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# Assessment of the effect of the upright position versus the lying position on the first stage of labor among primepara women

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**Abstract**

Normal labor is a series of rhythmic, involuntary, progressive uterine contraction that causes effacement and dilation of the uterine cervix. upright position during the first stage of labor is beneficial for the mother and baby for several physiologies. The current study aimed to assess effect of the upright position versus lying position on first stage of labor among primipara women. A descriptive design two group (upright and lying groups) was used in the current study. The current study was conducted in the obstetric and gynecological department at Benha university hospital. Purposive sample was utilized in the current study, which included (50) primepara women. Three tools were used in the current study. Structured interviewing questionnaire. Partograph aimed to monitor the progress of labor. Visual analogue pain intensity scale (VAS). Revealed that high statistical significant difference between the upright and lying groups in term of decrease duration in first stage of labor and increases intensity of uterine contraction, cervical dilatation and fetal head descent among the upright group. While lying group showed less progress. Moreover, lying group expressed more pain score than upright group. Upright position had positive effect on progress of labor, decreased duration of the first stage of labor, faster fetal head descent, significant reduction of pain score. Development of instructional guidelines for pregnant women in low-risk labour about the benefits of assuming upright positions during first stage of labor, and be encouraged and supported to use upright position.

**Keywords:** First stage of labor, Lying, Upright position.

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## 1. Introduction

Normal labor is dependent on the presence of regular and effective contractions of the uterine myometrium. the mechanisms responsible for the initiation and maintenance of adequate and synchronized uterine activity that are necessary for labor and delivery result from a complex interplay of hormonal mechanical, and electrical factors that have not yet been fully elucidated [1]. Normal labor divides into fourth stages, the first stage starts when true labor pain begins and ends with full cervical dilation and effacement. The second stage is the is the period from fully dilated cervix till delivery of the fetus. Third stage of labour covers the period between the birth of the baby and the delivery of the placenta and membranes, the fourth stage starts after delivery of the placenta until two hours [2].

The first stage describes the time from the diagnosis of labour to full dilatation of the cervix (10 cm). the first stage of labour categorized into two phases latent and active phase. In the latent phase cervix dilated from 3 to 4 cm and effacement occurs in this phase. The duration of the latent phase is changeable. However, normally lasts between 6 and 8 hours, with multiparous women experiencing a shorter period in primigravida that takes about 10-12 hours. the active phase cervix dilates from 5 to 10 cm is also variable in length, usually lasting between 2 and 6 hours. Cervical dilatation during the active phase occurs typically at 1 cm/hour: or more in a normal labour [3]. Primepara refers to giving birth for the first time, which often translates into feeling of inexperience and an inability to assess the childbirth experience. Thus, primepara women are more

likely to feel uncertainty and fear related to childbirth than multipara women. [4]. Positions assumed in the first of labor can be broadly categorized as upright or recumbent. upright defined as 'erect or vertical' positions that are flexible sacrum positions, where the coccyx is free to move, occur at a rotation of 15.7° of the coccyx with a widening of the pubic symphysis ,which appear to be more beneficial for the mother's pelvis. upright position such as sitting, standing, walking, kneeling, squatting. Horizontal position classified as non-flexible sacrum positions, where the coccyx movement is restricted, occur at a rotation of 3.6° of the coccyx and with a widening of the pubic symphysis .horizontal position such as supine, lithotomy, semi-recumbent or recumbent, lateral position [5].

Nurses have effective role during different stages of labor that who such as explain procedures and the possible risks associated with labor and delivery. obtain informed consent for procedures (e.g., forceps delivery, episiotomy).when procedures involve women body, women must have the appropriate information to make informed choices. because the first stage of labor begins with uterine contractions and takes hours to complete, most women have had labor contractions for hours before arriving at the birthing center. when arrive, one of chief needs is reassurance that judgment has been correct, everything is going well, and the exhaustion and increasing pain feel is part of the usual labor [6].

### *1.1 Significant of the study*

According to new research from the World Health Organization (WHO), the rate of normal labor decrease and caesarean section continues to rise globally, now accounting for more than 1 in 5 (21%) of all childbirths. In Egypt, the past decade has witnessed a sharp increase in the prevalence of CS with the most recent Egypt Demographic and Health Survey (EDHS) documenting a CS rate of 52 percent, which suggests that cesarean delivery might be overused or used for inappropriate indications [7]. Upright positions during first stage of labour are assumed to have many physiological advantages that may facilitate normal birth. there are significant evidence that upright positions in the first stage of labor have several advantages [8]. upright positions during first stage of labour have an effect of the gravity that may reduce aortic compression, increase the duration frequency, and intensity of uterine contractions. Furthermore, that may help in better adjustment of the fetus to the birth canal and increase pelvic capacity, which in turn may reduce the need for instrumental deliveries and decrease labor length. Therefore the study was conduct to assess effect of upright position versus lying position on first stage of labor among primepara women.

