

Perception of women regarding pelvic mobility exercises during labor and childbirth

Percepção de mulheres acerca dos exercícios de mobilidade pélvica no trabalho de parto e parto

How to cite this article:

Mafetoni RR, Gonçalves AS, Sanfelice CFO, Jorge HMF, Jacob LMS, Balamint T, et al. Perception of women regarding pelvic mobility exercises during labor and childbirth. Rev Rene. 2026;27:e97397. DOI: <https://doi.org/10.36517/2175-6783.20262797397>

Reginaldo Roque Mafetoni¹
Sofia Araki Gonçalves¹
Clara Fróes de Oliveira Sanfelice¹
Herla Maria Furtado Jorge²
Lia Maristela da Silva Jacob³
Talita Balamint¹
Gustavo Gonçalves dos Santos⁴

¹Universidade Estadual de Campinas.
Campinas, SP, Brazil.

²Universidade Federal do Piauí.
Teresina, PI, Brazil.

³Faculdade São Leopoldo Mandic Araras.
Araras, SP, Brazil.

⁴Universidade de Guarulhos.
Guarulhos, SP, Brazil.

Corresponding author:

Reginaldo Roque Mafetoni
Rua Tessália Vieira de Camargo, 126.
Cidade Universitária, CEP: 13083-887.
Campinas, SP, Brazil.
E-mail: mafetoni@unicamp.br

Conflict of interest: the authors have declared that there is no conflict of interest.

EDITOR IN CHIEF: Ana Fatima Carvalho Fernandes 

ASSOCIATE EDITOR: Adriana Cristina Nicolussi 

ABSTRACT

Objective: to analyze women's perceptions of performing pelvic mobility exercises during labor/childbirth and their association with obstetric outcomes. **Methods:** cross-sectional study conducted with 306 postpartum women. The data were obtained through a structured questionnaire and supplemented by clinical records. The associations were analyzed using association tests and Poisson regression with robust variance. **Results:** most women performed pelvic mobility exercises (87.6%). The use of a birthing ball (76.8%; $p=0.002$), forward-leaning inversion (71.3%; $p=0.015$), Swiss ball (70.2%; $p=0.004$), and squats (69.6%; $p=0.003$) was associated with the perception of reduced labor duration. No associations were observed with pain reduction or a higher occurrence of vaginal delivery. The majority of women expressed the intention to use these practices again in future pregnancies (85.3%; $p<0.001$). **Conclusion:** In the women's perception, pelvic mobility exercises were associated with a reduction in the duration of labor, with no association with pain or type of delivery, and were highly acceptable. **Contributions to practice:** the findings support guidance on mobility during labor and the importance of expanding educational actions in prenatal care and developing experimental studies to investigate the effectiveness of these practices. **Descriptors:** Pregnancy; Labor Pain; Labor; Obstetric; Exercise Movement Techniques; Obstetric Nursing.

RESUMO

Objetivo: analisar a percepção de mulheres sobre a realização de exercícios de mobilidade pélvica durante o trabalho de parto e parto e sua associação com desfechos obstétricos. **Métodos:** estudo transversal desenvolvido com 306 puérperas. Os dados foram obtidos por questionário estruturado e complementados por registros clínicos. As associações foram analisadas por testes de associação e regressão de Poisson com variância robusta. **Resultados:** a maioria das mulheres realizou exercícios de mobilidade pélvica (87,6%). A utilização de bola feijão (76,8%; $p=0,002$), inversão inclinada para frente (71,3%; $p=0,015$), bola suíça (70,2%; $p=0,004$) e agachamentos (69,6%; $p=0,003$) esteve associada à percepção de redução da duração do trabalho de parto. Não foram observadas associações com redução da dor ou maior ocorrência de parto vaginal. A maioria das mulheres manifestou intenção de utilizar novamente essas práticas em futuras gestações (85,3%; $p<0,001$). **Conclusão:** na percepção das mulheres, os exercícios de mobilidade pélvica associaram-se à redução da duração do trabalho de parto, sem associação com dor ou tipo de parto, e apresentaram elevada aceitabilidade. **Contribuições para a prática:** os achados subsidiam a orientação sobre mobilidade durante o trabalho de parto e a importância de ampliar ações educativas no pré-natal e de desenvolver estudos experimentais para investigar a efetividade dessas práticas. **Descritores:** Gravidez; Dor do Parto; Trabalho de Parto; Técnicas de Exercício e de Movimento; Enfermagem Obstétrica.

