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**Trends in induced abortion in a cohort of women aged 15-19
in 1975 between 1975 and 2000 in four Scandinavian countries.**

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Abstract

Objective: To study the rate and the percentage of induced abortions in relation to the total of all conceived pregnancies during a 25-year period in a cohort of Scandinavian women who were age 15-19 in 1975.

Method: The number of abortions and live births in a cohort of women in Scandinavia who were 15-19 years old at the start of the study in 1975 was determined from official statistics for each five-year period from 1975 to 2000 when these women had become 34-44 years of age.

Results: Women in each country, 15-19 years old at the start of the study, maintained the same habits regarding induced abortion for the rest of their fertile period, when compared to the other countries. Women in Denmark and Sweden, who had the highest rates of induced abortion at the start of the study, maintained their position in comparison with Norway and Finland also at 40-44 years of age.

Conclusion: Habits of induced abortion among women seem to remain unchanged over time. This finding indicates that education about reproductive methods that leads to the formation of habits and attitudes at a very early age is decisive in shaping behaviour for the entire period of fertility.

Introduction

Free abortion on demand or on request has been available in the Nordic countries since the mid 1970s. Although the laws regulating induced abortion differ from country to country, the main aspects are identical, and induced abortion in all the Nordic countries must be considered as a service provided free of charge, even if some details of practice in one country differ from those in another (1,2).

Before the changes in the abortion laws took place in the seventies, induced abortion has been a criminal offence both for the abortionist and the woman (3). Laws similar to the old laws in the Nordic countries are still prevailing in many countries, however, and especially in underdeveloped countries in which abortion is considered a crime for political or religious reasons (2). In countries where this procedure is illegal, many women are given abortions by unprofessional persons and suffer from severe complications. Complications during abortion or delivery are still a major cause of death among women in the underdeveloped countries (4). This was also the situation in the western world before introduction of liberal laws regulating abortion, which have definitely led to a reduction in deaths related to pregnancy in the Nordic countries.

The fear that provision of free abortion would lead to a massive increase in the number of induced abortions has not been substantiated in the Nordic countries (5). Instead, due to the societies' support for family planning activities, the number of performed legal terminations of pregnancy has been substantially lowered from the mid 1970s to 2005, although not equally in all four countries (1). To date, Finland and Norway have been more successful in lowering the rate of legal terminations than Sweden and Denmark (5).

As all Scandinavian countries are trying to reduce their abortion rates, it is, both from a scientific point of view and a societal point of view, of importance to study development and changes in the population to get a better understanding of factors leading to an induced abortion. Even if induced abortion is now considered as an intrinsic part of women's rights and is in practice not the subject of debate, with the possible exception of Norway (6), all social planning has the goal of lowering the rate of abortion by providing education, subvention and free family planning facilities, which are easily at hand for the woman. It should be possible to measure and evaluate the success of these measures, and use this evaluation to obtain the best possible effects from any future amendments to practice in the field of family planning.

Effects are, however, difficult to measure, because as each woman grows older her life situation changes and possibly her marital status as well. In order to study these effects, we decided to follow a cohort of Scandinavian women, who were 15-19 years old in 1975, studying their situation at five years intervals until they became 40-45 years old in 2000. By comparing their situation we would be able to see if the rate of abortion in this cohort changed with time, and we could also study the frequency of induced abortion among these women during each time interval.

The hypothesis was that abortion rates should for biological reasons diminish with increasing age as this group of women had been able to benefit from improvement in the subvention of contraceptive methods, education and provision of support from the society. As a matter of fact, we expected that abortion in the highest age groups would for these reasons be eliminated and be unnecessary. We expected that, the frequency of abortion would be very low in the oldest age groups and ideally; only planned and accepted deliveries should take place, if society's intentions were fulfilled.

Method

The data and results in this study are derived from official statistics as presented in a joint venture by the Scandinavian governments and health care providers (5,7). We have omitted Iceland from the calculation, even if Island is considered as a Scandinavian country, as the population of Iceland is merely about 300 000 inhabitants (1).

The group age 15-19 years in 1975 was then analyzed every 5 years until they reached 40-44 years of age to determine the frequency of induced abortions and of delivered children. The rates were then finally used to calculate the proportion of all conceived pregnancies that ended in induced abortion.

Even though laws regulating abortion were not introduced in Norway until 1978 (6), we used this year as the start for Norway, since the figures still provide information on trends in the 1975 year's cohort over time.

