

EXPERIENCES AND VIEWS OF PREGNANT WOMEN ON SMOKING

Urve Kaasik-Aaslav MD MA, Mare Vanatoa MD, Ene Kotkas MA
Chair of Midwifery, Tallinn Health Care College, the Republic of Estonia
Contact person`s email: urve.kaasik-aaslav@ttk.ee

Abstract

Background: Worldwide, approximately 1 milliard people, from which 200-250 million are women, smoke. Based on the Estonian Medical Birth Register data, in 2010, 7,5% of pregnant women were smokers, and in 2012, 7% of pregnant women were smoking during their pregnancy. Thus, smoking rates among pregnant women fell only 0,5%. The objective of the research was to find out the views of pregnant women who were smoking during pregnancy of the effect of smoking on the health of them and their babies, and experiences in quitting smoking, changing indicators, e.g. smoking and socioeconomical status (initial exposure to smoking, employment, long-term partnerships etc.) in 2009-2013.

Methods: This research is a phenomenological study, which was being carried out from October 2009 until January 2013. Data collection methods were semi-structured interviews with 45 pregnant women smoking during their pregnancy and being registered for antenatal care in three health care institutions of Republic of Estonia. An inductive approach for qualitative analysis was used.

Results: Most women smoking during pregnancy started smoking in their teens, their parents smoked, they were under 30 years old housewives or unemployed. On an average of 11-20 cigarettes were consumed each day, the pregnancy of the research group did not influence frequency and tobacco intake. The participants in the research group reported that tobacco consumption helped them relax, gave them a chance to spend time in a good company, and it was not regarded as a bad habit but a social addiction, being caused by availability of tobacco products. Although most of them had an opinion about harmful effects of smoking, e.g. a cough, asthma and rapid fatigue, on the health of them and less on their expected babies, they continued smoking.

Conclusions: The smoking and socioeconomical status of women smoking during pregnancy in 2009-2013 has not changed, health awareness of them is low and has not improved. Support groups with close relatives are needed to motivate cessation. In the first place, prevention needs a good example, purposeful cooperation, which starts in daily life context – at homes, in educational institutions and in the community. Limiting the availability of tobacco products, postponing and preventing an initial exposure to smoking are thought to be of great importance. The results of the research will be introduced in health care institutions and they can be used in the health promotion process.

Keywords: pregnancy, smoking, harmfulness, health, social environment, cessation.

UDC Classification: 618

Background

Although since 2005, a number of the pregnant women consuming tobacco has all the time decreased in Estonia, and in 2011, 7,5% of all pregnant women were smokers, this number has been relatively stable. Until the year 2005, the quitting rate increased to 2,1% but after the rate decreased again. In 2010, on the first trimester of pregnancy, 1,3% of expectant mothers quit smoking and in 2012, only 1,2% of expectant mothers stopped smoking. (Estonian Medical Birth registry of Estonian National Institute for Health Development, 2013). It is worrying that popularity of tobacco consumption is increasing among young girls who are the future mothers. In the age group of 16-24 years old, approximately 14% are daily

smokers having bad examples of parental nicotine dependence. (Health portal of Estonian National Institute for Health Development, 2010). On the basis of different researches in Europe, as brought out by Ingvarsson et al (2007), Ergin et al (2010), 15-42% of pregnant women quitted smoking before the first appointment with a doctor or a midwife, although 6-27% of pregnant women continued smoking. According to Roelands et al (2009), the statistical data may contain smaller indicators than they really are, because increasingly less pregnant women confess their tobacco use.

One cigarette contains more than 4000 chemicals and more than 200 toxic components, which penetrate the placental barrier as referred to by Bogdanovic et al (2012) and Gilbert (2011). Due to the poisons in cigarettes, including nicotine and carbon monoxide, uterine vasoconstriction, oxygen and nutrient deficiency, and oxidative stress will develop and the babies' birth-weight is ca 150-300 g lighter as brought out by Vardavas et al (2010) and Alex (2009). According to Toshiro (2009), insufficient nutrition will lead to permanent changes in fetal insulin metabolism and body fat distribution. Kelmanson (2009) posited that smoking during pregnancy has been associated with irregular sleep pattern of a newborn. Karatay et al (2010) and Mostafa (2011) mark that passive smoking is a significant problem for pregnancy, causing a lower birth-weight as it is reported by Yang et al (2010). There are also researches („Tupakointi huomattava...“, 2014), where is reported that passive smoking would not increase the risk of spontaneous abortions, although smoking is a risk factor for miscarriage.

Roelands et al (2009) bring out that nicotine dependence increases the risk of women to become ill with cardiovascular diseases, respiratory tract infections and more than four times often to have asthma, the dependence may cause obesity, ulcers in the digestive tract, and anaemia. The risks for pregnancy complications such as ectopic pregnancy (Roelands et al, 2009), spontaneous abortion, premature rupture of membranes (Levene et al, 2008), pre-term delivery, placental pathologies mentioned by Mostafa (2011) and foetal abnormalities will increase (Estonian Gynaecologists Society, 2011; Tombor et al, 2010; Mesiäislehto-Soukka, 2012; Norwitz et al, 2010); and as referred to by Alex (2009) and Mesiäislehto-Soukka (2012), there is also the risk for sudden infant death syndrome. According to Salihu et al (2003), the risk for SIDS is two to three times bigger depending on the tobacco intake per day. Mesiäislehto-Soukka (2012) has brought out that children whose mothers smoke were at a greater risk for allergies, respiratory disorders (30-70%), asthma (85%), and sons were estimated to have decreased fertility in the future. Woolston (2006) has posited that children will be more sensitive to dependencies in the future. Vasina et al (2012) have shown that smoking during pregnancy affects the vaginal microflora structure of a pregnant woman toward abnormalities and is a significant cause of inflammatory diseases of female reproductive system and spontaneous abortions.