Introduction

Childbirth care has been marked by high medicalization and the adoption of interventions that are often unnecessary, in disagreement with women's expectations and with the recommendations of good obstetric practices. In the Brazilian context, the high proportion of cesarean sections stands out, which reached an average of 56.6% between 2017 and 2022⁽¹⁾, evidencing an interventionist care pattern, divergent from the guidelines of the World Health Organization and rates observed in other countries⁽²⁾.

The increase in these interventions can constitute obstetric violence when performed without clear clinical indication, as occurs with routine episiotomy, the indiscriminate use of oxytocin and the restriction of women's mobility. Such practices contradict recommendations that advocate respect for the parturient's choices and the adoption of evidence-based conducts that benefit the mother-child binomial⁽³⁾.

In this scenario, the promotion of female autonomy in the childbirth process is directly related to access to qualified information and to the understanding of the physiological changes of labor. Prenatal education, in this sense, plays a fundamental role in influencing preferences regarding the mode of delivery, especially when based on valuing physiological delivery and reducing unnecessary interventions, incorporating non-pharmacological methods⁽⁴⁾.

Non-pharmacological strategies are safe alternatives, with no adverse effects on mother and fetus, and, although the perception of pain relief is variable, they contribute to greater body control and women's protagonism during childbirth⁽⁵⁾. Their implementation can be performed by different professionals from the multidisciplinary team, such as nurses, midwives, physiotherapists and physicians, requiring articulation between the levels of care to ensure continuity of care from prenatal care to delivery⁽⁶⁻⁷⁾.

Pelvic mobility exercises are a relevant strategy to stimulate active movement during labor, and are recommended from prenatal care; however, the absence

of prior preparation can limit their adherence in the hospital environment, due to the low familiarity and knowledge about their benefits⁽⁸⁾. Maternal mobility is part of the respectful intrapartum care model, being considered a first-line practice, associated with the promotion of comfort, autonomy and physiological progression of childbirth. The adoption of upright positions enhances the action of gravity, expands pelvic diameters through muscle and ligament relaxation, and favors fetal rotation and descent, with a possible reduction in the duration of labor and a better maternal experience, while mobility restriction is recognized as an obsolete practice that is harmful to woman-centered care⁽⁸⁻⁹⁾.

Pelvic mobility exercises include practices such as the use of the Swiss ball and the bean ball, squats, pelvic swing movements, asymmetrical positions, four supports, forward inversion and lateral position, among others⁽¹⁰⁾. Evidence demonstrates positive effects of these strategies in reducing labor time, in addition to improvements in the perception of maternal comfort and satisfaction⁽¹¹⁻¹³⁾. However, most of these studies evaluate isolated interventions, tested under highly controlled conditions, limiting the generalization of the findings to real care contexts.

Maternal perception of the combined use of pelvic mobility strategies during labor remains little explored in the literature. Although, in clinical practice, different exercises are often applied in an integrated and sequential manner, according to the progression of labor and individual needs, there is a lack of studies evaluating their synergistic effects, as well as their acceptance by women in real care settings. This gap limits the consolidation of evidence-based recommendations for the combined use of these interventions. In this sense, investigations that address maternal perception and acceptance of these strategies are essential to qualify obstetric care. Thus, the present study aimed to analyze women's perceptions of performing pelvic mobility exercises during labor/childbirth and their association with obstetric outcomes.

Methods

Study design and setting

This is a cross-sectional study conducted according to the recommendations of the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) for observational studies.

