Induced abortions by woman's country of origin in Finland 2001–2014

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Accepted manuscript

This manuscript was accepted for publication in Scandinavian Journal of Public Health on 18 October

2018.

1

ABSTRACT

Aims

Understanding the differences in reproductive health behaviours between native and migrant

populations helps provide good reproductive health services. We investigate the differences in induced

abortion rates, pregnancy histories, and use of contraceptives between native and migrant populations

in Finland.

Methods

The Finnish Register on Induced Abortions was linked with Population Register data from years

2001–2014 to identify first and second-generation immigrants. The data included 142,708 induced

abortions.

Results

Abortion and contraceptive use varied between women of Finnish and foreign origins. Native women

had a lower abortion rate than women born abroad. Women born in Somalia and India had the highest

likelihood for having an abortion shortly after birth. The highest risk for having an abortion soon after

previous induced abortion was among women born in Iran, Iraq, Somalia and former Yugoslavia. The

risk for having more than two induced abortions was the highest for women born in Russia/the former

Soviet Union and Estonia. Second-generation immigrants had a lower abortion rate than first-

generation immigrants. Lack of contraceptive use prior to abortion was more common among women

born abroad.

Conclusion

There were differences in pregnancy histories and in the use of reliable contraceptive methods before

an induced abortion by country of birth. The higher likelihood for abortion after a recent birth among

first-generation immigrants highlights the need for more targeted counselling immediately after

childbirth. Although the abortion rate is lower among second-generation immigrants, the neglect of

contraceptive use calls for additional education in sexual and reproductive health.

Key words: induced abortion, migrant health, sexual and reproductive health

Word count for the article: 3351

2

INTRODUCTION

Sexual and reproductive health is a key part of well-being. However, reproductive health is often overlooked in general discussion and in the health care system. In particular, vulnerable groups like migrants are easily marginalized as sexuality can be culturally a sensitive issue. There are signs that migrant women might have unmet contraceptive needs and migrant background may affect the way reproductive health and contraception is discussed by health care professionals with patients of migrant background. [1, 2]

Migrants' countries of origin, reasons for immigration, time spent in the new country of residence and personal situations vary, and their health has no universal pattern. Some migrant groups have better health than natives and lower mortality [3, 4, 5, 6] and they purchase less prescribed drugs [7]. However, migrants' self-rated health seems to deteriorate over time spent in the host country which raises questions, how successful the social inclusion policies are and whether some migrants and their descendants are marginalized. "Healthy migrant effect" vanishes with second-generation migrants — women in this group rate their health similarly as native women. [8, 9] In terms of reproductive health, studies from the Nordic countries [10, 11, 12, 13] and Western Europe [14, 15, 16] show that migrant background and low socio-economic status are both risk factors for induced abortion. Migrant background seems also to be a risk for repeat abortions [15].

Abortion rate is one indicator for performance of sexual and reproductive health services. It reflects the quality of sexual health education, health care system's capacity to provide access to family planning services, and the availability and affordability of contraceptives. It also reflects sexual health practices in different cultures, and acceptability of contraceptive use. Low proportion of late abortions and planned use of contraceptives after abortion can be seen as indicators a well-functioning health-care system and as a sign of good health literacy. A high prevalence of repeated abortions may indicate problems with contraceptive use or availability, access to health care or sexual education.[18]

The migrant population in Finland is relatively small, but increased, from 0.8% in 1990 to 2.4 in 2001 to 5.9% in 2014. In 2014, 85% of the 322,700 persons of foreign origin were born outside of Finland (1st generation immigrants). The largest immigrant populations are from former Soviet Union/Russia (20.7% of the total migrant population), Estonia (13.2%), Sweden (9.9%), Somalia (3.1%), and Iraq (3.1%). However, during the study period the proportion of migrant women from former Soviet Union/Russia and from Europe declined whereas the proportion of women from Asia (especially from China) and Africa increased. In 2014, 29.9% of the total migrant population were women of reproductive age. [18]

In Finland, induced abortion has been legal since 1950, but an indication for abortion is required. The current legislation from 1970 is liberally interpreted, and 95% of abortions are performed on social grounds (including social circumstances, age of the woman [under 17 years or 40 years or more], or having four children or more). Other indications include fetal indication (4.2% of induced abortions in 2015), medical indication of the woman or father-to-be (0.7%), and ethical indication (less than 0.1%). Termination of pregnancy is allowed until 20+0 gestational weeks by social, medical and ethical indications, or until 24+0 gestational weeks by fetal indication. On average, 10,000 induced abortions are performed annually in Finland. In 2015, the abortion rate was 8.2 per 1000 women aged 15–49 years which is the lowest of the Nordic countries.[19, 20]

According to a previous study on abortions among migrant women in Finland (1994–2002), their abortion rate was lower than among native Finns. However, migrant women more often reported not using contraceptives prior to induced abortion or using a less effective method (condom). They had a higher mean number of previous pregnancies and their average age at the time of abortion was higher.[21]

The aim of the current study is to investigate differences in the induced abortion rate, pregnancy histories, and use of contraceptives between the native and migrant populations.