### *1.2 Aim of the Study*

The current study aimed to assess effect of the upright position versus lying position on first stage of labor among primepara women.

### *1.3 Research question*

What are the effects of upright position versus lying Position on first stage of labor among primipara women?

### 1.4 Research design:

Descriptive design was conducted to fulfill in the current study. Descriptive design a powerful tool used by scientists and researchers to gather information about a particular group or phenomenon [9].

### *1.5 Setting*

The current study was conducted in the obstetric and gynecological department at Benha university hospital.

### *1.6 Sample*

Type of sample: purposive sample was utilized in the current study.

### *1.7 Sample size*

(50) Primepara women attended during 3 months from the beginning of December 2022 to the end of February 2023 according to inclusion and exclusion criteria**.**

### *1.8 Inclusion criteria*

Full-term labor

### *1.9 Exclusion criteria*

Preterm labor and high risk pregnancy.

### *1.10 Tools of data collection*

Three tools were used for data collection.

#### *1.10.1 1st* ***Tool: A Structured interviewing questionnaire***

This questionnaire designed by the researchers after literature review and consisted of two parts [8].

#### *1.10.2 Part one*

Demographic data of primepara women which included age, residence educational level, occupation, weight and height and body mass index (BMI)

#### *1.10.3 Part two*

Obstetric and gynecological history of primepara women which included: gestational age in week, history of previous abortion.

#### *1.10.4 2nd Tool Partograph to assess labor progress during first stage of labour.*

Partograph aimed to monitor the progress of labor in term of cervical dilatation, fetal head descent, uterine contraction characteristics (duration, frequency, and interval), and fetal heart rates**.** included three main parts: fetal condition, labor progress, maternal condition [10].

#### *1.10.5 3nd Tool: assessment of pain during first stage of labor among primepara pregnant women by Visual analogue pain intensity scale (VAS)*

that is a standardized linear scale comprises 0-10 point, the two opposite ends representing no pain to severe pain as follows: No pain (0), Mild pain (< 4), Moderate pain(4-6), Sever pain (7-10) [11].

#### *1.10.6 Tools validity*

Revision of the tools for clarity, relevance, comprehensiveness, understanding, and applicability was done by a panel of expertise composed of two professors of

obstetrics and gynecological nursing one professor from community health nursing to measure the content validity of the tools.

### *1.10.7 Tool's reliability*

Reliability was calculated by Cronbach's alpha coefficient test, and the internal consistency of Numeric Pain Rating Scale (Tool II) was α=0.93. Partograph (Tool III) was α=0.96**.**

### *1.11 Ethical considerations*

An official permission to conduct the proposed study was obtained from faculty of nursing Helwan University the Scientific Research Ethics Committee. Participation in the study is voluntary and subjects were given complete full information about the study and their role before signing the informed consent. the ethical considerations was included explaining the purpose and nature of the study, stating the possibility to withdraw at any time, confidentiality of the information where wasn't be accessed by any other party without taking permission of the participants. Ethics, values, culture and beliefs was respected.

### *1.12 Preparatory phase*

that included reviewing of past, current, national and international related literature and theoretical knowledge of various aspects of the study using books, articles, internet, periodicals and magazines to develop tools for data collection.

### *1.13 B-Pilot study*

The pilot study was conducted 10% (5) primepara women of the sample to examine the clarity of questions and time needed to complete the study tools. Based on the results, Subjects included in the pilot study were included from the study sample.

### *1.14 Field work*

Field work started at the beginning of December 2022, after getting the official permission. It was completed by to the end of February 2023.consuming three months.

An official permission was granted from the Dean of the Faculty of Nursing, Helwan University and delivered to the director of Benha University Hospital in order to obtain their approval for conduction of the research. The study was carried out in the following stages: assessment &preparatory, implementation phase and Evaluation.

### *1.14.1 Assessment and preparatory phase*

At this stage tools of data collection were developed and the administrive permissions were obtained to carry out the study researchers reviewed related current and past, local and international literature and theoretical knowledge of various aspects of the study using books, articles internet and magazines related to research point.

### *1.14.2 The implementation phase*

The researchers visited the study setting three days/week from 9.00 am and extended after the mother enter delivery room during this phase, parturient primepara in both groups were received the same management of first stage of labor according to the applied guidelines in study setting except for assumed position during 1st stage of labor each women in the upright group were individually met during admission through an explanation of the benefits of changing their position from walking, standing, sitting, kneeling and squatting during first stage of labor. At the beginning of active phase of labor women were encouraged to assume one of upright positions i.e. (walking and upright non-walking as sitting, standing, kneeling, or squatting) walking out of bed and tell women to return to bed when medical or nursing intervention needed Sitting position was assumed on chair or in the bed with support the back, standing position with support on wall was achieved by women. Each woman were encouraged to assume such positions alternatively for the 15-20 minutes every hour according to women comfort and in between women were permitted to lie down on bed for 10-15 minutes and assist women to repeated these position up to10 cm cervical dilatation. And tell women to return in bed if the membrane ruptured and any fetal distress observed. While women in the recumbent group were assumed one of recumbent position as supine, semi recumbent and left lateral for 15-20 minute every hour with receiving routine care repeated this position up to10 cm cervical dilatation.

