IJNRD.ORG ISSN : 2456-4184
INTERNATIONAL JOURNAL OF NOVEL RESEARCH AND DEVELOPMENT (IJNRD) | IJNRD.ORG
An International Open Access, Peer-reviewed, Refereed Journal

# SYSTEMATIC REVIEW ON THE EFFECTIVENESS OF SQUATTING UPRIGHT POSITION ON THE DURATION OF LABOUR AMONG PRIMI GRAVIDA MOTHERS

**Itisha Rose Prasad**
Nursing Tutor
Obstetrical and Gynecological Nursing
Government College of Nursing, Kanpur, U.P., India

***Abstract:*** This review aims to explore the benefits of squatting upright position on the duration of labour among primi gravida mothers. Maternal positioning affects all aspects of labour including the power, passage, passenger and psyche. This systematic review aims to extensively and comprehensively analyze the available literatures on upright positions like squatting. After amalgamating wide range of studies, this systematic review provides an understanding of squatting upright position as an effective alternative for the dorsal positions during labor. The findings identify that squatting upright position can show positive result in terms of improved maternal outcomes, optimal progress in labor, increased fetal descend. This review highlights the importance of squatting during labour in increasing the pelvic outlet, brings more effective contractions, better alignment of the fetus, reduced need for augmentation, effect of gravity on fetus within the uterus, shorter duration of labour. This review provides a comprehensive review of the effectiveness of squatting on the duration of labour in primi gravida mothers. It presents a valuable awareness for the researchers, clinicians, nurse, midwives for encouraging the labouring mothers to adopt upright squatting position for better outcomes.

***Index Terms*** **– squatting position, duration of labour, primi gravida mothers, upright position, pelvic outlet.**

## INTRODUCTION

Anatomical and physiological factors of the maternal body, fetal size and uterine contractibility are the common determinants of the duration of labour. Perinatal mortality and morbidity depends on the duration of labour. Decreasing the duration of labour without any complications or threat to the mother and baby is an important aspect of obstetrical care.

Maternal positioning affects all aspects of labour power, passage, passenger, and psyche. Modern medicines have turned pregnancy into disease, where the women remains tied to stirrups. There are various studies that show free movement during labour can make the process of giving birth shorter and easier. Freedom to move, ambulate and changing positions during labour has various advantages like reduced aortocaval compression, effective uterine contractions and better fetal alignment to birth canal which further aids in descent of baby and give woman immense control over labour.

Various research studies have proved that upright position like squatting during the first stage of labour is an effective position to widen the pelvic opening, increase the amount of oxygen brought to the uterine muscles, help the cervix to dilate, reduce the need for episiotomy, gravity being the main component helps to speed up the process. This systematic review aims to extensively and comprehensively analyze the available literatures on upright positions like squatting and explore its potential benefits on the duration of labour and other maternal outcomes.

## AIM:

The main aim is to systematically review and generate evidences regarding the effectiveness of squatting position on the duration of labour among primi gravida mothers.

## OBJECTIVES:

- To systematically review and analyse the existing literature regarding the effectiveness of upright squatting position on the duration of labour.
- To review the literature related to alternate positions during labour.
- To offer prospective recommendations for clinicians, nurses, midwives, nurse educators and administrators for the effective implementation of squatting position during labour.

## METHODOLOGY

An elaborated systemic literature search was conducted using various electronic databases published within the last 10 years. The keywords like squatting position, duration of labour, primi gravida mothers, upright position, alternate positions during labour were used for literature search.

This literature review was conducted by using following search engines: PubMed, Google Scholar, Medline, research gate, other government websites, WHO webpage and various other authentic international and national journals.

The review aimed at including those research studies that particularly focused on examining the effect of squatting or other upright positions during labour and birth.