METHODS

Finland is one of the few countries with a register on induced abortions [22]. The validity of the Finnish Register on Induced Abortions is excellent (97% in 2011). [23] The register contains information regarding all legally induced abortions in Finland. It includes patients' personal identity number (PIN), age, marital status, municipality, previous pregnancies before the induced abortion, contraception before and after the abortion, indication for the abortion, details of the procedure and length of gestation.

We linked the Finnish Register on Induced Abortions with the Population Register data on women's background characteristics from Statistics Finland. Information was linked using PIN. Immigrants and refugees are issued a PIN, if their residence permit is permanent or exceeds more than one year.

Asylum seekers who are applying for residence permit have no PINs and they T are excluded here.

There were 148,114 induced abortions registered between 2001 and 2014. We excluded 1333 cases (0.9%), where PIN was either missing or incomplete. These include recent migrants, asylum seekers and non-resident women. The remaining data included 146,781 induced abortions among 115,047 women. These data were linked with the population data using the PIN and the year of the procedure. In our final research data there were 146,062 induced abortions among 114,474 women. 719 cases (0.5%) were excluded because their PINs were not found in the Population Register. We had information about the age, pregnancy history and gestation length of these excluded cases but no information about their or their parents' birth country. These cases were compared to the final dataset and there were no differences in terms of available background characteristics. We further excluded 3354 women born abroad to Finnish parents from the data as this is a heterogeneous group that differs from women of Finnish origin born in Finland. The final research data covered 96.3% of all registered induced abortions.

We linked information on woman's and her parents' country of birth to identify migrant populations and were able to identify foreign-origin women born abroad (1st generation migrants) and foreign-origin women born in Finland to parents of foreign background (2nd generation migrants).

Women whose both parents or the only known parent were born abroad are considered to be of foreign origin. Women born abroad and whose parents' data were unknown are also classified as foreign origin. If at least one parent was born in Finland, a woman was categorized as being of Finnish origin. A child adopted from abroad by parents born in Finland is defined as a person of Finnish origin.[18]

The abortion rates were calculated by one thousand women years taking into account all women in

All analyses were conducted using the migrant generation (1st or 2nd generation) and the country of birth as the distinctive attributes. We used logistic regressions to adjust for background characteristics (age, cohabitation status, previous pregnancies when appropriate) between the different study groups using Finnish-origin women as the reference group. The associations are presented as odds ratios (ORs) with 95% confidence intervals (CIs). Analyses according to the country of birth were only conducted if the data contained at least 200 women born in the country in order to minimise the effect of random variation and to follow the data protection practices.

Studies based on register data only do not need an ethical review board clearance in Finland.

RESULTS

reproductive age, from 15 to 49 years.

Of the 142,708 induced abortions 90.9% were performed to Finnish-born women of Finnish origin (Table 1). However, the proportion of induced abortions performed to women of foreign origin increased from 6.4% in 2001 to 11.7% in 2014. In total, 98.2% of foreign-origin women who had an induced abortion were first-generation immigrants.

The mean age of women of Finnish origin undergoing induced abortion was 26.3 years and 28.6 years among women of foreign origin born abroad. The mean age of 21.4 for second-generation immigrants

reflected the younger age structure of this population (Tables 1 and 2). The younger mean age could also be seen in their reproductive history with fewer previous pregnancies, induced abortions and births.

The proportion of teenagers (under 20 years) who had an induced abortion was clearly higher among women of Finnish origin (21.2 %) than among women of foreign origin (9.9%), as was the proportion of minors (9.6% vs 4.1%, respectively). Of first generation migrants, only women born in Somalia had a higher proportion of teenagers (22.0%) having abortions than women of Finnish origin born in Finland. Among women born in China or India the proportion was substantially lower (1.8% and 3.0%). Of second-generation migrants having an induced abortion 57.4% were teenagers.

Abortion rates

The abortion rate was higher (15.0/1000 person years) among women of foreign origin than among those of Finnish origin (8.5/1000). There was a significant difference between women of foreign origin born in Finland (2nd generation) or abroad (1st generation). Women born in Finland regardless of their origin had significantly lower abortion rate than women born abroad. (Table 2.) Of first generation migrants, the highest abortion rates were among women born in Iran (26.3/1000), Vietnam (20.8/1000) and Estonia (19.0/1000).

