Delivery mode and its determinants in Jordan: A cross-sectional study from two educational hospitals

Aseel Milhem, Nur Zaireena Zainal, Nur Faraheen Abdul Rahman, Nadeeya 'Ayn Umaisara Mohamad Nor

Faculty of Medicine and Health Sciences, Universiti Sains Islam Malaysia, 71800 Bandar Baru Nilai, Negeri Sembilan, Malaysia

ABSTRACT

Introduction: The global rise in caesarean section (CS) rates has sparked concerns regarding potential overuse, particularly in middle-income countries. While CS can be a life-saving intervention when clinically indicated, its unnecessary use poses increased risks to both maternal and neonatal health. In Jordan, the CS rate has reportedly surpassed international recommendations set by the World Health Organization (WHO), yet limited recent evidence exists to quantify this burden and examine its underlying drivers in educational care settings. **Materials and Methods:** This cross-sectional study included 922 postpartum women who delivered at two major educational hospitals in Jordan: Jordan University Hospital (JUH) and King Abdullah University Hospital (KAUH). Data were collected through structured medical record reviews and patient interviews. The primary outcome was mode of delivery, categorized as elective caesarean, emergency caesarean, vaginal, or instrumental delivery. Independent variables included maternal sociodemographic and clinical characteristics such as age, BMI, parity, prior CS, gestational age, hospital of delivery, and fetal presentation. Descriptive statistics were used to report delivery distributions. Binary logistic regression was performed to identify predictors of caesarean section versus non-caesarean delivery (vaginal/instrumental). **Results:** Among all deliveries, 73.2% were performed by caesarean section — of which 52.7% were emergency CS and 20.5% were elective CS. Vaginal births accounted for only 8.7% and instrumental deliveries for 18.1%. Obesity was prevalent in 23.6% of the sample, and 63.9% of women had a history of prior caesarean delivery. Binary logistic regression identified delivery at JUH as a statistically significant predictor of caesarean section (OR = 1.87, 95% CI: 1.39–2.52, $p < 0.001$), while maternal age >35 years, obesity, and previous CS did not reach statistical significance. The higher rate of CS at JUH may be influenced by contextual factors, such as full cost coverage for CS procedures in public hospitals, as well as regional lifestyle differences. Women in Irbid (KAUH) are more likely to engage in physical activity and maintain traditional attitudes favouring vaginal delivery, in contrast to the more urbanized population in Amman. **Conclusion:** The caesarean section rate observed in this study far exceeds WHO recommendations, with a particularly high proportion of emergency procedures. Variations in hospital location, service coverage, and regional behaviours may help explain this trend beyond clinical need alone. These findings underscore the importance of enhancing public health education, strengthening adherence to delivery guidelines, and encouraging vaginal birth after caesarean (VBAC) when appropriate. A comprehensive strategy that integrates antenatal counselling, provider training, and patient-centred care is critical to reducing unnecessary caesareans and improving maternal outcomes in Jordan.

Keywords: Caesarean section, vaginal delivery, Jordan, maternal health