

EVIDENCE TRANSFER

Childbirth practices in Jordanian public hospitals: consistency with evidence-based maternity care?

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Abstract

Background In 1996, the World Health Organization stated that 'childbirth is a natural process and in normal birth, there should be a valid reason to interfere with this natural process' and encouraged practices that are evidence-based. The practices encouraged included avoiding unnecessary augmentation of labour, facilitating upright position for birth and restricting the use of routine episiotomy. Many countries have been slow to fully implement evidence-based practice in maternity care. The aim of this study was to examine maternity hospital practices in Jordan and assess their consistency with evidence-based maternity care.

Methods An explorative research design with non-participant observation was used. Data were collected from low-risk women during labour and birth using a questionnaire for maternal characteristics and an observational checklist. A proportional stratified sample was selected to recruit from three major public hospitals in Jordan. Data were analysed using descriptive statistics.

Results A total of 460 women were observed during labour and birth. The majority were multiparous (80%). A range of interventions were observed in women having a normal labour including augmentation (95%), continuous external fetal monitoring (77%), lithotomy position for birth (100%), and more than one third (37%) had an episiotomy with varying degrees of laceration (58%).

Conclusions Childbirth practices were largely not in accordance with the World Health Organization evidence-based practices for normal birth. High levels of interventions were observed, many of which may not have been necessary in this low-risk population. Further work needs to occur to explore the reasons why evidence-based practice is not implemented in these hospitals.

Key words: childbirth, evidence-based practice, Jordan, maternity facility, normal labour.

Introduction

The World Health Organization (WHO)¹ has recognised that 'childbirth is a natural process and in normal birth, there

should be a valid reason to interfere with this natural process' (p. 4). Studies have shown that one unnecessary intervention in the physiological process of childbirth leads to a 'cascade of interventions', which may finally necessitate a Caesarean section.^{1–4} Documents from the WHO and others have encouraged practices that are evidence-based in terms of contributing to improved maternal and neonatal outcomes.³

Evidence-based midwifery and obstetric practice is important to improve the quality of maternity care. In our experience, many countries have not implemented evidence-based practice in maternity care. Encouraging maternity providers to change their practices in line with the evidence is not always a smooth process or easy. In addition, despite

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the importance of childbirth in Jordanian society, the processes of childbirth care have had little previous focus, and information about the type of care provided to women is largely unknown. The aim of this study was to examine childbirth practices in Jordanian hospitals and assess their consistency with evidence-based maternity care. This paper begins with a description of the main issues that prompted this study before the methods and findings are presented.

Background

The reduction of maternal and neonatal deaths is a high priority for the international community, especially in view of the increased attention on the Millennium Development Goals.⁵ In the last 50 years in Jordan, the trends in relation to access to services and the maternal mortality rate have been favourable,⁶ but anecdotally, healthcare professionals often raise concerns that Jordan has overmedicalised maternity care. A rapid increase in the use of technology to start, augment, accelerate, regulate and monitor the process of birth has frequently led to the adoption of inadequate, sometimes unnecessary interventions associated with increased risk. This risk is illustrated in Jordan by the rapid increase in Caesarean-section operations from 11% in 1997 to 16% in 2002 and 28% in 2007.^{7,8}

In Jordan, there are approximately 200 000 births annually,⁷ with 96% of women receiving maternity care in hospital. Three quarters of these births take place in Ministry of Health (MOH) hospitals.⁸ The maternal mortality rate in Jordan is still high compared with rates in developed countries (19 women per 100 000 live births).⁸ The main causes of potentially preventable maternal mortality from highest to lowest are haemorrhage, pulmonary embolism, sepsis, hypertensive disorders of pregnancy, amniotic fluid embolism and anaesthesia.⁶ The majority of maternal deaths occur within 4 weeks after birth but many are related to conditions that present earlier in pregnancy.⁶ Serious acute and chronic maternal morbidity is also high and has been estimated to occur during labour and birth in one in four women.⁸

