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Original Article

A proposed mother-friendly childbirth model for Taiwanese women and obstetricians' attitudes toward it

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ABSTRACT

Objective: Pleasant and humane childbirth is every mother's wish. The objective of this study was to propose a practicable mother-friendly childbirth model tailored to Taiwanese women in order to improve the quality of perinatal care and maternal satisfaction.
Material and methods: In this study, the guidelines of several countries were systematically reviewed, and a standard set of clinical guidelines were established by a focus group. In addition, a total of 172 Taiwanese obstetricians were visited, and a cross-sectional study of these obstetricians' attitudes toward the practicality and effectiveness of the model was performed using questionnaires.
Results: A total of 10 suggestions were developed for this woman-friendly childbirth model, including: (1) intermittent fetal monitoring for low-risk pregnancy, (2) no routine enema, (3) no routine perineal shaving, (4) no routine restricted oral intake, (5) no routine parenteral fluid support, (6) no routine elective amniotomy, (7) nonpharmacological pain management, (8) upright position during childbirth, (9) delayed pushing, and (10) restrictive episiotomy. Taiwanese obstetricians approved of no routine oral intake restriction and providing nonmedical pain relief. The majority of obstetricians disagreed that perineal shaving and routine elective amniotomy were necessary, and agreed to modify their practice according to the suggestions. Suggestions were still being debated, such as no routine parenteral fluid support, using an upright position for childbirth, and delayed pushing. Intermittent fetal monitoring for low-risk pregnancy, no routine enema, and restrictive episiotomy were questioned by many Taiwanese obstetricians.
Conclusion: Several suggestions were made in this model. However, there was still no consensus of Taiwanese obstetricians. More evidence for the advantages and disadvantages of the various suggestions was needed to convince Taiwanese obstetrician to modify their routine practice.

Introduction

Childbirth is one of the most important events in a mother's life. A pleasant and humane childbirth experience is not only every mother's wish but also every obstetrician's goal. Evidence-based clinical practice obstetric care is valued by countries around the world. The Lamaze International organization previously proposed the Lamaze healthy birth practices, which included the following six practices: (1) let labor begin on its own; (2) walk, move around, and change positions throughout labor; (3) bring a loved one, friend, or doula for continuous support; (4) avoid interventions that are not medically necessary; (5) avoid giving birth while lying supine and follow the body's urges to push; and (6) keep mother and baby together—it's best for the mother, the baby, and breastfeeding [1]. Furthermore, a collaborative model including multidiscipline and interactive members has been found to improve health care outcomes, be cost-effective, and increase patient satisfaction [2].

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According to the "Knowledge, Attitude, and Practice of Contraception" study conducted by the Taiwan Health Promotion Administration, more than 99% of women give birth in clinics or hospitals, with 62% of women undergoing perineal shaving and 41% of women receiving an enema. In addition, more than half of the women surveyed stated that they were not well informed regarding their decisions when in labor [3,4]. The World Health Organization (WHO) has heavily emphasized the overriding philosophy of providing respect, support, and care for pregnant and birthing women [5]. However, this form of ideal care is far from fully established and has taken many efforts to achieve in Taiwan.

Materials and methods

In order to improve obstetric services and increase maternal satisfaction in Taiwan, one focus group was set up and several different guidelines were systematically reviewed to establish a single mother-friendly childbirth model tailored to Taiwanese women. The focus group was composed of 13 experts, including six obstetricians, five head nurses, one social worker, and one women's rights representative.

References were searched for using the following keywords: delivery, shaving, fetal monitor, enema, episiotomy, nil per os (NPO), parenteral fluid, fetal heart rate tracing, painless, delayed push, amniotomy, upright position, birth, natural child birth, relief labor pain, supine push, antenatal care, and midwife. The keyword searches were conducted within several medical search databases and within various guidelines and other resources including: (1) The Cochrane Library, (2) The Database of Abstracts of Reviews of Effects, (3) the "WHO: Care in normal birth" guide, (4) A Guide to Effective Care in Pregnancy and Childbirth, (5) The US Department of Health & Human Services Agency for Health Care Research and Quality National Guideline Clearing House, (6) Clinical evidence, (7) The Trip database, (8) Bandolier, (9) The Canadian Medical Association Infobase, (10) e-Guidelines, (11) The Guideline Advisory Committee, (12) The Guidelines International Network, (13) The Medical Information Network Distribution Service, (14) The National Guideline Clearinghouse, (15) The National Institute for Health and Care Excellence, (16) The New Zealand Guidelines Group, (17) The Scottish Intercollegiate Guidelines Network, and (18) The Taiwan National Health Insurance Administration.