## RESULTS

The systematic review search identified 40 research studies related to upright positions during labour and delivery. Out of which 12 studies met the inclusion criteria and were selected and analyzed for this systematic review. The entire searched literature was segregated in following different categories:

- **Literature related to squatting upright position during labour and birth:**
  This section included a total of 6 research studies which were the clear evidence of squatting upright position being the effective solution to reduce down the duration of labour. Majority of the studies concluded that adopting squatting upright position during labor or delivery is highly significant in reducing the duration of labor, increasing the maternal outcome. an

- **Literature related to alternate upright positions during labour.**
  This section also included a total of 6 research studies that clearly stated that adopting upright positions during labour or delivery is highly effective in reducing down the duration, chances of episiotomy and gives a chance to the gravity to work at its best.

**Research review analysis table**

**Literature related to squatting upright position during labour and birth**

| S.N | TITLE OF THE STUDY/ AUTHOR | STUDY DESIGN/ PARTICPANT/ INTERVENTIONS | RESULTS / CONCLUSIONS |
|---|---|---|---|
| .1. | A study on the effect of upright versus recumbent position during the first stage of labour among primi para women on labor outcomes and maternal satisfaction with assumed position.<br>**Author:**<br>Afaf Mohamed Mohamed Emam, Ahlam Eidah Al-Zahrani, 2018 | Design: Quasi- experimental study.<br><br>Sample size: 100 primi para parturient women in 1st stage of labour.<br>Experimental group-50; Control group-50<br><br>Sampling Technique: Purposive sampling.<br><br>Intervention: Experimental group samples assumed upright positions(like squatting)<br>Control group- recumbent position<br>Both for 15-20 min followed by rest. | Duration of 1st stage:<br>Experimental group- 92% had duration 10-12 hours.<br>Control group- 66% had 10-12 hours<br>Duration of 2nd stage:<br>Experimental group- 86% had duration 30 min-1 hour.<br>Control group- 56% had 30 min-1 hour.<br>The progress of labour in recumbent group was less as compared to upright group. |
| 2. | A study on the influence of different maternal pushing positions on birth outcomes at the second stage of labor in nulliparous women.<br>**Author:**<br>Moraloglu Ozlem, Tasci Yasemin et al. 2016 | Design: Prospective study design<br><br>Sample Size: 102 nulliparous women in 2nd stage of labour.<br>Experimental group: 51 samples<br>Control group: 51 samples<br><br>Intervention: Experimental group samples assumed squatting position using bars.<br>Control group- supine position modified to 45 degree semi-fowlers | The study revealed that the women who had adopted squatting position using bars had a significant reduction in the duration of labour as compared to the ones in supine position |
| 3. | A study to compare the complications of child birth in squatting and lithotomy position.<br>**Author:**<br>Dr. Zuibunnisa, Ara Dr. Firdos, Ara Dr. Bilqees, et al. 2015 | Design: Randomized control trial.<br><br>Sample size: 302 samples<br>Group A- 151 samples<br>Group B- 151 samples<br><br>Intervention: Group A were given squatting position | Group A- no episiotomy and 11% received forceps application.<br>Group B- 7.3 % had episiotomy extension and 24% received forceps application.<br><br>It was concluded that squatting is an effective bearing down position |