### *1.14.3 The evaluation phase*

The researcher evaluated and compared the effect of the upright and recumbent positions during first stage of labor on progress of labor and labor outcomes through assessing the progress of labor through duration, interval frequency of uterine contraction, cervical dilatation, the descent of fetal head and pain intensity and duration of the first.

### *1.15 Statistical analysis*

Prior to automated input, data were checked. Data tabulation and analysis were done using SPSS version 22 (Statistical Package for Social Sciences). The use of descriptive statistics was used (e.g., mean, standard deviations, frequencies, and percentages). Pearson correlation coefficients, independent t-tests, Fisher Exact Test and Chi-square tests were applied. For all of the statistical tests done, p-value > 0.05 which indicated no statistically significant difference, p-value ≤ 0.05 indicated a statistically significant difference, and p-value ≤ 0.001 indicated a highly statistically significant difference.

## 3. Results

Table (1) shows that the distribution of women in two groups, the "Upright position group" and they" Lying position group, "based on various demographic characteristics. And it is clear that, about two third (64.0%) of the studied upright group were in the age from 20 to 25 years while more than half (52.0%) of the lying position group in the same age range. Regarding residence, about two third (64.0 %) of upright group were living in rural areas, and more than half (52.0 %) of the lying position group were living in rural areas. regarding educational level, more than one third (44.0 %) and more than half (60.0 %) have Secondary education in the upright group and lying position group respectively. As regard occupation more than two third (68.0 %) and the majority (76.0 %) from the upright group and lying position group respectively were housewives. There was no significant difference between the upright group and lying group in sociodemographic data. Figure( 1 ) illustrated that, about two third (64.0% ) and more than half (56.0 %) were overweight of the upright position group and lying position group respectively, while only minority

(12.0%) of the upright position group were normal body weight. Table (2) shows that distribution of studied women according to their obstetrics history and illustrated that, more than half (52.0 %) and about half (48.0 %) of the upright position group and lying position group respectively were in 39 weeks of gestational age. Table (3) shows that the mean labor pain scores among studied women in both groups during the first stage of labor and illustrated that there was statistically significant difference in pain score between the two groups with p value less than 0.05 with lower scores in the upright position group at cervical dilatation of 6 cm to10 cm. Table (4) show that distribution of characteristics of fetal moulding among studied women in both groups during first stage of labour and illustrated that there was statistical significant difference between the two groups with p value 0.006 and 0.03 with higher fetal moulding level with about two thirds (64.0%) and the majority (88.0 %) in upright position group compared to less than one third 28.0% and more than half (56.0%) in lying position group. Table (5) shows that mean uterine contraction among studied women in both groups during first stage of labour and illustrated that there was statistical significant difference between the two groups in frequency, duration and interval with $p \leq 0.05$ in all of them. There was more frequent, duration and less time for interval in all stages of cervical dilatation. Table (6) Shows that on admission there was no statistical significant difference between women in upright position and lying position group in relation to the intensity of uterine contraction p value >05%. On the other hand, there was statistical significant deference between women in upright position and lying position group .in favor of women in upright position group. At 6cm, 8cm, 10cm cervical dilatation p value <05%

Table (7) shows that fetal station measurements during labor were examined in upright and lying positions. There were no significant differences between two groups on admission, while Significant differences emerged: at 6cm dilation, the upright group had a higher station (mean -1.68 vs. -2.12); at 8cm dilation, the upright group's station was higher (1.32 vs. 0.88); and at 10cm dilation, the upright group also had a higher station (1.68 vs. 1.16). This suggests that the upright position may have an impact on the fetal station during labor. Statistical tests revealed significant differences at these stages with p-values of 0.03 and 0.04, respectively. Table (8) shows that the study examined labor stage durations in upright and lying positions. Noteworthy findings include the active phase of the first stage being significantly shorter in the upright group (mean 5.12 hrs. vs. 6.56hrs). Table (9) shows that Correlation coefficients between body mass index and labour pain among studied women in both groups and illustrated that There are statistically significant positive correlations between BMI increases, labor pain tends to increase as well, indicating a relationship between higher BMI and increased labor pain.