For teenagers, the abortion rate was markedly different between first generation migrants (19.5/1000), second generation migrants (9.5/1000) and women of Finnish origin (13.0/1000). Of teenaged first generation migrants, the highest abortion rates were among women born in Sweden (38.6/1000) and Vietnam (30.8/1000).

Pregnancy history

Among women obtaining an induced abortion in 2001–2014, 20.0% had given birth or had an earlier induced abortion during the same or previous year.

Adjusted for woman's age and cohabitation, all women of foreign origin (1st and 2nd generation) had a higher likelihood (OR 1.18, CI 1.11–1.24) for having recently given birth before the induced abortion compared to women of Finnish origin. Of first generation migrants, women born in Somalia (OR 2.10, CI 1.63–2.69) and India (OR 1.90, CI 1.41–2.55) were the most likely to have recently given birth. Compared to second generation, first-generation immigrants had an over three-fold risk (OR 3.31, CI 1.68–6.53) for having recently given birth.

The likelihood for having had at least two previous births before the induced abortion was higher among women of foreign origin than for women of Finnish origin (OR 1.11, CI 1.06-1.17). Of first generation migrants, this likelihood was the highest for women born in the former Yugoslavia (OR 3.18, CI 2.50-4.04), Somalia (OR 2.85, CI 2.27-3.56), Vietnam (1.95, CI 1.56-2.43) and Iraq (OR 1.71, CI 1.37-2.14). (Table 3.) First-generation migrants had a 3.5-fold (OR 3.55, CI 1.97-6.39) likelihood for at least two previous births at the time of induced abortion compared to second generation migrants.

The risk for a recent induced abortion was over 1.5-fold for women of foreign origin (OR 1.60, CI 1.51-1.70) than for women of Finnish origin. The highest risk for a previous induced abortion the same year or the year before was among women born in Iran (OR 2.41, CI 1.85-3.13), Iraq (OR 2.24, CI 1.72–2.92), Somalia (OR 2.11, CI 1.63–2.73) and the former Yugoslavia (OR 1.83, CI 1.35–2.47). Compared to second generation, the risk for a recent abortion was higher for first generation migrants (OR 1.57, CI 1.00-2.45).

Compared to women of Finnish origin, the risk for having at least two previous induced abortions at the time of the most recent abortion was almost two-fold (OR 1.85, CI 1.77–1.94) for women of foreign origin. The risk for having at least two previous induced abortions was the highest for women born in former Soviet Union /Russia (OR 3.00, CI 2.79-3.23) and Estonia (OR 2.17, CI 1.95-2.42). (Table 3.) The risk for having five or more previous induced abortions was 2.8-fold for women of foreign origin (OR 2.77, CI 2.38–3.22). Compared to second generation, first-generation immigrants

had a two-fold risk (OR 2.19, CI 1.31–3.67) for at least two previous induced abortions) at the time of induced abortion.

Second-generation immigrants had a substantially decreased likelihood for at least two previous births (OR 0.33, CI 0.18–0.60) and a recent childbirth (OR 0.41, CI 0.21-0.80) than women of Finnish origin born in Finland also when standardized by the age of the woman.

Gestational age and indication for induced abortion

Adjusted for woman's age, cohabitation and the number of previous pregnancies, women of Finnish origin had a higher risk (OR 1.39, CI 1.30–1.49) of obtaining an abortion at or after 12 gestational weeks than women of foreign origin. However, first generation migrant-women born in Somalia (OR 1.52, CI 1.15-2.00) or Thailand (OR 1.38, CI 1.05–1.81) had a higher risk for a second trimester abortion than women of Finnish origin. (Table 4.) Many of these abortions were due to fetal indication, the probability of which increases by age. However, the risk for termination on fetal indication was higher (OR 1.40, CI 1.16–1.69) among women of Finnish origin also when standardized by gestational age.

Contraceptive use

In total, 41.2% of women did not report any use of contraceptives when they came pregnant. Women of foreign origin had twice (OR 1.96, CI 1.92–2.05) the risk for not using contraceptives before the induced abortion than women of Finnish origin when adjusted for woman's age, cohabitation, and the number of previous pregnancies. This risk was higher for women born in Somalia (OR 3.16, CI 2.61–3.84), Vietnam (OR 2.85, CI 2.34–3.46), the former Yugoslavia (OR 2.85, CI 2.33–3.48), Iran (OR 2.78, CI 2.29–3.37) and Iraq (OR 2.70, CI 2.23–3.27) than among women of Finnish-origin. The risk for not using contraceptives was higher for first-generation than second-generation immigrants (OR 1.52, CI 1.17–1.99). Second-generation immigrants had a higher risk for lack of contraceptive use (OR 1.37, CI 1.06–1.78) than women of Finnish origin.