Based on the researches of Lanting et al (2009) and Vasina et al (2012), it appears that women smoking during their pregnancy have similar social status: a low level of education, they often do not have a permanent job, they are single, under 20 years old pregnant women smoke more often than over 20-30 years old pregnant women and they are single mostly, and by Koshy et al (2010), smokers are bad examples for their daughters. As reported by Gilman et al (2008), the level of education is linked to earlier exposure to smoking and consuming first cigarette immediately after waking.

According to Kublay et al (2010), to quit smoking, there is an opportunity to involve husbands/ live-in-partners in the process of cessation and prevent passive smoking. As marked by Shih, S.-F. et al (2008) Koshy et al (2010), it is efficient to quit smoking with the partner who also wants to stop smoking. From the article of Lanting et al (2009) it turns out that convincing not to light a cigarette is more efficient than blaming, which constrains a smoking cessation plan. Several researchers show that pregnancy may be a strong motivator to quit smoking remarked by Hannöver et al (2008) and Schneider et al (2008). The factors that constrain smoking cessation are anxiety and anger as brought out by Agrawal et al (2008), also depression by Martin et al (2008). As showed by Higgins et al (2009) and Ergin et al (2010), foetal weight gain has been observed when smoking had been quitted not later than in the third trimester.

Data and methods

Permission to carry out the research was got from the Tallinn Health Care College Bioethics Committee, the Tallinn Institute for Health Development Ethics Committee, the East-Tallinn Central Hospital Training Centre, the Board of the West-Tallinn Central Hospital, and the nursing service of Pärnu Hospital.

The target group of the research involved the women with tobacco dependence who had been registered for antenatal care (gestation age was not determined). Forty five pregnant women were interviewed in 2009-2013, twenty two of them had been registered for antenatal care in East-Tallinn Central Hospital Women's Clinic (the largest involvement of pregnant women in Estonia), eleven of them in West-Tallinn Central Hospital Women's Clinic and twelve of them in Pärnu Hospital Women's and Children's Clinic. Three pregnant women refused to participate in the research due to lack of time.

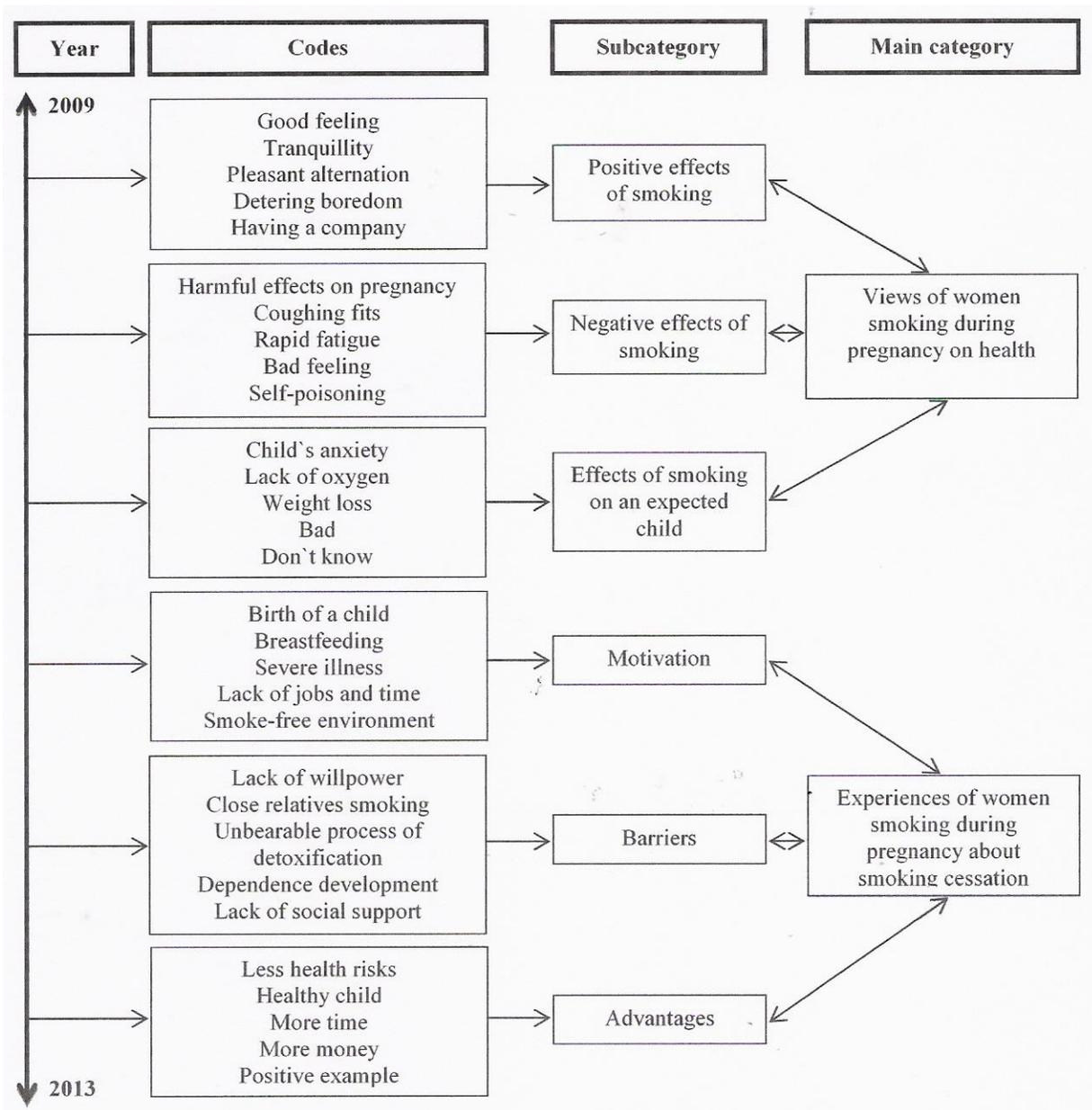
A semi-structured interview was a data collection method in the research. Interviews were being carried out from October 2009 to January 2013 (45-60 minutes for each person), following required voluntariness, personal data protection, and confidentiality. Use of language that might insult a person's ethic or moral beliefs was avoided. The participants were provided with an informed consent including the aim of the research and how the results would be used. The consent for voluntary participating in the interview using a voice recorder was orally given. To provide anonymity, an interviewer signed the consent. The interviewer asked the main questions focusing on a respondent's personal experiences and viewpoints linked to smoking during pregnancy, e.g. smoking frequency, cigarette intake per day, effects on the health of her and her expected child, wish to quit, barriers, benefits, and support got in smoking cessation. Question sequence could vary and the interviewer had a possibility to ask follow-up questions according to the answers given by a respondent. All the interviews were recorded and transcribed word for word.

