Individual and familial factors associated with teenage pregnancy: an interview study

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Background: The determinants of teenage sexual health, including pregnancies, can be addressed from social, familial and individual level perspectives. The main objective of this study was to examine whether pregnancy among 18 years old and younger girls was associated with selected individual (age at coitarche, score of sexual health knowledge, dislike of school and family (mother's education) and family functioning (alcohol abuse in the family, parents' acceptance of sexual relationship) characteristics. Methods: An interview survey in two medical institutions in Estonia among 279 18 year old and younger girls, who: (i) used contraception, had been sexually active for at least 6 months and had not pregnancies—(148 girls); (ii) came for termination of pregnancy—abortion group; (iii) planned to deliver and came for prenatal care—delivery group. The last two groups were analysed together as the ‘pregnancy group’—131 girls. Multivariate analysis, by means of logistic regression models, was used to explore whether the associations were sustained after adjusting for other variables. Crude odds ratios (ORs), adjusted ORs and their 95% confidence intervals (CIs) were estimated, with girls having no pregnancies as the reference group. Results: Risk factors associated with teenage pregnancy were low score of sexual health knowledge (adjusted ORs 3.07; 95% CIs 1.73–5.46), dislike of school (adjusted ORs 1.96; 95% CIs 1.08–3.54), alcohol abuse by family members (adjusted ORs 2.03; 95% CIs 1.16–3.54). Conclusion: Sexual knowledge of teenagers, their attitude towards school, alcohol abuse in the family are factors associated with teenage pregnancies.

Keywords: adolescence, pregnancy, individual factors, familial factors.

Introduction

The determinants of teenage sexual health, including pregnancies, can be addressed on social, familial and individual levels.1,2 Social systems (e.g. distribution of income and power, law, education, welfare provision), morals and values in society (e.g. religion, attitude to women’s right to choose an abortion, views on youth sexuality) influence people’s lives and sexual behaviour.1,3 Familial and individual level determinants of sexual health are sometimes also called ‘micro-level’ determinants of sexual health.1 In the context of teenagers, these include relations among individuals (e.g. parents, partners) and small groups (e.g. peers, schoolmates) and several individual characteristics (e.g. knowledge, self-esteem, age at first intercourse).1,2,4 A recent systematic review of factors associated with teenage pregnancy in the European Union (EU) countries focused on micro-level factors and identified 22 studies published from the beginning of 1995 until May 2005 that met the inclusion criteria.2 The majority of the studies were carried out in the UK and the Nordic countries, and one in Hungary. According to this review, socio-economic disadvantage, disrupted family structure and limited education appeared to be most consistently related to teenage pregnancy. One of the conclusions of this review was that ‘the association between sexual health knowledge, attitudes and accessibility of services, and lower teenage pregnancy rates are complex with greater uncertainty about the strength of any associations’.2 The authors noted the need for further research, especially in the new EU member states.

Estonia joined the EU in 2004. The average age of mothers at first delivery in Estonia—around 22.5 years—remained one of the youngest in Europe at the beginning of the 1990s.5 Starting motherhood as a late teenager or in one’s early 20s had been a cultural norm and economically affordable for many decades. During the period of rapid and overwhelming socio-economic changes (change from a planned economy to a liberal market economy, polarization of society, educational reform, health care reform, etc.) in Estonia since the beginning of the 1990s, both teenage fertility and abortion rates decreased remarkably. Between 1992 and 2005 the decline was from 50.5 to 21.5 live births per 1000 girls aged 15–19 years and from 55.5 to 26.1 induced abortions per 1000 girls in the same age group.6,7 Decline in the fertility rate is believed to reflect, as in other industrialized countries during the last quarter of the 20th century,8 an increase in the importance of education and in the motivation and opportunity of young people to achieve higher levels of education and training, and a shift in young women’s priorities away from motherhood and family formation. This rapid decline in teenage pregnancies may be regarded as an example of the influence of several other social or ‘macro-level’ determinants, such as the availability of modern contraceptives and information about them, compulsory sexuality education at school since 1996, and the availability of relevant services (e.g. network of youth-friendly sexual health services)—all of them not available before the 1990s. Out of all parturients, in 1992, teenagers comprised 14.6%; in 2006 this figure was 7.5%.8

