# Knowledge, attitude, and practice of the upright birth position among nurses and midwives in Dar es Salaam, Tanzania

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**Submitted:** August 2025
**Accepted:** November 2025
**Published:** February 2026

## ABSTRACT

**Introduction:** The World Health Organisation recommends that all women in labour should give birth in the position of their choice. This study aimed to assess the knowledge, attitudes, and practices regarding the upright birth position among nurses and midwives working in the Maternity Department in Dar es Salaam, Tanzania.

**Method:** This was a hospital-based, analytical, cross-sectional study design using a quantitative approach and a self-administered, structured questionnaire. Descriptive statistics were used to analyse the frequency distribution of the variables. Binary and multivariate logistic regressions were applied to determine the strength of the association between independent and dependent variables.

**Results:** Out of 283 participants, only 38 (13.4%) had ever practised upright birth positions at least once, 33 (11.7%) had good knowledge, though 220 (78.1%) had a positive attitude toward upright birth positions.

**Conclusion:** Supporting midwives in delivering in the upright position is necessary to increase the number of women who choose this position. Women also choose other positions when given the opportunity, and with support, midwives can adapt to these positions as well.

**Keywords:** birth position, knowledge, attitude, practice, Tanzania

**Citation:** Mkangi et al. Knowledge, attitude, and practice of the upright birth position among nurses and midwives in Dar es Salaam, Tanzania. South Sudan Medical Journal, 2026;19(1):13-18  DOI: https://dx.doi.org/10.4314/ssmj.v19i1.3

## Introduction

Maternal birth position refers to the physical postures a woman assumes during delivery and is classified by some authors as either horizontal or upright.[1] The upright birth positions include squatting, kneeling, hands-and-knees, and sitting - see Figure 1 and the Global Health video.[2] Women who give birth in an upright position experience several benefits compared to those in a horizontal position. This includes shorter second-stage labour, a good Apgar score, reduced risk of obstetric injuries, operative deliveries, and postpartum haemorrhage.[3,4] The World Health Organisation (WHO) recommends that every woman in

Figure 1a. Squatting position

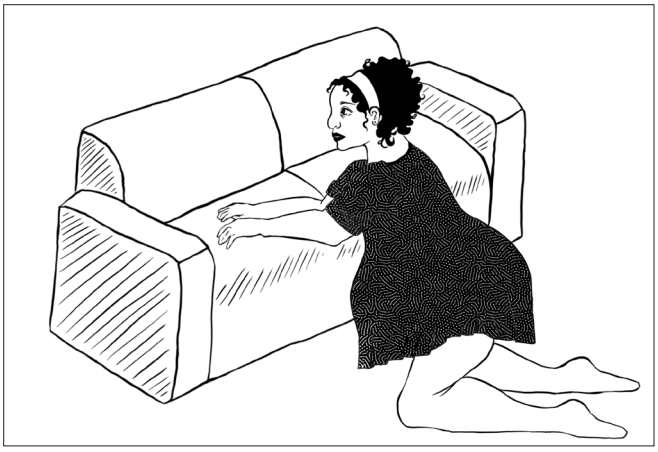

Figure 1b. Kneeling position

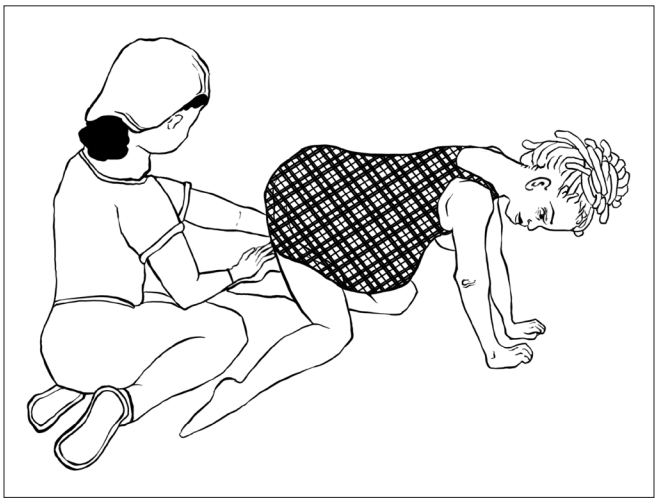

Figure 1c. Hands and knees position
(All figures drawn by Evie Rose Fairclough and Robin Conlan)

Figure 1d. Sitting position

labour be allowed to give birth in a position of her choice, with greater emphasis on the upright birth position due to its proven benefits.[5] Despite this recommendation, the majority of women in Tanzania still deliver in a horizontal position.[6] Several barriers to adopting the upright birth position have been identified, including limited knowledge and skills, a negative attitude, and an unsupportive work environment, such as a lack of necessary equipment for delivering in the upright position.[7,8]

In Tanzania, the upright birth position is not well researched. However, a previous study in South Africa reported that fewer than 1% of births occur in the upright position.[9] Due to this gap, this study aimed to assess nurses' and midwives' knowledge, attitudes, and practices regarding the upright birth position in maternity departments of hospitals in Dar es Salaam.