Women of Finnish origin more commonly reported oral contraceptives as their planned contraceptive method (53.7%) than women of foreign origin (48.5%). On the other hand, an IUD was more commonly planned for women of foreign origin (32.8% vs 24.0%) as were other long acting reversible contraceptive (LARC) methods, implant and injection (3.7% vs 2.6%). Still, the odds for either IUD or other LARC method being the planned contraceptive were slightly elevated for women of Finnish origin (OR 1.18, CI 1.13–1.23).

DISCUSSION

We used Finnish register data on induced abortions to widen our knowledge on reproductive health among migrants in Finland. In this study, we concentrated on issues that can be targeted with culturally sensitive sexual education and actions of the health care system.

There were significant differences in induced abortion and contraceptive use between women of Finnish and foreign origin, and between first and second-generation immigrants. The abortion rate was markedly higher among first and second-generation immigrants than among women of Finnish origin born in Finland. This contradicts an earlier study that showed lower abortion rates among migrant women than among women of Finnish origin [21].

Women born in Finland regardless of their origin have significantly lower abortion rates than women born abroad. This seems to confirm the hypothesis that second-generation women adopt to the culture of the host country relatively quickly [24] and their health behaviour is often closer to the original population than to that of their parents.

Though the number of abortions was relatively low among second-generation immigrants, our study shows the lack of contraceptive use in this group. Although infrequent substance use, dating and intercourse seems to protect the migrant youth from unwanted pregnancies [25], their neglect of contraceptive use seems to point to a further need of culturally sensitive sexual education. Youth from migrant families have been found to generally have a lower sexual and reproductive awareness than

native youth [26]. Possible generational cultural tensions and silence about sexuality might lead to risk behaviour among some migrant youth as moral and religious views may impact contraceptive use [27].

Strengths and limitations

The main strength of this study is the use of population based register data, good quality of the data [23, 28] and the ability to separate first and second generation migrants. Most previous studies are based on surveys, which suffer from underreporting of abortions [29, 30] and may struggle to include enough immigrant women. Surveys aimed at migrant populations coverage issues might arise due to language and cultural barriers, particularly with themes considered sensitive like induced abortion. Our data, however, did not include induced abortions conducted in other countries. This may underestimate the number of cases from neighbouring countries, especially nearby countries Estonia and Russian Federation. Some women, e.g. recent migrants may opt to have the procedure in their previous country of residence.

Information about pregnancy history in the register is based on women's self-report, but this information is double-checked in the register, i.e. if a woman reports no previous abortions, but abortion(s) can be found in the register, the self-reported information is corrected. Earlier study has shown that survey-based and register-based information on pregnancy history differ somewhat. Undercoverage of births in the register was observed whereas information on previous induced abortions was more accurate in the register. [30]

While a major benefit of our study is the possibility to separate first and second-generation immigrants, we were not able to study the length of stay in Finland or the effects of socio-economic factors. Neither did we have information on the reason for migrating to Finland. These factors are known to affect the health of migrants as the healthy migrant effect seems to diminish with the time lived in the host country [8, 9] and socio-economic status in known to correlate with health [3, 11].

Conclusions

In Finland, where contraceptives are easily available, abortion is legal and there is a universal right for health care services, ethnic differences in abortion rates can be seen as a sign of differences in health literacy, acceptability of contraceptive use and attitudes towards induced abortion as a family planning method. Our results show that there are ethnic differences in pregnancy histories and in the use of reliable contraceptive methods, and these differ by generation.

Our data showed that the proportion of migrant women not using any contraceptives prior to abortion was (50% of those seeking abortion) and has stayed relatively stable [21] during last decades implying a further need to address this issue.

An earlier study also found that there are differences between women of migrant origin and women of Finnish origin in adopting an effective contraceptive method after an induced abortion. [2] As effective contraceptive use reduces unintended pregnancies and subsequently abortion rates, the use of one is essential and should be encouraged, especially after an induced abortion or a birth, and the differences in planned contraceptive method should be addressed in the health care system.

