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Performance evaluation of exercise instructions for first-time mothers during labor preparation in the delivery ward

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Abstract

Delivering a child is a daunting experience, particularly for first-time mothers. Preparing for delivery can help reduce negative reactions during labor. Therefore, this study aims to evaluate the performance of exercise instructions provided to first-time mothers during labor preparation in improving labor outcomes and maternal comfort. A descriptive cross-sectional study was conducted on a sample of (30) midwives working in labor preparation in the delivery ward of the hospital. Participants received standardized exercises from trained midwives. Performance was assessed using a structured observational checklist measuring not performing, below expectation, meet expectation, and exceed expectation. The walking exercise was performed at an exceeded expected rate by 46.7% of participants, while the birth ball exercise had a lower participation rate, with 60% not performing it. The majority (93.3%) did not perform squats, indicating below-expectation performance. The butterfly stretch was not performed by any participant (100%), categorizing it as not performed. The pelvic tilt exercise was not performed by any participant (100%). The back stretch (66.7%) is not performing, indicating below-expectation performance. Similarly, the child's pose exercise (76.7%) not performing it, also falls below expectations. Moreover, Kegel exercises were not performed by any participant (100%), Perineal massage (76.7%) was not performed, indicating below-expectation performance. In contrast, deep, slow breathing had the highest engagement, with 56.7% exceeding expectations, indicating strong performance in this category.

The exercise performance evaluation identified significant deficiencies in how midwives deliver pre-labor exercise instructions to first-time mothers. Current practices are inconsistent and inadequate for properly preparing women for vaginal delivery. Recommended continuing education programs focused on evidence-based prenatal exercise protocols.

Keywords: Midwives, first-time mothers, exercise, performance, delivery

Introduction

Delivering a child is a daunting experience, particularly for first-time mothers. Preparing for delivery can help reduce negative reactions during labor, prolonged labor, and other issues, like abnormal fetal position or heart rate, which can lead to a cesarean section (Wadhwa Y., *et al.*, 2020) [1].

Childbirth is a normal physiological process; many women experience childbirth with full awareness of the risks, but it can become a medical problem due to the mother's lack of understanding and the lack of experience of medical professionals in dealing with the physiological and pathological elements of the procedure.

Delivering a child is a very stressful experience for women, especially for the first time, pregnancy and labor entail complex events that are unique to each individual female, preparation for delivery can be effective in decreasing adverse responses during labor, a prolonged duration of labor and other complications, such as abnormal fetal position or heart rate, can result in a cesarean section (Wadhwa Y., *et al.* A., 2020) [1].

Giving birth is one of the most important and special experiences in a woman's life. Satisfaction with the childbirth experience is not only an indicator of the quality of maternity care; it also affects the well-being and health of the woman and her newborn. Therefore, every woman giving birth should have a positive labour experience. Some important things that increase satisfaction during labour are active participation in decision making during childbirth, a low level of pain, and good communication with the midwife or physician.

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Physical activity during pregnancy has several benefits for both the mother and the unborn child, including a lower chance of excessive weight gain during pregnancy and disorders like gestational diabetes, newborn macrosomia, preeclampsia, and premature birth. Physically active women typically have first and second stage labor and a normal delivery for shorter periods of time. With the correct exercises during pregnancy, the pelvic floor muscles can become 90% stronger, which is essential for a healthy delivery. Midwives can assist pregnant women in achieving a positive childbirth experience through education and support them. For many women giving birth, the ability to move freely is crucial and highly suggested to reduce the length of the first and second stages of labor and other harmful interventions like perineal trauma, operative vaginal birth, and caesarean section. In addition to mobilizing and upright positions during labor, caring and capable caregivers, and supportive birth partners, throughout labor are all advised by the WHO. (O'Brien D, *et al.*, 2022) [7]. Childbirth preparation classes are important for the mother's physical and psychosocial preparedness, as well as for identifying unexpected complications, such as gestational hypertension, postpartum haemorrhage, and infection, can all contribute to maternal mortality. Furthermore, childbirth preparation classes assist women in dealing with healthy and sanitary behaviours like regular pregnancy care, good nutrition, physical activity, and appropriate social support, all of which can improve pregnancy and childbirth outcomes. Unsuitable eating patterns, smoking, alcoholic drinks, an inability to cope with stress, and a passive lifestyle, these can all result in unfavourable outcomes such as preterm labour, elevated blood pressure during pregnancy, and a low birth weight.