Hospital-based practices for normal labour and delivery have only recently begun to be examined in the Arab world. Elsewhere, studies have documented selected labour practices by interviewing women or observing practices or both.⁹⁻¹² In Jordan, at the time of the study, three published studies documenting selected birthing practices were identified.¹³⁻¹⁵ The first study by Hatamleh *et al.* reported birth outcomes in a self-selected cohort of 200 primiparous women who gave birth in one major maternity hospital in Northern Jordan.¹³ The study found that 81% of women underwent induction of labour with 13% readmitted to hospital within 4 weeks of birth with urinary tract infection, anaemia, mastitis and wound infection. The second study analysed birth records and found that the rates of a number of labour and birth practices (e.g. the augmentation of labour rate was 46% and the episiotomy rate was 53%) were quite high and differed from WHO guidelines and evidence-based recommendations.¹⁴ The third study, undertaken by Sweidan *et al.*, investigated policies and practices in normal

childbirth by interviewing a representative sample of clinicians from 30 Jordanian hospitals using a semistructured questionnaire.¹⁵ This study found that some unnecessary procedures, including pubic shaving and enemas, were frequently practised. Women were also restricted in their movement during labour. The lithotomy position was usually adopted for birth. Support in labour from female family members or expectant fathers were not allowed during labour or birth.¹⁵ Most of these practices are not evidence-based and not in line with WHO recommendations.^{1,3,4}

While these studies have documented selected hospital maternity practices in women presumably having normal labour,¹³⁻¹⁵ these have been based on record audits and retrospective interviews. Our study was different as direct observations of women in labour were undertaken, which reduces the biases inherent in interviews and retrospective record audits.¹⁶ No study has been undertaken to obtain a baseline of childbirth practices in Jordanian maternity services. The specific aims of this study were to:

- 1 Explore childbirth practices at Jordanian public hospitals and their consistency with WHO guidelines and evidence-based recommendations.
- 2 Obtain a prevalence estimate of the frequency of six practices that are undertaken during labour: augmentation of labour, electronic fetal monitoring (EFM), support in labour, episiotomy, position for birth and oral fluids during labour.

Methods

Research design

An explorative research design with non-participant observation was used in this study.¹⁶ This method is appropriate when people are unaware of their own behaviour or embarrassed to report their activities. Observation is intrinsically appealing in its ability to capture directly a record of events.¹⁶ The study was approved by the MOH in Jordan and the academic research committee at Al al-Bayt University where the first author worked.

Three MOH hospitals in Jordan were selected: Al-Basheer Hospital (central), Princess Badea Hospital (north) and Al Karak Hospital (south). These were selected as they serve the larger number of pregnant women in Jordan by providing birthing services for around 27 500 women per year. This represents about 13.5% of births in Jordan.⁷ These hospitals are also teaching hospitals and have a leading role in shaping midwifery and obstetric practices in the country. All public hospitals in Jordan follow guidelines from the MOH although this is dependent on the doctors themselves. In hospital settings, such as these three, doctors make the decisions in relation to the use of obstetric interventions. Midwives assist during labour and birth, but the doctors always make the obstetric decisions.

Sample

A stratified sample¹⁶ proportional to the number of pregnant women in Jordan was used to determine the sample size. It was calculated that at least 400 women were required: alpha

level of 0.05, effect size = 0.5 (medium) and power of 80%.¹⁷ Given that it was recognised that some women may not eventually have a normal labour and birth, the researchers decided to recruit 500 women to ensure that the target sample size would be reached. The target sample size was also considered in relation to the population distribution from the three hospitals. Women were included if they met the definition of a low-risk normal labour according to the WHO,¹ that is, (i) gestation 37–42 weeks; (ii) singleton pregnancy; (iii) vertex presentation; and (iv) spontaneous onset and active labour with 3–6 cm cervical dilatation. Women were recruited between December 2009 and February 2010. Women were excluded if they had medical or obstetric complications before or during labour, or if they had past adverse obstetric histories.

Proportional samples of women from each facility were predetermined according to the workload (i.e. the number of births in that hospital). In total, 460 women were originally recruited: 300 from Al-Basheer Hospital, 100 from Princess Badea Hospital and 60 from Al Karak Hospital. The distribution of the sample generally reflects the distribution of the population at large with around two-thirds of the women in the study from the central district (65% from Al-Basheer Hospital), one-fifth from the northern district (22% from Princess Badea Hospital) and the remainder from the south (13% from Al-Karak Hospital).