The higher likelihood for a recent birth among first-generation immigrants at the time of abortion highlights the need for more targeted counselling immediately after giving birth. According to a Finnish survey, the infrequent use of contraceptives among married women of Somali descent seems to be connected with religious beliefs and issues involving marital relations [31]. Our study suggests that among first-generation immigrants, induced abortion is more common than in other groups. Thus, cultural, religious and social issues involved in the use of family planning should not be underestimated. In cultures where attitudes towards contraception might be negative, an induced abortion might be a discreet way of preventing having more children.

Our study does not support the earlier findings that immigrant women have a higher probability of having an induced abortion after the first trimester [32]. Among women of Finnish origin, the higher

risk for induced abortion due to fetal indication might be explained by better understanding of the fetal screening system and options available. On the other hand, other reasons, for example religious and cultural beliefs, might explain the lower risk among migrant origin women. However, our results also suggest the importance to ensure that health care services are provided and given equally for women of all origins.

Our study underlines the differences between first and second-generation migrants. It is essential to ensure adequate contraceptive advice right after childbirth and induced abortion especially for first-generation migrant women. For second-generation immigrants, adequate reproductive knowledge, access to care and sexual and reproductive health services should be ensured.

ACKNOWLEDGEMENTS

The results were orally presented at the International Congress of World Federation of Public Health Associations 2017, Melbourne, Australia, 3.-7.4.2017.

CONFLICTS OF INTEREST

None of the authors have conflicts of interest regarding this article. The author(s) received no financial support for the research, authorship, and/or publication of this article.

REFERENCES

- 1. Raben L, Muijsenbergh van den M. Inequity in contraceptive care between refugees and other migrant women? A retrospective study in Dutch general practice. *Family Practice* 2018; 35: 4, 468–474.
- 2. Väisänen H, Koponen P, Gissler M,Kontula O. Contraceptive use among migrant women with a history of induced abortion in Finland. *Eur J Contracept Reprod Health Care*. 2018; 25: 1-8.
- 3. Nielsen SS, Krasnik A. Poorer self-perceived health among migrants and ethnic minorities versus the majority population in Europe: a systematic review. *Int J Public Health*. 2010; 55(5):357-71.
- 4. Salas-Wright CP, Vaughn MG, Goings TC, Miller DP, Schwartz SJ. Immigrants and mental disorders in the United States: New evidence on the healthy migrant hypothesis. *Psychiatry Res.* 2018; 19;267:438-445.
- 5. Fuller-Thomson E, Brennenstuhl S, Cooper R, Kuh D. An investigation of the healthy migrant hypothesis: Pre-emigration characteristics of those in the British 1946 birth cohort study. *Can J Public Health*. 2016; 16;106(8):e502-8.
- 6. Lehti V, Gissler M, Markkula N, Suvisaari J. Mortality and causes of death among the migrant population of Finland in 2011–2013. *European Journal of Public Health* 2016; Feb 1;27(1):117-123.
- 7. Gimeno-Feliu, L. A., Calderón-Larrañaga, A., Prados-Torres, A., Revilla-López, C., & Diaz, E. Patterns of pharmaceutical use for immigrants to Spain and Norway: a comparative study of prescription databases in two European countries. *International Journal for Equity in Health* 2016; 15: 32.
- 8. La Parra-Casado D, Stornes P, Solheim EF. Self-rated health and wellbeing among the working-age immigrant population in Western Europe: findings from the European social survey (2014) special module on the social determinants of health. *EurJournal of Public Health* 2017; 27: suppl_1, 40–46.

- [9] Vandenheede H, Willaert D, De Grande H, Simoens S, Vanroelen C. Mortality in adult immigrants in the 2000s in Belgium: a test of the 'healthy-migrant' and the 'migration-as-rapid-health-transition' hypotheses. *Trop Med Int Health.* 2015; 20:12, 1832-45.
- [10] Helström L, Zätterström C, Odlind V. Abortion rate and contraceptive practices in immigrant and Swedish adolescents. *J Pediatr Adolesc Gynecol* 2006; 19:3,209-13.
- [11] Helström L, Odlind V, Zätterström C, Johansson M, Granath F, Correia N, Ekbom A. Abortion rate and contraceptive practices in immigrant and native women in Sweden. *Scand J Public Health* 2003; 31:6,405-10.
- [12] Rasch V, Gammeltoft T, Knudsen LB, Tobiassen C, Ginzel A, Kempf L. Induced abortion in Denmark: effect of socio-economic situation and country of birth. *Eur J Public Health* 2008; 18:2,144-9.
- [13] Eskild A, Helgadottir LB, Jerve F, et al. Induced abortion among women with foreign cultural background in Oslo. Tidsskr Nor Laegeforen 2002; 122:1355–1357.
- [14] Rodriguez-Alvarez E, Borrell LN, González-Rábago Y, Martín U, Lanborena N. Induced abortion in a Southern European region: examining inequalities between native and immigrant women. *Int J Public Health* 2016; 61:7,829-36.
- [15] Picavet C, Goenee M, Wijsen C. Characteristics of women who have repeat abortions in the Netherlands. *Eur J Contracept Reprod Health Care* 2013; 18:5, 327-34.
- [16] Zurriaga O, Martínez-Beneito MA, Galmés Truyols A, Torne MM, Bosch S, Bosser R, Portell Arbona M. Recourse to induced abortion in Spain: profiling of users and the influence of migrant populations. *Gac Sanit* 2009; 23: Suppl 1, 57-63. [18] Heino A, Gissler M. Toistuvat raskaudenkeskeytykset Suomessa 1983–2009 [Repeat terminations of pregnancy in Finland 1983–2009]. *Suomen lääkärilehti* 2013; 68:47, 3083–3086.