Delivery preparation classes throughout pregnancy may be a suitable solution to avoiding medical interventions and reducing complications for both the mother and her fetus. Effective education could improve pregnant women's attitudes and knowledge, which would in turn boost their self-esteem and readiness to accept a safe, natural delivery without the need for medical assistance.

Psychological preparation, besides the medical services, is crucial because of the significant impact of the psychosocial aspects of maternal care at all stages of childbirth on a woman's perception and subsequent evaluation of childbirth. The primary goals of maternity care throughout childbirth should meet the individual needs of women, provide them with quality care services, and promote a positive childbirth experience, regardless of the course or complications during labor. In addition to medical safety, health professionals are required to focus more on psychosocial aspects during labor.

Numerous studies have evaluated the role of exercise during pregnancy for women, with many studies aiming to assess its impact on labor and delivery outcomes. These programs often include structured physical activities, pelvic floor muscle training, and perineal massage. However, research on specific guidelines for exercising during childbirth remains limited. Therefore, the current study aims to evaluate the performance of exercise instructions provided to first-time mothers during labor preparation in improving labor outcomes and maternal comfort.

Methodology

Study Design and Settings: A descriptive study design was

used in this study, which was conducted at Al-Zahra Hospital in the An-Najaf health directorate.

Study Population

This study was conducted after obtaining the consent from the midwives who are working at delivery halls at Al-Zahra Hospital in An-Najaf health directorate to evaluate the performance of pre-delivery exercise instructions for pregnant women.

Sample and Sampling Procedure

The study sample consists of (30) midwives who are works at delivery hall. Randomly sampling depend to select the sample from the target population who are works at delivery halls at Al-Zahra Hospital in An-Najaf health directorate.

Data Collection

The data collected from (30) midwives who are works at hall of delivery depended as a sample in the study. Three observations for each midwife related to practices involved in the tool, in order to check if this practice performed or not.

Validity

The researcher using validated checklist after consider and depending the scientific opinion of (6) of experts (Appendix: 3).

Reliability

The reliability coefficients is an important indicator of an questioner's quality. The pilot study performed as a small and primary study before starting the study procedures in order to assess the inter-rater reliability of the questioner which is prepared to collect the this identified data. The results of the pilot study were statistically managed and the results revealed that the reliability which estimated for used instrument was ($r=0.79$) which is statistically acceptable.

The results

In order to evaluate the performance of pre-delivery exercise instructions for prime labor women at the delivery hall, data were collected from midwives by using specific checklist tool prepared for the this purpose. Many statistical methods were used to find out the outcome.

Table 1: Distribution the demographical and clinical characteristics

Characteristics		F (%)
Age group	29 ≤ years	14 (46.7)
	30 ≥ years	16 (53.3)
Experience	5-9 years	17 (56.7)
	10 ≥ years	13 (43.3)
Level of education	Secondary midwifery school	25 (83.3)
	Diploma holder	5 (16.7)

This table presents the distribution of participants based on age, experience, and education level. The majority (53.3%) are aged 30 years or older, while 46.7% are younger than 30. Most participants (56.7%) have 5-9 years of experience, whereas 43.3% have 10 or more years. In terms of education, 83.3% graduated from secondary midwifery school, and 16.7% hold a diploma.

Table 2: Evaluating the gravity exercises performance

No.	Exercise	Observation	F (%)	Mean± SD	Assessment
1	Walking	Not performing	5 (16.7)	2.97 ±1.159	Meet expectation
		Below expectation	5 (16.7)		
		Meet expectation	6 (20)		
		Exceed expectation	14 (46.7)		
2	Birth ball	not performing	18 (60)	1.80 ±1.126	Below expectation
		below expectation	4 (13.3)		
		meet expectation	4 (13.3)		
		exceed expectation	4 (13.3)		

0-1=not performing, 1.1-2=below expectation, 2.1-3=meet expectation, 3.1-4=exceed expectation

Table 2 evaluates the performance of gravity exercises, including walking and birth ball exercises. The walking exercise was performed at an exceeded expected by 46.7% of participants, with a mean score of 2.97 ± 1.159 , meeting expectations. In contrast, the birth ball exercise had a lower participation rate, with 60% not performing it and a mean score of 1.80 ± 1.126 , indicating performance below expectations.