The investigation was carried out in two public maternity hospitals in the State of São Paulo, Brazil, both focused on care, teaching, and research at the tertiary level for maternal and child health. In maternity 1, practices such as shower bath, ambulation, use of Swiss ball and bean ball, lumbosacral massage, breathing exercises, as well as squats, “forward and lunge” exercises, forward inclined inversion, lateral decubitus release, and use of the pelvic horse are offered during labor. Childbirth care is shared among obstetric nurses, physicians, and residents, with 4,739 births recorded in 2024, of which 61.38% by cesarean section. In maternity 2, similar resources are available, except for more specific exercises, such as forward inversion, release in lateral decubitus and use of the pelvic horse, with delivery care conducted exclusively by physicians and residents, with 1,560 births in the same period, of which 64.61% were cesarean sections⁽¹⁴⁾.

Population and selection criteria

Women aged ≥ 18 years, with full-term pregnancy (≥ 37 weeks), who were admitted in the active phase of labor at the obstetric center, with cervical dilation between 5 and 7 cm associated with at least two moderate or strong contractions in 10 minutes, evaluated by the professionals of the obstetric center and recorded in a partogram, were included. Those who underwent elective cesarean section or were admitted in an advanced stage of labor (≥ 8 cm of dilation or expulsive period) were excluded.

Sample size calculation

The sample was calculated to evaluate proportions in a finite population, considering an expected proportion of 50%, an error of 5%, and a significance level of 5%. This analysis was based on a population of 1,452 puerperal women, of whom 1,110 were in maternity 1 and 342 in maternity 2, which is an estimate for a collection period of 3 months. The minimum estimated number of participants was 304, distributed equally among the services (232 and 72 women).

Data collection

The participants were selected the day after delivery, in the hospitalization room of the rooming-in wards of both institutions. When the room was shared with other postpartum women, the interviews were conducted in individual offices, made available by the coordinators of the aforementioned wards. Data collection took place between January and November 2024, by trained researchers, in the morning and afternoon. After clarification and signing of the Informed Consent Form, the participants answered a data collection instrument that consisted of a structured questionnaire, prepared by the researchers, consisting of two sections: (A) sociodemographic and obstetric characterization; and (B) evaluation of the orientation and performance of pelvic mobility exercises during labor (ambulation, Swiss ball, bean ball, pelvic horse, “forward and lunge”, squat, inclined inversion, and lateral release), as well as the mother’s perception of the effects on pain, duration of labor, discomfort, and acceptability. The answers were recorded using categorical alternatives and ordinal scales, which were complemented by data obtained from clinical records.

Study variables

Age, color/race, education, marital status, obstetric history, number of prenatal consultations,

participation in preparatory courses, previous knowledge about exercises, and sharing a room with another pregnant woman during labor were investigated. Orientation, performance, frequency and refusal of pelvic mobility exercises, perception of changes in pain and duration of labor, discomfort, and willingness to reuse or recommend were evaluated.

From the medical records, we collected the classification of labor as spontaneous or induced/conducted, medications used, use and type of anesthesia, type of rupture of amniotic membranes, mode of delivery, and Apgar scores. The mode of delivery was the maternal outcome; Apgar scores at the first and fifth minutes, neonatal outcomes.

Data analysis and processing

The analyses included combined data from the two institutions. Quantitative variables were described by measures of central tendency and dispersion, with comparison by the Mann-Whitney test and normality assessment by the Shapiro-Wilk test. Qualitative variables were analyzed by Pearson's Chi-square test or Fisher's exact test. Adjusted models considered exercises as independent variables and obstetric outcomes as dependent. For qualitative outcomes, Poisson regression models with robust variance were used, estimating prevalence ratios, 95%CI, and p-values. Analyses were performed using the Statistical Analysis System (SAS) 9.4 software, adopting a significance level of 5%.

Ethical aspects

The study was approved by the Research Ethics Committee of the State University of Campinas, under Certificate of Presentation for Ethical Appreciation No. 71060123.7.0000.5404 and opinion No. 6.310.255/2023. The eventual use of artificial intelligence was restricted to linguistic improvement, through ChatGPT, with critical review by the authors, who assume full responsibility for the content.

