

# Relationship between maternal height, shoe size, BMI and success of vaginal delivery in birth weight over 4000 grams

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## INTRODUCTION

Fetal macrosomia is associated with birth complications, particularly maternal and fetal trauma during birth. Sonographic fetal weight estimation is a routine procedure for labor planning, although less accurate in large fetuses. The presence of macrosomia is an important factor to consider in decision-making during delivery on whether to use vacuum or proceed to cesarean section.

## OBJECTIVE

The aim of the study was to identify factors which can predict success in the vaginal birth of macrosomic newborns in order to improve prenatal consultation.

## METHODS

This retrospective case-control study included women who gave birth to a singleton macrosomic newborn (birth weight over 4000 grams) via vaginal birth or urgent cesarean during labor, between January 2017-June 2021.

We compared maternal anthropological parameters, parity, gestational diabetes status and estimated birth weight in each group. Birth outcomes and complications were collected and analyzed.

Overall, of 871 women included in the study, 762 had vaginal delivery and 109 underwent cesarean section.

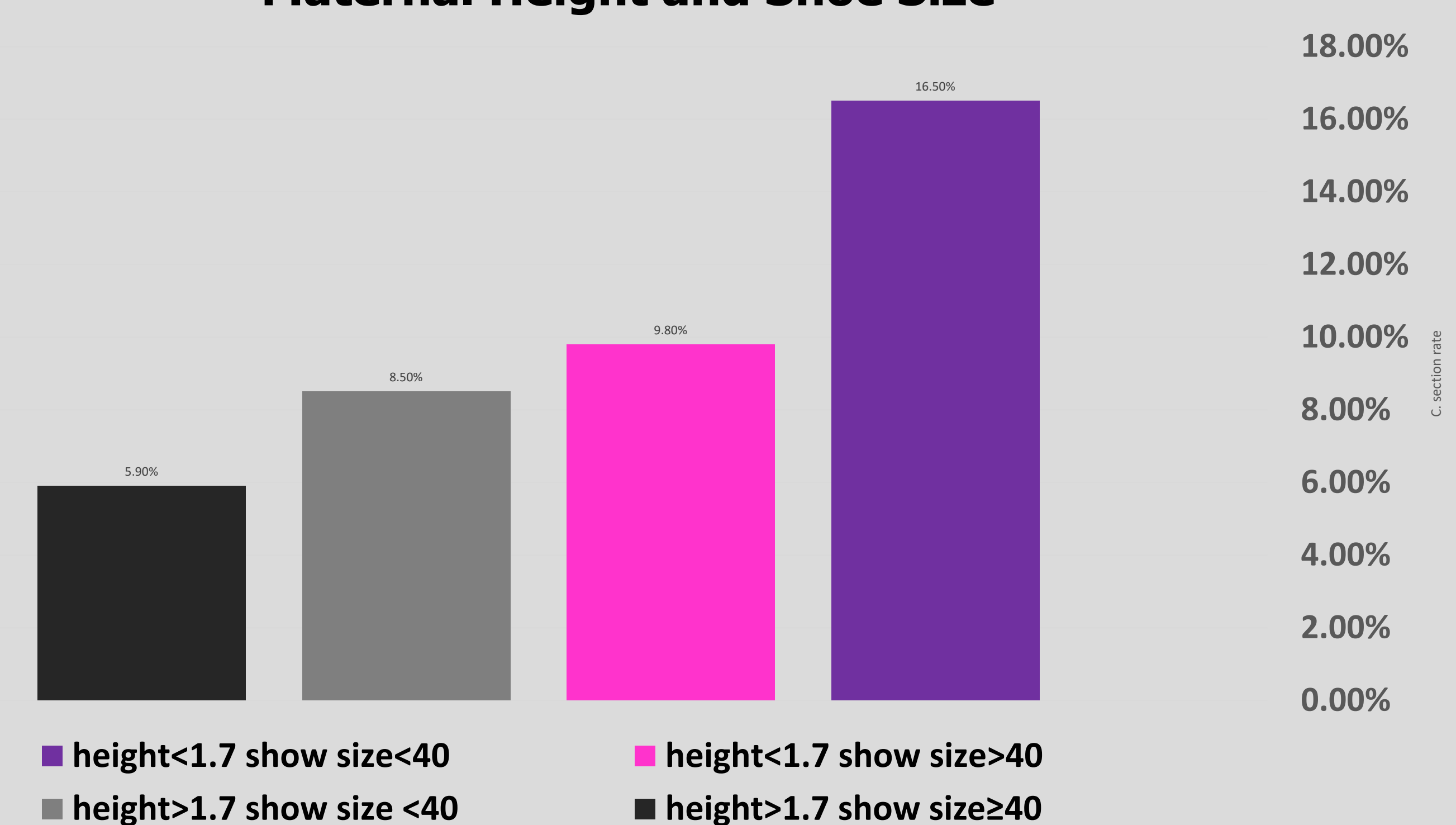
## RESULTS

Maternal demographics were comparable between vaginal and cesarean delivery ( $p>0.05$ ). Women in the vaginal delivery group suffered less from gestational diabetes (6.8% vs, 15.6% respectively; ( $p=0.003$ ).

Mothers in the vaginal delivery group were taller than in the cesarean section group (mean  $165.5\pm 5.8$  cm vs.  $163.8 \pm 5.5$  cm  $p=0.004$ ). 94.1% of women who had shoe size  $\geq 40$  and were  $\geq 170$  cm tall succeed in vaginal delivery.

Using multivariable analysis adjusted to gestational diabetes, parity and BMI, revealed that shoe size  $\geq 40$  and maternal height  $\geq 1.7$  correlates with success in vaginal delivery OR=3.1 (95%CI for OR(1.3,7.3;  $p=0.009$ ). There was no correlation between maternal height or shoe size and labor complication related to the macrosomic newborn such as shoulder dystocia, postpartum hemorrhage or anal sphincter injuries ( $p=0.169$ )

Emergency Cesarean Sections rate in macrosomia by Maternal Height and Shoe Size



## CONCLUSIONS

Shoe size and maternal height can be useful parameters to predict success of vaginal birth in the macrosomic newborn.