Table 3: Evaluating the hip-opening exercises performance

No.	Exercise	Observation	F (%)	Mean± SD	Assessment
1	Squat	Not performing	28 (93.3)	1.20 ±0.761	Below expectation
		Below expectation	0		
		Meet expectation	0		
		Exceed expectation	2 (6.7)		
2	Butterfly stretch	not performing	30 (100)	1.00 ±0.000	Not performing
		below expectation	0		
		meet expectation	0		
		exceed expectation	0		

0-1=not performing, 1.1-2=below expectation, 2.1-3=meet expectation, 3.1-4=exceed expectation

This table evaluates the performance of hip-opening exercises, including squats and butterfly stretches. The majority (93.3%) did not perform squats, resulting in a mean score of 1.20 ± 0.761 , indicating below-expectation performance. The butterfly stretch was not performed by any participant (100%), with a mean score of 1.00 ± 0.000 , categorizing it as not performed.

Table 4: Evaluating the Back-stretching exercises performance

No.	Exercise	Observation	F (%)	Mean± SD	Assessment
1	Pelvic tilt	Not performing	30 (100)	1.00±0.00	Not performing
		Below expectation	0.00		
		Meet expectation	0.00		
		Exceed expectation	0.00		
2	Back stretch	not performing	20 (66.7)	1.80±1.215	Below expectation
		below expectation	1 (3.3)		
		meet expectation	4 (13.3)		
		exceed expectation	5 (16.7)		
3	Child's pose	not performing	23 (76.7)	1.63±1.217	Below expectation
		below expectation	1 (3.3)		
		meet expectation	0.00		
		exceed expectation	6 (20)		

0-1=not performing, 1.1-2=below expectation, 2.1-3=meet expectation, 3.1-4=exceed expectation

This table evaluates the performance of back-stretching exercises, including pelvic tilt, back stretch, and child's pose. The pelvic tilt exercise was not performed by any participant (100%), with a mean score of 1.00 ± 0.000 . The back stretch had a mean score of 1.80 ± 1.215 , with 66.7%

not performing it, indicating below-expectation performance. Similarly, the child's pose exercise had a mean score of 1.63 ± 1.217 , with 76.7% not performing it, also falling below expectations.

Table 5: Evaluating the pelvic floor exercises and breathing exercises performance

No.	Exercise	Observation	F (%)	Mean± SD	Assessment
1	Kegel exercises	Not performing	30 (100)	1.00± 0.000	Not performing
		Below expectation	0.00		
		Meet expectation	0.00		
		Exceed expectation	0.00		
2	Perineal massage	not performing	23 (76.7)	1.43± 0.898	Below expectation
		below expectation	3 (10)		
		meet expectation	2 (6.7)		
		exceed expectation	2 (6.7)		
3	Deep, slow breathing	not performing	3 (10)	3.27± 1.015	Exceed expectation
		below expectation	3 (10)		
		meet expectation	7 (23.3)		
		exceed expectation	17 (56.7)		

0-1=not performing, 1.1-2=below expectation, 2.1-3=meet expectation, 3.1-4=exceed expectation

This table evaluates the performance of pelvic floor and breathing exercises, including Kegel exercises, perineal massage, and deep, slow breathing. Kegel exercises were not performed by any participant (100%), with a mean score of 1.00 ± 0.000 . Perineal massage had a mean score of 1.43 ± 0.898 , with 76.7% not performing it, indicating below-expectation performance. In contrast, deep, slow breathing had the highest engagement, with 56.7% exceeding expectations and a mean score of 3.27 ± 1.015 , indicating strong performance in this category.

Discussion

The data indicates that over half of the midwives are aged 30 or above, and a majority have between 5 to 9 years of experience. This suggests a relatively young workforce with moderate experience levels. Understanding the age distribution is crucial, as studies have shown that younger midwives may exhibit different attitudes towards patient participation compared to their older counterparts. A study by Malfait found that younger midwives were more reluctant to accept a collaborative patient role and cope with more active patient behavior (Malfait S, Eeckloo K, Van Hecke A., 2017) [4].