An inductive approach for qualitative analysis was used. Analysis of the interviews preceded data checking, i.e. listening to all interviews with a purpose to ascertain if the answers were understandable. Simplified phrases were brought out from the interviews and codes were given to the text units. The codes were grouped according to similarity or difference between them to form subcategories. In the further data abstraction, main categories were formed by joining the categories of the same content. The main categories were given names, which characterize their content. Based on a qualitative content analysis, a category model was created. The data collected by the interviews were treated following the law on personal data protection. After transcription, the audio recordings of the interviews were deleted and the data transcribed for this research are anonymous. The results were treated with Microsoft Office 2010, some results were illustrated by figures and the data were compared with the used literature.

Results

Forty five pregnant women being registered for antenatal care participated in the research. Twenty two of them were interviewed in East Tallinn Central Hospital Women's Clinic in 2009 – 2010, eleven in West Tallinn Central Hospital Women's Clinic in 2011-2012, and twelve in Pärnu Hospital Women's and Children's Clinic in 2012-2013. Most participants were under 30 years old, in free marriage, housewives or unemployed, eight of them had a job. Overwhelming majority had a similar smoker's status: they were daily smokers, nine women smoked cigarettes from time to time, their partners were also smokers. They started smoking in their teens, parental smoking actioned such as example. First cigarette was consumed 6-30 minutes after waking and 11-20 cigarettes were smoked on an average per day, two women smoked 21-30 cigarettes per day, however, the pregnancy of the participants in the interview did not have any influence on the quantity and frequency of cigarette use. Most pregnant women knew that tobacco smoking had harmful effects on the health of them and their expected babies. They had had some health problems during the last five years, but they still continued smoking during pregnancy. Categories based on simplified phrases from the results of the semi-structured interviews were formed (Figure 1). Next, categories of the results were described and typical answers from the interviews were brought out.

Figure 1: Experiences and views of pregnant women on smoking – figure on forming the categories



Source: Authors

Main category: views of women smoking during pregnancy on health

Subcategory: positive effects of smoking

Codes: good feeling, tranquillity, pleasant alternation, detering boredom, having a company

Based on the categories, tobacco consumption does not have a significant effect on the health and smoking is not thought to be a bad habit generally, it is a social dependence, a social habit and smoking is a personal choice. Smoking is a good alternation/pastime in daily life, it calms, relaxes and provides good feeling. There are less reverse opinions reporting that smoking is a bad habit without any positive side. (Explanation of the transcription signs are explained at the end of the chapter).

Transcribed phrases from the interviews:

„I=don` t know or feel anything (.) and I am not ill.“
„When I am nervous (.) it calms down me (.) I smoke a cigarette and feel better.“
„.....when my firends do (.) then it`s nice to go and have a cigarette, it`s rather for a company.“
„.....it`s simply such a pleasant habit.....“
„A good alternation in daily life (.) and it calms as well.“
„.....I do this just I am bored (laughing).
„..... at least I don` t put on my weight (laughing), ..it remains the same“
„..... simply it is a bad=habit. Nothing=no=positive.“

Subcategory: negative effects of smoking

Codes: harmful effects on pregnancy, coughing fits, rapid fatigue, self-poisoning, a bad feeling

Smoking has harmful effects on health. Respiratory problems were brought out – a cough, sputum and rapid fatigue. In many cases, certain health damages could not be listed, but unpleasant breath and body smell were noticed. Weight gain gave trouble. There were some thoughts that smoking during pregnancy did not cause any changes in health.

Transcribed phrases from the interviews:

“.....I start to cough much these days (.) such a rotten cough with phlegm.“
„I don` t know. (2) How many can be smoked (laughing), I don` t know (.) to get diseases.“
„.....one thing (.) that is (.) that (.) no strength.“
„..... dries the mouth, (.) changes the body smell= well, sticks to my clothes=breath.“
„.....I can` t say=I can` t find any difference between I have a cigarette or not,.....okey=it`s bad=after=all (.)
I feel that I don` t want to do but I still do (.) like such a dependence“
„weightwill increase you know (laughing).“
„(laughing) I don` t know=normal (laughing) I haven` t noticed (.) any changes „

Subcategory: effects of smoking on an expected child (see also Figure 2)