Results

The study included 306 women, with a mean age of 26.5 years (standard deviation [SD]: ± 5.99). There was a predominance of those who self-declared themselves black or brown, who lived with a partner and with a mean of 11 years (SD: ± 1.97) of schooling. The average number of prenatal consultations was 9.66 (SD: ± 3.21), and most did not participate in childbirth preparation courses or previously performed pelvic mobility exercises during the current pregnancy.

With regard to obstetric characteristics, the mean number of pregnancies was 2.17 (SD: ± 1.29), and it is relevant to highlight that less than one third of the participants received some type of induction or conduction of labor. The other sociodemographic and obstetric data are detailed in Table 1.

Table 1 – Sociodemographic and obstetric characteristics of the women (n=306). Campinas, SP, Brazil, 2024

Variable	n (%)
Race/color	
Black or brown	194 (63.4)
White	107 (34.9)
Indigenous, yellow or other	5 (1.6)
Marital status	
With partner	248 (81.1)
No companion	58 (18.9)
Childbirth preparation course	
Participated	25 (8.2)
Did not participate	281 (91.8)
I knew the labor and delivery exercises beforehand	
Never heard of it	91 (29.7)
Heard of it, but never used it	102 (33.3)
Have you heard of it and used it	113 (36.9)
Parity	
Primiparous	156 (50.9)
Multiparous	150 (49.0)
Induced/conducted labor	89 (29.1)
Cervical balloon	13 (4.3)
Misoprostol	53 (17.3)
Oxytocin	52 (16.9)
Amniotic membranes	
Artificial rupture	135 (44.1)
Spontaneous rupture	160 (52.3)

The comparative analysis between the two hospital institutions showed differences in the types of exercises offered during labor. In maternity unit 1, which has obstetric nurses, a greater diversity of practices was observed, including “forward and lunge” exercises, squats, in addition to the positions of “forward tilted inversion” and “lying on the side release” (78/232 [33.6%] versus (vs.) 06/74 [8.1%], $p < 0.001$), as well as the use of the Swiss ball, bean ball and ambulation. On the other hand, in maternity 2, without the work of the obstetric nurse, there was a higher frequency of exercises with Swiss ball, bean ball and ambulation (97/232 [41.8%] vs. 50/74 [67.6%], $p < 0.001$). Despite these differences, there was a high proportion of pelvic mobility exercises offered in both institutions (203/232 [87.5%] vs. 65/74 [87.8%], $p = 0.939$).

Considering the sample as a whole, most women reported a perception of reduced labor time associated with the performance of the exercises. Pelvic exercises with the use of the bean ball, Swiss ball, squat, inversion and ambulation were significant. However, the forward and lunge exercises and the lateral decubitus release position did not present a statistically significant association ($p > 0.05$) (Table 2).

Table 2 – Women’s perception of the reduction in labor time for each exercise performed (n=306). Campinas, SP, Brazil, 2024

Exercise	It did not reduce	Reduced	p-value
	n (%)	n (%)	
Ambulation	77 (33.3)	154 (66.7)	< 0.000*
Swiss ball	37 (29.8)	87 (70.2)	0.004*
Bean ball	16 (23.2)	53 (76.8)	0.002*
Pelvic swing	1 (25.0)	3 (75.0)	1.000†
Advance and Sink	5 (35.7)	9 (64.3)	0.773*
Squats	42 (30.4)	96 (69.6)	0.003*
Inclined inversion	25 (28.7)	62 (71.3)	0.015*
Release lying on the side	14 (33.3)	28 (66.7)	0.386*

*Chi-square test; †Fisher’s exact test

Pelvic mobility exercises, including the use of the Swiss ball, bean ball, pelvic swing (pelvic horse) and ambulation, were performed throughout the active phase of labor. Among women who performed two or more of these exercises, there was a significant association with the perception of reduced labor time (n = 98/148 [67.1%], $p = 0.002$). The practice of “forward and lunge”, squats, “forward leaning inversion” and “lying on the side release” is more common among dilations of 6 to 10 cm in maternity 1. The combination of these exercises was linked to the perception of decreased labor time in approximately 66% of the participants (n = 56/84 [66.7%], $p = 0.179$), with a similar proportion among those who performed five or more exercises.

