiosks. There is no age limit or prescription needed to buy the male condoms. The copper intra uterine device is mostly popular only among women that have given birth but it is also sometimes recommended and suitable for women who have not given birth and

need long term contraception but the hormonal contraceptives are not suitable. The copper intra uterine device, like the hormonal intra uterine device, is put in place by the doctor. There are also different kinds of sticks, foams, gels and ointments that kill the sperm but these are not recommended to use alone since they do not give very effective protection. (Sannisto et al. 2012; Väestöliitto 2014b; Väestöliitto 2015a)

Emergency contraception pills (ECPs), or in other words, the morning after pills should never be used as a regular contraceptive method and they should only be taken if the other methods fail, like for example if the condom breaks, or if contraception is not used at all. In Finland there are two types of hormonal ECPs; levonorgestrel and ulipristal. They should be taken as soon as possible after intercourse for them to be most effective. Levonorgestrel is a prescription-free drug for girls 15 and older. Girls younger than 15, need a doctor's prescription. It should be taken within 72 hours after the intercourse but it is recommended to be taken within the first 12 hours. Ulipristal is a prescription drug that should be taken within 120 hours of the intercourse. If the embryo has already been attached to the lining of the uterus the ECPs will not stop the pregnancy. The copper intra uterine device is another method that can be used as emergency contraception. It should be put in place within 5 days of the intercourse and it can be taken out after the next period or it can be left in as long term contraceptive. (Käypä hoito 2010; Väestöliitto 2015f)

Withdrawal before ejaculation and only having intercourse on the safe dates is very unreliable and should not be used as contraceptive methods. The adolescent girls' ovulation can be irregular and so there are no safe dates that can be used as contraception. Withdrawal before ejaculation is not only uncomfortable by having to be alert all the time but it is also very unreliable since there can be sperm in the pre-ejaculation. (Väestöliitto 2015b)

2.4 Sexually transmitted diseases

Diagnoses and treatment of sexually transmitted diseases is based on the Communicable Diseases Act and Regulation. Based on this law all diseases are divided into three different categories: generally dangerous, notifiable and others. If disease is regarded as generally dangerous it means that, it can spread quickly or it can be transmitted easily from person to person, the disease itself is dangerous for health and spreading of the disease can be prevented by actions targeted towards the person suspected of being ill. When disease is regarded as notifiable it means that monitoring the disease requires doctor's guidance, and breaking the chain of infection requires the patient to get free treatment or the disease can be prevented with the national vaccination program. Other diseases are diseases that do not require the patient to get government sponsored treatment. (Tartuntatautilaki 1986; Käypä hoito 2010; Vuorenmaa, Ilola, Mussalo-Rauhamaa & Hiltunen-Back 2012.)

Sexually transmitted diseases (STDs) are divided into these three categories. First category is generally dangerous and it includes syphilis, second is notifiable and consists of chlamydia, gonorrhoea, human immunodeficiency virus (HIV), B- and C-hepatitis and chancroids, these infections are reported to the National Institute for Health and Welfare. Third and last category is others including condyloma and genital herpes. Based on the National Institute for Health and Welfare and Current Care Guidelines, the most common STD's in Finland are chlamydia, condyloma and genital herpes. Less common cases (gonorrhoea or syphilis) are often obtained from abroad. (Käypä hoito 2010; Vuorenmaa et al. 2012.)

Through interview with a health care professional the risk of infection and possible time of transmission will be discovered so that a reliable sampling can be taken. With chlamydia, gonorrhoea, syphilis, HIV, B- and C-hepatitis, the diagnoses are based on laboratory samples and with condyloma and genital herpes the diagnoses are made based on clinical examinations. The attending physician is responsible for reporting the dangerous or notifiable infections to the right foundation. Physician will also be responsible for guiding the patient to the right place to gain appropriate follow-up care. Diagnosed diseases that belong to either generally dangerous or notifiable categories must be informed to the National Institute for Health and Welfare within seven days of the detection. With sexually transmitted diseases the exception is made with chlamydia. When chlamydia is diagnosed the notification sent to National Institute for Health and Welfare is done by the laboratory that conducts the examinations. (Käypä hoito 2010)

Chlamydia

Chlamydia is caused by chlamydia trachomatis bacteria. It is the most common STD in Finland. In 2014 there were 13 234 diagnosed cases of chlamydia in whole Finland (Tartuntautirekisterin tilastotietokanta 2014). Chlamydia occurs in all age groups but one group especially at risk are those below 25-years old with multiple sex partners. Every diagnosed case is reported to the National Institute of Health and Welfare. (Kauppila & Tuomela. 2009; Hanuksela-Svahn 2013; Vuorenmaa et al. 2012.)

Most infections caused by chlamydia are asymptomatic, about half of the men and 70 % of the women do not have any symptoms. Unattended chlamydia-infection can cause infection in pelvic, which may lead to infertility. Common symptoms of chlamydia are stinging sensation when urinating, increased urination frequency, bleeding from the urethra, increased vaginal discharge,

bleeding after intercourse and pain in lower abdomen. Also depending on the method of infection there might be variety of symptoms in rectum, pharynx and conjunctivis. Rectum and pharynx infections are usually asymptomatic. Chlamydia infection can be avoided by using condoms during intercourse. (Kauppila & Tuomela. 2009; Hannuksela-Svahn 2013; Vuorenmaa et al. 2012.)

Syphilis

Syphilis is caused by bacteria known as *treponema pallidum*. There were 201 diagnosed cases of syphilis in 2014 (Tartuntatautirekisterin tilastotietokanta 2014). Generally dangerous disease will be informed to the National Institute for Health and Welfare after diagnose. Diagnose is based on clinical examinations and antibody tests. *Treponema pallidum* bacteria can spread from mucous membrane to mucous membrane but it cannot permeate through healthy skin. The most common way to gain the bacteria is through unprotected sexual intercourse. Usually on the site of infection (penis, labia, vagina, near rectum or oral mucosa) appears a hard-edged generally circular wound that is not sore or sensitive. One-third of the cases do not get this wound. (Hannuksela-Svahn 2013; Ikäheimo, Kumpulainen, Martikainen & Marttinen 2014; Kauppila & Tuomela 2009; Vuorenmaa et al. 2012.)