| | | | |
|---|---|---|---|
| | | Group B were given lithotomy position. | which stretches the perineum naturally. |
| 4. | A study on women's' choice of position during labour.<br>**Author:**<br>Gizzo Salvatore, Gangi Stefania Di, Noventa Marco, et al. 2014 | Design: Observational Cohort study.<br><br>Sample Size: 225 parturient in 1st stage.<br>Group A: 69 samples<br>Group B: 156 samples<br><br>Intervention: Group A assumed supine or lateral position while Group B assumed alternative upright position. | Duration of 1st stage of labour:<br>Group A: 333.6 ± 161.1 min.<br>Group B: 192.1 + 125.8 min<br><br>Duration of 2nd stage of labour:<br>Group A: 84.4 + 57.8 min<br>Group B: 34.4 + 32.6 min<br>The study concluded that assuming upright position greatly reduced the duration of both 1st and stage of labour. |
| 5. | A study to determine the effectiveness of upright position on the duration of first stage of labour among nulliparous mothers.<br>**Author:**<br>Kumud, Rana Avinash Kaur, et.al 2013 | Design: Quasi-experimental research design<br><br>Sample Size: 60 nulli parous women.<br>Experimental group- 30 samples<br>Control Group- 30 samples<br><br>Intervention: Experimental group upright position like squatting, walking while control group assumed supine position. | Duration of labour:<br>Experimental group: 93.3% had duration of 201-400 min.<br>Control group- 63.3 % had duration of 201-400 min and 36.3 % had duration above 400 min.<br>This research study revealed that maintenance of upright positions during first stage of labour reduces the duration of labour. |
| 6. | Study on maternal birthing position and outcome of labour duration of second, third stage of labour amount of blood loss.<br>**Author:**<br>Thilagavathy Ganapathy 2009 | Design: Randomized experimental study<br><br>Sample Size:200 primi gravida<br>Experimental group-100<br>Control group-100<br><br>Intervention: Experimental group assumed upright position supported sitting position<br>Control group assumed routine supine position. | Duration of 2nd stage of labour:<br>Experimental group-56 minutes<br>Control group- 67 minutes<br><br>Duration of 3rd stage of labour:<br>Experimental group-12 minutes<br>Control group- 22 minutes<br><br>It was concluded that simple elevation of the back of the women during delivery maximizes the benefits of gravity in terms of enhanced comfort, shorter duration of second stage, third stage of labor, safe birthing experience |

**Research review analysis table**

**Literature related to alternate upright position during labour and birth**

| S.N | TITLE OF THE STUDY/ AUTHOR | STUDY DESIGN/ PARTICPANT/ INTERVENTIONS | RESULTS / CONCLUSIONS |
|---|---|---|---|
| 1. | A study to assess the effect of upright positions during the first stage of labour on childbirth types<br>**Author:**<br>Dellktas Ayse, Kukulu Kamile 2018 | Design: A meta-analysis study<br><br>It included different studies in which the mothers did not receive epidural anaesthesia in the first stage of labour and were positioned upright. 22680 studies were yielded out of which 13 were included in meta-analysis. | The findings of the meta-analysis revealed that upright position greatly reduced caesarean section and even reduced the need for instrumental birth. |
| 2. | A study on the use of birthing ball during the first stage of labour and its effect on the progress of labor and outcome among nulliparous women.<br>**Author:**<br>Farrag Rania E, Omar Ayat M.2018 | Design: Quasi experimental study.<br><br>Sample Size: 120 primiparous women in active 1st stage.<br>Experimental Group: 60 samples<br>Control Group: 60 samples<br><br>Intervention: Experimental Group adopted birthing ball exercise (like sitting position, kneeling position, squatting position) every hour at least 10-20 minutes up to 10 cm dilatation<br>While control group just received the routine care of the hospital. | The study concluded birthing ball exercise during labour is effective for reducing the labour pain and shortening the duration of labour and increased maternal satisfaction with the position |
| 3. | A study to assess the effect of | Design: Quasi-experimental research design | Duration of 1st stage of labour: |

