

**CORRELATION BETWEEN CLAUS, GAIL AND TYRER-CUZIK MODELS IN A  
POPULATION-BASED COHORT STUDY**

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Nowadays, breast cancer (BC) is the most prevalent type of cancer among women. Specifically in Brazil, BC is a public health issue due to its morbidity and high incidence and mortality rates. New mathematical models were developed to predict a woman's risk for BC considering her family history (FH) and personal factors (PF). Gail model considers, basically, personal factors such as age at menarche, number of prior breast biopsies and a little FH (just the first-degree familiars) while the Claus models focus more in family data, like first and second-degree relatives with BC and ovarian cancer histories, their ages and the side of family (maternal and/or paternal). The most recent method, Tyrer-Cuzik, appears to integrate both family history and personal factors to minimize the deficiencies of Claus and Gail. The present work seeks to find correlations between the models. We used data from woman in the population-based cohort study NMPOA-Cohort (n=9234), which represents a large sample from the underserved women population in a South Brazil region. In this work, we included 1795 women, 885 of which answered positive to at least one of seven questions about FH and PF (includes FH for breast, ovarian and colorectal cancer). The remaining 910 participants answered no to all questions. For all the 1795 participants, we found a positive correlation between all models, Claus and Tyrer-Cuzik (0,438,  $p < 0,001$ ), Gail and Tyrer (0,695,  $p < 0,001$ ) and Claus and Gail (0,400,  $p < 0,001$ ). For the group without FH history there is correlation between Gail and Tyrer-Cuzik models (0,605,  $p < 0,001$ ), and for the group with a positive answer to the FH questionnaire, Gail and Tyrer presented the highest correlation (0,612,  $p < 0,001$ ), followed by Claus and Tyrer (0,426,  $p < 0,001$ ) and finally Claus and Gail (0,376,  $p < 0,001$ ). There is a good correlation between the three models, and it is necessary to verify which one is more recommended for our study.