Results

From Figure 1 it is evident, that in 1975 Denmark and Sweden had the highest rates of induced abortion. Norway is omitted in 1975 for the reason that abortion became legal in 1979, but we decided nevertheless to make 1975 the starting point, as most of the countries had laws regulating free abortion in already 1975. The abortion rate was highest among Danish and Swedish women in 1975 and 1980 and then became successively lower up to 2000. The same pattern is observed in both Finland and Norway, but on a substantially lower level. However, in the age span 40-44 years in the year 2000, Danish and Swedish women still had the highest rates as compared to the Norway and Finland.

The greatest difference is observed between Finland and Sweden; Swedish women age 40-44 years had more than double the number of abortions as compared to the Finish women in 2000.

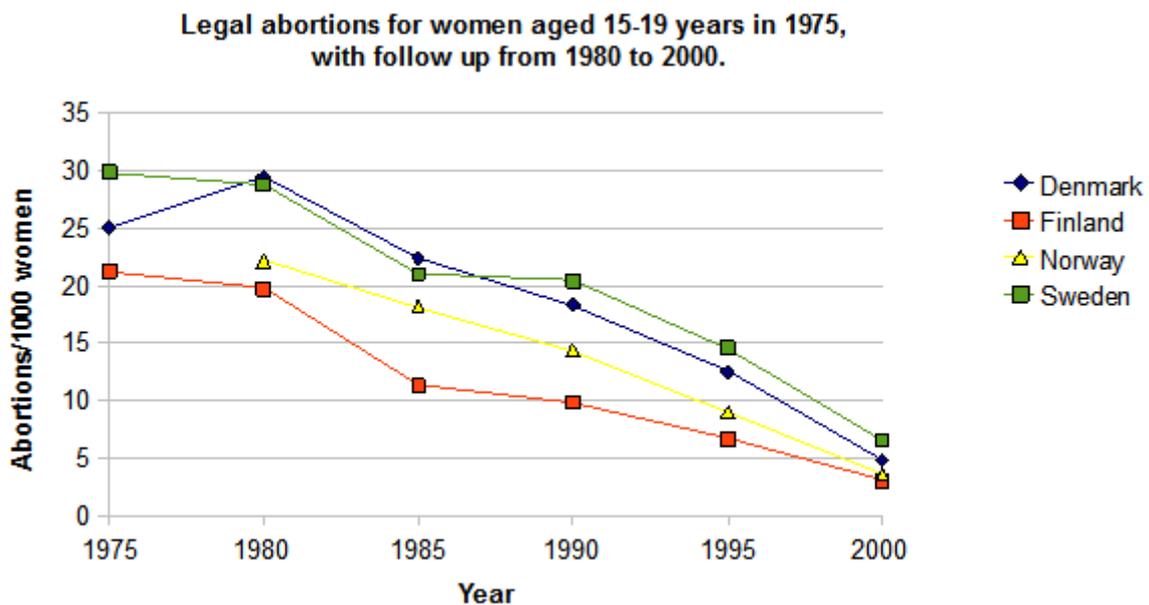
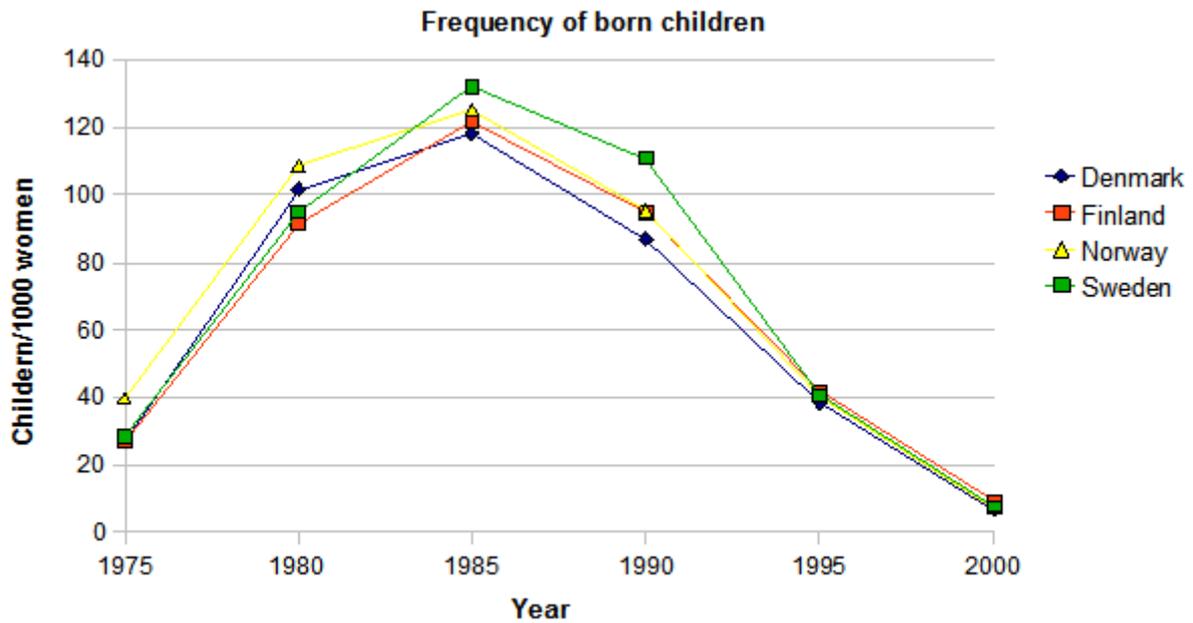
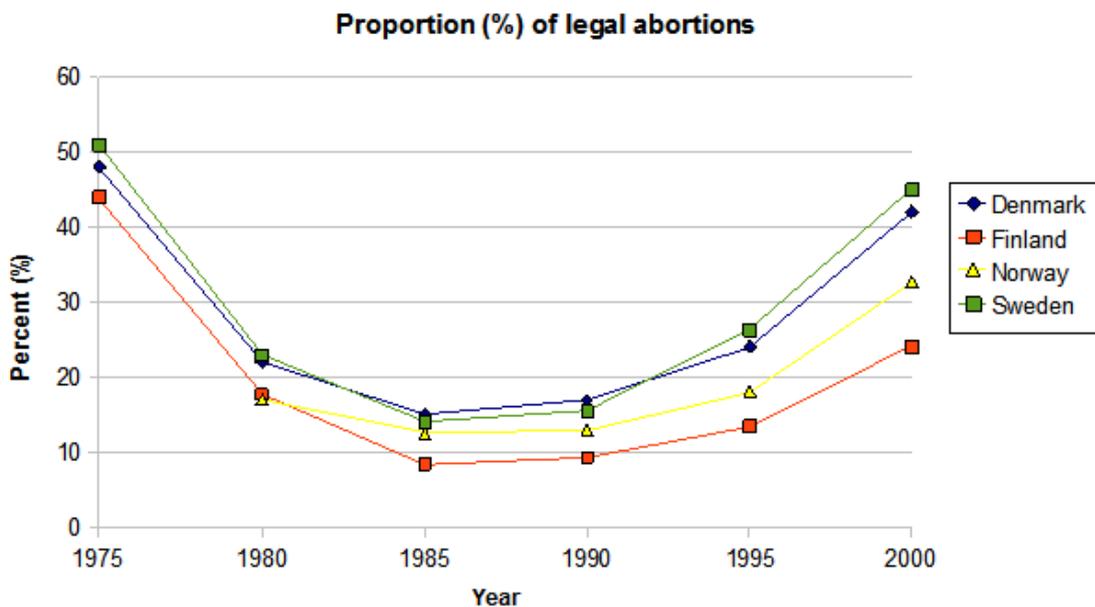


