# The aging mother and gestational age: The determinants affecting foetal fraction in a district hospital

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## ABSTRACT

**Introduction:** Fetal fraction, the proportion of cell-free fetal DNA in maternal plasma, are known to influence the accuracy of non-invasive prenatal screening (NIPS). Although it is widely used for prenatal screening for fetal aneuploidies, the uptake is slow with the local population due to lack of awareness, expensive cost as well as cultural stigma. Nevertheless, there are maternal factors that may influence fetal fraction and thus may interfere with the interpretation of NIPS results hence the genetic counseling. The aim of this study was to look for the distribution of the fetal fraction and the correlation between maternal age and gestational age. **Materials and Methods:** Retrospective results of pregnant patients who underwent non-invasive prenatal screening (NIPS) in foetal maternal medicine clinic in Ampang Hospital over a duration of one year were analyzed for descriptive analysis and the correlation of foetal fraction with maternal age and gestational age. Data were analyzed using Excel in Microsoft 365. Patients above the age of 18 years with singleton pregnancies with complete documentation were included in the study. Patients' data remains anonymous. **Results:** Sixty-seven patients fulfilled the study criteria. The majority were between the age of 30 to 34 years mostly in the second trimester between 15 weeks to 24 weeks of gestation. Moderate positive correlation was seen gestation vs fetal fraction ($r \approx 0.25$), thus as gestational age increases, the fetal fraction tends to increase. This is similar to other published studies. However, weak negative correlation (-0.09) was shown between qge and fetal fraction. There was almost no relationship between the age with the gestation (-0.037) as it was a very weak negative correlation. Both seem to contradict against the other studies and this may be due to the small sample size. **Conclusion:** There are maternal factors that seem to have influenced the fetal fraction analysis and these need to be considered during assessment prior to offering the NIPS test to patients. This is because it may affect the result and interpretation leading to unnecessary distress to the patients.

Keywords: Cell-free fetal DNA, fetal fraction, gestational age, maternal age