Regarding pain, most women did not associate the practice of exercises with pain relief (146 [55.5%] vs. 117 [44.5%]). In addition, a higher proportion of analgesia use was observed among those who performed one or more exercises (156 [58.2%] vs. 112 [41.8%], $p = 0.0207$). The use of the Swiss ball and the bean ball was related to a higher demand for epidural analgesia (Poisson regression [PR] < 1.0), while ambulation indicated a trend towards a reduction in this need (PR > 1.0), although without statistical significance.

There was no significant difference in the occurrence of vaginal delivery between women who performed one or more pelvic mobility exercises (230 [85%]) and those who did not perform any exercise (33 [86.8%]), indicating similar probabilities ($p=0.086$). The frequency of vaginal delivery observed in the study scenarios, possibly due to the inclusion criteria adopted. Table 3 presents the estimates of the prevalence ratio for not receiving analgesia and for vaginal delivery (PR > 1.0), according to the type of exercise performed.

Table 3 – Probability of not receiving epidural analgesia and vaginal delivery among women for each exercise performed (n=306). Campinas, SP, Brazil, 2024

Exercise	Likelihood of not receiving epidural analgesia			Likelihood of vaginal delivery		
	RP	IC (95%)	p-value	RP	IC (95%)	p-value
Ambulation	1.30	0.95 – 1.77	0.098	0.99	0.89 – 1.10	0.835
Swiss ball	0.63	0.47 – 0.86	0.003	0.96	0.86 – 1.06	0.416
Bean ball	0.61	0.41 – 0.92	0.018	1.05	0.95 – 1.16	0.357
Squats	1.15	0.88 – 1.49	0.303	1.06	0.94 – 1.18	0.338
Inclined Inversion	1.13	0.86 – 1.47	0.386	1.02	0.91 – 1.14	0.721
Release lying on the side	0.74	0.52 – 1.07	0.113	0.96	0.83 – 1.10	0.528

PR: Poisson regression; CI: Confidence Interval

No statistically significant differences were observed in Apgar scores between newborns of women who performed one or more pelvic mobility exercises (n = 268) and those who did not perform any (n = 38), either in the first minute (Mann-Whitney test, mean $\pm$ standard deviation: 8.56 [1.19] vs. 8.45 [0.92], p = 0.144) or in the fifth minute of life (9.73 [0.58] vs. 9.76 [0.49], p = 0.86), indicating the absence of impact of these exercises on this neonatal outcome.

In addition, as shown in Table 4, there was a greater tendency for women to report the absence of discomfort or discomfort during the performance of some exercises individually during labor, although the analyses did not reach statistical significance. It is noteworthy that, among women who performed two or more exercises, there was a significant perception of non-discomfort responses caused by the exercises (148 [56.3%] vs. 115 [43.7%], p = 0.001).

Table 4 – Responses about the discomfort caused by exercise among women (n=306). Campinas, SP, Brazil, 2024

Exercise	It bothers n (%)	Doesn't bother n (%)	p-value
Ambulation	104 (45.0)	127 (54.9)	0.206*
Swiss ball	50 (40.3)	74 (59.7)	0.052*
Bean ball	35 (50.7)	34 (49.3)	0.468*
Pelvic horse	2 (50.0)	2 (50.0)	1.000†
Advance and Sink	4 (28.6)	10 (71.4)	0.159*
Squats	67 (48.5)	71 (51.5)	0.597*
Inclined inversion	44 (50.6)	43 (49.4)	0.415*
Release lying on the side	20 (47.6)	22 (52.4)	0.922*

*Chi-square test; †Fisher's exact

Most women reported willingness to repeat the practice of pelvic mobility exercises during labor in a future pregnancy, showing high acceptance of this strategy (226 [85.3%] vs. 39 [14.7%], p < 0.001).