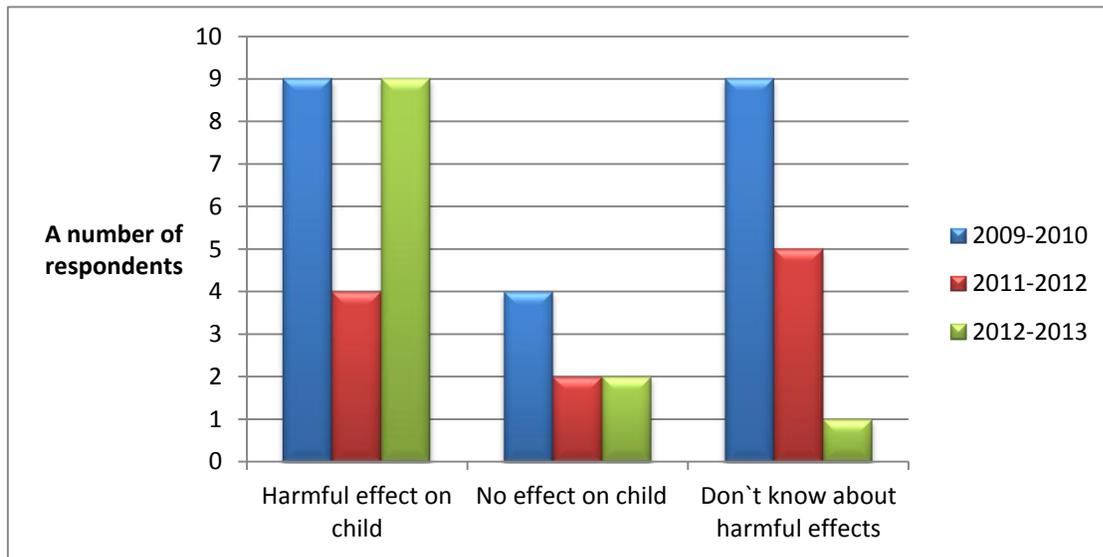
Codes: harmful for pregnancy, child`s anxiety, low body weight, no effects, don` t know

The pregnant women were relatively aware of harmful effects of smoking on the expected child`s health, already to the foetus, but many pregnant women could not give more details about harmful effects. More often was thought that smoking may cause asthma and other respiratory problems to a child. Five pregnant women reported that smoking would not damage them and their expected child`s health. There were also opinions that in the future, their child may develop tobacco dependence.

Transcribed phrases from the interviews:

„My first child is ill with asthma and I feel very, very, very guilty. But I haven` t got rid of this bad habit“
„/bad/ [Can you tell what can happen to my child?] Well, he has some trouble with breathing I know that I do wrongly.“
„So yes,okey, anyway some bad it does, but=I=really=don` t=know=what“
„If I look at these first three,.....then nothing..... exhaust gas outdoors has also a bad effect“
„Yes, (.) I have gone into (.) a child may have a low weight and wouldn` t be in good health.“ ”Well, (2) I think that the childmight also later (.) (2), start smoking too early“
„.....will get ill too often (2) and manifold problems may develop.”
„all I do affects=him=too=probably (2) what are the affects =I=can` t=say=at all.“
”Certainly, a child gets less nutrients in the womb (2) and poison in cigarettes (.) reach him.”

Figure 2: Opinions of the participants in the research about the effects on an expected child's health



Source: Authors

Main category: experiences of women smoking during pregnancy in smoking cessation

Subcategory: motivation to quit smoking

Codes: birth of a child, breastfeeding, a severe disease, lack of job and time, smoke-free environment

Friends and the aspect that close relatives quit smoking were brought out as motivating factors of cessation. Pregnancy, birth of the child, breastfeeding, illness and a bad feeling, will power, changing jobs, lack of time, eating, and snacking were also reported as stimulating factors. Above all, experiences about smoking cessation were mentioned: it is complicated to quit when close relatives around you smoke. Continuous activity of some field, stopping the production of tobacco products and availability limitation were also mentioned as reasons for quitting smoking. All the participants had an experience of quitting. During a year, they tried to get rid of tobacco 2-20 times but it became a problem and most of them failed. They did not expect and did not get any help with quitting from health care worker. According to answer choices, 28 women had not got any help, 11 women determined that the help was insufficient and only eight women thought the help had been sufficient. There was also mentioned that little support only was got from friends and close relatives.

Transcribed phrases from the interviews:

„.....my child is a certain reasonnursing and all these things (pause).“

„(2) Children (.) breastfeeding, /they are the matters, which make me not to smoke ./“

„If I became severely ill (.) it would help.“

„Just this knowledge=thought that now (.) a child is in my tummy .“

„[You told that pregnancy would help] Yes_[well, is there anything more?].health problems.“

„If all my familiar persons and friends didn't smoke (.) I wouldn't also do (.) I think.“

„My own strong will would help.“

„I don't know=friends' and (.) partner's support.“

„Support of close relatives and strong will power „short of=money and when production of cigarettes stops“

„Maybe from outside[but if a midwife talks about this, how will you feel, would it help you?] I don't know, maybe it makes me think (2)“

Subcategory: cessation barriers

Codes: no will power, unbearable process of detoxification, close relatives` smoking, lack of social support, dependence development

All the participants had an opinion that smoking cessation is a problem, they had a wish to quit smoking for the health of themselves and their children. No one of the participants did not give an answer „I would like to quit smoking only during pregnancy“. They did not want to quit smoking at once but in the future, e.g. in six months or a year. The respondents indicated that smoking cessation was influenced by the fact that „all smoke“, making smoking to be a social dependence. A factor promoting this bad habit was thought to be the influence of close relatives who smoke. Factors affecting failure to quit smoking were thought to be boredom and nervousness. Majority of respondents were ready for quitting but they did not do that because of nicotine dependence or little support. They also indicated other factors such as thinking about smoking, bad life events, seeing a pack of cigarettes, and being nervous.

Transcribed phrases from the interviews:

„When all do around you.“

„I tried these chewing gums with nicotine (.) they made me sick (.) and my colleagues also did (.)“

„I hadn` t any for a long time (.) for a month probably (.) it was my own wish, of course.“

„Being in hospital (.) when you couldn` t have a cigarette.“

„It was my weakness (.) (.) it`s addiction.“

„I even don` t know (.) I didn` t try to quit completely (.) but then maybe something would change in my being in this company (2) I don` t know that.“

„I was boosted (2)when=I=went=to school and all my classmates smoked (2)“ „Why did I start smoking again (2) because it`s (2) a nice=activity (laughing).“

„Until today what (.) I have tried=nothing didn` t help me=I can` t imagine.“

Subcategory: negative experiences linked to smoking cessation

Codes: anxiety and nervousness, weight gain, no company, intolerance to cigarette smoke, passive smoking, getting rid of tobacco smoking, food intake, particularly sweets and coffee have to be refused

Transcribed phrases from the interviews:

„I don` t know (.) maybe it`s uncomfortable to be in the company of smokers (2) I don` t know that.“

„I would be more nervous “

„.....my live-in-partner smokes too[that other people smoke around you?] passive smoking is said to be worse“

„.....the weight will rise...“

„.....you have to.....give up such a kind= and constant satisfaction, so to say (laughing).“

„Drinking=coffee. (.) Also eating, I=mean=that then I start eating so awfully, but I can` t eat so that (laughing)“

„Sweets (laughing) then the weight wouldn` t rise.“

„I got bored and then I started smoking again (.) waisting money.”