- [18] Population structure 2015. Statistics Finland. Access method: http://www.stat.fi/til/vaerak/index en.html. [referred: 10.8.2016]
- [19] Laki raskauden keskeyttämisestä 239/1970, Asetus raskauden keskeyttämisestä 359/1970 [Act on Induced Abortion 238/1970, Decree on Induced Abortion 359/1970]. Access method: http://www.finlex.fi/fi/laki/ajantasa/1970/19700239
- [20]Induced abortions in the Nordic countries 2015. Statistical Report 5/2017, National Institute for health and welfare (THL). Access method: http://urn.fi/URN:NBN:fi-fe201703071999.
- [21] Malin M, Gissler M. Induced Abortions among Immigrant Women in Finland. *Finnish Journal of Ethnicity and Migration* 2008; 3:1.
- [22] Knudsen LB, Gissler M, Bender S, Hedberg C, Ollendorff U, Sundström K, Totlandsdal K, Vilhjálmsdottír S. Induced abortion among young women in the Nordic Countries. *Acta Obstetricia Gynecologica Scandinavia* 2003; 82:3,257–268.
- [23] Heino A, Mentula M, Niinimäki M, Gissler M. How reliable are health registers? The quality of the Finnish Register on Induced Abortions and Sterilisations. *Inform Health Soc Care* 2017; 7:1-10.
- [24] Loeber O: Sexual and reproductive health issues of Turkish immigrants in the Netherlands. *Eur J Contracept Reprod Health Care* 2008; 13:4, 330–8.
- [25]World Value Survey Wave 5: 2005–2009. Indicator Justifiable: abortion. Access method: http://www.worldvaluessurvey.org/WVSOnline.jsp. [referred: 7.2.2017]
- [27] Klemetti R, Seppänen J, Matikka A, Surcel H-M. Knowledege of sexual and reproductive health among immigrant youth in Scholl Health Promotion Study 2015. *Sosiaalilääketieteellinen aikakausilehti Journal of Social Medicine* 2017; 54: 209–225.[27] Seksuaaliterveyspoliittinen ohjelma. Väestöliitto. 2006. [Programme for sexual health policy. The Family Federation of Finland] Access method: http://vaestoliitto-fi-

 $\underline{bin.directo.fi/@Bin/9cdf03ec3cb5b244fe43884dd666dd03/1487236886/application/pdf/263806/Sekst}\\ \underline{ervpolohjelma.pdf}$

[28] Gissler M, Ulander VM, Hemminki E, Rasimus A. Declining Induced Abortion Rate in Finland: Data Quality of the Finnish Abortion Register. *International Journal of Epidemiology* 1996; 25:2, 376–380.

[29] Jones RK, Kost K: Underreporting of induced and spontaneous abortion in the United States: an analysis of the 2002 National Survey of Family Growth. *Stud Fam Plann.* 2007; 38:3, 187–97.

[30] Jokela S, Lilja E, Kinnunen T, Gissler M, Castaneda AE and Koponen P. Births and induced abortions among women of Russian, Somali and Kurdish origin, and the general population in Finland –comparison of self-reported and register data. *BMC Pregnancy and Childbirth* 2018; 18:296.

[31] Degni F, Koivusilta L, Ojanlatva A. 2006. Attitudes towards and perceptions about contraceptive use among married refugee women of Somali descent living in Finland. *Eur J Contracept Reprod Health Care* 2006; 11:3,190–6..

[32] Loeber O, Wijsen C. Factors influencing the percentage of second trimester abortions in the Netherlands. *Reprod. Health Matters* 2008; 16:31 Suppl,30–6.