## 4. Discussion

The first stage of labor is longer and painful in both primiparous and multiparous mothers. certain impact of prolonged labor may lead to increased maternal and neonatal mortality and morbidity due to increased risks of maternal exhaustion, post-partum hemorrhage, sepsis, fetal, distress and asphyxia and requires early detection and appropriate clinical response [12]. According to demographic characteristics; the current study revealed that that age of the majorities range from 20 to 25years in study and control groups as regarding to residence the majorities were rural area in two groups as regarding to level of education the majorities them were secondary education in the two groups. there was no significance differences between the study and control groups in demographic characteristic. The current study agree with [13]. effect of peanut birth ball on the progress of labor and birth outcome among primigravidae " who revealed that no significant differences were observed between the study and control groups concerning all demographic data to age, educational level, occupation, residence, weight and height. According to obstetric history and observation, the findings of the current study revealed that the majority of the study and control group have no current obstetric problems or diseases according to antenatal visit. The current study agree with [14]. entitled**"** effect of upright position on pain and duration of the active phase of the first stage of labor among women in labor **"**who mentioned that no statistical significance was observed between two groups in the same study. As regarding to visual analogue scalp of pain, the current study showed that there was statistical significance between the study and control group. this results at the same line with [15]. entitled**"** effectiveness of birthing ball on reduction of labor pain in selected feto maternal parameters among primigravida **"**. Who clarified that primigravida mothers in experimental group had less pain and higher duration of uterine contraction compared to control group and also showed that using birthing ball helps to reduce labor pain. The current study agree with a previous study [16]. entitled **"**effect of upright position on pain and duration of the active phase of the first stage of labor among women in labor **"**revealed women in the upright group a higher reduction in the pain scale compared to the supine group among primigravida women in labor showed that ambulation with a specific rhythm could increase tolerance for labor pain during uterine contractions Furthermore changes in position could reduce pain, facilitate blood flow to the uterus, uterine contractions, fetal decline, and personal control. Researcher overview could be due to that movement minimizes the pain's severity. Thus was recommended women move freely and respond to body's signals for mobilization and position modification during childbirth. The current study disagrees with previous research [17]. entitled effect of upright and ambulant positions versus lying down during the active first stage of labor on birth outcomes among nulliparous women randomized controlled clinical trial**"** revealed that women in first stage of labor and reported no significance differences were observed between both groups related to mean labor pain score at all post intervention time point. Researcher overview contradictions in the findings among studies could be due to differences in sample size and different culture urban than rural. According to cervical dilatation the current study revealed that there was high statistical significance difference between the study and control group. The current study agrees with a previous research [18]. entitled**"** influence of ambulation during the first stage of labor-on-labor progress of prime parturient" who revealed the changes in cervical dilatation, fetal head descent, and uterine contraction characteristics faster progression during the first stage of labor among the ambulation group compared to within the control group.

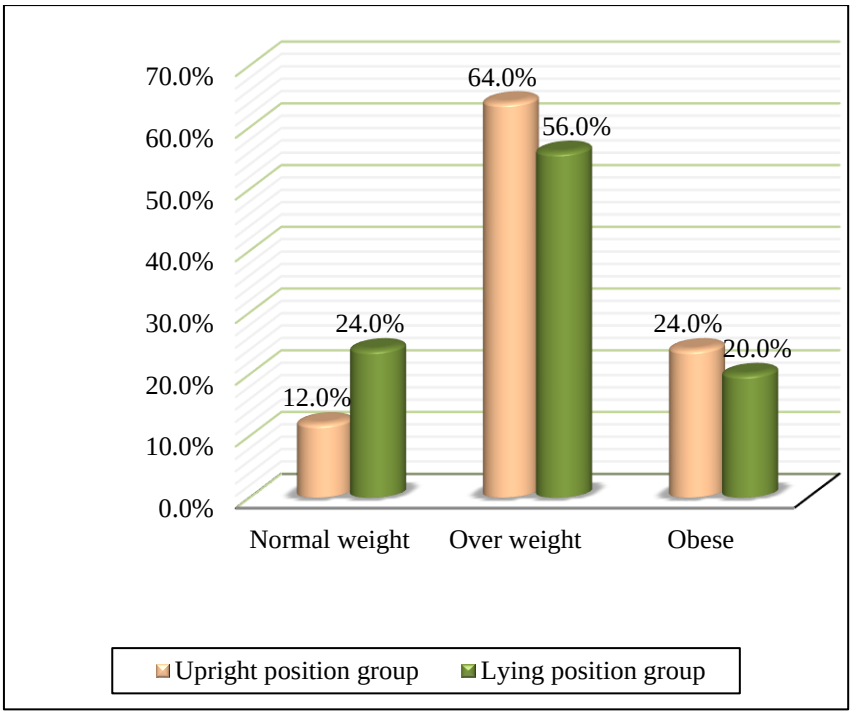


**Figure 1:** Distribution of the studied women in both groups regarding Body mass index (n=50)

**Table 1:** Distribution of the studied women in Upright position" and "Lying position groups according to demographic characteristics (n= 50)