Figure 2 show the rate of deliveries per 1000 women in the four cohorts of Scandinavian women. All countries have the same development, but childbearing seems to be more delayed

in Sweden than in the other countries, as women in Sweden have a higher mean age for the first pregnancy and delivery (1).



A similar pattern is observed in the proportion of legal abortions in relation to all pregnancies in the cohorts of women from the four countries. Denmark and Sweden have the highest proportion of induced abortions in relation to all conceived pregnancies (fig 3). The differences are most clearly expressed among the women in the Swedish cohort and the pattern is similar to the pattern that the Swedish women already showed as young.



Discussion

All the Scandinavian countries are modern Welfare States and provide their inhabitants, both male and female, with ample social and health programmes of which family planning is an essential part (6,8-11). The findings in this study are both expected and reasonable, but we have also found results that have not, in our experience, been identified or discussed earlier. Changes in the abortion rate are indeed similar in all four included countries, a high rate when the woman is adolescent and then decreasing, as the woman grows older. Most children are born between 25-35 years of age and after that period both the number of children and the number of legal abortions falls with increasing age and thus reduced fertility and presumably also as a result of society's efforts in the educational and family planning field. Of special interest in our study is the apparent result that habits established as a young woman 14-19 years old are withheld during the rest of the fertile period. Ideally, no legal abortion should be necessary in the 40-44 years age span, as these women should by then have received so much information and education that they would be fully aware of the different prophylactic measures available after at the end in their fertile life. For this reasons, only planned or wanted pregnancies would ideally occur in this age span. However, abortion rates and the ratio of legal abortions in relation to all conceived pregnancies follow the patterns for each country, a pattern that were already established when the women were young.

