International Journal of Nursing Sciences 10 (2023) 129–131

HOSTED BY

Contents lists available at ScienceDirect

International Journal of Nursing Sciences

journal homepage: http://www.elsevier.com/journals/international-journal-of-nursing-sciences/2352-0132

Commentary

Promoting normal childbirth: Research status and application of upright positions in the second stage of labour

Yu Zang [a], Hong Lu [b,*]

[a] School of Nursing, Hebei Medical University, Shijiazhuang, China
[b] School of Nursing, Peking University, Beijing, China

ARTICLE INFO

Article history:
Received 8 October 2022
Received in revised form
25 October 2022
Accepted 4 December 2022
Available online 9 December 2022

In recent years, more and more attention has been paid to normal childbirth. The World Health Organization (WHO), International Confederation of Midwives (ICM), Chinese Maternal and Child Health Association (CMCHA) have actively advocated normal childbirth [1–3]. It is proved that normal childbirth can improve birth outcomes, reduce the incidence of iatrogenic events caused by excessive medical interventions, and promote maternal physical and mental health [4]. Birth positions, as a common midwifery technique, may have an impact on birth outcomes by changing the diameters of the pelvic outlet and the flexibility of the sacrococcygeal joint [5]. Currently, women are encouraged to move freely in the first stage of labour, while in the second stage of labour, the commonly used birth positions in most medical institutions are the semi-recumbent position and lithotomy position [6]. However, many international organizations such as WHO, Society of Obstetricians and Gynaecologists of Canada (SOGC) and Royal College of Midwives (RCM) have clearly stated that when the cervix is fully opened, upright positions are preferred to the supine or lithotomy position [4,7,8]. Upright positions allow the gravity of the fetus to align with the direction of the pelvic axis, reducing uterine compression of the abdominal aorta and inferior vena cava, and increasing the diameters of the pelvic outlet [9]. To successfully implement upright positions in China, our research team has conducted and published a series of studies over the past three years. In this commentary, we mainly describe multiple classification criteria of birth positions, the application of upright positions in the clinical practice and the main problems to be solved, the exploration and key conclusions of above problems, and the research issues to be solved in future research.

There are two classification criteria regarding birth positions. According to the relationship between the centre of the third and fifth lumbar vertebrae and the horizontal plane, birth positions can be divided into supine positions and upright positions. In the upright position, the line between the third and fifth lumber vertebrae of women tends to be perpendicular to the horizontal plane. Walking, standing, sitting, squatting and kneeling positions belong to upright positions, while lateral, hands-and-knees, semi-recumbent and lithotomy positions belong to supine positions. This classification criterion was proposed by Atwood [10] in 1976 and has been widely used in research and clinical practice. Our meta-analysis found that women who adopted an upright position in the second stage of labour had fewer assisted births and episiotomies, shorter active second stage of labour, but had more second-degree perineal tears [11].

Another classification criterion was proposed by Kemp et al. [12] in 2013. It classifies birth positions into non-flexible sacrum and flexible sacrum positions according to whether maternal sacrum is compressed by the fetus. If the sacrum is compressed by the fetus, the flexibility of the sacrum decreases. This position is called the non-flexible sacrum position, including lithotomy, semi-recumbent and semi-sitting positions. Otherwise, it is called the flexible sacrum position, which includes kneeling, squatting, lateral, sitting

* Corresponding author.
E-mail address: luhong@bjmu.edu.cn (H. Lu).
Peer review under responsibility of Chinese Nursing Association.

https://doi.org/10.1016/j.ijnss.2022.12.001

upright and hands-and-knees. Our research team firstly assessed the effects of flexible sacrum positions in the second stage of labour on maternal and neonatal outcomes and showed that flexible sacrum positions could reduce the incidence of assisted birth, caesarean section, episiotomy, severe perineal tears, severe pain and shorten the active second stage of labour [13]. When women use the flexible sacrum position, the sacrum has a certain flexibility because it is not compressed, which can make the pelvic outlet moderately expanded and facilitate the expulsion of the fetus. In spite of this, the latter classification criterion has not been widely disseminated.

Based on the existing literature, upright positions in the second stage of labour have not been widely used in the world. Only in a few countries, like Sweden, upright positions are well implemented [14,15]. In many countries around the world, perhaps due to the widespread use of epidural analgesia, maternal traditional perception of birth positions, and limited professional knowledge related to upright positions, the application of upright positions is restricted [6,16,17]. In China, the data that reflect the application of upright positions in the whole country are limited. Lu et al.'s cross-sectional study [6] investigated 1,213 medical institutions in 22 provinces of China and reported that only 19 of them encouraged the use of variety of birth positions in the second stage of labour.