Table 1. Background characteristics of women having an induced abortion in Finland 2001–2014

| | Of Finnish origin, born in Finland | Of foreign origin, born abroad (1st generation migrant) | Of foreign origin, born in Finland (2nd generation migrant) |
|--|---------------------------------------|--|--|
| Total n of induced abortions 2001–2014 | 129,742 | 12,731 | 235 |
| Age groups, % | | | |
| Under 20 | 21.2 | 9.9 | 57.4 |
| 20-29 | 46.2 | 46.2 | 28.9 |
| 30 and over | 32.6 | 43.9 | 13.6 |
| Mean age | 26.3 | 28.6 | 21.4 |
| Marital status, % | | | |
| Married | 17.1 | 42.6 | 7.2 |
| Cohabiting | 21.5 | 14.5 | 14.2 |
| Single | 60.6 | 41.6 | 76.2 |
| No information | 0.7 | 1.4 | 2.1 |
| Pregnancy history, % Previous pregnancies, % | | | |
| 0 | 41,9 | 23,1 | 65,5 |
| 1-2 | 35,1 | 40,0 | 27,2 |
| 3-4 | 17,1 | 25,7 | 6,8 |
| 5 or more | 5,8 | 11,1 | 0,4 |
| No information | 0,1 | 0,1 | - |
| Previous births, % | | | |
| 0 | 53,9 | 33,2 | 82,6 |
| 1-2 | 34,9 | 52,5 | 15,3 |
| 3-4 | 10,3 | 12,5 | 2,1 |
| 5 or more | 1,0 | 1,8 | - |
| No information | 0,0 | 0,0 | - |
| Previous induced abortions, % 0 | 66,2 | 52,9 | 75.2 |
| 1-2 | 29,5 | 32,9 37,8 | 75,3 23,0 |
| 3-4 | 3,6 | 7,4 | 1,3 |
| 5 or more | 0,6 | 1,8 | 0,4 |
| No information | 0,1 | 0,1 | - |
| Gestational age, % | | | |
| Under 12 weeks | 90.0 | 92.4 | 91.5 |
| 12-19 weeks | 8.9 | 6.8 | 8.5 |
| 20 weeks or over | 1.1 | 0.9 | - |
| Indication for induced abortion, % | | | |
| Social (incl. age and 4+ previous children) | 96,5 | 97,3 | 97,4 |
| Fetal | 3,1 | 2,4 | 2,1 |
| Other (e.g. ethical, danger to woman) | 0,6 | 0,6 | 1,3 |
| | | | |

All omnibus chi square tests were significant (<.0001)

Table 2. Abortion rate per 1000 women and number of induced abortions by origin and age of the woman

| | Of Finnish origin, born in Finland | | Of foreign origin, born abroad (1st generation migrant) | | Of foreign origin, born in Finland (2nd generation migrant) | |
|----------------------|---------------------------------------|------------------------------|---|------------------------------|---|------------------------------|
| | Abortion rate | Total n of induced abortions | Abortion rate | Total n of induced abortions | Abortion rate | Total n of induced abortions |
| 15-19 ¹ | 13.0 | 27516 | 19.5 | 1263 | 9.5 | 135 |
| 20–24 | 16.5 | 35162 | 27.5 | 2840 | 15.8 | 56 |
| 25–29 | 11.9 | 24784 | 20.2 | 3036 | 13.9 | 12 |
| 30–34 | 9.5 | 19558 | 17.0 | 2653 | 14.1 | 10 |
| 35–39 | 7.1 | 15308 | 14.4 | 2047 | 14.4 | 11 |
| 40–44 | 2.9 | 6806 | 6.5 | 827 | 8.6 | 9 |
| 45-49 ² | 0.2 | 608 | 0.6 | 65 | 1.3 | 2 |
| 15-49 ^{1,2} | 8.5 | 129,742 | 15.0 | 12,731 | 10.3 | 235 |
| Mean age | 26.3 | | 28.6 | | 21.4 | |

¹ Includes all induced abortions performed to under 20 years.

² Includes all induced abortions performed to women over 49 years.

Table 3. Odds ratios (OR) for previous pregnancies by the country of birth of first generation migrants.