High or increasing rates of induced abortions are often met with suggestions that improved sex education and availability of contraceptive services be provided as well as subvention of family planning and the costs for such methods for the women (6,8,10,11). Therefore, one would assume, that if support in form of family planning and economic subventions were

introduced and offered to women living in any modern western society, this should have an effect on rates of abortion. As different levels of legal abortion evidently exist, it would be interesting to know if differences in the costs spent by the society are the sole explanation for different rates of abortion in countries as similar as the Scandinavian countries are to one another. So far we have not found any studies indicating that economic considerations differ from country to country in any main aspects on this issue (1). However, this statement, of course is applicable when making comparisons to the underdeveloped countries (4).

Our study further stresses the importance of attitudes and behaviour held among young women to legal abortion, as the pattern shown in the youngest age group in each country is then followed through fertile age in all four countries. The country with the highest rate in 1975, Sweden, still had the highest rate in the year 2000. Given this finding, it appears that education and indoctrination of attitudes should be introduced very early indeed in life since it is from this study of the central importance to try to lower abortion rate in the youngest age group if programs to reduce abortion are intended. Recent studies have found an increased frequency of abortion among Swedish teenagers since 1995 (8). One implication from our study is, that Swedish abortion rate will continue to be higher than the rest of the Scandinavian countries as the rest of the Nordic countries at present have much lower rate of abortion among the youngest age groups. Further studies are necessary to follow up this interesting hypothesis. For that reason, one might to consider incorporating experience from these countries in the Swedish family planning programs. Such programs seem to have achieved success in Denmark, Norway and Finland (9-11). For this reason it is important to try to lower a country's rates at the very beginning of a person's fertile period by providing education and information, as trying to apply moral standards may interfere with a woman's rights (6).

Although this is a small study, based on official statistics (5), the way in which we have structured available information still gives valuable information on trends and behaviour in relation to legal termination of pregnancy.

One could speculate if the detailed differences between laws in the four countries are of any importance. Differences in law may explain some of differences in rates, but not the observed differences in the pattern in each separate country over time. While women in Denmark and Norway can get an abortion on demand up to 12 weeks of pregnancy, Swedish women have an upper limit of 18 weeks. In Finland abortion is granted after an application up to 12 weeks of pregnancy. However, as abortion after the 12th week is possible in Finland as well as in Norway and Denmark after a request has been made, the proportions of termination after the 12th week seem to nearly equal those of Sweden for that period in pregnancy (5). There is not any information that the laws have been more severely applied in any of the four countries; on the contrary, the societies have strived towards passing liberal legislation for women in this context. One possible explanation might be that the laws regulating abortion have been more severely interpreted over time in Finland or Norway, but no such information is clearly available in the literature.

Evidently, it is possible to terminate a pregnancy for social and medical reasons even if there is a time limit such as 12 weeks in Denmark, Norway and Finland, but the mere fact that the time limit is extended to 18 weeks in Sweden may influence the attitudes among the general public towards a more permissive attitude to the phenomenon of legal abortion in Sweden as compared to the other countries mentioned.

Thus the mere fact of an existing time limit of 12 weeks may have an influence on the total number of abortions; however, such attitudes and behaviour have not so far been well studied.

We have not found any differences in the importance of moral issues or ethical considerations or attitudes among the four countries, but such aspects have not been fully investigated.

However such issues might be suspected to be of importance as either the laws or the level of social support or both do differ among the investigated societies in some aspects. Such ethical considerations or attitudes may induce the women in an area with a low abortion rate to use contraceptive methods perhaps more frequently and thus avoid a pregnancy. In a study of abortion rates in a county in Sweden in 1988, we found, that a low abortion rate in this county was parallel with a higher use of oral contraceptives, IUD and a higher number of sterilizations indicating, that the population in this county had a higher perception of the importance of avoiding an unwanted pregnancy than women in the rest of Sweden (12).

Thus this may indicate that due to prevailing attitudes in a society, women are more aware of the risk and more actively planning to avoid an unwanted pregnancy (12).

For instance, compared to 10.0 persons sterilized/1000 (men and women) in the age span of 25-54 in Finland in 2004, only 3.0 persons/1000 were subjected to the same procedure in Sweden (7). Such behaviour indicates a more active planning to avoid an unwanted pregnancy between the countries.

Conclusion

Our study indicates that attitudes and habits established at a young age will prevail and continue during the woman's' fertile years and indeed are of critical importance in determining women's choices during those years. If a society wants to reduce its abortion rate, considerable efforts should be made to reach all girls or young women at an early age and above all try to instil positive attitudes to the use of contraceptive methods already from the beginning of the persons life if a society aims at lowering its abortion rate without to interfere with the woman's rights.

Declaration of interest: The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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