Next, after establishing a mother-friendly childbirth model, a total of 172 Taiwanese obstetricians at 12 hospitals in different regions were visited and their attitudes toward this model were surveyed. Background data included obstetrician parameters and their service hospital parameters. Obstetrician parameters included age, education, years of service, and self-reported episiotomy rate for primiparous women. Hospital parameters included hospital level, month birth numbers, cesarean section rate, painless childbirth rate, and labor-delivery-recovery (LDR) room numbers. After clearly and fully explaining the proposed mother-friendly childbirth model to each obstetrician, his or her current practice status and attitude toward the model was investigated via questionnaire.

We asked the obstetrician the following questions about every suggestion: (1) "Do you think that your previous practices such as administering a routine enema are necessary for labor?"; (2) "What is your current practice status, do you maintain continuous fetal monitoring for every woman in labor?"; and (3) "Would you modify your practices based on our explanations and suggestions?".

In addition to the aforementioned questions, because the suggestion of discontinuing routine episiotomy was met with a variety of different obstetrician opinions, an expansion questionnaire for episiotomy was made.

Results

After reviewing the aforementioned literature according to the level of evidence, a single mother-friendly childbirth model was established consisting of 10 suggestions based on their consistency, relevance, and application. The 10 suggestions were as follows: (1) intermittent fetal monitoring for low-risk pregnancy, (2) no routine enema, (3) no routine perineal shaving, (4) no routine restricted oral intake, (5) no routine parenteral fluid support, (6) no routine elective amniotomy, (7) providing non-pharmacological pain management, (8) upright position during childbirth, (9) delayed pushing, and (10) restrictive episiotomy.

Table 1
Obstetrician and hospital background data.

Parameters	*N*	%
Obstetrician parameters		
Age (y)		
≤ 30	37	21.5
31–40	50	29.1
> 41	46	26.7
Invalid	39	22.7
Education		
Bachelor's degree	136	79.1
Master's degree	21	12.2
Doctor's degree	14	8.1
Invalid	1	0.6
Years of service		
≤ 6	57	33.1
7–10	27	15.7
11–20	40	23.3
≥ 21	48	27.9
Invalid	0	0
Self-reported episiotomy rate for primiparous woman (%)		
0–9	7	4.1
10–19	3	1.7
20–29	2	1.2
30–39	4	2.3
40–49	2	1.2
50–59	1	0.6
60–69	0	0.0
70–79	7	4.1
80–89	15	8.7
90–99	54	31.4
100 (routine episiotomy)	72	41.9
Invalid	5	2.9
Hospital parameters		
Hospital level		
Medical center	108	62.8
Regional hospital	37	21.5
Local hospital	7	4.1
Local clinical	18	10.5
Invalid	2	12
Month birth numbers		
≤ 100	60	34.9
101–200	43	25.0
201–300	24	14.0
≥ 3 01	40	23.3
Invalid	5	2.9
Cesarean section rate (%)		
≤ 30	93	54.1
31–40	64	37.2
≥ 40	7	4.1
Invalid	8	4.7
Painless childbirth rate (%)		
≤ 30	94	54.7
31–60	50	29.1
≥ 60	18	10.5
Invalid	10	5.8
Labor-delivery-recovery room numbers		
0	85	49.4
1–5	70	40.7
≥ 5	12	7.0
Invalid	5	2.9

Table 2
Obstetrician's current practice status and attitudes toward the mother-friendly childbirth model: continuous monitoring, routine enema, and perineal shaving.