Subcategory: positive experiences (advantages) linked to smoking cessation

Codes: less health risks, healthy child, more money, more time, positive example

The respondents thought that if they quit smoking they would not refuse anything or only coffee and sweets must be refused because the body weight will rise, and eating should be reduced at all.

Transcribed phrases from the interviews:

„Healthcertainly, we both will be in better health , (2) more=energy and sleep will be better.“

„Quitting smoking, my child`s and my health will be better, (.) I=do=contribute not to my child`s poor health but his good health, for all life, (.) “ „Mmm (.) I=don` t=know how my child can benefit from this (laughing) I wouldn` t get anyting=after all, my weight will rise (laughing).“

„I think that we both would be healthier (laughing).“

„(2) Well, I perhaps this money will be left over because cigarettes aren't cheap at all= but I think that the money would go somewhere else (.) for something pointless in the same way . [But for a child?] Well, I=don't=know. I find that it wouldn't affect much“
„ benefit (.) that I wouldn't poison myself and the child.....“

Based on the interviews carried out in the three women's clinics in Estonia with pregnant women who smoke, significant differences between smokers' smoking nor socioeconomical status, views on the effects of nicotine consumption on their or their expected child's health and well-being, the importance of being supported by close relatives, family and friends in smoking cessation were not noted. In most cases, the help they got from health care workers was insufficient. Although the sample size is small and the data collected during the research analysis can be considered subjective, the results are still very similar to the results of the researches carried out previously by several authors and brought out in the Introduction of the current article. Thus, they are appropriate for practical work in women's clinics. The results of the research will be introduced in the health care institutions where data were collected (West Tallinn Central Hospital Women's Clinic, East Tallinn Central Hospital Women's Clinic, and Pärnu Hospital Women's and Children's Clinic), to improve the help in promotion of health quality.

Explanation of the transcription signs:

(.)	a short but clearly distinguishing pause
(2)	a longer pause, seconds in the brackets
=	no pause between the words
/quietly/	said silently
<u>underlined</u>	underlined and <u>emphasized</u> or said louder
(laugh)	general laugh,also other comments in the brackets
[specification]	explanation, specification of the interviewer

Discussion

According to the literature and researches carried out by Lanting et al (2009) and Vasina et al (2009), and also based on the results of the current research, the women smoking during pregnancy and interviewed in the three women's clinics in Estonia came from a socioeconomical environment where following smoking parents' example, they started smoking in their early teens. Most of them were under thirty years old, housewives or unemployed, eight women had a job, but their pregnancy did not influence the smoking frequency nor cigarette intake per day. According to Shih et al (2008), unemployment and low-income family are often associated with nicotine dependence. All the participants in the interviews thought it to be important to smoke first cigarette mostly 6-30 minutes after waking in order to start a day successfully. Gilman et al (2009) reveal the same information. Instead of smoking, it would be healthier to have a proper breakfast, do morning exercises, and e.g. go to work on foot in order to stay away from smoking. Generally, the participants in this research did not think tobacco consumption to be a bad habit, it was reported as a social habit, social dependence and a personal matter of everyone. In authors' opinion, this indicates little awareness of health. According to Lanting et al (2009) and Vasina et al (2012), it turns out that little awareness of health is observed in pregnant women of lower socioeconomical status. The interviews showed that most pregnant women were aware of harmful effects of smoking on the health of them and less on their expected children, although the certain effects on the pregnancy and delivery, e.g. increased risk for ectopic pregnancy, miscarriage, pre-term delivery, foetal anomalies, etc. could not be brought out by them. Levene et al (2008), Roelands et al (2009), Tombor (2010), Norwiz (2010) and Mostafa (2011) reveal similar aspects in their researches. Only a child's possible weight loss accompanied by smoking, which is described by Alex (2009) and Yang et al (2010), was known by the participants in the interviews. Disorders indicating respiratory tract pathologies, e.g. constant cough, asthma and rapid fatigue, which were also brought out by Roeland et al (2009) and Alex (2009), could be named. One pregnant woman felt guilty for smoking during pregnancy because her child suffered from asthma, but she still could not quit smoking. Less women, particularly they who were interviewed in

2011-2012, did not think that tobacco consumption might have bad effects on the health of them and their children. It was reported mostly by them who already had healthy children. The same was also brought out by Giglia et al (2006). The pregnant women think that nicotine consumption can make their children more sensitive to dependence, which was also described by Woolston (2006).

According to the different previous researches carried out by Martin et al (2009), Hannöver et al (2008), Ojala et al (2010), Alex (2009) and Koshy et al (2010), and the experiences of the participants in the interviews in Estonian three women's clinics, it appeared that the pregnancy is a significant motivator for quitting smoking, but smokers had an opinion that the child of the woman who is smoking during pregnancy will weigh less and thus, it will be easier to give a birth. Some women knew that being in smoky rooms affects the health as well as smoking. According to Karatay et al (2010) and Mostafa (2011), passive smoking is a significant problem because it damages not only the mother's but also her child's health. Thus, there was an opinion that quitting smoking would not include any benefit if the partner had nicotine dependence.