A significant majority of the midwives have completed secondary midwifery school, while a smaller portion holds diplomas. Educational background can influence clinical competencies and perceptions of readiness among midwifery staff. Research indicates that higher levels of education are associated with better preparedness and confidence in clinical settings. That is supported by a study exploring qualified midwives' perceptions of nursing graduates' abilities found that educational setting and level influenced perceptions of clinical competence (Missen K, McKenna L, Beauchamp A, Larkins JA., 2016) [5].

The data indicate a higher performance level in walking exercises compared to birth ball exercises. About half of the participants exceeded expectations in walking, while sixty percent did not perform the birth ball exercises. This variance may be related to participants' familiarity and comfort with walking as a routine activity, whereas birth ball exercises might be less familiar, leading to lower participation and performance. This finding is supported by a meta-analysis study that revealed that birth ball exercises

significantly decreased cesarean section rates, limiting labor pain, and shortened the time of the first stage of labor, supporting their efficacy as a non-pharmacological intervention in low-risk labor management (Terres MT, et al., 2025) [6].

A significant lack of performing in two fundamental hip-opening exercises the squat and the butterfly stretch among participants. This trend raises concerns regarding their hip flexibility and overall musculoskeletal health.

The squat is a foundational movement that enhances lower-body strength and hip mobility. This low performance may result from factors such as sedentary lifestyles, discomfort, or unfamiliarity with proper squatting techniques. Regular practice of squats is crucial, as they contribute to maintaining mobility and reducing the risk of cesarean section (The Times (N.D.), 2025).

The butterfly stretch targets the inner thighs and enhances hip flexibility. According to results 100% of participants did not perform this exercise. This suggests significant limitations in hip flexibility or a lack of awareness regarding the benefits of this stretch.

The pelvic tilt exercise is essential for strengthening the lower back and improving pelvic alignment. According to assessment results which indicates that no one of the participants performed this exercise. This complete non-engagement suggests a potential lack of awareness or understanding of the benefits associated with pelvic tilts. Child's Pose, a foundational yoga posture known for its restorative benefits, this exercise below expectation. This pose gently stretches the back, hips, thighs, and ankles, promoting relaxation and stress relief. Its underutilization among participants may indicate unfamiliarity with yoga practices or perceived difficulty in execution. Regular practice of Child's Pose can aid in alleviating back pain and enhancing overall flexibility (Real Simple. (N.D.), and Very well Fit. (N.D.), 2025).

The results reveals significant gaps in both instruction and practice. The results indicates that 100% of participants did not perform Kegel exercises". Similarly, perineal massage was "Below expectation" in performing of participants. In contrast, deep, slow breathing exercises performance were "Exceeds expectation". Not performed by only 10% of participants.

The complete lack of engagement in Kegel exercises underscores a critical deficiency in education and awareness. Pelvic floor muscle training (PFMT) is essential during pregnancy for strengthening the pelvic muscles, which contributes to smoother childbirth and may reduce the risk of complications associated with prolonged labor. A study highlighted that targeted exercises for the abdominal and pelvic muscles enhance physical preparation for delivery, potentially decreasing the need for cesarean sections (Qinhan Xie, et. al., 2025) [15].

Point of view the role of midwives in educating preterm women about these exercises is pivotal. Midwives are often the most important advocates for women as they enter motherhood, and being knowledgeable in the area of pelvic health and wellness enables them to support women effectively. The pelvic floor plays a critical role in stability during movement and is significantly impacted during pregnancy. Therefore, midwives equipped with comprehensive knowledge can better educate and encourage women to engage in beneficial exercises.

Conclusion

The performance evaluation reveals critical gaps in the implementation of pre-labor exercise instructions for first-time mothers in the delivery ward. The findings demonstrate that current midwife performance of prenatal exercises is incomplete and inconsistent, failing to meet the standards necessary to adequately prepare primiparous mothers for normal vaginal delivery. The study recommended prioritizing continuing education programs for midwives that focus on evidence-based antenatal exercise protocols, establishing high-quality mechanisms for monitoring midwife performance, and creating an institutional culture that recognizes the importance of comprehensive childbirth preparation. By investing in midwifery competence in this essential area of antenatal care, maternity wards can significantly improve birth outcomes while reducing the medical and financial burdens associated with cesarean sections.

Conflict of Interest

Not available

Financial Support

Not available

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