Parameters	Continuous monitoring		Routine enema		Perineal shaving	
Do you think it is necessary?	Disagree	30 (17.4)	Disagree	64 (37.2)	Disagree	85 (49.4)
	No comment	29 (16.9)	No comment	47 (27.3)	No comment	37 (21.5)
	Agree	113 (65.7)	Agree	61 (35.5)	Agree	50 (29.1)
Do you routinely perform it?	Disagree	26 (15.1)	Disagree	49 (28.5)	Disagree	54 (31.4)
	No comment	17 (9.9)	No comment	28 (16.3)	No comment	28 (16.3)
	Agree	129 (75.0)	Agree	95 (55.2)	Agree	90 (52.3)
Would you modify your practice according to the suggestion?	Disagree	72 (41.9)	Disagree	57 (33.1)	Disagree	51 (29.7)
	No comment	33 (19.2)	No comment	51 (29.7)	No comment	48 (27.9)
	Agree	67 (39.0)	Agree	64 (37.2)	Agree	73 (42.4)

Data are presented as *n* (%).

Table 3
Obstetrician's current practice status and attitudes toward the mother-friendly childbirth model: restricting oral intake, routine parenteral fluid support, routine amniotomy.

Parameters	Restricting oral intake		Routine parenteral fluid support		Routine amniotomy	
Do you think it is necessary?	Disagree	138 (80.2)	Disagree	73 (42.4)	Disagree	96 (55.8)
	No comment	23 (13.4)	No comment	38 (22.1)	No comment	46 (26.7)
	Agree	11 (6.4)	Agree	61 (35.5)	Agree	30 (17.4)
Do you routinely perform it?	Disagree	149 (86.6)	Disagree	60 (34.9)	Disagree	103 (59.9)
	No comment	11 (6.4)	No comment	34 (19.8)	No comment	44 (25.6)
	Agree	12 (7.0)	Agree	78 (45.3)	Agree	25 (14.5)
Would you modify your practice according to the suggestion?	Disagree	37 (21.5)	Disagree	63 (36.6)	Disagree	45 (26.2)
	No comment	16 (9.3)	No comment	68 (39.5)	No comment	45 (26.2)
	Agree	119 (69.2)	Agree	41 (23.8)	Agree	82 (47.7)

Data are presented as *n* (%).

A total of 172 Taiwanese obstetricians at 12 hospitals were visited, and their background data are summarized in Table 1. Their answers were collected and are summarized in Tables 2–4. The results for the expansion questionnaire for episiotomy are summarized in Table 5.

The background data on these obstetricians and their service hospitals were collected as follows: as for the obstetricians' age, 21.5% were younger than 30 years; 29.1% were between the ages of 31 years and 40 years; 26.7% were older than 41 years; and 22.7% refused to offer information on their age. As for the obstetricians' education, 79.1% had a bachelor's degree; 12.2% had a master's degree; and 8.1% had a doctor of philosophy degree. As for obstetric service years, 33.1% had fewer than 6 years of service; 15.7% had between 7 years and 10 years; 23.3% had between 11 years and 20 years; and 27.9% had more than 21 years. As for their self-reported episiotomy rate in primiparous women, the mean self-reported episiotomy rate was 85.2 ± 4; 4.1% had a rate of < 10%, 10.5% has a rate of < 50%, 73.3% had a rate of > 90%, and 41.9% performed episiotomy to primiparous women routinely. As for hospital level, 62.8% served at a hospital center; 21.5% served at a regional hospital; 4.1% served at a local hospital; and 10.5% served at a local clinic. As for their month birth numbers, 34.9% had < 100 births per month; 25% had 101–200 births per month; 14% had 201–300 births per month; and 23.3% had > 301 births per month.

The results of the obstetricians' attitudes toward the model's suggestion were also collected. As for the suggestion of using intermittent fetal monitoring instead of continuous monitoring in a low-risk pregnancy, 65.7% of the obstetricians thought continuous monitoring was necessary; 75% maintained routine continuous monitoring; and 39% agreed to modify their practice according to our suggestion whereas 41.9% disagreed with doing so. As for administering a routine enema, 35.5% of the obstetricians thought a routine enema was necessary; 55.2% routinely prescribed an enema; and 33.1% agreed to modify their practice according to our suggestion whereas 37.2% disagreed with doing so. As for perineal shaving, 49.4% of the obstetricians disagreed with the notion that perineal shaving is necessary; 52.3% routinely prescribed shaving; and 42.4% agreed to modify their practice according to our suggestion. As for restricting oral intake, 80.2% disagreed with the notion that restricting oral intake is necessary; only 7% routinely

Table 4
Obstetrician's current practice status and attitudes toward the mother-friendly childbirth model: providing nonpharmacological pain management, upright position, and delayed pushing.