Discussion

The results showed low participation of women in childbirth preparation programs, which may have influenced the understanding and familiarity with pelvic mobility exercises during labor. Some women reported lack of knowledge or limited contact with these practices prior to hospitalization for childbirth. Evidence indicates that educational interventions and the inclusion of physical activities during pregnancy contribute to better physical and emotional preparation, reduction of interventions and greater maternal satisfaction⁽¹⁵⁾.

Women involved in educational activities demonstrate expanded knowledge, a decrease in anxiety, an improvement in pain management and an increase in satisfaction with childbirth⁽¹⁶⁾. However, gaps in prenatal care still persist, especially due to the absence of guidance on preparation for childbirth, including pelvic mobility exercises, reinforcing the need for its systematic incorporation into prenatal care⁽¹⁷⁾.

It should be considered that half of the women in this study were multiparous, implying a certain prior knowledge about labor and delivery. The results also highlighted actions to induce or conduct labor

with misoprostol and oxytocin, such as artificial rupture of the amniotic sac. These parameters can affect the evolution of labor; however, they were not predominant in the sample.

In the perception of women, pelvic mobility exercises were associated with a reduction in the duration of labor; especially the use of the bean ball, Swiss ball, squats, inclined inversion and ambulation. These findings were consistent involving parturients, in which interventions that used pelvic movements with a Swiss ball (such as swings, rotations and circular movements), performed for a period of 20 to 30 minutes during labor; reduced the duration of the first period by more than two hours⁽¹⁸⁾. Other evidence indicated a decrease of two hours and nineteen minutes in the first period and nineteen minutes in the second period, due to the use of the Swiss ball⁽¹²⁾. The use of devices for pelvic position and mobility can help advance labor; in addition to improving the woman's comfort⁽¹⁹⁻²¹⁾.

An analgesic effect associated with the use of the Swiss ball⁽¹²⁾ and the bean ball⁽²¹⁾ was demonstrated, as well as a consistent reduction of approximately 20% in pain scores at 4 and 8 cm of dilation among women who used Swiss ball⁽¹⁸⁾, some of the participants in this study did not report pain relief with pelvic mobility exercises. This result can be explained by the progressive and multifactorial nature of pain during labor; in addition to the difficulty of retrospectively measuring its modulation by isolated interventions when the evaluation is performed on the day after delivery. In addition, a greater use of analgesia was observed among women who performed such exercises, in line with evidence suggesting that these strategies can delay, but not necessarily avoid, the need for analgesia, especially in prolonged labors^(11,13,18).

The use of pelvic mobility exercises and devices such as Swiss ball and bean ball is a low-cost intervention, easy to implement and well accepted by women, and the adoption of protocols and professional training for their safe application is recommended^(3,22). Mobility and vertical positions favor the action of gravity, expand pelvic diameters and facilitate fetal pro-

gression, contributing to greater comfort, a feeling of control and favoring the physiology of childbirth^(8,23).

In the present study, no significant association was observed between the practice of pelvic mobility exercises and a higher occurrence of vaginal delivery. On the other hand, interventions that used the Swiss ball were correlated with a decrease in the rates of cesarean sections in a systematic review⁽¹⁸⁾. Similarly, the use of the bean ball, combined with adequate pelvic positioning and movement, revealed a 12% lower probability of cesarean section in the intervention group⁽²¹⁾. Similarly, the implementation of physical exercises during prenatal care decreased the risk of cesarean section by 13% and the risk of instrumental delivery by 16%⁽²⁴⁾.

The pelvic-abdominal mechanics activities, performed weekly for approximately one hour, were shown to be linked to a decrease in the cesarean section rate⁽²⁵⁾ and to an increase in the proportion of preserved perineum in the vaginal postpartum period⁽²⁶⁾. However, the significant number of women who did not have previous preparation for childbirth, as well as the lack of previous knowledge or experience in relation to the exercises, may, in fact, have impacted the results of this study.