Gonorrhea

Gonorrhea is caused by bacteria called *neisseria gonorrhoeae*. There were 286 diagnosed patients in Finland in 2014 (Tartuntatautirekisterin tilastotietokanta 2014). After confirmation of diagnose the physician will inform National Institute for Health and Welfare. Infection is usually asymptomatic or shows only mild symptoms in initial phase. Women might suffer mild lower abdomen pain or vague vaginal discharge and experience some stinging sensation while urinating. When infection spreads to uterus and fallopian tube it can lead to

inflammation of pelvic. (Hannuksela-Svahn 2013; Ikäheimo et al. 2014; Kauppila & Tuomela 2009; Vuorenmaa et al. 2012.)

With men gonorrhoea typically causes increased urinary frequency along with stinging sensation while urinating. There will also be light gray colored pus from urethra which will turn into more yellow colored within few days. Untreated gonorrhoea can spread and can cause incarcerations to urethra and epididymitis. Erection can also be painful. Infection at the mouth can be felt as burning sensation and/or throat pain. If infection is at rectum, there will be slimy leakage. Diagnose is gained by clinical examinations and tests, depending on the infection route. (Hannuksela-Svahn 2013; Ikäheimo et al. 2014; Kauppila & Tuomela 2009; Vuorenmaa et al. 2012.)

Genital herpes

Genital herpes is caused by a virus called herpes simplex. Genital herpes is not part of the diseases that need to be informed to National Institute for Health and Welfare, meaning that there is no tracking of this particular infection. Initial phase of the infection is usually asymptomatic or shows only few symptoms. These symptoms include superficial blisters on the skin or mucosa. General symptoms are fever, headache, feeling of being unwell and increase in size of inguinal lymph nodes. Symptoms usually vanish in 2-3 weeks. When infection reappears there usually are not any general symptoms. Main way to diagnose genital herpes is by clinical examination and laboratory cultivation of the site. Genital herpes cannot be cured completely, the virus will stay in the body but the symptom episodes and transmission can be reduced by medicines. (Hannuksela-Svahn 2013; Laurén 2009; Vuorenmaa et al. 2012)

Condyloma

Condyloma is caused by human papilloma virus (HPV). Condyloma is not part of the generally dangerous or notifiable group, so the exact number of cases is not being recorded. Condyloma can appear like a wart, cauliflower-like or flat condyloma, its surface is smooth or mole-like. It can also appear around rectum, in rectum or in oral cavity. HPV can, in addition to sex, be gained by perinatally or by hand-to-hand. Condom does not give full protection against the virus. With women condyloma usually appears in vulva, vaginal orifice, at the mouth of urethra or around the perineum. It is possible to have condyloma also in the vagina or cervix area. With men condyloma appears on the foreskin, at the head of the penis, and alongside the penis. Diagnose is based on genital area examinations done by a physician. Women also go through gynecological inspection. (Hannuksela-Svahn 2013; Vuorenmaa et al. 2012.)

2.5 Adolescents knowledge about sexually transmitted diseases

Kontulas' research in 2006 revealed that adolescents did not know that sexually transmitted diseases can be asymptomatic. The adolescents also had lacking knowledge about condyloma and genital herpes. Only one third of girls and one fourth of boys knew that genital herpes can never be cured. Adolescents also did not know how the disease can be found and examined, what kind of treatments you can have and that the best way to treat a sexually transmitted disease is to treat oneself and a partner at the same time. (Kontula & Meriläinen 2007, 71-76)

In Liinamo and colleagues' study, the lack of knowledge about sexually transmitted diseases was seen. Only 57% of all the respondents knew that a sexually transmitted disease can be asymptomatic and only 46% of all respondents knew that chlamydia can cause infertility. Concerning the prevention of sexually transmitted diseases, 79% of all respondents knew that only condom can protect you from sexually transmitted diseases. 89% of girls in the 9th grade knew that only condom can protect oneself from sexually transmitted diseases and 79% of boys in the 9th grade were aware of that. (Liinamo et al. 2000)

National Institute for Health and Welfare, formerly known as two separate institutes: Development Centre for Welfare and Health (STAKES) and the National Public Health institute. Back in 1996 STAKES launched school health survey, which has since then been regularly done through voluntary participation of municipalities in upper elementary schools and in high schools and since 2008 in vocational schools as well. The reports show that in the surveys done in 2008/2009 and 2010/2011 the results were that 78% of boys and 85% of the girls in upper elementary school were aware of the fact that the only contraceptive method that protects from STDs is a condom. Compared to high school and vocational school students, 90% of the girls knew the protective properties of a condom, boys studying in vocational schools had 83% knowledge and boys in high schools 90% of awareness regarding the properties of condom. Even though they have knowledge of how to prevent getting STDs, they still do not use it regularly. (National Institute for Health and Welfare 2011; Vuorenmaa et al. 2012.)

Out of the students in upper elementary school, 62% of boys and 58% of the girls did report using condom during their last sexual intercourse. In comparison, 45.5% of the high school girls and 58.5% of the boys did use condom during last sexual intercourse. Reason for the reduction in the usage of condoms

in high schools compared to upper elementary schools was believed to be that girls began using birth control pills after upper elementary school. Survey in vocational school informed that roughly one out of three girls had used a condom and 54.5% of boys did the same. (Vuorenmaa et al. 2012.)

Knowledge about the fact that STDs do not necessarily cause any symptoms was high among high school students. 88% of the boys and 95% of the girls knew that STD might be asymptomatic. Out of the adolescents in the same age group but studying in vocational schools, 91.5% of the girls and only 75.5% of the boys were aware of the STDs possibility to be asymptomatic. Compared to younger adolescents still in upper elementary school, out of which only 66.5% of the boys and 79.5% of the girls knew this. (Vuorenmaa et al. 2012.)

3 Purpose, aims and research questions

The purpose of this study was to find out what the adolescents, who have had their sexual education during the upper elementary school, know about prevention of STDs and contraceptive methods when they graduate from the 9th grade. The aim of this study was to provide information that can be used to educate the 9th graders about sexual health.

1. What is the knowledge of 9th graders about contraceptive methods?
2. What is the knowledge of 9th graders about sexually transmitted diseases?

