underrepresented among women seeking abortions, the estimates for such methods would be biased away from the null hypothesis (overestimated). This situation occurs when proportionately more contraceptive users who experience a method failure carry their pregnancies to term.

The variation in age-specific efficacy estimates for users of the condom, the pill and the IUD illustrates this selection problem. According to data from the 1983 study, younger users of these methods (sample sizes were not large enough to analyze each method separately) were more likely than older users to choose to carry a pregnancy resulting from contraceptive failure to term; this bias results in higher efficacy estimates among women in younger age-groups. Conversely, since older users were more likely to choose abortion, their efficacy estimates would be lower. Thus, the interaction in the current study between contraceptive efficacy and age can be explained by variation in pregnancy outcome choice by age, rather than by any variation in sexual activity by age.

Another earlier Norwegian study on the outcomes of pregnancies that occurred with the IUD in situ showed that proportionately more pregnancies were terminated than carried to term. This indicates that the contraceptive effectiveness associated with the IUD might be higher than that found in this study. As mentioned earlier, the fact that the pill had been prescribed by the referring physician was confirmed for 75% of the cases who claimed they became pregnant while using the pill. However, it was impossible to validate pill use among women in the control group. In general, women who choose the pill are younger and have fewer children than those who select the IUD. These differences might affect decisions regarding pregnancy outcome and explain the interaction between age and contraceptive efficacy that was found in the current study for the pill.

Pregnancy after a sterilization will always be a method failure, unless the woman was pregnant at the time of sterilization. An examination of the medical records of the three cases who said they had been sterilized uncovered no complications or discrepancies in operation procedures. The efficacy estimate for female sterilization would seem to be valid, since the data conform to the method’s low clinical rate of failure.

Three of the 13 diaphragm users who became pregnant combined use of the diaphragm and the condom, thus limiting the ability to analyze a pure diaphragm effect; the simultaneous use of both methods will overestimate the effect of the diaphragm alone. This analysis found no major difference in efficacy estimates between the condom and the diaphragm.

Natural methods of birth control were excluded because of a tendency among users to use more than one method and because we suspect that if pregnancy occurs, women relying on periodic abstinence or withdrawal are likely to report that they were not using any method at the time of conception. If the latter speculation is true, reliance on natural methods is effectively underreported. This will bias the results away from the null hypothesis, and thus overestimate the contraceptive effectiveness of such methods.

As mentioned earlier, this analysis used data on women who sought an abortion at the University Hospital of Trondheim, where 85% of abortions in the county take place. Data were also examined from women who sought an abortion during a two-month period in 1990 at the other county hospital where the remaining 15% of abortions are performed. There were no differences in patterns of contraceptive use between the abortion patients in the two hospitals over the same two-month period. Therefore, it is unlikely that a skewed selection of cases has biased the efficacy estimates.

Data on the control group were collected during the fall of 1988 through the spring of 1989 from a representative sample of women from all over Norway. Patterns of contraceptive use among women interviewed for this survey who lived in the county did not differ from those among women living elsewhere in Norway. The women who comprised the cases—those who sought an abortion at the University Hospital of Trondheim—are representative by age of all women who sought an abortion in Norway in 1989 and 1990. Thus, data on contraceptive efficacy from the current study may be valid for Norway in general.

As the need for contraception is dependent on sexual activity, the reduction in fecundity associated with specific methods will also be dependent on the frequency of intercourse. Norwegian studies of sexual activity carried out in 1987 and 1988 indicate that married and cohabiting women had intercourse significantly more frequently than did single women. However, the current study found no interaction between marital status and contraceptive efficacy.

Nearly two-thirds of Norway’s female population of reproductive age is sexually active and fecund, and potentially in need of contraception; about 2% of these women have an abortion each year. About 60% of the abortions occur among the approximately 5% of all women who do not practice contraception; the other women having a pregnancy termination come from the 95% of the population of sexually active females at reproductive age who are using a method. Thus, shifting reliance from less effective methods (i.e., natural family planning, condoms and the diaphragm) to more effective methods (the pill and the IUD) will not affect the magnitude of the abortion rate to any significant extent. Switching from nonuse to consistent use of a less effective method such as the condom, or to use of any of the more effective methods, would have a substantial effect on the abortion rate.

The great majority of pregnancies that occur to the 5% of Norwegian women who do not use any method, however, lead to a live birth. As the overall ratio of births to induced abortions has remained at 4:1 for many years, improved contraceptive practice would more likely lead to a marked reduction in births, particularly among married and cohabiting women who are less likely to terminate an unplanned pregnancy than are single women.

References