Data collection procedures

Data were collected using non-participant observation using a structured questionnaire.¹⁶ The observations were conducted by six midwives who were external to the hospital. The observer midwives were introduced to hospital staff at the beginning of the study. Training sessions for 3 weeks were conducted to enable these observer midwives to use the questionnaire and to ensure consistency and accuracy of the data.

Women were invited to participate on their arrival to the labour room. Midwives provided women both written and oral information about the study. Informed consent was obtained from each participant by means of a signed form. Participants were assured that they had the right to withdraw from the study at any phase and that it would not affect the care they received. The observer midwife only attended one woman at a time. After obtaining informed consent, labours and births of 500 women were directly observed for their entire childbirth unless complications occurred. The observations of 40 labouring women were discontinued because of intrauterine fetal death (3 women), hypertension (7 women), or because the women were not in active labour (30 women), which meant they were not experiencing normal labour and were not low risk. This left 460 women's labour and births available for analysis.

Two questionnaires were used for the data collection. Obstetric data were collected using an instrument developed by the research team primarily in the English language. The observational checklist was developed over several months and was based on available literature and international guidelines and studies.^{1,3} One ob-gyn doctor and

Table 1 Items on the observational checklist

Element	Element
Reason for admission	Birth canal lacerations and episiotomy
Nutrition/fluid intake in labour	Perineal management
Fetal heart monitoring method	Maternal position for birth
Augmentation of labour	Length of labour
Methods of augmentation	Problems at birth
Indication for augmentation	Who conducts the birth
Mobility in labour	Other attendant for birth
Non-pharmacological methods of pain relief	Companion permitted to attend labour
Pharmacological methods of pain relief	Mode of birth
Problems during labour	Immediate post-birth data (first 24 h)
Rupture of membranes	Baby given to mother within half an hour of birth
Partogram use	Newborn procedures
Vaginal examination less than once every 4 h	Rooming in allowed
Routinely moving labouring woman to a different room at onset of second stage	Mothers helped to initiate breast-feeding
Giving women as much information as they desire	Newborn complications
Respecting the right of privacy in the birthplace	Maternal problems in the first 24 h after birth

three Jordanian midwives and one international childbirth health experts were consulted extensively for input. The checklist included 53 items: 21 items about maternal history and maternal characteristics and the rest (32 items) about the obstetric data (see Table 1). A translation of the observational checklist was not required as the all six observer midwives all spoke and read English. Pilot testing of the instrument was carried out to check for understanding and clarity of the items and revised accordingly. Random checks were made by the first and second authors at the three sites to ensure the quality and accuracy of the data recording. In total, six visits to the sites were undertaken to make random checks during the data collection period. In addition, information was collected on maternal characteristics including age, parity, level of education and employment status.

Statistical analyses

All data were analysed using the SPSS version 11.0 (SPSS Inc., Chicago, IL, USA). Data were subjected to descriptive analysis including frequency, mean, median and standard deviation. Mean and standard deviation were used for continuous variables such as age, duration of first and second stage of labour and Apgar scores. The rest of the variables are on ordinal scale therefore frequency was used.

Results

Demographics and obstetric profile

The majority of women (99.5%) were married (see Table 2) and were aged between 17 and 45 years with mean of

Table 2 Demographic characteristics of women in the study

Variable	<i>n</i> (<i>N</i> = 460)	%
Marital status		
Married	458	99.5
Divorced	2	0.5
Paid employment		
Yes	46	10.0
No	414	90.0
Education level		
Illiterate	11	2.0
School education	348	76.0
Graduate education	101	22.0
Gravida		
Multiparous	370	80.0
Primiparous	90	20.0
Antenatal care		
Yes	431	94.0
No	29	6.0
Problems during pregnancy		
Urinary tract infection	132	29.0
Anaemia	56	12.0

27 years (*SD* = 6). The majority (76%) had school education of at least 12 years, one-fifth (22%) had obtained graduate education and only 11 women (2%) had little or no education. The majority of women in the study identified themselves as housewives (90%), with only 10% working in paid employment outside the home. The majority of women were multiparous (80%). Most women (94%) had antenatal care (see Table 2). The major problems that women experienced during their pregnancy were urinary tract infection (29%) and anaemia (12%).

