

ABSTRACT

Background: Rates of caesarean section surgery are rising worldwide, but the determinants of this increase, especially in low-income and middle-income countries, are controversial. In this study, we aimed to analyse the contribution of specific obstetric populations to changes in caesarean section rates, by using the Robson classification in two WHO multicountry surveys of deliveries in health-care facilities. The Robson system classifies all deliveries into one of ten groups on the basis of five parameters: obstetric history, onset of labour, fetal lie, number of neonates, and gestational age. **Methods:** We studied deliveries in 287 facilities in 21 countries that were included in both the WHO Global Survey of Maternal and Perinatal Health (WHOGS; 2004–08) and the WHO Multi-Country Survey of Maternal and Newborn Health (WHOMCS; 2010–11). We used the data from these surveys to establish the average annual percentage change (AAPC) in caesarean section rates per country. Countries were stratified according to Human Development Index (HDI) group (very high/high, medium, or low) and the Robson criteria were applied to both datasets. We report the relative size of each Robson group, the caesarean section rate in each Robson group, and the absolute and relative contributions made by each to the overall caesarean section rate. **Findings:** The caesarean section rate increased overall between the two surveys (from 26·4% in the WHOGS to 31·2% in the WHOMCS, $p=0\cdot003$) and in all countries except Japan. Use of obstetric interventions (induction, prelabour caesarean section, and overall caesarean section) increased over time. Caesarean section rates increased across most Robson groups in all HDI categories. Use of induction and prelabour caesarean section increased in very high/high and low HDI countries, and the caesarean section rate after induction in multiparous women increased significantly across all HDI groups. The proportion of women who had previously had a caesarean section increased in moderate and low HDI countries, as did the caesarean section rate in these women. **Interpretation:** Use of the Robson criteria allows standardised comparisons of data across countries and timepoints and identifies the subpopulations driving changes in caesarean section rates. Women who have previously had a caesarean section are an increasingly important determinant of overall caesarean section rates in countries with a moderate or low HDI. Strategies to reduce the frequency of the procedure should include avoidance of medically unnecessary primary caesarean section. Improved case selection for induction and prelabour caesarean section could also reduce caesarean section rates. **Funding:**