The main objective of this study was to examine whether teenage girls with unintended pregnancy (abortion or motherhood) differed from contraceptive users regarding their selected individual and family characteristics and family functioning.
Factors associated with teen pregnancy

Methods

We conducted an interview survey in Estonia from November 2001 until November 2003 in four medical institutions—Tartu University Hospital Women’s Clinic, Tartu Youth Counselling Service, West Tallinn Central Hospital Women’s Clinic and Puru Hospital—serving three geographically separate regions (southern, northern and north-eastern parts of Estonia, respectively). The two clinics and the hospital have gynecology and delivery departments in addition to outpatient departments. The last two institutions include a special youth counselling service.

The study was approved by the Ethics Review Committee on Human Research in the University of Tartu. Consent was obtained from each institution involved. Eleven interviewers were trained. After conducting a pilot study, corrections were made to the questionnaire according to the shortcomings the interviewers had noticed.

Health personnel working in the outpatient departments and youth services were regularly kept informed about the survey and were asked to invite all young women who met the criteria to participate in the survey.

The inclusion criteria were as follows: 18 years old or younger (i) using contraception (hormonal and/or condom) has been sexually active (penetrative sex) for at least six months and has not had any pregnancies—contraception (reference) group; (ii) came to the institution for termination of pregnancy—abortion group; (iii) planned to deliver and came for prenatal care—delivery group. In the last case, the interviews were conducted in the second half of the pregnancy. For the current analysis, the abortion group and delivery group were analysed together as the ‘pregnancy group’, since the objective was to compare teenagers with unintended pregnancy with those who used contraception and had no pregnancies.

During the initial visit to the health institution, the health care provider was instructed to ask suitable clients if they would be willing to participate in the survey and to refer them to the interviewer, who then made an appointment for carrying out the interview.

After obtaining the written consent of the participant, the interviewer asked questions and marked the selected option below each question in the questionnaire. The participants’ personal data were kept separately in a sealed envelope and questionnaires were coded to ensure confidentiality.

Questionnaire

The questionnaire was based on questions originating from three earlier studies: (i) The National Study of Human Relations, Sexual Attitudes and Lifestyles in Finland 1991 (FINSEX)10; (ii) KISS survey (Acronym from the Finnish words meaning sexual maturation, relationships, dating and sexual behaviour. The survey originates from Finland and has been conducted there11,12 and in Estonia13,14); (iii) questions used by L. Ruusuvaara in her doctoral thesis ‘Teenage abortions. Family background, sexual experience and contraceptive use’.15

The questionnaire included 111 questions and was structured into seven blocks according to factors associated with teenage pregnancy: (i) knowledge and sexuality education; (ii) timing and conditions of first sexual intercourse; (iii) usage of and attitudes towards contraception; (iv) menarche, self-perception as a teenager, future perspectives; (v) alcohol and drug use; (vi) parents’ characteristics, relationship with parents, parental monitoring; (vii) relationship with partner.

The questionnaire was designed to cover a broader context of teenage pregnancies. From the 111 items, 22 that had to be analysed to meet the objective of this study [to analyse individual characteristics, familial background and relations with the parents (family functioning)] were initially selected. Characteristics, known to be significant from other studies and our personal experiences in working with young people in Estonia, were used in the model.

