

# **Validation of a Shoulder Dystocia Risk Score in a Tanzanian Cohort with Gestational Diabetes: A Methodological Study**

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## | Abstract

Shoulder dystocia is a serious obstetric emergency. Women with gestational diabetes mellitus are at heightened risk. Existing risk prediction tools are seldom validated in low-resource African settings, hindering their use. This methodological study aimed to validate a published shoulder dystocia risk score in a cohort of women with gestational diabetes delivering at a tertiary hospital in Dar es Salaam, Tanzania. The objective was to assess its predictive accuracy and clinical applicability in this population. A retrospective cohort study was conducted using hospital delivery records. The risk score, incorporating maternal and fetal parameters, was calculated for each eligible woman with gestational diabetes. Performance was evaluated by analysing the area under the receiver operating characteristic curve, sensitivity, specificity, and predictive values against the actual occurrence of shoulder dystocia. The risk score demonstrated moderate discriminative ability, with an area under the curve of 0.72. At the recommended threshold, sensitivity was 68% and specificity was 74%. The positive predictive value was 18%, which was lower than in derivation studies. The shoulder dystocia risk score provides a moderate level of predictive accuracy in this Tanzanian gestational diabetes population. Its performance differs from that in the original validation setting, underscoring the necessity for local validation before clinical implementation. The score may be used cautiously as a

supplementary risk assessment tool but should not replace clinical judgement. Further prospective validation with larger sample sizes is recommended to refine risk thresholds. shoulder dystocia, gestational diabetes, risk prediction, validation study, Tanzania, obstetric emergency

This study provides essential validation data for a shoulder dystocia risk prediction tool in a low-resource African setting, informing its potential role in managing deliveries for women with gestational diabetes.

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