The participants' experiences with tobacco cessation were more intense than their views on harmful effects of smoking on the health. Data of Hannöver et al (2008) and Schneider et al (2008), also show that birth of a child and breastfeeding are the motivation for smoking cessation. According to this understanding, smoking is allowed until the birth of a child and this is not condemnable, which was also proved by the research for fathers, described by Giglia et al (2006), where most fathers stopped smoking after the birth of a child explaining that with a feeling that until the birth, the expected child was not real yet. According to the experiences of the participants in the interviews in three women's clinics, living together with a smoking partner is the main inhibiting factor in smoking cessation permitting access to cigarettes and promoting to make a comfortable environment for smoking, and by Koshy et al (2010) and Tombor et al (2010), smoking is a common way to spend time together. Factors that inhibit smoking cessation were brought out by the participants: when quitting smoking you have to give up your good mood, tranquillity, sweets and coffee. Weight gain, anxiety, anger, and a bad feeling were reported as awful experiences. The same problems were brought out by Agrawal et al (2008). According to Ojala et al (2010) the participants in the research in three Estonian women's clinics planned their cessation not now, not today nor tomorrow but in the future, in six months or a year, because many of them had experienced some health problems such as nausea and vomit during detoxification process. According to the studies on adults' health behaviour in Estonia carried out by National Institute for Health Development, brought out by Ojala et al (2010), attempts to quit smoking have to be repeated in order to achieve success. In literature, several different methods for stopping smoking are recommended: nicotine replacement treatment, chewing gums and nasal sprays, but at the same time, the efficacy and safety of them have not been confirmed yet. According to Roelands et al (2009), counselling and encouraging patients to quit smoking are more successful than detoxification process. Ojala et al (2010) recommends to provide psychosocial support first.

According to the previous studies, e.g. Hannöver et al (2008), detoxification process should be started during the first trimester of pregnancy and each pregnant woman has to be dealt individually. Most of the participants in the interviews indicated insufficient help only, and generally, they did not have any help in smoking cessation. Based on the data of Mesiaislehto-Soukka (2012), less than half of the women got some help when they needed this. Reitzel et al (2007) have brought out the fact, that surrounding people, including close relatives smoke was thought to be an inhibiting factor for quitting smoking. It turned out that quitting smoking would be more successful together with other family members being supported by the partner and family. According to Shih et al (2008) and Koshy et al (2010), women who have tried to quit smoking achieved more success when their partner is non-smoker or wants to quit too.

Some participants in the interviews in Estonian three women's clinics did not need to be supported by close relatives nor their partners because they had experienced guilt feeling having been reproved by them, the same was also shown by Lanting et al (2009). Most participants did not get sufficient help from health care workers nor midwives. According to the researches on Estonian adult health behaviour carried out by National Institute for Health Development in 2012, brought out by Tekkel et al (2013), 17% of

women ages 16 to 24 got some advice to stop smoking from a doctor and 5,7% of women ages 16 to 24 were advised to do this by another health care worker.

According to the instructions created by the Estonian Gynaecologists` Society (Guideline of pregnancy care, 2011), woman smoking during pregnancy has to be observed as a woman having a risk pregnancy. By the instructions, smoking cessation is recommended to be started from decreasing cigarette intake per day. This will have a positive effect on the foetal growth and decrease other risks accompanied by smoking. The importance of smoking cessation during pregnancy is emphasized more and more, but in Estonia, increasingly less pregnant women confess smoking, which was turned out by observing pregnant women in the antenatal clinics and was also brought out by Roelands et al (2009). At the pre-natal visit to a doctor or midwife, smoking was mostly denied, but after leaving the doctor`s office, they might be seen lighting a cigarette in the street. Thus, they could not be counselled to stop smoking timely and they would not get enough support, putting the health of themselves and their unborn babies at risk. Answers of the respondents in three Estonian women`s clinics to the follow-up question „What inhibits quitting smoking?“ were not much different from the answers got by the researchers of the National Institute for Health Development for the research on adult health behaviour, shown by Ojala et al (2010). Most respondents brought out lack of will-power first, but nicotine dependence, signs of detoxification, fear of failure, weight gain, lack of social support, depression, enjoying smoking, availability of tobacco products, and being surrounded by smokers were also named. According to the authors` opinions, it is wrong to blame the society and deny the lack of wish to quit smoking. In order to achieve success in smoking cessation, the mindset has to be changed.

The respondents in three womens`clinics had experienced similar benefits from quitting smoking as brought out in the research on adult health behaviour in Estonia carried out by National Institute for Health Development, brought out by Ojala et al (2010) and Tekkel et al (2009), e.g. better health condition, better taste of food, improved sense of smell, saving money, better feeling about home, cloths and breath. There were also mentioned the following: you do not have to worry about starting quitting smoking any more, a good example for children, children are in better health, you do not have to worry about harmful effects of smoking on the people around you, improved physical power and endurance, less wrinkles/slower aging process. There were some opposit opinions too, e.g. the money can be spent on something else, pointless things, without benefiting from the quitting smoking because the environment is polluted anyway.

Conclusion

Changing indicators in the views, cessation experiences, smoker`s and social status of the women smoking during pregnancy were noted neither by the research carried out in 2009-2013 nor in the data in literature sources used. The research shows that nicotine dependence is not common in Estonia only but also in other societies, because the respondents` answers were similar to the results of the previous researches found in the literature.

Motivation for quitting smoking was to go through cessation process together with their close relatives. Support groups for women smoking during pregnancy have to be formed to help them quitting smoking. To prevent smoking, health behaviour of young people has to be paid much attention, their attitudes toward healthy lifestyle need to be developed. To improve the quality and availability of services, cooperation between different specialists and organisations has an important role. Above all, communication with the women smoking during pregnancy has to be improved.