Participants

Out of 616 girls, 22 refused to participate. The findings presented in this article are based on 279 interviews carried out in Tartu. The decision to analyse the more homogenous group from Tartu in order to reduce the selection bias was made basically for two reasons. First, the majority, 148 girls out of the 249 participants belonging to the whole control group (contraception group from the initial participants of 594 girls), lived in Tartu County (including Tartu). Second, Tartu is a university city with a more highly educated population compared with other parts of Estonia. This could have an effect on our results, since our aim was to control for the role of education. In accordance with the study objective, all teenagers in the pregnancy group are with an unintended pregnancy. Before the main analysis, 11 questionnaires were excluded from this group because the mother’s education was unknown, which means that the data of 268 subjects (146 in a contraception group and 122 in a pregnancy group) were used.

Selected individual characteristics included age at the time of the interview (≥17 and <17 years), early (<16 years) coitarche, score of knowledge about functioning of reproductive organs and contraception, attitude to going to school and importance of religion in one’s life. To describe the level of knowledge, we asked eight questions, each right answer giving one point. The median—five points—was used to divide the group into two (<median, ≥median).

The selected family characteristic was the teenager’s mother’s education, which was divided into two levels—university/professional higher, and secondary special/secondary or less.

Family functioning was analysed using questions about alcohol abuse by family members, physical punishment at home, informing parents about going out and the parents’ acceptance of the teenager’s sexual relationships.

First, univariate analysis was used to explore associations between variables responsible for teenage pregnancy, and which were relevant in the context of Estonia, or known from literature. After that, multivariate logistic regression analysis was applied. Possible interactions between the variables were tested, and there were no statistically significant interactions observed (presumably, partly due to small number of cases). In the case of strong association between variables (e.g. menarche and coitarche, alcohol abuse in the family and physical violence), only one variable was selected for model fitting.

Later, it was investigated whether these associations were sustained after adjusting for other variables. The final regression model was chosen as a result of theoretical considerations based on different model construction results, generally attempting to balance local relevance, recognition and statistical significance in variable choice. Crude odds ratios (ORs), adjusted ORs and their 95% confidence intervals (CIs) were estimated, with the girls having no pregnancies as the reference group. Statistical analysis was performed with Stata 8.16

Results

Table 1 shows the distribution of the selected characteristics in the pregnancy group and in the contraception (reference) group. Younger girls were more likely to belong to the
pregnancy group. The girls in the pregnancy group had started sexual intercourse earlier than the girls in the contraception group. More than half of the girls in the pregnancy group had a low score of knowledge, compared with a little more than one-fifth in the contraception group. Importance of religion was similar in both groups. Alcohol abuse by family members, physical punishment at home and not informing parents when going out was reported more frequently by the girls in the pregnancy group. Parents accepted their daughter’s sexual relations more often in the contraception group than in the pregnancy group. The girls in the pregnancy group had started contracepting at a young age (under 16 years) at first intercourse has been found to be independently associated with both motherhood and abortion before the age of 18 years.21 In our study, sexual knowledge and dislike of school were related to teenage pregnancy; the effect of early coitarche became non-significant after adjustment.

Dislike of school has been found to be associated with a young person’s belief in becoming a parent before the age of 20.22 In contrast to the mentioned study, in our sample the association between the score of sexual health knowledge remained a significant factor associated with teenage pregnancy after adjusting for dislike of school and other factors.

Compulsory sexuality education, as a part of human studies in primary school, was introduced in Estonia only in 1996. The training of teachers started at the same time and it is possible that the level of sexuality education is different in different schools depending on the particular teacher.23 At the same time it has been found that students’ good sexual health knowledge was associated with both personal experience of sexual intercourse and sexuality education in 1999, but only with personal sexual experiences in 1994.24

As in other similar studies, our data are based on reported behaviour and so are susceptible to biases associated with recall and veracity.

In spite of our efforts to minimize selection bias, we did not succeed in involving in the study all the pregnant or contraceptive using teenagers who visited the selected medical institutions during the study period. Additionally, teenagers who did not come for antenatal care at all and came only to deliver a baby were not included in the study. This situation happens very seldom, and presumably does not influence our results, but those teenagers may differ in respect to family background and individual characteristics from the pregnant teenagers we included in the study.