4 Methods and implementation

4.1 Research methodology

The researchers used a quantitative research method for this study. Measuring and numbers are both characteristics of a quantitative research. The researchers gathered information that measures the knowledge of the 9th graders about STD's and contraceptives and presented them in numbers that show the adolescents' knowledge on different areas of the topic. Another characteristic of a quantitative research is comparing. In this study the researchers were interested in comparing the girls and boys knowledge on different areas of the topic. (Kvantitatiivisen analyysin perusteet 2015; Määrällinen tutkimus 2013; Vilka 2007)

Quantitative research is also specific and analytic. Quantitative research focuses on the facts that are measurable and produce statistical information. Quantitative research method was used for this research to produce more statistical information about the adolescents' knowledge about STDs and contraceptive methods. This method was also used so that the research stays objective and the researcher will not have effect on the results. (Kvantitatiivisen analyysin perusteet 2015; Määrällinen tutkimus 2013; Vilka 2007)

4.2 Methods for data collection

The researchers used a questionnaire as a data collection method for this research. Questionnaire is a list of research or survey questions asked and designed to extract specific information (Business Dictionary 2013). There are different types of questionnaire forms that vary from factual to opinion based

and from tick boxes to text responses. The form of the questionnaire is based on the needed information. To get useful answers it is important to be clear about the aim of the questionnaire and how the responses will help in gathering the data. (Milne 1999.)

The questionnaire for this research (Appendix 1) was a multiple choice questionnaire, including twenty-five (25) questions from different points of view concerning STDs, contraceptive methods and preventing STDs and pregnancies. The questions' topics were formed so that they could be divided under the research questions. 15 of the questions fell under the question "what is the knowledge of 9th graders about contraceptive methods" and 9 of the questions fell under the question "what is the knowledge of 9th graders about sexually transmitted diseases". One of the questions fell under both research questions. All 25 questions had 4 options for the participants to choose the correct answer from. There was only one correct answer to each question, which made it easier to form statistical and easily readable results from them. The questionnaire was in electronic form and in Finnish. Some of the questions used for this questionnaire were adapted or copied from the Väestöliitto's sexual health quiz questions (Kontula & Meriläinen 2007). The permission for this was asked from the Väestöliitto. The rest of the questions were created by the researchers based on the theoretical parts of this thesis.

There are many advantages for using questionnaires. Responses are gathered in a standardized way and they are more objective. The questionnaires can be analyzed more scientifically and objectively than some other forms of research. It is relatively quick way to gather information and the information can also be gathered from large groups in relatively small amount of time. Questionnaires can be carried out by other people than the researchers themselves without affecting the validity or reliability of the answers. Data gath-

ered from the questionnaires can be used to compare and contrast other/future researches, in case there are any plans to compare it. (Milne 1999.)

The advantage of the chosen type of questionnaire with questions that have multiple choice answers in this research was that it did not take a long time to fill out and the adolescents did not have to write long answers. The answers of the questionnaire were be clear and easy to analyze without unnecessary information. (Chan 2009.)

4.3 Participants and recruitment

Viitaniemi's upper elementary school was randomly chosen by the researchers from the Jyväskylä area and the target group was all the 9th graders between ages 15 and 16 of this chosen school. Normally adolescents at the end 9th grade (spring time) are 15 to 16 years old but there can be some exceptions when the adolescent is one year older or younger. The reasons for these differences are extended compulsory education, in advance commenced compulsory education or repetition of class.

In cooperation with the headmaster of the Viitaniemi's upper elementary school a permission email was sent to all the 9th graders parents or guardians asking for their permission for the adolescents to take part in this research. There was maximum of two weeks to send a reply. This was done since the 9th graders are under aged (Pointti 2015). This was completely voluntary research and the adolescents had a change to choose whether they wish to answer the questionnaire after getting their parents or guardians permission. Hoped minimum of participants for this research was fifty (50) adolescents.

After the permission emails were answered, in cooperation with the teachers of the Viitaniemi's upper elementary school a date was chosen, for the adoles-

cents to answer the questionnaire during the school day. Before answering the questionnaire the researchers explained to the adolescents the purpose and aims of this study. It took approximately 10 minutes for them to answer the questionnaire. The researchers went to the school during the chosen date to conduct the research. The adolescents who had their parents or guardians permission and who wished to take part in this study were taken to a quiet computer classroom to answer the questionnaire. At this point they were reminded that it is voluntary to answer the questionnaire. There was a small prize for those who took part in the research. This prize was a free condom, sponsored by the Finnish Red Cross.

4.4 Data analysis

In this research the researchers used Webropol as the method for implementing the questionnaire and also as a way to analyze the information gained from the questionnaire. Webropol is an online survey and analysis software that is used by many public sector and private sector companies, such as Fimea and Ikea, to mention some. It is used as a method for conducting researches and sending surveys as well as analyzing the information gained from them. In this research it will act as quantitative analysis method.

(Webropol 2015)

Analysis includes statistics, frequency and percentages of the answers from the questionnaire. Preparation for analyzing the data was done well beforehand, this is because when using quantitative research method the settings for the questionnaire, gathering the material for it and interpretation of the results takes time before the actual results are cleared. (Jyväskylän Yliopisto 2015.)

The questionnaire gave answers to the research questions of this thesis. Questions were multiple choice questions, with four (4) possible answers and one

(1) of them being the right one. There were total of twenty-five (25) questions and some of them were created in a way that they asked about the same topic but from a different angle. This gave the researches a clue whether the participants actually had knowledge of the subject area or were the answers based on guesswork. After analysis, the results were transformed in to percentages. Percentages tell the amount of correct or wrong answers of the total participants in quickly understandable form. Analyzing the results also told how much adolescents know about prevention of STDs and contraceptive methods and whether there are areas where their knowledge is better than in other areas, for example, if they know more about STDs than contraceptive methods. First two questions verified the gender of the adolescent and their age. This helped the researchers to identify discrepancies among the answers that were deleted from the final analysis. (Opetushallitus 2015a; Opetushallitus 2015b.)

5 Results of the research

5.1 Description of the participants

There were 144 adolescents on the 9th grade in Viitaniemi's upper elementary school. Out of these 144 adolescents 59 got their parents' or guardians' permission to participate in the research. 15 Adolescents did not get the permission to participate in the research. From the rest of the adolescents, the researchers did not receive a reply. Out of the 59 adolescents that had the permission to participate to the research, 56 answered the questionnaire. The remaining 3 were either absent from school on the implementation day or did not wish to answer the questionnaire.