Regarding neonatal outcomes, no associations were observed between the performance of pelvic mobility exercises during labor and Apgar scores. This finding does not identify differences in neonatal vitality indicators between women who performed pelvic mobility exercises and those who received usual care^(21,27). Taken together, these evidences suggest that the adoption of these practices is not associated with unfavorable repercussions on immediate neonatal adaptation, reinforcing their use in the context of good practices in childbirth care. However, studies with more robust designs are needed to expand knowledge about their effects on neonatal outcomes.

The comparison between the care contexts showed a greater diversity of exercises in the institution with the performance of the obstetric nurse, highlighting the role of this professional in the imple-

mentation and supervision of pelvic mobility practices. Evidence indicates that the obstetric nurse contributes to attending to the physical, emotional and social dimensions of women, promoting autonomy and protagonism in childbirth, in addition to favoring humanized care, based on the therapeutic bond and respect for dignity^(26,28).

Although some women reported difficulties in performing pelvic mobility exercises during labor, the associated discomfort was considered of little relevance, and there was high acceptance, with willingness to use them in future pregnancies. Women reported favorable perception of pelvic mobility exercises regarding the evolution of labor, although they were not associated with vaginal delivery and pain reduction. This finding reinforces the relevance of the mother's subjective experience as a legitimate component of care evaluation, in line with the recommendations of the World Health Organization on women-centered care.

Study limitations

The cross-sectional design of this study does not allow establishing temporal relationships or inferring causality between the performance of pelvic mobility exercises and obstetric and neonatal outcomes, restricting the analyses to the observed associations. In addition, the evaluation was carried out in the postpartum period and was based, in part, on the women's retrospective perception, which may have introduced recall bias, especially in relation to the duration of labor, pain intensity, and the perception of the benefits attributed to exercises. Although obstetric and neonatal outcomes were complemented by clinical records, maternal perception is a subjective measure, susceptible to the influence of individual birth experience. In addition, as this was an observational study, it was not possible to fully control for potential confounding factors, such as intensity and frequency of uterine contractions, time and intensity of exposure to exercises, time of exercise, exact dosage of misoprostol or oxytocin in labor, factors that may have influenced the observed associations.

Contributions to practice

This study expands the knowledge about women's perception of pelvic mobility exercises during labor/childbirth and provides observational evidence about their association with obstetric outcomes in a real care context. The results indicate high acceptability of these practices among the participants, and may support nurses, obstetric nurses and other professionals of the obstetric team in providing guidance on free movement, the adoption of different positions and the use of resources, such as Swiss ball and bean ball, in line with the recommendations of good practices for childbirth care. In addition, the findings reinforce the importance of incorporating guidance on prenatal labor preparation exercises and point to the need for experimental studies that investigate the effectiveness of these associated interventions on maternal and neonatal outcomes.

Conclusion

In the women's perception, the performance of pelvic mobility exercises during labor/childbirth was associated with a reduction in their duration and presented high acceptability among the participants. No associations were observed between the performance of these exercises and pain reduction, less use of epidural analgesia, greater occurrence of vaginal delivery or better neonatal outcomes. The findings indicate that most women had not received guidance on pelvic mobility exercises during prenatal care, highlighting opportunities to strengthen perinatal education and expand guidance on free movement and different positions in labor, in line with the recommendations of good obstetric practices.

Acknowledgments

To the Teaching, Research and Extension Support Fund of the State University of Campinas – Individual Projects No. 2547/23.

Authors' contributions

Conception and design or analysis and interpretation of data; Writing of the manuscript or relevant critical review of the intellectual content; Final approval of the version to be published; and Agreement to be responsible for all aspects of the manuscript, ensuring that any issues are investigated and resolved appropriately: **Mafetoni RR, Gonçalves AS, Sanfelice CFO, Jorge HMF, Jacob LMS, Balamint T, Santos GG.**

Data availability

The authors state that the entire dataset supporting the results of this study was published in the article itself.

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