| demographic characteristics | Upright position group n= 25 | | Lying position group n=25 | | FET/$X^2$ | p-value |
|---|---|---|---|---|---|---|
| | No | % | No | % | | |
| **Age (years)** | | | | | | |
| 20- 25 | 16 | 64.0 | 13 | 52.0 | 1.73$^{€}$ | 0.73 $^{ns}$ |
| 26- 30 | 8 | 32.0 | 9 | 36.0 | | |
| 31- 34 | 1 | 4.0 | 2 | 8.0 | | |
| ≥ 35 | 0 | 0.0 | 1 | 4.0 | | |
| **Mean ± SD** | 23.68 ± 2.11 | | 25.00 ± 3.98 | | t=1.46 | 0.150 $^{ns}$ |
| **Residence** | | | | | | |
| Rural | 16 | 64.0 | 13 | 52.0 | 0.73 | 0.39 $^{ns}$ |
| Urban | 9 | 36.0 | 12 | 48.0 | | |
| **Educational level** | | | | | | |
| Primary education | 4 | 16.0 | 5 | 20.0 | 2.37$^{€}$ | 0.35 $^{ns}$ |
| Secondary education | 11 | 44.0 | 15 | 60.0 | | |
| High education | 10 | 40.0 | 5 | 20.0 | | |
| **Occupation** | | | | | | |
| Housewife | 17 | 68.0 | 19 | 76.0 | 0.39 | 0.52 $^{ns}$ |
| Employee | 8 | 32.0 | 6 | 24.0 | | |

$^{ns}$ no statistical significant difference (p > 0.05) Chi-square test (x2); $^{€}$ Fisher Exact Test; t= independent t test

**Table 2:** Distribution of studied women in Upright position "and "Lying position groups according to their obstetrics history (n= 50)

| Obstetrics history | Upright position group n= 25 | | Lying position group n=25 | | FET/$X^2$ | p-value |
|---|---|---|---|---|---|---|
| | No | % | No | % | | |
| **Gestational age in weeks** | | | | | | |
| 37-<br>39-<br>42 | 8<br>13<br>4 | 32.0<br>52.0<br>16.0 | 10<br>12<br>2 | 40.0<br>48.0<br>12.0 | 0.48 | 0.86 ns |
| **Mean ± SD** | 39.20 ± 1.04 | | 38.92 ± 1.25 | | t=-.858- | 0.39 ns |

ns no statistical significant difference (p > 0.05) Chi-square test (x2); € Fisher Exact Test;
t= independent t test

**Table 3:** Mean labor pain scores among studied women in Upright position " and "Lying position groups during the first stage of labor (n=50)

| Labor pain assessment | Upright position group n= 25 | Lying position group n=25 | Independent t test | P value |
|---|---|---|---|---|
| | Mean ±SD | Mean ±SD | | |
| On admission | 3.00±1.25 | 3.40±1.22 | 1.13 | 0.26 ns |
| At cervical dilatation (6cm) | 5.40±0.81 | 5.80±0.40 | 2.19 | 0.03* |
| At cervical dilatation (8cm) | 7.48±0.50 | 7.88±0.60 | 2.91 | 0.01* |
| At cervical dilatation (10cm) | 9.52±0.50 | 9.80±0.50 | 8.15 | 0.05* |

t= independent t * statistically significant difference (p ≤ 0.05)

**Table 4:** Distribution of characteristics of fetal moulding among studied women in upright position and Lying position groups during first stage of labour (n=50)

| Variable | Upright position group n= 25 | | Lying position group n=25 | | FET/$X^2$ | P value |
|---|---|---|---|---|---|---|
| | No | % | No | % | | |
| **On admission** | | | | | | |
| Separated bones 0<br>Bones just touching each other +<br>Overlapping bones (reducible) ++ | 18<br>5<br>2 | 72.0<br>20.0<br>8.0 | 14<br>10<br>1 | 56.0<br>40.0<br>4.0 | 2.52€ | 0.39 ns |
| **At cervical dilatation (6cm)** | | | | | | |
| Separated bones 0<br>Bones just touching each other +<br>Overlapping bones (reducible) ++ | 13<br>10<br>2 | 52.0<br>40.0<br>4.0 | 12<br>12<br>1 | 48.0<br>48.0<br>2.0 | 0.55€ | 0.75 ns |
| **At cervical dilatation (8cm)** | | | | | | |
| Separated bones 0<br>Bones just touching each other +<br>Overlapping bones (reducible) ++ | 0<br>9<br>16 | 0.0<br>36.0<br>64.0 | 6<br>12<br>7 | 24.0<br>48.0<br>28.0 | 9.97 | 0.006* |
| **At cervical dilatation (10cm)** | | | | | | |
| Separated bones 0<br>Bones just touching each other +<br>Overlapping bones (reducible) ++ | 0<br>3<br>22 | 0.0<br>12.0<br>88.0 | 2<br>9<br>14 | 8.0<br>36.0<br>56.0 | 6.28€ | 0.03 * |