With regard to the implementation process of upright positions, through a thorough review of the existing literature, our research team found that in clinical practice, the implementation of upright positions varied in terms of indications and contraindications, specific implementation methods, and potential risks [18]. Then, to confirm the results of our literature review and to gain a deeper understanding of the main issues in the process of implementing upright positions as perceived by midwifery professionals, we interviewed 17 midwives from four medical institutions in China [19]. We understood that midwives' perceptions on implementing upright positions were based mainly on clinical experience. They were not quite sure what the indications and contraindications were for upright positions. They believed that the indications and contraindications should be adjusted according to the situation in China rather than completely copying those from abroad. How long a woman needs to stay in an upright position to influence birth outcomes was also a problem that confused midwives. In addition, they lacked knowledge of the potential risks of upright positions and rarely systematically summarized the precautions.

The above-mentioned issues, such as indications and contraindications, implementation methods, and potential risks, may be important barriers to the successful implementation of upright positions in China. Developing a programme that can solve the main implementation problems based on the best evidence is conducive to promoting the standardized application of upright positions. WHO considers it imperative to identify gaps between clinical practice and guideline recommendations and develop a comprehensive programme that is consistent with the latest high-quality guidelines [20]. However, to date, the available programmes related to upright positions have been limited. Therefore, our research team developed a Practice Programme for Upright Positions in the Second Stage of Labour (UPSSL Programme). We used the Medical Research Council (MRC) framework for developing and evaluating complex interventions and the WHO handbook for guideline development to guide the development process. The development process was described in detail in our published article [21]. The UPSSL Programme covers five aspects related to the implementation of upright positions: 1) indications and contraindications; 2) implementation methods, including placement of upright positions, equipment and materials, time limit for keeping an upright position and timing of changing for other positions; 3) observations; 4) potential risks; 5) precautions of potential risks. These aspects were identified through literature review, stakeholder interviews and group discussions. Then, we explored these aspects by conducting a series of systematic reviews to summarize the best available evidence from relevant clinical guidelines, systematic reviews and original studies. In the UPSSL Programme, the indications and contraindications were defined by an evidence-based approach, with full consideration of the Chinese context. Women who have a singleton cephalic presentation between 37 and 42 weeks, have indications of vaginal birth, feel more comfortable in an upright position, and with the fetus in good condition can adopt an upright position. However, if they have serious pregnancy complications, abnormal fetal heart rate patterns, or cannot maintain an upright position due to fatigue, pain or the adoption of epidural analgesia, they should not use upright positions in the second stage of labour. The details of the UPSSL Programme are shown in our published article [21].

Over the past three years, the authors' research team has conducted a series of studies focusing on upright positions in the second stage of labour, and developed the first UPSSL Programme in China, which provides theoretical basis for successful application and promotion of upright positions in China. However, whether the UPSSL Programme can be translated into action in the local context is a crucial issue that needs to be further explored. Hence, we need to explore possible barriers and facilitators to implementing the UPSSL Programme in the Chinese context in future studies. Based on the potential barriers, targeted implementation strategies can be developed to facilitate the integration of evidence and routine clinical practice. In addition, we need to further evaluate the clinical applicability and feasibility of the UPSSL Programme, and assess the adoption, effectiveness, implementation and maintenance of the UPSSL Programme in medical institutions with different characteristics.

Author statement

Yu Zang: Writing - original draft. **Hong Lu**: Writing - review & editing.

Funding sources

This manuscript was supported by Beijing Natural Science Foundation (Grant No.7222106).

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

References

[1] Midwives Branch of Chinese Maternal and Child Health Association. Clinical practice guideline of normal birth. Chin J Prev Med 2020;23(6):371–5. https://doi.org/10.3760/cma.j.cn113903-20200526-00492 [in Chinese].
[2] Young D. What is normal childbirth and do we need more statements about it? Birth 2009;36(1):1–3. https://doi.org/10.1111/j.1523-536X.2008.00306.x.
[3] International Confederation of Midwives. Keeping birth normal. https://www.internationalmidwives.org/our-work/policy-and-practice/icm-position-statements/. [Accessed 26 September 2022].
[4] Lee L, Dy J, Azzam H. Management of spontaneous labour at term in healthy women. J Obstet Gynaecol Can 2016;38(9):843–65. https://doi.org/10.1016/j.jogc.2016.04.093.
[5] Desseauve D, Fradet L, Lacouture P, Pierre F. Position for labor and birth: state of knowledge and biomechanical perspectives. Eur J Obstet Gynecol Reprod Biol 2017;208:46–54. https://doi.org/10.1016/j.ejogrb.2016.11.006.
[6] Lu CP, Luo BR, Jiang M, et al. Status of free posture labor in Chinese medical institutions. J Nurs Sci 2020;35(12):8–11. https://doi.org/10.3870/j.issn.1001-4152.2020.12.008 [in Chinese].
[7] World Health Organization. WHO Recommendations: intrapartum care for a

