

## Condom use within marriage: a neglected HIV intervention

**Editor** – We were surprised by the findings of Ali et al. (1) suggesting that a massive shift from the use of oral contraceptive pills to condoms may result in a slight decrease in the total number of pregnancies observed. The primary explanation for this unexpected result appears to be a flaw in their analysis.

In their model, Ali et al. hypothetically assumed that all of the 20 875 observed pill episodes were replaced by condom episodes. Although condoms are less effective than pills for preventing pregnancy, condom episodes tend to be substantially shorter than pill episodes. In addition, the period during which no contraceptive method is used is shorter after discontinuation of condoms than after discontinuation of pills; pregnancies that occurred during these periods were included in the authors' analysis. Consequently, the total number of pregnancies associated with the 20 875 episodes was lower in the hypothetical situation than in the observed data (5072 versus 5130, respectively). Conversely, replacement of the 4786 observed condom episodes with that same number of pill episodes resulted in a minor increase in the number of pregnancies associated with these episodes (from 1106 observed to 1125 in the hypothetical situation). The combined effect was a decrease by 39 pregnancies.

However, it was inappropriate to have replaced the longer pill episodes with shorter condom episodes (and vice versa) in the model without adjusting for the difference in episode duration. If such an adjustment had been included in the model, large-scale switching from more effective to less effective contraceptive methods would undoubtedly have been shown to considerably increase the total number of pregnancies, at least among the contraceptive users.

We agree with the authors that vigorous condom promotion is vital in areas of high HIV/STI prevalence, but we should not discount the adverse effect

that success in this effort might have on unintended births and abortions. ■

**Conflicts of interest:** none declared.

**Elizabeth Raymond<sup>1</sup> & James Trussell<sup>2</sup>**

1. Ali MM, Cleland J, Shah IH. Condom use within marriage: a neglected HIV intervention. *Bulletin of the World Health Organization* 2004;82:180-6.

## Response to Raymond & Trussell

**Editor** – We thank Raymond & Trussell for their interest in our paper (1). Before addressing their concerns, we take this opportunity to further explain the methodology that we used.

The multiple decrement life-table method was used to estimate the proportion of all episodes starting 4–39 months prior to the survey that: 1) were still continuing at the time of the survey; 2) had ended in method- or user-failure; and 3) had been discontinued for method-related reasons or because of no further need.

These calculations were performed on the pill and the condom data separately. Pregnancies resulting from contraceptive failure were counted and classified into four categories: wanted, mistimed, unwanted and terminated. For discontinued episodes, outcomes at 12 months were estimated using multiple decrement life-tables with the following possible outcomes: still at risk, switched to another method, or became pregnant. These pregnancies were further classified into the above-mentioned four categories. Pregnancies that occurred within 12 months of discontinuation were attributed to the last discontinued method, but those that occurred after 12 months were attributed to the non-use of a contraceptive method. This latter distinction is arbitrary but reasonable.

This method was the basis for the results reported in Table 3 of our paper. It is worth noting that a substantial majority of all pregnancies stemmed from the non-use of any contraceptive method. The hypothetical estimates

were obtained by reversing the number of condom and pill episodes. Multiple-decrement life-table procedures were then applied to obtain the hypothetical numbers of pregnancies.

Contrary to Raymond & Trussell's concern, our method did take into account the fact that pill episodes are longer than condom episodes and that pills are a more effective contraceptive than condoms. Table 1 showed that fewer condom than pill episodes were continuing at the time of the survey (57% versus 44%) and that the pill has a lower failure rate (6.3% versus 9.1%). The superiority of the pill in terms of pregnancy prevention entered the calculations. While it is true that the number of pregnancies resulting from contraceptive failure is higher in the hypothetical data than the observed scenario (1978 versus 1769), this is offset by the fact that those who discontinued using condoms switched to another method more promptly than those who discontinued the pill. After adjustment for education level and residence, the number of pregnancies attributable to discontinuation is lower in the hypothetical data than the observed scenario (4219 versus 4469, respectively).

We agree that the results are surprising, even counter-intuitive, but we believe that our methodology was sound and our findings valid. Assessments of the reproductive implications of large shifts in choice of contraceptive method need to take into consideration discontinuation and its consequences as well as failure rates. What was also surprising, and of considerable policy importance, was the finding that even in countries with a high contraceptive prevalence, approximately 70% of unwanted and mistimed births were attributable to non-use. ■

**Conflicts of interest:** none declared.

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1. Ali MM, Cleland J, Shah IH. Condom use within marriage: a neglected HIV intervention. *Bulletin of the World Health Organization* 2004;82:180-6.

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