Out of the 56 participants, 55 were aged between 15 to 16 years old. One participant was 17 years old. This participant's answers were not taken into account in the analysis because the subject group was 9th graders' aged between 15 to 16 years old. Out of the 55 participants, 29 were girls and 26 were boys.

5.2 Research results

5.2.1 Gender variations in knowledge about contraceptives and STDs

In general the boys and girls answered correctly on the same topics, although the girls answered correctly more often than the boys. The biggest differences between the boys and girls correct answers were in the questions that asked about the most reliable way of preventing pregnancies, how condoms should be stored, how contraceptive pills should be taken and what is the most common STD in Finland.

Among the girls the most correct answers were given to the questions that asked about emergency contraceptive pills (ECPs), the working mechanism of a condom, how contraceptive pills are taken and what is the most unreliable way to prevent pregnancies. Among the boys the most correct answers were given to the questions that asked about ECPs, how STDs spread, where you can buy condoms and how they work.

Both boys and girls answered more incorrectly to the questions that asked, about chlamydia, what is the most common STD in Finland, which STD cannot be cured, what the hormonal contraceptives contain, which is the most certain method to prevent pregnancies and what are the possible positive effects of contraceptive pills.

The question that fell under both research questions, asked about the most reliable way to prevent STDs (Figure 2). Almost 80% (n=23) of the girls answered correctly that the most reliable method is a condom. Almost 85% (n=22) of the boys answered the same. Almost 14% (n=4) of the girls and 12% (n=3) of the boys answered that the most reliable way to prevent STDs is the contraceptive pill.

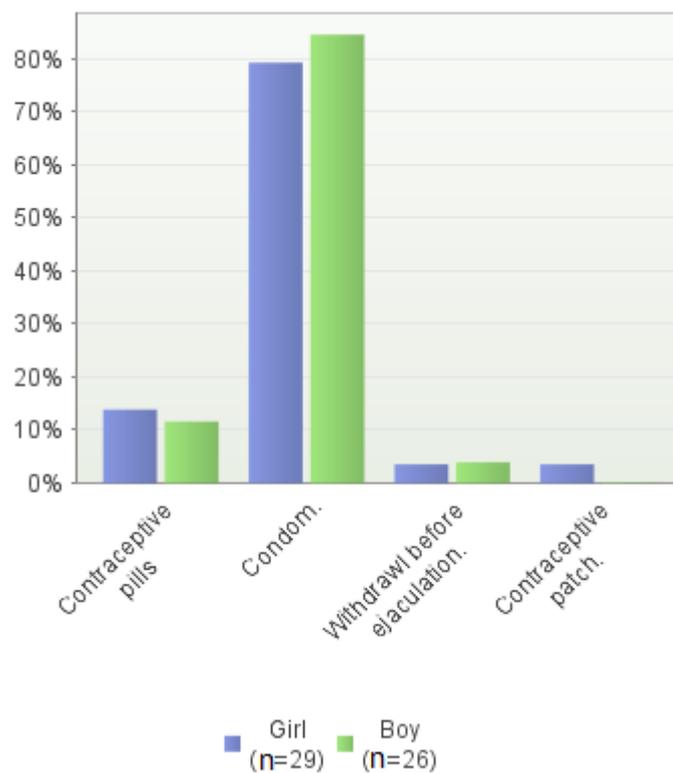


Figure 2. Girls and boys answers to the question that asks which is the most reliable way to prevent STDs.

5.2.2 Adolescents knowledge about contraceptive methods

The following introduces the results concerning the adolescents' knowledge about contraceptive methods. The researchers divided the questions into three tables to make the analysis process simpler and clearer. The questions are divided to questions that ask generally about contraceptive methods and pre-

venting pregnancies (Table 1), questions that ask about condoms (Table 2) and questions that ask about hormonal contraceptive methods and ECPs (Table 3).

	Girls (n=29)	Boys (n=26)
What is contraception used for?		
1. To prevent pregnancies.	24% (n=7)	15% (n=4)
2. To prevent STDs	3% (n=1)	4% (n=1)
3. To prevent pregnancies and STDs	72% (n=21)	73% (n=19)
4. None of these answers.	0% (n=0)	8% (n=2)
Which is the most unreliable way to prevent pregnancies?		
1. Condom	3% (n=1)	4% (n=1)
2. Contraceptive pills	7% (n=2)	0% (n=0)
3. Contraceptive patch	0% (n=0)	15% (n=4)
4. Withdrawl before ejaculation	90% (n=26)	81% (n=21)
Which is the most reliable way to prevent pregnancies?		
1. Contraceptive pills	52% (n=15)	31% (n=8)
2. Condom	45% (n=13)	69% (n=18)
3. Withdrawl before ejaculation	3% (n=1)	0% (n=0)
4. Safe dates	0% (n=0)	0% (n=0)

Table 1. Questions that ask generally about contraceptive methods and preventing pregnancies. (Correct answers in **bold**)

Almost 90% (n=26) of the girls answered correctly that the most unreliable way of preventing pregnancies is withdrawal before ejaculation and 80% (n=21) of the boys answered the same. Over 50% (n=15) of the girls answered that contraceptive pills are the most reliable way to prevent pregnancies. 45% (n=13) of the girls answered it was a condom. Only 30% (n=8) of boys answered that contraceptive pills are the most reliable way to prevent pregnancies. The rest, 70% (n=18), answered that the most reliable way of preventing pregnancies is a condom. (Table 1)

	Girls (n=29)	Boys (n=26)
How does the condom prevent pregnancies?		
1. The sperm does not get out of the penis, because the condom squeezes it.	0% (n=0)	0% (n=0)
2. The sperm stays inside the condom after ejaculation.	100% (n=29)	100% (n=26)
3. The condoms' lubricant kills the egg.	0% (n=0)	0% (n=0)
4. The condom breaks the egg.	0% (n=0)	0% (n=0)
Which of the following is true?		
1. Condom does not get old.	3% (n=1)	12% (n=3)
2. Condom can be kept in the wallet.	34% (n=10)	19% (n=5)
3. Condom should be kept in its original package.	59% (n=17)	69% (n=18)
4. Condom can be used again.	3% (n=1)	0% (n=0)
The age limit to buy condoms is?		
1. 13	7% (n=2)	8% (n=2)
2. 16	10% (n=3)	8% (n=2)
3. 18	3% (n=1)	0% (n=0)
4. No age limit	79% (n=23)	85% (n=22)
Condoms can be bought		
1. From the pharmacies with parents' permission.	3% (n=1)	4% (n=1)
2. Freely from pharmacies, grocery stores, gas stations etc.	97% (n=28)	88% (n=23)
3. Only from condom machines.	0% (n=0)	4% (n=1)
4. Only from sex stores	0% (n=0)	4% (n=1)

