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Original Research

Birth outcomes in a tertiary teaching hospitals and local outposts: a novel approach to service delivery from Iran

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ABSTRACT

Objective: The aim of this study was to compare the outcomes of childbirth care in a tertiary teaching hospital and Safe Delivery Posts (SDPs) to determine the safety of out-of-hospital care by midwives in Zahedan, Iran.

Study design: A quasi-experimental design was applied in this study.

Methods: In this study, 2063 women who gave birth in SDPs, along with 983 women who underwent vaginal delivery in a tertiary teaching hospital, were evaluated in 2011–2012. Retrospective chart review was applied to collect data from the medical records of mothers and neonates. Only low-risk women with a singleton live birth, cephalic presentation, gestational age ≥37 weeks, spontaneous labour, and no prior history of uterine scar were recruited.

Results: Based on the findings, episiotomy, perineal tear, cervical laceration, postpartum haemorrhage and need for blood transfusion (or hysterectomy) were less commonly reported in the SDP group, compared to the hospital group. In the SDP group, 15 (0.73%) women were transferred to the hospital after delivery. Overall, one (0.10%) case from the hospital group and two (0.10%) cases from the SDP group were admitted to the intensive care unit. One-minute Apgar score lower than seven, resuscitation, NICU admission and neonatal death were more commonly reported in the hospital group, compared to the SDP group. Overall, hospital transfer was reported in 12 (0.58%) neonates born in SDPs.

Conclusion: In the present study, women who gave birth in SDPs had more opportunities to experience natural birth with fewer adverse outcomes. However, considering the possibility of life-threatening complications for mothers and newborns, substantial evidence is required to improve the quality of care before implementing such novel strategies in different settings.

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Introduction

Among 130 million births reported each year, nearly 303,000 cases of maternal death occur due to preventable pregnancy and delivery complications, mainly in low-resource regions.[1] Evidence suggests that mortality among parturient women may be due to a wide range of complications, including underlying medical conditions (28%), severe haemorrhage (27%), gestational hypertension (14%), labour dystocia and other complications (9%).[2]

Additionally, 2.7 million cases of neonatal mortality are reported annually,[1] 75% of which occur within one week postpartum.[3,4] More importantly, the underlying causes of maternal and neonatal mortality, such as labour dystocia and haemorrhage, are quite similar.[3,5] In Iran, a decline has been reported in maternal mortality from 44 cases (range: 30–65 cases) per 100,000 live births in 2000 to 23 cases (range: 16–35 cases) per 100,000 live births in 2013.[6]

Through involving skilled birth attendants in the process of care provision and implementing suitable interventions in case of complications, significant progress has been made in reducing maternal and neonatal mortality due to childbirth in Iran.[7–9] Similar to many countries,[10] the Iranian Ministry of Health and Medical Education is against the establishment of out-of-hospital birth centres, considering the negative public opinion about the potential risks for women.

Despite the oppositions and medicalization of childbirth in Iran,[11] birth centres, known as Safe Delivery Posts (SDPs), were first established in Zahedan, Iran in 2002 to provide childbirth care services to women residing in the suburbs of this city.[9] Similar to other countries,[10,12] SDPs were established to prioritize women with no financial support, no access to hospital facilities or reluctance to use hospitals for natural delivery (due to the unacceptable level of care services). If parturient women have no access to SDPs, they may choose home birth by untrained traditional birth attendants.[9]

Implementation of SDPs in Zahedan

The United Nations Population Fund Agency (UNFPA) and the health sector of Sistan and Baluchestan Province established two SDPs in the suburbs of Zahedan, Iran in 2002. The SDPs were initially established to provide maternal care services, mainly to the immigrant Afghan mothers. However, as Afghan refugees started to return to their home country in 2005, UNFPA support was discontinued. Evidence suggests that SDPs are in high demand by rural Iranian women, mainly the underprivileged ones.[9] Therefore, these centres have continued their practice under the supervision of the Iranian Ministry of Health and Medical Education.

SDPs operate 24 h a day, seven days a week. Each of these centres is equipped with one delivery room with two beds, a three-bedded room for postpartum care, one room for the midwives and the staff, and sanitary facilities. In terms of personnel, each SDP has been staffed with six midwives, working 24-h shifts and 48 h off duty, alternatively.

SDPs provide an opportunity for women to give birth with the aid of expert midwives; these centres also coordinate hospital transfer in case of complications. SDPs in the suburbs of the city improve regional accessibility with the lowest out-of-pocket costs. In fact, childbirth costs in SDPs constitute nearly one-tenth of hospital expenses. The lower medical costs in these centres are mainly attributed to differences in staffing (care provision by midwives rather than obstetricians in SDPs) and low number of medical interventions. Also, this model of care is more acceptable to mothers, owing to the continuous care provision, the convenient environment of SDPs, the psycho-emotional aspects of birth care and need for fewer interventions.

In 2012, 12% of parturient women selected SDPs and delivery facilities in the countryside, while 14% of deliveries were still performed at home in Zahedan, Iran.[9] Similar to any free-standing birth centre, women who intend to give birth in SDPs must have no medical or obstetric complications. Consequently, at least five antenatal visits are required to perform routine laboratory tests, physical examinations, and risk screening via ultrasonography.

Low-risk women with uncomplicated pregnancies are admitted to SDPs after completing a form (at nearly 38th gestational week). Additionally, upon admission to SDPs, a second risk assessment is conducted by a midwife in accordance with the protocols, published by the Iranian Ministry of Health and Medical Education. Consequently, women with any antenatal conditions (i.e., history of medical, surgical, or obstetric complications) are referred to hospitals. In case of any adverse perinatal events (e.g., poor labour progress, fetal bradycardia, postpartum haemorrhage and low Apgar score), the mother or newborn is transferred to hospital with no costs.[9] Mothers are discharged from SDPs within 3–6 h following delivery.

There are four emergency obstetric care facilities in Zahedan, including Ali-ibn Abi Talib Hospital, which is a tertiary referral centre. Mothers and newborns are referred to this hospital in case of any unpredicted complications or medical/surgical conditions arising during delivery or the postpartum period. Anaesthesiologists, obstetricians and paediatricians are present in the hospital 24 h a day.

The medical staff of Ali-ibn Abi Talib Hospital is comprised of 37 midwives, working six-hour shifts. In addition, midwifery and medical students, as well as gynaecology residents, provide care to parturient mothers; consequently, a high rate of turnover is reported among staff providing birth care services. This hospital follows a medical model of care, which is characterized by frequent use of interventions, labour augmentation and episiotomy.

In this hospital, once mothers are stabilized, they are transferred to the postpartum unit within two hours following delivery. Mothers and newborns are visited by specialists prior to discharge from hospital within 6–18 h postpartum (on average). Additionally, high-risk newborns (with fetal distress, meconium aspiration and need for resuscitation in the delivery room) are immediately visited by paediatric residents. These neonates are transferred to the special care nursery or may be transferred directly to the neonatal intensive care unit (NICU), based on their condition.

Today, since the main aim of maternal care is to promote physiological childbirth[13] and propose cost-effective strategies,[14] it is crucial to deliver safe patient care in every healthcare setting.[1] Studies have shown that perinatal