## Method

Aims of the study were:

1. To assess the knowledge of conducting deliveries in the upright birth position among nurses and midwives working in the maternity department of public hospitals in Dar es Salaam.
2. To assess the attitude towards conducting deliveries in the upright birth position among nurses and midwives working in the maternity department of public hospitals in Dar es Salaam.
3. To determine the proportion of nurses and midwives working in the maternity departments of public hospitals in Dar es Salaam who conduct deliveries in the upright birth position.

This study was hospital-based, an analytical cross-sectional design using quantitative methods. It was conducted in labour wards in public health facilities in Dar es Salaam, Tanzania. The participants were nurses and midwives working in the labour wards with at least one year of experience in the role.

### Sampling procedure

Since the total study population was known to be 750, the minimum required sample size was calculated using the formula for finite population sampling as proposed. [10] Assuming a population proportion of 50%, a 95% confidence level (Z = 1.96), and a 5% margin of error, the resulting sample size was 257 participants. To account for potential non-response, an additional 10% (26 participants) was added, resulting in the final total sample size of 283 participants.

A multistage sampling method was applied, involving two steps to select hospitals and participants.

A census method was employed to compile a sampling list of all district hospitals, regional referral hospitals, and tertiary hospitals in the Dar es Salaam region. These hospitals were stratified into three categories: tertiary, regional, and district hospitals. Purposive sampling was used to include all tertiary and regional referral hospitals. For district hospitals, a simple random sampling with replacement was used to select two hospitals from five.

In the second stage, all midwives and nurses working in the maternity ward were selected. The proportional allocation formula (Bourley's method) was applied to distribute a sample of 283 across the hospitals under study based on the number of nurses and midwives. Finally, at the ward level, purposive sampling was used to select eligible participants until the desired number per facility was reached.

### Statistical analysis

Data were coded, cleaned, processed, and analysed using the Statistical Package for the Social Sciences. The participant's knowledge was measured using quartiles, of which three analytical groups were established: poor knowledge, moderate knowledge, and good knowledge.

## Results

### Sample characteristics

As presented in the Table 1. This study sample comprised 283 midwives and nurses, selected from the maternity departments of seven public hospitals in Dar es Salaam. Out of 283, 223 (78.8%) were female, and 60 (21.2%) were males, all between the ages of 25 and 52 years (mean age of 35.5±5.9). 222 (78.4%) participants were married, and the remaining 61 (21.6%) were single. In terms of education, 19.8% completed certificate courses, 51.2% completed diplomas, 26.5% bachelor's degrees, and 7 2.5% had master's degrees. Working experience ranged between 1 and 28 years (mean 9.5 and ± 5.9). The experience of work in the labour ward ranged from 1 to 20 years (mean 4.4 and ± 3.1).

**Table 1. Participant's sociodemographic characteristics (N=283)**

| Variable | Response | Frequency n (%) |
|---|---|---|
| **Wards** | Antenatal | 81 (28.6) |
| | Labour ward | 130 (45.9) |
| | Postnatal | 72 (25.5) |
| **Sex** | Female | 223 (78.8) |
| | Male | 60 (21.2) |
| **Age** | 26-35 | 153 (54) |
| | 36-45 | 106 (37.5) |
| | 46-55 | 24 (8.5) |
| **Level of education** | Certificate | 56 (19.8) |
| | Diploma | 145 (51.2) |
| | Degree | 75 (26.5) |
| | Masters | 7 (2.5) |
| **Marital status** | Married | 222 (78.4) |
| | Single | 61 (21.6) |
| **Years of experience** | 1-10 | 177 (63.5) |
| | 11-20 | 86 (30.4) |
| | 21-30 | 20 (7.1) |
| **Years of work in labour ward** | 1-4 | 179 (63.3) |
| | 5-10 | 91 (32.2) |
| | 11-20 | 13 (4.6) |

### Knowledge

Out of 283 participants, 11.7% had good knowledge of the upright birth position, 56.5% had moderate knowledge, and 31.8% had poor knowledge. Figure 2.

The mean knowledge score among participants was 48.5%, with most correctly recognising that the upright birth position promotes proper foetal positioning (83.4%) and aids labour progression (74.8%). However, most participants did not have adequate knowledge of the upright birth position, and 88.3% were unaware that the upright position can also improve uterine contractions and reduce labour pain. 85.5% were unaware of positions that increase pelvic inlet size and reduce foetal heart rate changes linked to the supine position.