Chi-square test (x2) € Fisher Exact Test ns no statistical significant difference (p > 0.05) *statistical significant difference (p ≤ 0.05)

**Table 5:** Mean uterine contraction among studied women in upright and Lying position groups during first stage of labour (n=50).

| Uterine contraction characteristics | Upright position group n= 25 | Lying position group n=25 | Independent t test | P value |
|---|---|---|---|---|
| | Mean ±SD | Mean ±SD | | |
| **On admission** | | | | |
| Frequency /10min | 1.84±.62 | 1.76±.66 | 0.43 | 0.66 ns |
| Duration / sec | 26.56±5.21 | 28.56±4.47 | 1.45 | 0.15 ns |
| Interval / min | 5.48±1.35 | 5.36±1.31 | 0.31 | 0.75 ns |
| **At cervical dilatation (6cm)** | | | | |
| Frequency /10min | 2.00±.28 | 1.80±.40 | 2.00 | 0.05* |
| Duration / sec | 34.20±5.57 | 30.60±6.71 | 2.06 | 0.04* |
| Interval / min | 4.60±1.04 | 5.28±.89 | 2.48 | 0.01* |
| **At cervical dilatation (8cm)** | | | | |
| Frequency /10min | 3.24±.66 | 2.84±.55 | 2.31 | 0.02* |
| Duration / sec | 57.40±4.35 | 52.72±8.12 | 2.53 | 0.01* |
| Interval / min | 3.24±.43 | 3.76±.66 | 3.27 | 0.002* |
| **At cervical dilatation (10cm)** | | | | |
| Frequency /10min | 4.14±.64 | 3.77±.80 | 3.02 | 0.003* |
| Duration / sec | 81.98±7.01 | 79.37±4.66 | 2.59 | 0.01* |
| Interval / min | 2.16±.37 | 2.48±.50 | 2.53 | 0.01* |

Chi-square test (x2) € Fisher Exact Test *statistical significant difference ($p \leq 0.05$)
ns no statistical significant difference ($p > 0.05$)

**Table 6:** Distribution the intensity of uterine contraction among women in upright position and Lying position groups during first stage of labour (n=50)

| Variable | Upright position group n= 25 | | Lying position group n=25 | | FET/$X^2$ | P value |
|---|---|---|---|---|---|---|
| | No | % | No | % | | |
| **On admission** | | | | | | |
| Mild | 14 | 56.0 | 16 | 64.0 | 0.33 | 0.56 ns |
| Moderate | 11 | 44.0 | 9 | 36.0 | | |
| Severe | 0 | 0.0 | 0 | 0.0 | | |
| **At cervical dilatation (6cm)** | | | | | | |
| Mild | 11 | 44.0 | 5 | 20.0 | 6.3€ | 0.04* |
| Moderate | 14 | 56.0 | 16 | 64.0 | | |
| Severe | 0 | 0.0 | 4 | 16.0 | | |
| **At cervical dilatation (8cm)** | | | | | | |
| Mild | 2 | 8.0 | 0 | 0.0 | 7.02€ | 0.02* |
| Moderate | 11 | 44.0 | 4 | 16.0 | | |
| Severe | 12 | 48.0 | 21 | 84.0 | | |
| **At cervical dilatation (10cm)** | | | | | | |
| Mild | 0 | 0.0 | 0 | 0.0 | 6.81 | 0.009* |
| Moderate | 6 | 24.0 | 0 | 0.0 | | |
| Severe | 19 | 76.0 | 25 | 100.0 | | |

Chi-square test (x2) € Fisher Exact Test *statistical significant difference ($p < 0.05$)

**Table 7**: Distribution of the fetal station among studied women in upright position and Lying position groups during first stage of labour (n=50).

| Variable | Upright position group n= 25 | | Lying position group n=25 | | FET | P value |
|---|---|---|---|---|---|---|
| | No | % | No | % | | |
| • **On admission** | | | | | | |
| -3 | 11 | 44.0 | 6 | 24.0 | | |
| -2 | 8 | 32.0 | 15 | 60.0 | 3.93$^{\epsilon}$ | 0.17 $^{ns}$ |
| -1 | 6 | 24.0 | 4 | 16.0 | | |
| **Mean ± SD** | -2.20±0.81 | | -2.08±0.64 | | t=-0.57 | 0.56 $^{ns}$ |
| • **At cervical dilatation (6cm)** | | | | | | |
| -3 | 2 | 8.0 | 5 | 20.0 | | |
| -2 | 6 | 24.0 | 12 | 48.0 | 6.36$^{\epsilon}$ | 0.03***** |
| -1 | 17 | 68.0 | 8 | 32.0 | | |
| **Mean ± SD** | -1.40±0.64 | | -1.88±0.72 | | t=2.47 | 0.01***** |
| • **At cervical dilatation (8cm)** | | | | | | |
| 0 | 2 | 8.0 | 9 | 36.0 | | |
| 1 | 12 | 48.0 | 10 | 40.0 | 6.00$^{\epsilon}$ | 0.04***** |
| 2 | 11 | 44.0 | 6 | 24.0 | | |
| **Mean ± SD** | 1.36±0.63 | | 0.88±0.78 | | t=2.38 | 0.02***** |
| • **At cervical dilatation (10cm)** | | | | | | |
| 1 | 2 | 8.0 | 3 | 12.0 | | |
| 2 | 12 | 48.0 | 19 | 76.0 | 6.33$^{\epsilon}$ | 0.04***** |
| 3 | 11 | 44.0 | 3 | 12.0 | | |
| **Mean ± SD** | 2.36±0.63 | | 2.00±0.50 | | t=2.22 | 0.03***** |