References

Agrawal, A., Knopik, V. S., Pergadia M. L., Waldron, M., Bucholz, K. K., Martin, N.G., Heath, A. C. & Madden, P. A. F. (2008). Correlates of cigarette smoking during pregnancy and its genetic and environmental overlap with nicotine dependence. *Nicotine & Tobacco Research*, 10(4), 567-578.
<http://dx.doi.org/10.1080/14622200801978672>

- Alex, S. (2009). Ernährung in der Schwangerschaft [Nutrition in pregnancy]. *Dissertation* in Der Klinik für Geburtsmedizin der Medizinischen Fakultät Charité [Department of Obstetrics of the Medical Faculty Charité], Berlin. Retrieved from <http://d-nb.info/1023696622/34>
- Bogdanovic, G., Ljuca, D., Ostrvica, E., Babovic, A. & Nevacinovic, E. (2012). Human mature placenta in a relation to cigarettes smoking during pregnancy. *HealthMed*, 6(2), 703-701. Retrieved from <http://connection.ebscohost.com/c/articles/73311379/human-mature-placenta-relation-cigarettes-smoking-during-pregnancy>
- Eesti Meditsiiniline Sünniregister ja Raseduskatkestusandmekogu. Suitsetamine raseduse ajal 1992 – 2012 (xls) [Estonian Medical Birth Registry and Estonian Abortion Registry. Smoking during pregnancy 1992 – 2012 (xls)]. (2013). National Institute for Health Development. Retrieved from http://www.tai.ee/images/PDF/Registrid/LK_35.xls
- Ergin, I., Hassoy, H., Tanik, F. A. & Aslan, G. (2010). Maternal age, education level and migration: Socioeconomic determinants for smoking during pregnancy in a field study from Turkey. *BMC Public Health*, 10:325. Retrieved from <http://dx.doi.org/10.1186/1471-2458-10-325>
- Giglia, R. C., Binns, C. W. & Alfonso, H. S. (2006). Which women stop smoking during pregnancy and the effect on breastfeeding duration. *BMC Public Health*, 6(1):195. Retrieved from <http://dx.doi.org/10.1186/1471-2458-6-195>
- Gilbert, E. S. (2011). *Manual of High Risk Pregnancy and Delivery*. St. Louis: Mosby. Elsevier.
- Gilman, S.E., Breslau, J., Subramanian, S.V., Hitsman, B. & Koenen, K.C. (2008). Social Factors, Psychopathology, and Maternal Smoking During Pregnancy. *American Journal of Public Health*, 98(3), 448-453. Retrieved from <http://dx.doi.org/10.2105/AJPH.2006.102772>
- Hannöver, W., Thyrian, A. E., Röske, K., Grempler, J., Kühl, R., Hapke, U., Fusch, C., & John, U. (2008). Smoking During Pregnancy and Postpartum: Smoking Rates and Intention to Quit Smoking or Resume After Pregnancy. *Journal of Women's Health*, 17(4), 631-640. Retrieved from <http://dx.doi.org/10.1089/jwh.2007.0419>
- Higgins, S. T., Heil, S. H, Badger, G. J., Skelly, J. M., Solomon, L. J. & Bernstein, I. M. (2009). Educational Disadvantage and Cigarette Smoking During Pregnancy. *Drug and Alcohol Dependence*, 104(1), S100-S105. Retrieved from [10.1016/j.drugalcdep.2009.03.013](http://dx.doi.org/10.1016/j.drugalcdep.2009.03.013)
- Ingvarsson, R. F., Bjarnason, A. O., Dagbjartsson, A., Hardardottir, H., Haraldsson, A. & Thorkelsson, T. (2007). The effects of smoking in pregnancy on factors influencing fetal growth. *Acta Paediatrica*, 96, 383-386. Retrieved from <http://dx.doi.org/10.1111/j.1651-2227.2007.00103.x>
- Kelmanson, I. A. (2009). Maternal smoking during pregnancy and sleep problems in 2-month-old infants. *Somnologie*, 13 (4), 244-250. Retrieved from <http://dx.doi.org/10.1007/s11818-009-0435-3>
- Karatay, G., Kublay, G. & Emiroglu, O. N. (2010). Effect of motivational interviewing on smoking cessation in pregnant women. *Journal of Advanced Nursing*, 66(6), 1328-1337. Retrieved from <http://dx.doi.org/10.1111/j.1365-2648.2010.05267.x>
- Koshy, P., Mackenzie, M., Tappin, D & Bauld, L.(2010). Smoking cessation during pregnancy: the influence of partners, family and friends on quitters and non-quitters. *Health and Social Care in the Community*, 18(5), 500-510. Retrieved from <http://dx.doi.org/10.1111/j.1365-2524.2010.00926.x>
- Lanting, C. I., Buitendijk, S.E., Crone, M.R., Segaar, D., Bennebroek Gravenhorst, J. & van Wouwe, J. P. (2009). Clustering of Socioeconomic, Behavioural, and Neonatal Risk Factors for Infant Health in Pregnant Smokers. *PLoS ONE* Lanting. 2009; 4(12), e8363. Retrieved from <http://dx.doi.org/10.1371/journal.pone.0008363>