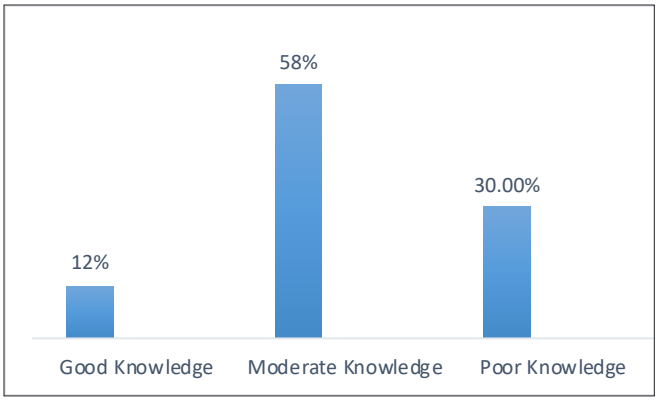


Figure 2. Participants' knowledge of the upright birth position (N=283)

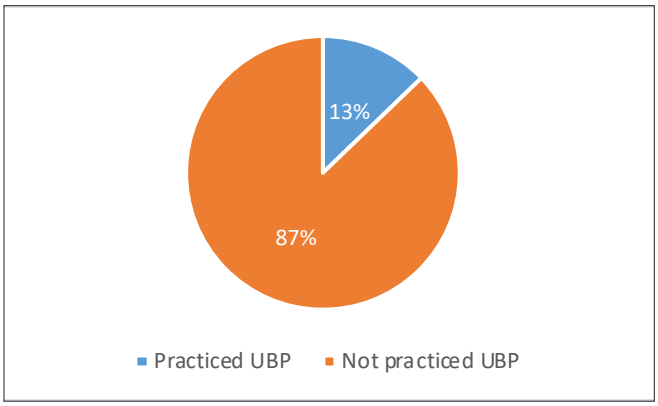


Figure 3. Proportion of health workers practising or not practising the upright birth position (N=283)

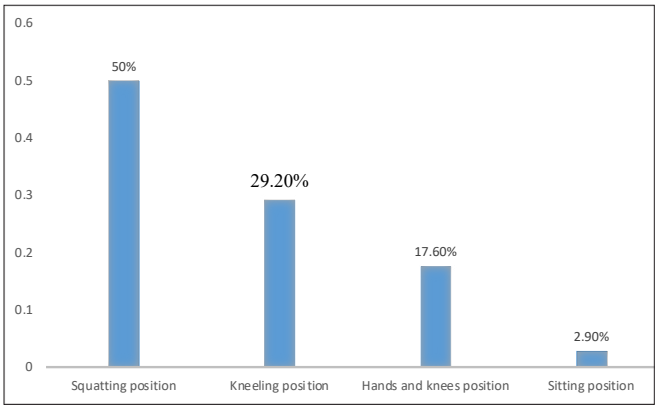


Figure 4. Types of upright birth position practised (N=37)

### Attitude

78.1% of all participants had a positive attitude towards delivering pregnant women in an upright birth position (UBP), while 21.9% had a negative attitude; 80% of participants agreed that nurses and midwives should be trained in the upright birth position, that there should be guidelines for upright birth positions and that delivery rooms should be designed for conducting upright birth positions.

### Upright birth position practice

Only 13.2% participants had ever conducted delivery in the upright position, while the remaining 245 (86.8%) had never practised it – Figure 3.

The most practised upright birth position was squatting at 50%, followed by kneeling at 29.2%, hands and knees at 17.6%, and sitting at 2.9%. – Figure 4.

## Discussion

### Knowledge

This study found that most participants had limited knowledge of upright birth, as evidenced by medium and low levels among the majority. This was similar to a previous study in Tanzania,[8] and another in China,[11] which reported that most nurses and midwives lack adequate knowledge of upright birth positions.

### Attitude

Despite the low level of practice, this study found that the majority of participants had a positive attitude towards upright birth. This aligns with previous

studies in Tanzania[8] and Ethiopia,[12] which found that the majority of nurses and midwives have a positive view of the upright birth position but do not practice it. Additionally, the findings were similar to those of the studies in India[13] and Nigeria,[14] which reported that positive attitudes among nurses and midwives did not necessarily lead to the adoption of upright birth positions.

### Practice

This study found that the practice of upright birth position was significantly low, with only 13% of nurses and midwives having delivered in an upright position. Similarly, a study by Huang and Jiang et al.[15] in their review of birth positions from around the world showed that in China and France, most midwives preferred dorsal positions, although in many Asian countries, the sitting position was preferred. In the same way, another study in Malawi reported that the majority of women (91.4% ) delivered in a horizontal or supine position.[16]

## Conclusion

This study found that only a very few midwives and nurses in Dar es Salaam practice upright birth. A possible reason for this is that most nurses and midwives lack adequate knowledge of the benefits of delivering women in an upright birth position, although the majority had a positive attitude towards it. Therefore, it is vital that, during pre-service and in-service training, nurses and midwives should be educated and supported about the benefits of delivering in an upright birth position.

**Ethical approval:** This was obtained from the University of Dodoma, and all ethical procedures were adhered to throughout the study.

**Availability of material:** The data for this study will be available upon reasonable request.

**Competing interest:** None.

**Funding:** This study was funded by the Ministry of Health of the United Republic of Tanzania.

**Authors contributions:** Conceptualisation: S.K.M; Methodology: S.K.M, S.A.S; Supervision: S.A.S, W.C.M; Writing- original draft: S.K.M, S.A.S; Writing, review and editing: S.A.S, W.C.M.

**Acknowledgments:** We acknowledge the University of Dodoma for academic support, the Ministry of Health for financial support and the hospital management team for permission for this study. We thank Evie Rose Fairclough and Robin Conlan for Figure 1.

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