positive childbirth experience [Accessed 26 September 2022], https://www.who.int/publications/i/item/9789241550215; 2018.
[8] Royal College of Midwives. Midwifery care in labour guidance for all women in all settings. https://www.rcm.org.uk/media/2539/professionals-blue-top-guidance.pdf. [Accessed 26 September 2022].
[9] King TL, Brucker MC, Osborne K, Jevitt CM. Varney's midwifery. Burlington: Jones & Bartlett Learning; 2018.
[10] Atwood RJ. Parturitional posture and related birth behavior. Acta Obstet Gynecol Scand Suppl 1976;57:1–25.
[11] Zang Y, Lu H, Zhang HX, Huang J, Ren LH, Li CY. Effects of upright positions during the second stage of labour for women without epidural analgesia: a meta-analysis. J Adv Nurs 2020;76(12):3293–306. https://doi.org/10.1111/jan.14587.
[12] Kemp E, Kingswood CJ, Kibuka M, Thornton JG. Position in the second stage of labour for women with epidural anaesthesia. Cochrane Database Syst Rev 2013;1:CD008070. https://doi.org/10.1002/14651858.CD008070.pub2. Epub 2013/01/31.
[13] Zang Y, Lu H, Zhao Y, Huang J, Ren LH, Li X. Effects of flexible sacrum positions during the second stage of labour on maternal and neonatal outcomes: a systematic review and meta-analysis. J Clin Nurs 2020;29(17–18):3154–69. https://doi.org/10.1111/jocn.15376.
[14] Elvander C, Ahlberg M, Thies-Lagergren L, Cnattingius S, Stephansson O. Birth position and obstetric anal sphincter injury: a population-based study of 113 000 spontaneous births. BMC Pregnancy Childbirth 2015;15:252. https://doi.org/10.1186/s12884-015-0689-7. Epub 2015/10/09.
[15] Gottvall K, Allebeck P, Ekéus C. Risk factors for anal sphincter tears: the importance of maternal position at birth. BJOG 2007;114(10):1266–72. https://doi.org/10.1111/j.1471-0528.2007.01482.x.
[16] Barasinski C, Debost-Legrand A, Lemery D, Vendittelli F. Practices during the active second stage of labor: a survey of French midwives. Midwifery 2018;60:48–55. https://doi.org/10.1016/j.midw.2018.02.001.
[17] Declercq ER, Sakala C, Corry MP, Applebaum S, Herrlich A. Major survey findings of listening to mothers(SM) III: pregnancy and birth: report of the third national U.S. survey of women's childbearing experiences. J Perinat Educ 2014;23(1):9–16. https://doi.org/10.1891/1058-1243.23.1.9.
[18] Zang Y, Lu H. Application status and main problems of upright positions in the second stage of labour: a literature review. Chin Nurs Manag 2022;22(2):221–6. https://doi.org/10.3969/j.issn.1672-1756.2022.02.025 [in Chinese].
[19] Zang Y, Lu H, Zhang HX, Zhang XL, Yang MH, Huang J. Chinese midwives' perceptions on upright positions during the second stage of labour: a qualitative study. Midwifery 2021;98:102993. https://doi.org/10.1016/j.midw.2021.102993. Epub 2021/03/19.
[20] World Health Organization. Maternal health care: policies, technical standards and service accessibility in eight countries in the western pacific region. Manila: World Health Organization Regional Office for the Western Pacific; 2018. https://www.who.int/publications-detail-redirect/9789290618461. [Accessed 26 September 2022].
[21] Zang Y, Fu L, Zhang HX, Hou R, Lu H. Practice programme for upright positions in the second stage of labour: the development of a complex intervention based on the medical research Council framework. J Nurs Manag 2022. https://doi.org/10.1111/jonm.13805.