- Levene, M. I., Tudehope, D. I. & Sinha, S. (2008). *Essential neonatal medicine*. United Kingdom: Blackwell Publishing.
- Martin, L. T., McNamara, M., Milot, A., Bloch, M., Hair, E. C. & Halle, T. (2008). Correlates of smoking before, during, and after pregnancy. *American Journal of Health Behavior*, 32(3), 272-282. Retrieved from <http://dx.doi.org/10.5993/AJHB.32.3.5>
- Mesiäislehto-Soukka, H. (2012). The effect of smoking during pregnancy. Evidence-based Learning and Practice: conference presentation. Tallinn. Retrieved from <http://riks.ttk.ee/index.asp?action=102&tid=13177>
- Mostafa, R. M. (2011). Dilemma of women's passive smoking. *Annals of Thoracic Medicine*, 6(2), 55-56. Retrieved from <http://dx.doi.org/10.4103/1817-1737.78410>
- Norwitz, E. R., Belfort, M. A., Saade, G.R. & Miller, H. (2010). *Obstetric clinical algorithms, management and evidence*. Oxford: Wiley-Blackwell.
- Ojala, K., Ani, Ü., Lipand, A., Ingerainen, D. & Härm, T. (2010). *Suitsetamisest loobumise nõustamine Eestis [Smoking cessation consulting in Estonia]*, 2010. National Institute for Health Development. Retrieved from https://intra.tai.ee/images/prints/documents/131471005246_Suitsetamisest_loobumise_noustamine_eestis_est.pdf
- Raseduse jälgimise juhend [Guideline of pregnancy care]. (2011). Eesti Naistearstide Selts [Estonian Gynaecologists Society]. Retrieved from <http://www.ens.ee/content/estonian-gynaecologists-society>
- Reitzel, L. R., Vidrine, J. I., Li, Y., Mullen, P. D., Velasquez, M. M., Cinciripini, P. M., Cofta-Woerpel, L., Greisinger, A. & Wetter, D. W. (2007). The Influence of Subjective Social Status on Vulnerability to Postpartum Smoking Among Young Pregnant Women. *American Journal of Public Health*, 97(8), 1476-1482. Retrieved from <http://dx.doi.org/10.2105/AJPH.2006.101295>
- Roelands, J., Jamison, M. G., Lyster, A. D. & James, A. H. (2009). Consequences of Smoking during Pregnancy on Maternal Health. *Journal of Women's Health*, 18(6), 867-872. Retrieved from <http://dx.doi.org/10.1089/jwh.2008.1024>
- Salihu, H. M., Aliyu, M.H., Pierre-Louis, B.J. & Alexander, G. R. (2003). Levels of Excess Infant Deaths Attributable to Maternal Smoking During Pregnancy in the United States. *Matern Child Health J*, 7(4), 219-227. Retrieved from <http://dx.doi.org/10.1023/A:1027319517405>
- Schneider, S. & Schütz, J. (2008). Who smokes during pregnancy? A systematic literature review of population-based surveys conducted in developed countries between 1997 and 2006. *The European Journal of Contraception and Reproductive Health Care*, 13(2), 138-147. Retrieved from <http://dx.doi.org/10.1080/13625180802027993>
- Shih, S.-F., Chen, L., Wen, C. P., Yang, W.-C. & Shih, Y.-T. (2008). An investigation of the smoking behaviours of parents before, during and after the birth of their children in Taiwan. *BMC Public Health*, 8(1):67. Retrieved from <http://dx.doi.org/10.1186/1471-2458-8-67>
- Tekkel M, Veideman T, Rahu M. (2009). Health behavior among Estonian adult population, 2008. National Institute for Health Development. Retrieved from <http://www.sporkoigile.ee/images/stories/uuringud/tku2008.pdf> (04.04.2014)
- Tekkel, M., Veideman, T., Rahu, M. (2013). Health behavior among Estonian adult population, 2012. National Institute for Health Development. Retrieved from https://intra.tai.ee/images/prints/documents/136479842690_TKU_2012.pdf (04.04.2014)
- Tervise Arengu Instituudi terviseportaal [Health Portal of National Institute for Health Development]. (2010). National Institute for Health Development. Retrieved from <http://www.terviseinfo.ee>

Tombor, I., Urban, R., Berkes, T. & Demetrovics, Z. (2010). Denial of smoking-related risk among pregnant smokers. *Acta Obstetrica et Gynecologica*, 89 (4), 524-530. Retrieved from <http://dx.doi.org/10.3109/00016341003678427>

Toshiro, I. (2009). Maternal smoking during pregnancy and offspring obesity: Meta-analysis. *Pediatrics International*, 52 (1), 94-99. Retrieved from <http://dx.doi.org/10.1111/j.1442-200X.2009.02883.x>

Tupakointi huomattava keskenmenojen riskitekijä [Smoking as a significant risk factor for spontaneous abortion].(2014). Helsinki: Uutispalvelu Duodecim (Duodecim news service). Retrieved from [http://www.terveyskirjasto.fi/terveyskirjasto/tk.koti?p_artikkeli=uut17185&p_teos=uut&p_osio=&p_selaus=](http://www terveyskirjasto.fi/terveyskirjasto/tk.koti?p_artikkeli=uut17185&p_teos=uut&p_osio=&p_selaus=) (17.02.2014)

Vardavas, C. I., Chatzi, L., Patelarou, E., Plana, E., Sarri, K., Kafatos, A., Koutis, A. D. & Kogevinas, M. (2010). Smoking and smoking cessation during early pregnancy and its effect on adverse pregnancy outcomes and fetal growth. *European Journal of Pediatrics*, 169(6), 741-748. Retrieved from <http://dx.doi.org/10.1007/s00431-009-1107-9>

Vasina, O., Rezeberga, D., Zodzika, J., Bite, R. , Pundure, I., Vidnere, I., Matule, D., Zile, O., Pavlova, Z., Silberga, I., Socenova, J. & Melngaile O. (2012). Influence of socioeconomic factors and smoking on vaginal pH in pregnant women during 1st trimester. Riga East University Hospital, Latvia. European Congress of Obstetrics and Gynaecology (EBCOG): Tallinn. Retrieved from http://www.nordix.gr/eso_more.php?id=896&lang=en

Woolston, C. (2006). How smoking during pregnancy affects you and your baby. Reviewed by Baby Center Medical Advisory Board. Retrieved from <http://researchedworks.com/smoking-tobacco-consumption-philippines.php>

Yang, L., Tong, E. K., Mao, Z. & Hu, T-W. (2010). Exposure to secondhand smoke and associated factors among non-smoking pregnant women with smoking husbands in Sichuan province, China. *Acta Obstetrica et Gynecologica*, 89 (4), 549-557. <http://dx.doi.org/10.3109/00016341003713851>