$^{\epsilon}$ Fisher Exact Test t= independent t test *statistically significant difference($p \leq 0.05$)

**Table 8:** Distribution the studied women in upright position "and "lying position groups according to the duration of first stages of labour (n=50)

| Variable | Upright position group n= 25 | | Lying position group n=25 | | FET | P value |
|---|---|---|---|---|---|---|
| | No | % | No | % | | |
| **Duration of the first stage of labour** | | | | | | |
| • **Active Phase** | | | | | | |
| <3 hrs. | 1 | 4.0 | 0 | 0.0 | | |
| 3-6 hrs. | 20 | 80.0 | 9 | 36.0 | 12.3$^{\epsilon}$ | 0.000****** |
| >6 hrs. | 4 | 16.0 | 16 | 64.0 | | |
| **Mean ± SD** | 5.12 ± 1.33 | | 6.56 ± 0.91 | | t=4.45 | 0.000****** |
| • **Transition phase** | | | | | | |
| <1 hour. | 3 | 12.0 | 1 | 4.0 | | |
| 1-2 hours. | 20 | 80.0 | 7 | 28.0 | 19.8$^{\epsilon}$ | 0.000****** |
| >2 hours. | 2 | 8.0 | 17 | 68.0 | | |
| **Mean ± SD** | 1.68 ± 0.62 | | 2.60 ± 0.86 | | t=4.30 | 0.000****** |

Fisher Exact Test t= independent t test *statistically significant difference ($p \leq 0.05$)
** Highly statistically significant difference ($p \leq 0.001$)

**Table 9:** Correlation coefficients between body mass index and labour pain studied women in Upright position "and "Lying position groups (n=50)

| Pain during the 1st stage of labour | Body mass index | | | |
|---|---|---|---|---|
| | Upright position group n= 25 | | Lying position group n=25 | |
| | r | P value | r | P value |
| Pain at cervical dilatation 6 cm | .461 | 0.02* | .477 | 0.01* |
| Pain at cervical dilatation 8 cm | .457 | 0.02* | .433 | 0.03* |
| Pain at cervical dilatation 10 cm | .562 | 0.003* | .494 | 0.01* |

*statistical significant difference ($p < 0.05$)

As Regarding to the duration of contractions, the present study showed that there was high statistical significance between study and control group regarding to duration of contractions, these results were accordance with [19]. entitled "examining the impact of upright and recumbent positions on labor outcomes" reported an upright position's positive effect on childbirth progress. these might be related to the effect of gravity in an upright position on preventing aortocaval squeezing and thereby strengthening uterine contractions. Who showed that upright make contractions stronger and more efficient. As well as frequency of contractions among the study group and control group was found statistical significance between both group. these studies were agree with an earlier study [20]. Entitled "the effect of walking during late pregnancy on the outcomes of labor and delivery: A randomized clinical trial "Who reported that upright and mobile positions use gravity to aid descent of the fetal head into the pelvis and increase uterine contractility.

According to duration of first of labor, the finding of the current study revealed that the mothers in the study group had shorter duration in the active phase of labor than the control group with mean duration 5.12±1.33 hours in the study group as compared with (6.56±0.91) in the control group with highly statistically significant differences between groups. this study agrees with a previous study [21]. entitled "evaluating the effects of maternal positions in childbirth: an overview of cochrane systematic reviews. European journal of midwifery" revealed that women in the active phase of the first stage of labour with upright position had a shorter duration of childbirth compared to women with recumbent position laboring women in upright positions experienced faster progress of labor and higher satisfaction than those assumed recumbent positions. Researcher overview could be due to those findings by referring to changing maternal position, frequently moving the pelvic bones, and assisting the fetal descent into the pelvic canal this led to decrease duration in the active phase. As well as [22]. entitled "the effect of maternal position on maternal, fetal and neonatal outcomes: a systematic review" who revealed that duration of the first labor stage was shortened with upright positions compared the lying position Also [23]. entitled" the effect of the application of the upright position on duration time delivery "reported that duration of the first stage of labor was significantly shorter in the study group as compared to control group. The current study disagrees with [24]. Entitled "review and comparison of common maternal positions during the first stage of labor" reported that the upright posture during the first stage of childbirth did not shorten childbirth duration. Also [25]. Entitled "effect of peanut pall and position changes in women laboring with an epidural" reported that there was no decrease in the length of the first stage of labor. As regarding to fetal station and descend of head, the present study showed that there was high statistical significance especially with progress cervical dilation and progress of labour between study and control group. the current study agree with [26]. entitled" influence of ambulation during the first stage of labor-on-labor progress of prime parturient" Study revealed that the rate of cervical dilation and head descent were statistically significantly higher among the ambulated parturient mothers compared to the control group.