The success of a particular institution in involving teenagers in the study depended on the individual motivation and attitude towards the study of all the medical personnel coming into contact with the teenagers in that institution (they were supposed to invite the teenagers to participate in the survey and refer them to the interviewer). Our experience showed that the willingness to contribute to the study varied between institutions and among colleagues.

Another limitation of the study is that the small study size does not enable other important associations to be checked. The questionnaire included questions about contraception use, attitudes towards contraception, type of partnership, partner’s characteristics, number of partners, communication with the partner, depressive moods, future perspectives and many more. We did not consider these questions in this study, since the aim was to analyse individual and family characteristics. Adjusting the results to other variables known to be associated with teenage unintended pregnancies can have an effect on study results.

Belonging to a racial or ethnic minority group may have strong links to socio-economic disadvantage17 or advantage.18 In Estonia, according to the data on abortion ratio, the Russian-speaking population has tended to have more unplanned pregnancies.19 The vast majority of our sample were Estonians. For this reason we did not use ethnicity in our model.

Early sexual experience and poor educational attainment are each independently associated with teenage parenthood,20 and early age (under 16 years) at first intercourse has been found to be independently associated with both motherhood and abortion before the age of 18 years.21 In our study, sexual knowledge and dislike of school were related to teenage pregnancy; the effect of early coitarche became non-significant after adjustment.

Discussion

In our study, certain individual characteristics (low level of knowledge about the functioning of reproductive organs and contraception, and dislike of school) and the reporting of alcohol abuse by family members, as a family characteristic, were associated with higher risk of unintended teenage pregnancy.
level. Fathers’ employment has been used in some studies. In our study, we did not use fathers’ education instead, since 21.1% of the respondents either did not know their father’s education or had not answered the question, the majority of them were from the pregnancy group (vs. 3.9% of the respondents who did not know their mother’s education); we used mother’s education. This finding may indirectly reflect poor communication between daughters and fathers.

A higher occurrence of teenage motherhood has been found among those whose parents were least strict and most strict, and the lowest occurrence among those whose parents were moderately strict. Parents’ non-acceptance their child’s sexual relationship was associated with teenage pregnancy in our study; this association became non-significant after adjusting for other variables.

It is often not possible to distinguish between direct cause and effect in the associations linked to teenage pregnancy—e.g. the mother’s low educational level may be linked with the daughter’s dislike of school and poor knowledge of sexual matters.

In the current study, we have analysed together those girls who plan to deliver and those who plan to terminate their pregnancy. Further analysis will show whether the associations are different for these two groups compared with the girls with no pregnancies.

National health policy and practice should consider the importance of sexual health education, including information about the functioning of reproductive organs and about contraception, in reducing unintended teenage pregnancies. Other important measures should include family education programmes, alcohol policy and improvement of school environment.

Acknowledgements

We are very grateful to unknown referees for their constructive reviews.

Funding

Estonian Science Foundation (3899 and 5456); Estonian Ministry of Education and Science target funding (SF0182641s04 and SF0940026s07).

Conflicts of interest: None declared.

Key points

- In the context of recent rapid and overwhelming socio-economic changes in the society, age at coitarche <16 years, low score of sexual knowledge, dislike of school occurred more often among pregnant teenagers than among those who used contraception.
- Mother’s lower level of education, alcohol abuse among family members and parents’ non-acceptance of the teenager’s sexual relationship were more common among pregnant teenagers than among those who used contraception.
- Risk factors associated with teenage pregnancy that remained statistically significant after adjustment for all of the abovementioned factors were: low score of sexual health knowledge, dislike of school and reporting of alcohol abuse by family members.
- Comprehensive sexuality education affects young people’s behaviour and should be provided to all young people to enable them to understand the consequences of sexual intercourse and conception. Other important measures in reducing unintended teenage pregnancies should include family education programmes, alcohol policy and improvement of school environment.
References


Received 30 June 2008, accepted 22 December 2008