For the next section regarding the labour, birth and neonatal outcomes, most of the results show high rates for many practices such as augmentation of labour (95%), continuous EFM (77%), frequent vaginal examination (89%), lithotomy position for birth (100%), women moving to a different room for second stage (100%), women kept fasting (96%) and women not allowed to move around (93%). More specific results for each group of outcomes will be presented.

Labour and birth outcomes

The majority of women were admitted because of labour contractions (78%) followed by contractions and rupture of membranes (17%) (see Table 3). None of them had rupture of membranes without contractions. Despite the high percentage of women whose labour was augmented, 42% of them were augmented using oxytocin while Buscopan was used for 43% of them only, one-fifth (22%) of the women were monitored using intermittent fetoscope or a Doppler. Although 43% of the women were given a narcotic analgesia (pethidine), the non-pharmacological methods of pain relief were not commonly used. The methods that were used included breathing exercises by verbal command (31%), distraction methods (7%), position change (3%), back massage (2%) and therapeutic touch (1%); other methods involving local application of heat or cold, hydrotherapy or

Table 3 Numbers and proportions of practices observed during labour

Labour practice	<i>n</i> (<i>N</i> = 460)	%
Reason for admission		
Labour contractions	359	78
Contractions and rupture of membranes	78	17
Augmentation of labour	439	95
Using oxytocin	192	42
Using Buscopan	198	43
Fetal monitoring		
Continuous electronic fetal monitoring	356	77
Intermittent with fetoscope or Doppler	101	22
Narcotic use	200	43
Frequent vaginal examination	410	89
Women are not allowed to move around	430	94

music therapy were not used at all. A few women developed complications during labour. Twenty-four women (5%) had meconium-stained amniotic liquid, two women had fetal malpresentations, two women had prolonged dysfunctional labour and one woman had prolonged rupture of membranes. The majority of women (89%) had frequent vaginal examinations, which were defined as being carried out less than once every 4 h.¹⁸ Another interesting result for the labour outcomes was that 70% were not given information as they desired (see Table 3).

Regarding the duration of the three stages of labour, the means for the first, second and third stages were respectively 5 h (*SD* = 177.2), 14 min (*SD* = 17.5) and 10 min (*SD* = 6.1). Most of the women (67%) did not have privacy during their labour and birth (see Table 4). Only 1% of the women were able to have a support person or companion during labour and birth. Almost half of the births were conducted by the doctor and the midwife (49%), followed by the midwife alone (43%) and the doctor alone (8%). The major method of perineal management was accoucheur support and counter pressure on the baby's head (*n* = 433, 94%). Although the majority of the women had a vaginal birth (447/460, 97%), six of them had vacuum extraction (1%) and nine others (2%) had a Caesarean section.

The overwhelming majority of women who had a vaginal birth experienced perineal trauma (265/460, 58%) (see Table 4). Just over one-third (*n* = 168, 37%) of the women had an episiotomy while the other 21% (*n* = 97) had perineal lacerations: first degree (*n* = 55, 12%), second degree (*n* = 38, 8%) and third degree (*n* = 4, .9%). The majority of the 90 primiparous women had an episiotomy performed with different degrees of laceration (96%). Complications were uncommon. Ten women had experienced fetal distress, six women had a retained placenta and haemorrhaged, six women experienced exhaustion and two women had shoulder dystocia.