Table 2. Questions that ask about condoms. (Correct answers in **bold**)

100% (n=55) of the participants answered correctly to the question that asked what is the working mechanism of a condom. Almost 70% (n=18) of the boys answered correctly that a condom should be stored in its' own package while about 60% (n=17) of the girls answered the same. Almost 80% (n=23) of the girls answered correctly that there is no age limit for buying condoms. 85% (n=22) of the boys answered the same. Almost 100% (n=28) of the girls answered that condoms can be bought freely from almost every shop while 89% (n=23) of the boys answered the same. (Table 2)

	Girls (N=29)	Boys (N=26)
How does the contraceptive pills prevent pregnancies?		
1. By destroying the sperm.	17% (n=5)	12% (n=3)
2. By stopping the development of the egg.	55% (n=16)	62% (n=16)
3. By making the egg impermeable.	24% (n=7)	12% (n=3)
4. By none of these ways.	3% (n=1)	15% (n=4)
Which of the following is true?		
1. Contraceptive pills can be bought from the pharmacies without prescription.	34% (n=10)	42% (n=11)
2. Contraceptive pills can be bought from the pharmacies with a prescription.	52% (n=15)	42% (n=11)
3. Only above 18 years old can buy contraceptive pills.	0% (n=0)	15% (n=4)
4. Parents' permission is needed to buy contraceptive pills.	14% (n=4)	0% (n=0)
Contraceptive pills		
1. Cause infertility.	7% (n=2)	12% (n=3)
2. Are a good choice for a smoking woman.	0% (n=0)	4% (n=1)
3. Make the period pains worse.	0% (n=0)	4% (n=1)
4. They are taken continuously for 21-22 days, to be effective.	93% (n=27)	81% (n=21)
Contraceptive pills positive effects are		
1. Reductions of period pain	10% (n=3)	12% (n=3)
2. Making the menstrual cycle more regular	24% (n=7)	31% (n=8)
3. Reduction of the bleeding	24% (n=7)	19% (n=5)
4. All above	41% (n=21)	38% (n=10)
Contraceptive pills, ring ja patch contains		
1. Progesterone	34% (n=10)	19% (n=5)
2. Estrogen	14% (n=4)	12% (n=3)
3. None of these	31% (n=9)	42% (n=11)
4. Estrogen and progesterone	21% (n=6)	27% (n=7)
Minipills contain		
1. Progesterone	38% (n=11)	15% (n=4)
2. Estrogen	24% (n=7)	15% (n=4)
3. None of these	14% (n=4)	23% (n=6)
4. Estrogen and progesterone	24% (n=7)	46% (n=12)

Which of the following sentences concerning emergency contraceptive pills is true?		
1. It is free.	0% (n=0)	0% (n=0)
2. It can be used regularly as a contraceptive method.	3% (n=1)	4% (n=1)
3. It means the same as abortion.	3% (n=1)	8% (n=2)
4. It is taken after intercourse if other methods are not used or they fail.	93% (n=27)	88% (n=23)
Emergency contraceptive pills are taken		
1. one week after intercourse.	3% (n=1)	0% (n=0)
2. before intercourse.	0% (n=0)	4% (n=1)
3. latest 72 hours after intercourse.	97% (n=28)	92% (n=24)
4. the same way as contraceptive pills	0% (n=0)	4% (n=1)

Table 3. Questions that ask about hormonal contraceptives and ECPs. (Correct answers in **bold**)

62% (n=16) of the boys answered correctly to the questions concerning the working mechanism of the contraceptive pills, while 55% (n=16) of the girls answered correctly. 52% (n=15) of the girls answered correctly that one can get the contraceptive pills from the pharmacy with a prescription and about 42% (n=11) of the boys answered the same. About 41% (n=12) of the girls and 38% (n=10) of the boys answered correctly to the question concerning what the possible health benefits of the contraceptive pills are. About 36% (n=20) of all the participants answered correctly to which hormones contraceptive pills, patch and ring contain and about 27% (n=15) of all the participants answered that minipills contain progesterone. (Table 3)

There were three (3) questions concerning contraceptives and ECP's that had high numbers of correct answers. 93% (n=27) of the girls and 81% (n=21) of the boys answered that contraceptive pills have to be taken continuously for 21 to 22 days to be functional. 93% (n=27) of the girls and 88% (n=23) of the boys answered that ECP's are taken after intercourse when other methods have not been used or they have been failed. Fewer than 10% (n=3) of all of the re-

spondents did not answer correctly that an ECP has to be taken 72 after intercourse. (Table 3)

5.2.3 Adolescents knowledge about STD's

The following introduces the results concerning the adolescents' knowledge about STDs. The researchers divided the questions into two tables to make the analysis process simpler and clearer. The questions are divided to questions that ask generally about STDs (Table 4) and preventing them and to questions that ask more specifically about certain STD's (Table 5).