Parameters	Providing nonpharmacological pain management		Upright position		Delayed pushing	
Do you think it is necessary?	Disagree	17 (9.9)	Disagree	58 (33.7)	Disagree	35 (20.3)
	No comment	40 (23.3)	No comment	63 (36.6)	No comment	57 (33.1)
	Agree	115 (66.9)	Agree	51 (29.7)	Agree	80 (46.5)
Do you routinely perform it?	Disagree	45 (26.2)	Disagree	111 (64.5)	Disagree	70 (40.7)
	No comment	52 (30.2)	No comment	44 (25.6)	No comment	47 (27.3)
	Agree	75 (43.6)	Agree	17 (9.9)	Agree	55 (32.0)
Would you modify your practice according to the suggestion?	Disagree	20 (11.6)	Disagree	66 (38.4)	Disagree	34 (19.8)
	No comment	29 (16.9)	No comment	70 (40.7)	No comment	51 (29.7)
	Agree	123 (71.5)	Agree	36 (20.9)	Agree	87 (50.6)

Data are presented as *n* (%).

Table 5
Obstetrician's current practice status and attitudes toward episiotomy.

Parameters	*n*	%	Parameters	*n*	%	Parameters	*n*	%
Do you routinely perform episiotomy?			Do you agree that episiotomy wound was smoother?			Do you agree that routine episiotomy may cause more 3rd or 4th degree lacerations?		
Disagree	22	12.8	Disagree	3	1.7	Disagree	95	55.2
No comment	34	19.8	No comment	24	14.0	No comment	39	22.7
Agree	116	67.%	Agree	145	84.3	Agree	38	22.1
Do you agree that more anterior vaginal wall lacerations would occur if no episiotomy was performed?			Do you agree that more stress urinary incontinence would occur if no episiotomy was performed?			Do you agree with our suggestion that episiotomy should be performed only if indicated?		
Disagree	26	15.1	Disagree	90	52.3	Disagree	75	43.6
No comment	36	20.9	No comment	51	29.7	No comment	0	0
Agree	110	64.0	Agree	31	18.0	Agree	97	56.4

restricted a woman's intake. As for routine parenteral fluid support, 35.5% thought intravenous fluid was necessary, and 45.3% routinely prescribed parenteral fluid support.

As for routine amniotomy, 55.8% of the obstetricians disagreed with the notion that an amniotomy was necessary, and only 14.5% routinely performed amniotomy. As for nonpharmacological pain management, 66.9% of the obstetricians thought it was necessary; 43.6% routinely provided nonpharmacological pain management; and 71.5% agreed with our suggestion. As for pushing in an upright position instead of a supine position, 33.7% of the obstetricians thought it was necessary whereas 29.7% disagreed. Only 9.9% of the obstetricians routinely let a woman push in an upright position, whereas 64.5% obstetricians did not. In addition, 20.9% of the obstetricians agreed to modify their practice according to our suggestion, whereas 38.4% did not. As for delayed pushing, 46.5% of the obstetricians thought it was necessary, 32% of the obstetricians routinely let women push until their urge to do so was satisfied, whereas 40.7% did not. Also, 50.6% of the obstetricians agreed to modify their practice according to our suggestion.

As for restrictive episiotomy, 67.4% of the obstetricians routinely performed episiotomy and 84.3% of the obstetricians thought the laceration wound would be smoother if episiotomy was performed. There were 22.1% of the obstetricians who agreed that routine episiotomy may cause more third- or fourth-degree lacerations, whereas 55.2% disagreed. In addition, 64.0% of the obstetricians agreed that more anterior vaginal wall lacerations would occur if no episiotomy was performed. There were 18% of the obstetricians who agreed that more stress urinary incontinence would occur if no episiotomy was performed, whereas 52.3% disagreed. As for our suggestion, 56.4% of the obstetricians agreed that episiotomy should only be performed if indicated, whereas 43.6% disagreed.

Discussion

A total of 10 suggestions were included in this mother-friendly childbirth model by a focus group, and a total of 172 Taiwanese obstetricians were surveyed regarding their current practices and attitudes toward each suggestion. These 172 obstetricians were randomly selected from different hospital levels, and had different years of service. Every suggestion was reached based on previous international guidelines.