Post-partum outcomes

Most women had no complications in the first 24 h after labour (96%), but 17 (2%) women had complications such

Table 4 Numbers and proportions of practices observed during labour

Birthing practice	<i>n</i> (<i>N</i> = 460)	%
Partogram use	436	95
Move to different room at the beginning of second stage	460	100
Women kept fasting with intravenous fluids	443	96
Lithotomy position for birth	460	100
Perineal management:		
Accoucheur support and counter pressure	433	94
Perineal trauma	265	58
Episiotomy only	168	37
Episiotomy with different type of perineal tear	97	21
Type of birth		
Vaginal	447	97
Vaginal birth with extraction	6	1
Caesarean section	9	2
Women are not allowed to have a companion or support person during labour and birth	455	99
Women did not have privacy during their labour and birth	309	67

Table 5 Numbers and proportions of women's post-partum experience

Women's experience	<i>n</i> (<i>N</i> = 460)	%
Women had been given their babies within half an hour of birth	396	86
Rooming in with the baby allowed	440	96
Women were not helped in the initiation of breast-feeding	427	93

as haemorrhage and haematoma. The majority of women held their babies within half an hour of the birth (86%) and were able to 'room in' (96%). Few women (7%) were helped to initiate breast-feeding (see Table 5).

Neonatal outcomes

Deep suctioning, which is defined as the removal of airway secretions by inserting a suction catheter into the baby's oral airway and trachea,¹⁹ was applied to two-thirds of the babies (69%). Light suctioning occurred for one-fifth (17%) of the babies. Suctioning of babies at birth was part of routine procedures. A few babies required more intensive resuscitation: five babies required bag and mask ventilation, one of them needed an endotracheal tube for ventilation and two others needed full cardiopulmonary resuscitation. Only 7% of the babies were admitted to neonatal intensive care unit: low birthweight (*n* = 4), meconium aspiration (*n* = 88), congenital anomalies (*n* = 1), fetal distress (*n* = 10) and for resuscitation (*n* = 8 babies) (see Table 6).

Table 6 Numbers and proportions of babies needing interventions soon after birth

Intervention	<i>n</i> (<i>N</i> = 460)	%
Suction		
Deep suctioning	319	69.0
Light suctioning	102	22.0
Bag and mask ventilation	5	1.0
Endotracheal suctioning	1	0.2
Full cardiopulmonary resuscitation	2	0.4
Admission to neonatal intensive care unit	31	7.0

Discussion

The main aims of this study were to provide baseline data on maternity hospital practices and their consistency with evidence-based maternity care, and to obtain a prevalence estimate of the frequency of practices that performed during childbirth. This paper presents the findings from the labour and delivery practices in maternity wards of hospitals in Jordan. The study showed that many common childbirth practices routinely followed are not evidence-based. Beneficial practices are often neglected and harmful or practices of unproven benefits are widespread. Our observations lead us to believe that the problems identified at the study hospitals are widespread.

Despite these findings, there were many limitations that affected the study but not the accuracy of the results. The first one involves difficulty in accurately measuring the duration of the first stage: observations started only after admission of labouring women and not from the onset of labour. Also, the study was carried out in only 3 of the 23 public hospitals with more than 200 000 births annually. The selection of the hospital was not random, but rather was based on annual volume of births and location. Thus, these findings cannot automatically be generalised to other maternity hospitals in Jordan.

In order to address the research aims, the following discussion will explore the most relevant findings in the light of the research evidence, in particular, the high rates of augmentation of labour, fetal monitoring, episiotomy, support in labour, position for birth and oral fluids during labour.

Augmentation of labour

The majority of women had their labour augmented as part of routine management. The rate of augmentation in this study at 95% was considerably higher than the 46% reported in a previous Jordanian study.¹⁴ The high rate of augmentation is contrary to the best available evidence and the WHO recommendation that augmentation of labour should be reserved for specific indications.²⁰ In addition, intravenous Buscopan was used as a means to augment labour in almost half of the women. No evidence supporting Buscopan as an evidence-based strategy for labour dystocia could be found.

Methods for EFM

Our sample included low-risk women in normal labour. Interestingly, more than three quarters of this group of

women had continuous EFM. The rate of EFM in this study at 77% was considerably higher than the 66% reported in a previous Jordanian study.¹³ That study found that in the induced group, 152 women out of 161 had been monitored by EFM, out of which 20 underwent emergency Caesarean section due to fetal distress, and four women required instrumental support. The available evidence concluded that continuous EFM can be associated with increased risk of operative delivery and Caesarean section for fetal distress²¹ and is not recommended for low-risk women in normal labour. EFM also limits a woman's freedom of movement when used continuously and may interfere with her perception of comfort. Thus, for this practice, during childbirth, EFM should only be used in the presence of medical indications.