| | | | |
|---|---|---|---|
| | pelvic rocking exercise using sitting position on birth ball during first stage of labor.<br>**Author:**<br>Zaky Hassan Nevertity 2016 | Sample Size: 80 primi parous women.<br>Experimental group- 40 samples<br>Control Group- 40 samples<br><br>Intervention: Experimental group were helped to sit and practise the pelvic rocking exercise for 10-20 minutes every hour. While Control Group were given only routine care | Experimental group: 100% had duration of 8-10 hours.<br>Control group- 57.5 had duration of 8-10 hrs.<br>Duration of 2nd stage of labour:<br>Experimental group: 82.5% had duration of 30 min- 1 hour.<br>Control group- 57.5 had duration of 30 min-1 hrs.<br>It was revealed that pelvic rocking exercise on the birthing ball in sitting position is a significant modality to progress labour. |
| 4. | A study to assess the effectiveness of upright kneeling position during second stage of labor on duration of labor, perineal tear, fetal otcomes.<br>**Author:**<br>Dabral Anjali, Pawar Pallavi, Bharti Rekha, Kumari Archana 2014 | .Design: Pilot study (quasi-experimental)<br><br>Sample Size: 300 samples<br>Group A: 150 samples<br>Group B: 150 samples<br><br>Intervention: Group A delivered in kneeling position while Group B delivered in supine position. | The study clearly concluded that the rate of normal vaginal delivery was higher in kneeling position as compared to supine position. But the rate of perineal tear was higher in kneeling group. |
| 5. | The study was conducted to assess the effectiveness of different upright positions (like walking, standing and kneeling) versus recumbent positions (supine, semi-recumbent and lateral) during the 1st stage of labour on the duration of labour and other important outcomes for mothers and babies.<br>**Author:**<br>Lawerence A, Lewis l. Hofmeyr GJ. Styles C, 2013 | Design: Systematic review | The results of the study revealed that the women in the duration of first stage of labour was 1 hr and 22 minutes shorter in the women assuming upright positions as compared the women assuming the recumbent positions.<br>Thus, it was concluded that walking and upright positions during the first stage shortens the duration of labour and the risk for caesarean birth, need for epidural. |
| 6. | A study to compare the maternal experience and duration of labour in two upright positions<br>**Author:**<br>Ragnar I, Altman D, Tyden T, Olsson SE, 2006 | Design: Randomized Control Trial<br><br>Sample Size: 271 primi parous women in 2nd stage of labour.<br>Kneeling Group-138 samples<br>Sitting Group- 133 samples<br><br>Intervention: samples were encouraged to adopt kneeling and sitting position during delivery. | Duration of 2nd stage of labour:<br>Kneeling Group- duration was 48.5<br>Sitting Group: duration was 41 min.<br><br>Sitting position was associated with increased pain and decreased comfort during the delivery process. This it was concluded that the kneeling position was associated with more favorable maternal experience and less pain as compared to sitting position |

## DISCUSSION:

This systematic review clearly identified that the research studies reviewed during this process have significantly proved that squatting position during the labor and delivery is an effective bearing down position which stretches the perineum naturally. It is has the great efficacy in reducing the duration of labor, improving the maternal outcomes, reducing the chances of episiotomy and cesarean section. Adopting any upright position (like walking, squatting, sitting, kneeling, squatting) have shown tremendous result in terms of shortening the duration of labor.

## SUGGESTIONS

On the basis of the findings of this systematic review, high range of suggestions and recommendations can be put forward

- Nurses and midwives needs to be armed with knowledge about squatting position during labour and must be encouraged to individualize the care that will contribute to positive maternal and neonatal outcomes.
- Health care professionals need to focus on the upright positions during active labour which will not only increase the uterine contractions and but also decrease the duration of labour.
- Nursing students needs to be taught about the upright positions during labour and childbirth as a part of their theoretical aspect of midwifery which will help them bridge the gap between theory and practise and enhance the maternity services to the pain bearing mothers during the labour.

- More researches are needed to be conducted on the different positions during active labour and childbirth which will not only provide the evidences for reducing the duration of labour but even help in identifying the comfortable and satisfactory position for the mothers thus reducing the rate of episiotomies and an improved the labour progress.

## CONCLUSION

This systematic review provides a compelling remark that adoption of squatting and other upright positions during the labour and birthing are an effective modality for the progress of labour. This systematic review has highlighted the different studies which have identified squatting as an effective solution for the increased duration of labour. It is also seen in this review that in comparison to recumbent supine position upright positions are more beneficial for the laboring mothers.

Thus through this systematic review it is concluded that low risk laboring mothers should no more remain confined to bed instead let gravity work and adopt any of the upright position specially like squatting, walking which will positively impact there labour progress. Encouraging the mothers and bringing them out of the bed during labour is the effective modality.