Researcher overview could be due to those upright positions such as sitting, standing, and kneeling during the first stage of childbirth enable the abdominal wall to relax thereby enabling gravity to pull the uterine fundus forward.in addition, concerning the fetal head descent. that is probably because upright positions strengthen the pelvic muscles and expand the pelvic area which improves fetal descent. As regarding to uterine contraction, the present study showed that there was high statistical significance between the study and control group. this study accordance with [18]. entitled "influence of ambulation during the first stage of labor-on-labor progress of prime parturient" the uterine contractions, was evidenced in the study that the uterine contractions characterized by being more frequent, longer, and stronger among the study group in comparison to the control group.

Furthermore [19]. entitled" examining the impact of upright and recumbent positions on labor outcomes" reported an upright position's positive effect on childbirth progress increase frequent, longer, and stronger uterine contractions among the parturient mothers adopted upright positions or ambulated compared to adopt a recumbent position. That study endorsed the effective uterine contractions in the ambulation group to the notion that with ambulation there is an increase in the maternal-fetal circulation and increase in the blood. supply to the uterus; which in turn causes effective uterine contractions. As regarding to amniotic fluid characteristics, the current study showed that there was statistical significance between the study and control group especially with completely cervical dilatation. The current agrees with [26]. entitled "assess the effectiveness of ambulation during first stage of labor on outcome of labor among the primigravida mothers in selected hospital "found higher rates incidence of clear liquor with progress of labour and spontaneous rupture of the fetal membranes and vaginal deliveries and lower need for ouxytocin infusion among the study group compared to control group. this pressure leads to the spontaneous rupture of the membranes give a better

chance for the fetal head descent; where the intrauterine pressure stimulates the cervical dilatation and increase the rate of vaginal deliveries and decrease that of the cesarean section.

According to maternal vital signs (blood pressure temperature and pulse), the current study showed that the vital signs weren't affected by upright or received routine hospital care and results showed that there was no statistical significance difference between study and control group. Therefore, the present study was clearly revealed that walking or stay upright during the active phase of labor has no harmless effect on the woman's blood pressure pulse and temperature, the current study agrees with a previous study [17]. entitled "effect of upright and ambulant positions versus lying down during the active first stage of labor on birth outcomes among nulliparous women randomized controlled clinical the finding of the current study also revealed that fetal heart rate in the current study published that all woman in the study and control group had normal fetal heart rate and showed that there was no statistical significance difference between study group and control group. Therefore, the present study was clearly revealed that walking or stay upright during the active phase of labor has no harmless effect on the woman's blood pressure pulse and temperature, the current study agrees with an earlier study [17]. entitled "effect of upright and ambulant positions versus lying down during the active first stage of labor on birth outcomes among nulliparous women randomized controlled clinical the finding of the current study also revealed that fetal heart rate in the current study published that all woman in the study and control group had normal fetal heart rate and showed that there was no statistical significance difference between study group and control group. The current study agrees with a previous study [19]. in Saudi Arabia) entitled" examining the impact of upright and recumbent positions on labor outcomes" reported an upright position's positive effect on childbirth progress showed that there was no statistical significance difference between two groups. As regarding to correlation coefficients between body mass index and labour pain between both groups the current study revealed that there was statistically significant positive correlations between body mass index (BMI) increases, labor pain tends to increase as well. this study agrees with a previous study [27]. entitled "association of body weight and fat mass with pain sensitivity and pain tolerance" who mention that obesity associated with acute and chronic pain and increase labour pain.

Researcher overview could be due to that obesity patient unable to tolerance to pain Because of other problems with obesity such as difficulty of breathing.

## 5. Conclusions

Upright position had positive effect on progress of labor, decreased duration of the first stage of labor, faster fetal head descent, significant reduction of pain score.

### *Recommendations*

Based on the findings of the present study, the following recommendations were suggested:

- Development of instructional guidelines for pregnant women in low-risk labour about the benefits of assuming upright positions during first stage of labor, and be encouraged and supported to use this position.
- Design stock posters, leaflets, and videos that highlight the advantages of upright positions in antenatal clinics and labor units.

### *Further recommendations*

Providing continuous training programs for nurses in labor units about the importance and benefits of changing positions during the active phase of the first stage of labor.

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