Routine episiotomy and perineal tears

More than half of the women in this study had perineal and external genitalia trauma with 37% having an episiotomy. The routine use of episiotomy was current practice for most of the 20th century, which has been shown to be harmful and unnecessary.^{3,22,23} The high proportion of women in this study who had different types of perineal trauma leads one to conclude that care providers do not have the skills or confidence to manage the perineum without performing an episiotomy, or are not aware of evidence-based practices. Thus, there is an urgent need to change practice from routine episiotomy to selective episiotomy, and to train healthcare providers on perineal support and on how to manage births, especially first births, without episiotomy.

Social support during childbirth

Companionship or social support during labour has been shown to be one of the most beneficial practices in maternity care.²⁴ None of the public hospitals allowed the presence of a birth companion including the husband during labour and birth. The main barriers to this practice appear to be that the labour wards are too small to accommodate them, and the family members have less basic knowledge about childbirth that may result in conflicts with providers and lead to the providers preventing them from attending. In one Jordanian study, women who had received support during labour were significantly less likely than those in the control group to have pharmacological pain relief, and were significantly more likely than those in the control group to report a good birth experience.²⁵ Thus, during childbirth, support should be encouraged in Jordanian hospitals.

Position for birth

Women in our study were not able to assume any position, in or out of bed, during the course of labour. All women were moved to a different room at the onset of second stage as a routine policy. The common position for giving birth was the lithotomy one with stirrups. These findings are in keeping with those of one study¹⁵ in which women were restricted in their movement during labour, and the lithotomy position was usually adopted for birth. This is contrary to the WHO recommendation that: 'In normal labour there

is no need to move the woman to a different room at the onset of the second stage, labour and delivery can very well be attended to in the same room' (p. 1173).²⁶ Women should not be restricted to bed, and certainly not in the supine position, but they should have the freedom to adopt upright postures such as sitting, standing or walking. They should be encouraged to experiment with what feels most comfortable and should be supported in their choices. Thus, birth attendants need training in coaching and assisting with births in positions other than the supine one.^{1,26}

Oral fluids during labour

During labour, the majority of women were receiving only intravenous fluids. The risk of aspiration is associated with the risk of general anaesthesia and this is usually the reason given for fasting in labour.³ The women in our study are low-risk women in spontaneous labour. Thus they have only a very small risk of requiring an emergency general anaesthesia. A previous Jordanian study has compared intrapartum nourished and non-nourished low-risk groups of women whose labours were managed by midwives in a public hospital.²⁷ For the average women in labour, food and fluid can safely be given to them. The study shows that the major benefits of this approach are that the second stage of labour is shorter and that the mother becomes more comfortable.²⁷ In the light of that study, policy review of maternal nutrition during labour in Jordanian public hospitals should be put in mind.

Implications for practice, education and research

This study found that clinical performance in maternity care in Jordan differs from evidence-based practice and WHO recommendations. There is a responsibility to use those data to bring about improvements in practice to ensure that all women and babies receive safe, high-quality care in Jordan as in other countries around the world. Organisational support is necessary to provide health professionals with time and resources to access research data that can lead to improvement. Furthermore, integration of evidence and local data in midwifery and obstetric training schools needs for improvement.

Conclusions

The findings of this study indicate that non-evidence-based interventions are widely used to support, monitor and manage birth in Jordan. In many cases, it is suggested that these interventions are unnecessary. These findings provide evidence of their 'inappropriate' or 'routine' use, contrary to the best available evidence. Childbirth practices for women in labour in our study were largely not in accordance with the WHO evidence-based practices for normal birth. High levels of obstetric interventions were observed many of which may not have been necessary. Further work needs to occur to explore the reasons why evidence-based practice is not implemented in these hospitals. Our study does provide

new data that are sufficient to support a recommendation for the development of a national policy for the promotion of normality and the appropriate use of technology

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