As for intermittent fetal monitoring, the American National Institutes of Health (NIH) has concluded that continuous monitoring was indicated for a high-risk pregnancy, but that it was not always necessary for every pregnancy [6].The American College of Obstetricians and Gynecologists (ACOG) also concluded that continuous monitoring would result in increased cesarean rates due to fetal distress, but that there was no improvement in neonatal mortality [7].

As for routine enemas, it was previously believed that an enema could decrease puerperal and neonatal infection and might stimulate uterine contraction and accelerate fetal head descent [8]. However, one study showed no significant difference in the degree of fecal contamination during the first and second stages of labor [9]. Furthermore, Rutgers et al [10] reported that there is no benefit of cervix dilation duration from an enema. In a randomized controlled trial involving 443 women, it was concluded that enemas resulted in no significant differences in maternal and neonatal outcomes [11]. A Cochrane review in 2000 also concluded that enemas caused discomfort in women and increased the costs of delivery but that there was no evidence of benefit in terms of decreased infection rates [12].

As for perineal shaving, it was previously believed that it could decrease puerperal infection. However, in a randomized controlled trial involving 458 women, it was concluded that such shaving resulted in no statistically significant difference in terms of perineal wound infection, wound dehiscence, or neonatal infection [13]. A Cochrane review in 2001 also concluded that perineal shaving resulted in no significant difference in terms of perineal wound infection [14].

As for restricting oral intake in labor, the authors of a Cochrane review in 2010 concluded that it was of no benefit or harm, and that there is no justification for the restriction of oral intake for women at low risk [15].

As for routine parenteral fluid support, a randomized controlled trial involving 195 woman showed that increasing fluid administration for nulliparous women in labor accelerated the labor course [16]. Shrivastava et al [17] also reported that administration of a dextrose solution was associated with a shortened labor course in a randomized, double-blinded, controlled trial. However, it was suggested that routine parenteral fluid support may increase maternal discomfort and decrease maternal activity [18].

As for amniotomy, it has been thought that the procedure would stimulate uterine contraction and could allow for early detection of meconium-stained amniotic fluid. Several previous studies have also shown that elective amniotomy could shorten the active phase of labor and decrease the need for oxytocin augmentation [19,20]. However, elective amniotomy appeared to increase the likelihood of umbilical cord compression in the active phase of labor and resulted in more mild and moderate variable decelerations [21]. An updated Cochrane review in 2013 concluded that there was no evidence that amniotomy resulted in significant differences in terms of the length of the first stage of labor, maternal satisfaction, or Apgar scores of < 7 at 5 minutes. In addition, amniotomy was associated with an increased rate of cesarean births, although the difference was not statistically significant [22].

As for providing nonpharmacological pain management, this suggestion has been widely accepted. Nonpharmacologic methods of pain relief such as maternal movement, positioning, intradermal water blocks, and warm water baths have been found to be effective techniques for management of labor pain without obvious side effects [23–25].

As for allowing the mother to give birth in an upright position, this idea was first suggested by "Care in normal birth: a practical guide", which was published in 1997 by the World Health Organization (WHO) [8]. A Cochrane review in 2013 found supportive evidence that walking and upright positions reduced the duration of labor, the risk of cesarean birth, and the need for epidural, without having negative effects on mothers and babies [26].

As for delayed pushing, this idea has also been widely accepted. Although it was reported to prolong labor by 1 hour [27], a meta-analysis showed that delayed pushing had significantly positive effects in terms of safely and effectively decreasing instrument-assisted deliveries and shortening pushing time [28]. In addition, the PEOPLE (Pushing Early or Pushing Late with Epidural) Study Group concluded that delayed pushing with epidural anesthesia was an effective strategy to reduce difficult deliveries among nulliparous women [29].

As for episiotomy, its use was met with a variety of different opinions from obstetricians, and many Taiwanese obstetricians view it as necessary. A Cochrane review in 2009 reported that restrictive episiotomy policies appeared to have a number of benefits, including less posterior perineal trauma and suturing, and fewer complications, but that there was an increased risk of anterior perineal trauma. There was no difference in severe perineal trauma, dyspareunia, urinary incontinence, or several pain measures [30].

A total of 10 suggestions were made in this model. However, there was still no consensus of Taiwanese obstetricians. More evidence for the advantages and disadvantages of the various suggestions was needed to convince Taiwanese obstetrician to modify their routine practice.

Conflicts of interest

The authors have no conflicts of interest relevant to this article.

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