	Girls (N=29)	Boys (N=26)
STDs spread		
1. by touching the sex organs by hand.	0% (n=0)	0% (n=0)
2. from mucous membrane to mucous membrane.	86% (n=25)	96% (n=25)
3. by kissing.	0% (n=0)	0% (n=0)
4. All of the above.	14% (n=4)	4% (n=1)
Which of the following sentences is true?		
1. Urinating after intercourse is a good way to prevent STDs.	3% (n=1)	4% (n=1)
2. Intrauterine device also prevents from STDs.	14% (n=4)	4% (n=1)
3. Condom is the best way to prevent STDs.	83% (n=24)	81% (n=21)
4. If the partner does not have any symptoms, he/she does not have an STD.	0% (n=0)	12% (n=3)
Which of the following is true?		
1. STD can be asymptomatic.	69% (n=20)	62% (n=16)
2. STD always causes symptoms.	17% (n=5)	27% (n=7)
3. All STD can be cured.	14% (n=4)	8% (n=2)
4. Getting an STD cannot be prevented.	0% (n=0)	4% (n=1)
Which is the most common STD in Finland?		
1. Condyloma.	24% (n=7)	8% (n=2)
2. HIV.	24% (n=7)	54% (n=14)
3. Chlamydia.	48% (n=14)	31% (n=8)
4. Syphilis.	3% (n=1)	8% (n=2)

Table 4. Questions that generally ask about STDs and preventing them. (Correct answers in **bold**)

96% (n=25) of the boys and 86% (n=25) of the girls answered correctly on how STD's spread. About 82% (n=45) of all the participants answered that condom is the best way to prevent STDs. Almost 70% (n=20) of the girls and about 62% (n=16) of the boys answered that an STD can be asymptomatic. About 17% (n=5) of the girls and 27% (n=7) of the boys answered that STDs always cause symptoms. About 48% (n=14) of the girls and 31% (n=8) of the boys answered correctly that chlamydia is the most common STD in Finland. (Table 4)

	Girls (N=29)	Boys (N=26)
Which of the following is an STD?		
1. Schizophrenia	3% (n=1)	0% (n=0)
2. Chlamydia	97% (n=28)	85% (n=22)
3. Psoriasis	0% (n=0)	8% (n=2)
4. Rheumatism	0% (n=0)	8% (n=2)
Which of the following is not an STD?		
1. Condyloma	0% (n=0)	15% (n=4)
2. Conorrhea	14% (n=4)	15% (n=4)
3. HIV	10% (n=3)	0% (n=0)
4. Psoriasis	76% (n=22)	69% (n=18)
Condyloma is an STD that		
1. can cause infertility.	10% (n=3)	0% (n=0)
2. Is possible to cure with antibiotics.	7% (n=2)	19% (n=5)
3. Is prevented by using the intrauterine device	14% (n=4)	4% (n=1)
4. Sometimes makes cauliflower like changes on the mucous membranes and skin.	69% (n=20)	77% (n=20)
Chlamydia		
1. can not be asymptomatic.	34% (n=10)	23% (n=6)
2. can spread by kissing.	21% (n=6)	19% (n=5)
3. can cause infertility.	41% (n=12)	38% (n=10)
4. does not spread to men.	3% (n=1)	19% (n=5)
Which STD cannot be completely cured?		
1. Conorrhea	31% (n=9)	19% (n=5)
2. Syphilis	14% (n=4)	38% (n=10)
3. Genitalherpes	34% (n=10)	27% (n=7)
4. Chlamydia	21% (n=6)	15% (n=4)

Table 5. Questions that ask more specifically about certain STDs. (Correct answers in **bold**)

77% (n=20) of the boys and 69% (n=20) of the girls answered correctly that condyloma can cause cauliflower like changes on the skin and mucous membrane. About 42% (n=12) of the girls and 38% (n=10) of the boys answered correctly that chlamydia can cause infertility. About 35% (n=10) of the girls and 27% (n=7) of the boys answered correctly that genital herpes cannot be completely cured. (Table 5)

6 Discussion

6.1 Discussion of main results

Adolescents' sexual knowledge has gotten better since year 2000 (Kontula & Meriläinen 2007, 62). This research also showed that adolescents had knowledge from subjects concerning sexual health. Most of the participants knew why to use contraceptives and which contraceptives were the most effective in terms of preventing pregnancies. Based on National Institute for Health and Welfare in Finland (THL) the amount of abortions has reduced among girls younger than 20 years old (Terveystieteiden tutkimuskeskus 2014). It looks like the reduction in the amount of abortions is related to the improved knowledge that the adolescents have about contraceptive methods as also demonstrated in the current study.

In this research as well as in those done by the Kontula & Meriläinen (2007) and Sutinen (2010), adolescents' knowledge about where to get condoms and who can buy them is quite good. In this research some of the adolescents did not have knowledge about how to properly store condoms. Hangassalo and colleagues (2014) got similar results from their research. The proper way to storage a condom is especially important because if stored in a wrong way, condom may be damaged and its expiration date might not be valid as long as it says.

Girls' knowledge about where to buy contraception pills was better compared to boys, but regardless of this, both boys and girls, had little knowledge that prescription is needed for buying contraceptive pills. This is interesting because nearly every girl that participated in this research knew how to use the

contraception pills but still lacked information about how to get them. Boys' knowledge about these issues was much more divided between the possible answers given in the questionnaire. It seems that both, boys and girls, knew how to use the contraception pills but lacked information on how to get them. Teaching or telling them the proper way to get them could be good idea.

In Hangassalo and colleagues' research (2014), 9th graders had inadequate information on when to take the ECPs whereas in this research almost every adolescent knew when to take the emergency contraception pill at the latest. It is good that adolescents know what to do and how to act when contraceptive method fails during intercourse but adolescents should be informed that emergency the contraceptive pills should never be used as a main contraception method (Käypähoito 2010; Väestöliitto 2015f).

In Liinamo and colleagues' (2000) study, about half of the participants did not know that an STD can be asymptomatic. In comparison in Vuorenmaa and colleagues' (2012) research nearly all, boys and girls alike, knew that an STD can be asymptomatic. In this research, about two thirds of the participants answered correctly that an STD can also be asymptomatic and nearly every participant also answered correctly that STD's are gained via mucous membranes. Regardless of these results quite many adolescents seemed to think that a variety of symptoms are always related to STD's. It might be good idea to give more focus on this side when teaching adolescents about variety of STDs' symptoms, because if adolescents think that without symptoms one cannot have an STD, it can cause severe spreading of STDs.

Participants seemed to know about different STD's and how to prevent them but lacked in knowledge about different symptoms related to them. In Finland the most common STD is chlamydia based on Infectious Diseases Register (2014). In this research almost every participant knew that chlamydia is an

STD but only a few of them knew that it is the most common STD in Finland. The answers were divided between all possibilities, though girls had more correct answers compared to the boys. More than half of the boys said that HIV is the most common one and only one third chose the correct answer. Nearly half of the girls chose chlamydia as the most common one, but the rest of the answers were divided between condyloma and HIV. Less than half of the participants also knew that chlamydia can cause infertility and about one third of the girls thought that chlamydia always causes symptoms. This is concerning because as said, if chlamydia is left without treatment it can cause infertility and if as many as one third of the participants think that chlamydia always causes symptoms, it can have long lasting effects in their life if any of them gets infected.