Previous pregnancy ended either in an induced abortion (IA) or a birth

| | At the time of the IA, two or more previous pregnancies that | | During the same or previous year as the IA, had a pregnancy that | | |
|----------------------------|--|------------------|---|------------------|--|
| Country of birth | ended in IA | ended in birth | ended in IA | ended in birth | |
| Finland (ref.) | 1.00 | 1.00 | 1.00 | 1.00 | |
| Former Soviet Union/Russia | 3.00 (2.79-3.23) | 0.90 (0.83-0.97) | 1.50 (1.34-1.67) | 1.00 (0.91-1.11) | |
| Sweden | 1.08 (0.70-1.66) | 1.64 (1.12-2.30) | 1.32 (0.80-2.17) | 1.43 (0.97-2.12) | |
| Estonia | 2.17 (1.95-2.42) | 1.47 (1.32-1.64) | 1.61 (1.39-1.86) | 1.09 (0.96-1.25) | |
| Somalia | 1.50 (1.14-1.94) | 2.84 (2.27-3.56) | 2.11 (1.63-2.73) | 2.10 (1.63-2.69) | |
| Iran | 1.76 (1.39-2.22) | 1.12 (0.89-1.41) | 2.41 (1.85-3.13) | 0.70 (0.51-0.96) | |
| Iraq | 1.17 (0.89-1.54) | 1.71 (1.37-2.14) | 2.24 (1.72-2.92) | 1.31 (1.03-1.68) | |
| Thailand | 0.79 (0.58-1.07) | 1.10 (0.88-1.39) | 1.45 (1.04-2.01) | 0.81 (0.60-1.10) | |
| Vietnam | 1.42 (1.11-1.84) | 1.95 (1.56-2.43) | 1.64 (1.21-2.21) | 1.44 (1.12-1.86) | |
| China | 1.26 (0.98-1.64) | 0.26 (0.20-0.33) | 1.21 (0.85-1.73) | 1.00 (0.76-1.31) | |
| Former Yugoslavia | 1.80 (1.41-2.30) | 3.18 (2.50-4.04) | 1.83 (1.35-2.47) | 1.43 (1.11-1.83) | |
| India | 0.62 (0.38-1.01) | 0.68 (0.50-0.91) | 0.91 (0.52-1.59) | 1.90 (1.41-2.55) | |
| Other countries | 1.18 (1.07-1.31) | 1.05 (0.96-1.14) | 1.60 (1.43-1.79) | 1.28 (1.17-1.40) | |
| Born abroad, total | 1.85 (1.77–1.94) | 1.11 (1.06–1.17) | 1.60 (1.51–1.70) | 1.16 (1.10–1.23) | |

Notes: Adjusted for the age of the woman and cohabitation. Finland (ref.) includes women of Finnish origin born in Finland.

Table 4. Odd ratios (OR) and proportions of abortions by gestational age by the country of birth of first generation migrants

| Country of birth | 12. OD | 43.0/ | 20.00 | 20.0/ | Total n of induced abortions 2001– |
|----------------------------|------------------|-------|------------------|-------|------------------------------------|
| Country of birth | 12+ OR | 12+ % | 20+ OR | 20+ % | 2014 |
| Finland (ref.) | 1.00 | 10.0 | 1.00 | 1.1 | 129,978 |
| Former Soviet Union/Russia | 0.54 (0.47-0.62) | 5.8 | 0.61 (0.42-0.90) | 0.7 | 3882 |
| Sweden | 0.81 (0.49-1.36) | 8.4 | 0.88 (0.22-3.57) | 1.1 | 190 |
| Estonia | 0.67 (0.56-0.80) | 7.1 | 0.45 (0.23-0.86) | 0.5 | 2015 |
| Somalia | 1.52 (1.15-2.01) | 12.6 | 1.55 (0.58-4.18) | 0.9 | 468 |
| Iran | 0.65 (0.45-0.93) | 6.9 | 0.51 (0.16-1.59) | 0.7 | 449 |
| Iraq | 0.93 (0.68-1.28) | 9.5 | 0.98 (0.40-2.37) | 1.1 | 453 |
| Thailand | 1.38 (1.05-1.81) | 14.3 | 1.26 (0.62-2.55) | 1.9 | 421 |
| Vietnam | 1.04 (0.77-1.41) | 10.9 | 0.61 (0.20-1.92) | 1.1 | 448 |
| China | 0.45 (0.29-0.67) | 5.8 | 0.24 (0.06-0.96) | 0.5 | 432 |
| Former Yugoslavia | 0.83 (0.58-1.17) | 8.6 | 1.09 (0.45-2.65) | 1.2 | 417 |
| India | 0.35 (0.18-0.65) | 4.5 | 0.45 (0.11-1.81) | 0.9 | 222 |
| Other countries | 0.76 (0.67-0.87) | | 0.85 (0.61-1.18) | | |
| Born abroad, total | 0.72 (0.67–0.77) | 7.7 | 0.69 (0.57–0.85) | 0.9 | 12,966 |

Notes: Adjusted for the age of the woman, cohabitation and the number of previous births and induced abortions. Finland (ref.) includes women of Finnish origin born in Finland.