## LIMITATIONS

This systematic review also had some of the limitations.

- Unavailability of the published data on the topic of upright positions.
- Only 12 studies were analyzed due to strict inclusion criteria
- Heterogeneity of the research designs
- Language and publication bias.

## REFERENCES


- Afaf Mohamed, Mohamed Emam, Ahlam Eidah Al-Zahrani. (2018). Upright versus recumbent position during first stage of labour among primi Para women on the labor outcomes and maternal satisfaction with the assumed position. Journal of Nursing Education and Practise. 8(7). Pp- 113-124. Retrieved from: http://www.sciedu.ca/journal/index.php/jnep/article/view/12595/8158
- Ozlem Moraloglu, Yasemin Tasci, Burcu Kisa Karakaya. (2017). The influence of different maternal pushing position on teh birth outcomes at the second stage of labour in nulliparous women. Journal of Maternal Fetal and Neonatal Outcome. 30(2). Pp- 245-249. Retrieved from: https://www.tandfonline.com/doi/full/10.3109/14767058.2016.1169525 https://www.ncbi.nlm.nih.gov/pubmed/27028537
- Zaibunnisa, Ara F, Ara B, Kaker P, Aslam M. (2015). Child birth: comparison of complications between lithotomy position and squatting position. Professional Med Journal. 22(4). Pp: 390-394. Retrieved from: http://applications.emro.who.int/imemrf/Professional_Med_J_Q/Professional_Med_J_Q_2015_22_4_390_394.pdf
- Salvatore Gizzo, Stefania Di Gangi, Marco Noventa, Veronica Bacile. (2014) Women's choice of positions during Labour: Return to the Past Modern Way to Give Birth? A chohort study in Italy. BioMed Research International. http://dx.doi.org/10.1155/2014/638093
- Kumud, Rana Avinash Kaur, Chopra Seema. (2013). Effectiveness of upright positions on the duration of first stage of labour among nulliparous mothers. Nursing and Midwifery Research Journal. 9(1). Pp- 10-20.
- Ganapathy Thilagavathy. (2012). Maternal Birthing Position and Outcome of Labour. The Journal of Family Welfare. 58(1). Pp- 68-73. Available from : file:///E:/research%20thesis/SQUATT%20reviews/Electronic%20Journal%20studies/ganpathy-%20birthing%20position%20and%20maternal%20outcome.pdf
- Dellktas Ayse, Kukulu Kamile.(2018). The effect of upright positions during child birth types: a meta analysis. Clinical Health Sciences. 8(2) . Pp- 128-137. Availaible from- https://dergipark.org.tr/marusbed/issue/39370/464606
- Zaky Hassan Nevertity.(2016). Effect of pelvic rocking exercise using sitting position on birth ball during the first stage of labour on its progress. Journal of Nursing and Health Sciences. 5 (4) Pp- 19-27. Available from:www.iosrjournals.org/iosrjnhs/papers/vol5-issue4/Version-3/D0504031927.pdf
- Dabral Anjali, Pawr Pallavi, Bharti Rekha. (2018). Upright Kneeling Position during the Second Stage of Labour: Pilot Study. International Journal of reproduction, Contraception, Obstetrics and Gybecology. 7(2). Pp-401-407. Retrieved from: http://dx.doi.org/10.18203/2320-1770.ijrcog20175930
- Lawerence A, Lewis l. Hofmeyr GJ. Styles C. (2013). Maternal positions and mobility during first stage labor. Cochrane Database Systematic Review Vol- 10. Pp1-10. Retrieved from- https://www.ncbi.nlm.nih.gov/pubmed/23959763
- Ragnar I, Altman D, Tyden T, Olsson SE, 2006. Comaprison of the maternal experience and duration oflabpur in two upright delivery positions : a randomized control trial. British Journal of Gynecology. 113(2). Pp- 165-70. Availaible from- https://www.ncbi.nlm.nih.gov/pubmed/16411993