Participants' knowledge about how to prevent STD's was also well known. Boys and girls had almost equally the same amount of correct answers; about four out of five answered that condom is the best way to prevent STDs. Compared to previous studies, like Liinamo and colleagues' (2000) research and the survey created by STAKES but carried out by National Institute for Health and Welfare (THL) in 2008/2009 and in 2010/2011, the amount of correct answers has remained nearly the same.

This research was carried out only in one of many Jyväskylä's upper elementary schools and it gave information about 9th graders knowledge about contraceptives and STDs. Out of 144 students, 55 took part in this research. This is a quite narrow sample compared to the amount of students of this particular age in the Jyväskylä area. Though it still gives a clue of what adolescents of this age know about STDs and contraceptives and it can be useful for health education teachers in Viitaniemi's upper elementary school and give them a hint of what their students know about these subjects after their lectures.

6.2 Ethical considerations

Every researcher and member of the research group is responsible for following the good scientific policy of Finnish advisory board on research integrity. Honesty, general caution and accuracy are acknowledged working methods that should be followed in every step of the research project. When using material made by other researchers, it needs to be done in a respectful manner so that their work and achievements are valued and that they are referenced to in a proper way. (Finnish advisory board on research integrity 2012, 6)

The necessary research permits were obtained and the ethical review in certain areas was conducted in advance. The role of the headmaster of Viitaniemi's upper elementary school was to give the researchers the necessary permit to conduct the research in Viitaniemi's upper elementary school. Few of the other teachers of the Viitaniemi's upper elementary school had a part in the implementation of the questionnaire by organizing the students together. It was agreed between the researchers and the teachers that the teachers' only role was to bring the right students to the computer room on the implementation day and that the researchers were responsible of everything else related to obtaining the necessary permissions and organizing the implementation situation. Before conducting the research, all members involved in the research project agreed on the rights, responsibilities, obligations, principles concerning authorship, and questions concerning archiving and accessing the data. The researchers divided the topic so that each had their own responsibility in the writing process. It was agreed between the researchers that any contact information or data collected during the study would not be given to any third parties and that they would be properly disposed. (Finnish advisory board on research integrity 2012, 6.)

When recruiting potential subjects for the research they were educated about what it means to be a participant so that they could make their own free decision whether or not to participate in the research, this is called giving an informed consent. The subjects were informed about what is researched and what is the purpose and aim of the research, how long it was going to take and also what are the risks and benefits of the research. They were also informed that it is done anonymously and voluntarily and that there won't be any consequences if they refuse to take part in the research. (Informed consent of research subjects 2013.)

Data management is an important part of the research and it should be focused on. The three issues that were taken into consideration were the ethical and truthful collection of reliable data, the ownership and responsibility of collected data and retaining data and sharing access to collected data with colleagues and the public. Each of these issues contributes to the integrity of research and can be easily overlooked. To avoid this, the researchers organized that one of the researchers was responsible for handling all the collected data. The implementation situation and the questionnaire were planned so that the researchers did not affect the adolescents' answers. All the unnecessary distractions were removed from the implementation situation and it was also organized so that the adolescents could not see or give each other the answers. (A guide to research ethics 2003, 22-24.)

The researchers of this research followed the JAMK's report writing instructions throughout the writing process to ensure that the research was honest, respectful and done in good scientific manner. In the process of creating the questionnaire, permission was asked from the Väestöliitto to use their sexual health quiz questions and this was properly referenced in the thesis. The per-

mission to conduct this research was obtained from the partner school as well as from the adolescents' parents or guardians.

The adolescents were informed on what this researched was about, what it meant to be a participant and that their participation was voluntary and they could choose not to answer the questionnaire. All the collected data was anonymous and did not include any personal information. All the contact information and collected data was deleted after the analysis was finished.

6.2.1 Validity and reliability

Validity is defined as the extent to which an instrument used in research measures, what it is supposed to measure and performs as it is designed to perform. In this case the research instrument is a questionnaire. An instrument cannot be completely valid but there are some measurements of how validity of instruments can be assessed. (Research rundowns 2015.) External validity means that the findings of the research can be generalized from a sample to population. Content validity means whether the questions accurately provide the knowledge what the researchers are studying about. (Research rundowns 2015.)

For this research the hoped minimum of participants was 50 adolescents. In the end 55 adolescents from the correct age group filled out the questionnaire which means that the goal for the subject group was met. The amount of the participants was about 1/3 of the whole schools' 9th graders. The researchers evaluated that the research is externally valid to provide information about the knowledge of 9th graders from Viitaniemi's upper elementary school but for the research to be externally valid to a larger population, a larger sample group from multiple schools would be required.

The researchers tested the questionnaire beforehand with a test group to see how well the questionnaire itself measures the knowledge of contraceptives and STD's to assess the content validity of the questionnaire. Each question was analyzed and compared whether or not they answer one or both of the research questions. Only the questions that fell under the research questions were left in the questionnaire. The research questions were focused on the most common knowledge and information about the contraceptive methods and STDs to control the length of the questionnaire.

Reliability of the study means how well the study is repeatable and that the results of the research are non-accidental (Tutkimuksen reliabiliteetti 2015). The researchers ensured the reliability of the research by describing accurately the stages of the thesis, the target group and how the questionnaire was conducted. The researchers also described the results of the questionnaire consistently and truthfully and used also other sources and previously made researches to analyze the material.

6.3 Conclusion and Recommendations for further studies

In general the girls answered more correctly more often than the boys. Participants seemed to have quite a bit of information on how to use contraceptive methods and how contraceptives work, but have lacking information on where to get them. Nearly everyone knew that condom is the best way to prevent STDs but when asking about symptoms of STDs, many of them were lost. Adolescents knew different kind of STDs but they did not know their symptoms or that STDs can be asymptomatic. The adolescents also had lacking information on the most common STD in Finland, which is chlamydia, and the fact that it is diagnosed multiple times more often compared to others

makes the results worrying. So education regarding contraceptives is well learned but either the adolescents do not pay enough attention to STDs or there are deficiencies when it comes to education regarding them.

In future researches like this should be carried out by using a larger sample group of 9th graders, to get more reliable results. This research can prove to be useful for one school, but if a larger sample group is taken, results can be generalized and used to improve health education teaching in upper elementary schools in general.

Adolescents that are going through puberty and especially 9th graders that are soon facing the end of upper elementary school and entering adulthood are still in the proper phase to receive information (Mannerheimin Lastensuojeluliitto 2015b; World Health Organization 2015a). Upper elementary school is the ideal place to teach adolescents about sexual health subjects related to contraceptives and STD's, because after upper elementary there might be some students that do not get any sexual health education in their future studies. That is also the reason why similar future researches about sexual health subjects should be carried out in larger scale, so that the results can be generalized and if needed education methods can be improved based on the results to better match the needs of the students.

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Appendices

Appendix 1

Questions for the questionnaire (correct answers are written in **bold**)

Mikä on epäluotettavin keino ehkäistä raskaus (kondomi, ehkäisytabletti, ehkäisykapseli, **keskeytetty yhdyntä**)

Mikä seuraavista ehkäisee varmimmin sukupuolitaudeilta (ehkäisytabletti, **kondomi**, keskeytetty yhdyntä, ehkäisykapseli)

Kondomeja voi ostaa (apteekista vanhempien luvalla, **vapaasti apteekista ruoka-kaupoista, huoltoasemilta, jne.**, vain kondomiautomaateista, vain seksikaupoista)

Kondomien ostamisen alaikäraja on (13, 16, 18, **ei ikärajaa**)

Miten kondomi ehkäisee raskauden (siittiöt eivät pääse ulos peniksestä koska kondomi puristaa sitä, **siittiöt jäävät siemensyöksyn jälkeen kondomin sisälle**, kondomin liukaste tappaa siittiöt, kondomi rikkoo munasolun)

Ehkäisytabletit (aiheuttavat lapsettomuutta, ovat hyvä vaihtoehto tupakoiville naisille, pahentavat kuukautiskipuja, **niitä otetaan yhtäjaksoisesti 21-22 päivää jotta ne olisivat tehokkaita**)

Sukupuolitaudit tarttuvat (kun sukupuolielimiä koskettelee käsin, **limakalvokontakteissa limakalvolta toiselle**, suudeltaessa, kaikilla edellisillä tavoilla)

Mikä seuraavista ehkäisee varmimmin raskauden (**ehkäisytabletit**, kondomi, keskeytetty yhdyntä, varmat päivät)

Mikä seuraavista sukupuolitautilien ehkäisemiseen liittyvistä väittämistä on totta (yhdyntämisen jälkeinen virtsaaminen on hyvä keino ehkäistä sukupuolitauteja, kierukka ehkäisee myös sukupuolitaudin saamiselta, **kondomi on paras keino ehkäistä sukupuolitauteja**, jos kumppanilla ei ole näkyviä oireita hänellä ei myöskään ole sukupuolitauteja)

Ehkäisytablettien terveysvaikutuksena on (kuukautiskipujen lieveneminen, kuukautiskierron säännöllistyminen, kuukautisvuodon vähentyminen, **kaikki edellä mainitut**)

Mikä seuraavista jälkiehkäisyyn liittyvistä väittämistä on totta (se on ilmaista, sitä voidaan käyttää säännöllisenä ehkäisymenetelmänä, se tarkoittaa kuin abortti, **se otetaan yhdynnän jälkeen jos muita ehkäisymenetelmiä ei ole käytetty tai ne pettävät**)

Mikä seuraavista on sukupuolitauti (skitsofrenia, **klamydia**, psoriasis, reumatismi)

Mikä seuraavista EI ole sukupuolitauti (kondylooma, tippuri, hiv, **psoriasis**)

Mikä seuraavista on yleisin Suomessa esiintyvä sukupuolitauti (kondylooma, hiv, **klamydia**, kuppaa)

Kondylooma eli visvasyyliä on sukupuoliteitse tarttuva tauti joka (aiheuttaa joskus lapsettomuutta, on mahdollista parantaa antibiooteilla, ehkäistävissä käyttämällä kierukkaa, **tekee joskus syylämäisiä muutoksia limakalvolle ja iholle**)

Mitä sukupuolitauteja ei voida täysin parantaa (tippuria, kuppaa, **genitaalierpestä**, klamydiaa)

Ehkäisytabletti, ehkäisyrenas ja ehkäisykannu sisältävät (progesteronia eli keltarauhashormonia, estrogeeniä, ei mitään näistä, **estrogeeniä ja progesteronia eli keltarauhashormonia**)

Minipilleri sisältää (**progesteronia eli keltarauhashormonia**, estrogeeniä, ei mitään näistä, estrogeeniä ja progesteronia eli keltarauhashormonia)

Klamydia (ei voi olla oireeton, voi tarttua suudellessa, **voi aiheuttaa hedelmättömyyttä**, ei tartu miehiin)

Mikä seuraavista väittämistä on oikein (**sukupuolitauti voi olla täysin oireeton**, sukupuolitauti aiheuttaa aina oireita, kaikki sukupuolitaudit voidaan parantaa, sukupuolitautilien saamista ei pysty ehkäisemään)

Jälkiehkäisy otetaan (viikon kuluttua yhdynnästä, ennen yhdyntää, **viimeistään 72 tunnin kuluttua yhdynnästä**, samoin kuin ehkäisypillerit)

Mihin ehkäisyä käytetään (raskauden ehkäisyyn, sukupuolitautilien ehkäisyyn, **raskauden ja sukupuolitautilien ehkäisyyn**, ei mihinkään näistä)

Mikä seuraavista väittämistä on totta (kondomi ei mene vanhaksi, kondomin voi säilyttää lompakossa, **kondomi tulisi säilyttää alkuperäisessä pahvipakkauksessa**, kondomin voi käyttää uudestaan)

Mikä seuraavista väittämistä on totta (Ehkäisypillereitä saa apteekista ilman reseptiä, **Ehkäisypillereitä saa apteekista reseptillä**, vain yli 18-vuotiaat voivat ostaa ehkäisypillereitä, ehkäisypillereiden ostoon tarvitsee vanhemman luvan)

Miten ehkäisypillerit ehkäisevät raskauden (tuhoamalla siittiöt, **estämällä munasolun kehittymisen**, tekemällä munasolun läpäisemättömäksi, ei millään näillä keinoilla)