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Differences in Gestational Diabetes by Migrant Status in Marche Region, 2013 – 2020. A Population-Based Study from THE MIGHTY PROJECT (CUP P2022ASXKR)

Skrami Edlira[(1)], Iommi Marica[(1)], Faragalli Andrea[(1)], Fontanarosa Alessandro[(1)], Pompili Marco[(2)], Barbiano di Belgiojoso Elisa[(3)], Carle Flavia[(1,2)], Gesuita Rosaria[(1,4)] on behalf of the MIGHTY Project working group

(1) Centre for Epidemiology, Biostatistics and Medical Informatics, Politecnica delle Marche University, Ancona, Italy
(2) Regional Health Agency Marche Region, Ancona, Italy
(3) Department of Statistics and Quantitative Methods, University of Milano-Bicocca, Milano, Italy
(4) IRCCS INRCA, Ancona, Italy
MIGHTY Project working group: Elisa Barbiano di Belgiojoso, Rosaria Gesuita, Stefania M.L. Rimoldi, Dario Pescini, Paolo Berta, Nadia Solaro, Paola Chiodini, Alessandro Avellone, Antonella Zambon, Flavia Carle, Edlira Skrami, Andrea Faragalli, Marica Iommi, Silvana Antonietta Romio

CORRESPONDING AUTHOR: *Skrami Edlira, e.skrami@staff.univpm.it*

INTRODUCTION

Gestational Diabetes (GD), defined as glucose intolerance first detected during pregnancy [1], is a common complication of pregnancy which impacts both maternal and child's health. Monitoring and characterizing its occurrence, particularly in high-risk groups, can guide GD prevention and reduce the burden of the disease.

OBJECTIVE

The study aimed to compare the risk of Gestational Diabetes between Migrant and Italian women at their first pregnancy during 2013 and 2020 in the Marche Region.

METHODS

This population-based study was based on the healthcare utilization databases of Marche Region. Using the Certificates of Delivery Assistance database (CeDAP), a cohort of women at their first singleton delivery during 2013-2020, aged 15 to 50 years at delivery, was selected. Women with at least one diabetes-related event during the year before pregnancy or within the 12th gestational week (gw), defined as glucose-lowering drug prescription (Drug prescriptions database: ATC A10), hospitalization with a primary/secondary diagnosis of diabetes (Hospital Discharge database: ICD-9-CM 250.), diabetes exemption (Exemption database: code 013), or residing in the Region for less than 1 year before pregnancy (Regional Beneficiary Database), with pregnancy terminating before the 20th gw (CeDAP), were excluded.

Women with GD were defined as those with an hospitalization for diabetes (Hospital Discharge: ICD-9-CM 250., 648.8), or ≥1 glucose-lowering drug prescription, or included in an educational program for people with diabetes and obesity (Outpatients care database 93.82.1, 93.82.2), or an exemption for GD/diabetes (code 013, RM013T) activated during pregnancy [2]. To detect women not traced for diabetes in healthcare services during pregnancy, those undergoing at least an OGTT or HbA1c control (Outpatients care database 92.26.4, 90.26.5, 90.28.1), or prescription for glucose-lowering drugs, within one year from delivery, were considered to have GD.

Women were classified as Italians or Migrants from High Migratory Pressure Countries, HMPC [3] based on their citizenship. The HMPC group was distinguished according to the geographical area: East Europe, Africa, West-Center-South Asia, East Asia and Latin America.

Adherence to the recommended AnteNatal Care (ANC) was assessed in terms of promptness and appropriateness of the number and timing of ANC, including gynaecological visits (1st visit within the 12th gw, at least 4 visits during pregnancy), ultrasounds (at least 2 examinations during pregnancy), and laboratory tests (tests appropriately performed during the pregnancy trimesters [4]). Information was retrieved from the outpatient care database. The cumulative number of ANC recommendations followed during the pregnancy was also evaluated.

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The association between GD and citizenship was evaluated using a multiple logistic regression adjusted for age (≥35 vs. <35 years), year of delivery and adherence to ANC recommendations. Potential interactions between age, year of delivery, and adherence to ANC recommendations with citizenship were tested. Results were expressed as Odds Ratios (OR) and 95% Confidence Intervals (95%CI). All data were processed in compliance with the European (GDPR, EU 2016/679) and national privacy laws (D.lgs. 196/2003 and subsequent amendments).

RESULTS

Of 31786 women included in the study cohort, 28331 (89%) had Italian citizenship and 3455 (11%) were migrant women, most of whom were from East Europe (58%) and 13% from populations considered at high risk of GD (South Asia, Middle East). Migrant women were younger than Italian women (mean age, standard deviation: 29, 5.6 vs. 32, 5.3 years).

In both groups, adherence was over 90% in all ANC recommendations referring to gynaecological visits and ultrasounds, and over 65% for laboratory tests appropriateness. Women adherent to at least 3 recommendations were 67.4% and 75.4% in the Migrant and Italian group, respectively. For each of the considered recommendations, Migrant women had lower observed level of adherence compared to Italian women ($p<0.001$).

During pregnancy, almost 30% of women underwent an OGTT assessment, with comparable proportions between the two population groups.

GD occurrence during the study period was 13.7% (95%CI: 12.6-14.9) and 8.7% (95%CI: 8.4-9.1) among Migrants and Italians, respectively; higher use of glucose-lowering drugs was found among Migrant women with GD compared to Italians (24.7% vs. 20.3%).

In the multiple logistic regression model, citizenship was associated to GD, with an OR of 1.8 (1.6-2.0) when comparing Migrant to Italian women. In the model that distinguished Migrant women according to their geographical area of origin (Figure 1), the higher GD risk was confirmed in all areas and not only for those known to be at higher risk. The risk of GD increased of 78% (OR=1.78, 95%CI: 1.64-1.93) in women ≥35 years old with respect to those <35 years. No association between GD and ANC recommendations was found expect for laboratory tests appropriateness. Furthermore, an average increase in GD of about 12% was found during the study period (OR=1.12, 95%CI: 1.01-1.14). No significant interactions between the evaluated factors were found.

CONCLUSIONS

The study showed that Migrant women from different geographical areas were at higher risk of Gestational Diabetes, confirming citizenship an important factor to consider when monitoring women's health in pregnancy. Although almost high levels of adherence to ANC standards were found, the lower levels of adherence characterizing Migrant women with respect to Italian citizens underline the need of tailored prevention strategies, culturally responsive, to mitigate differences in women's health and access to healthcare during pregnancy.

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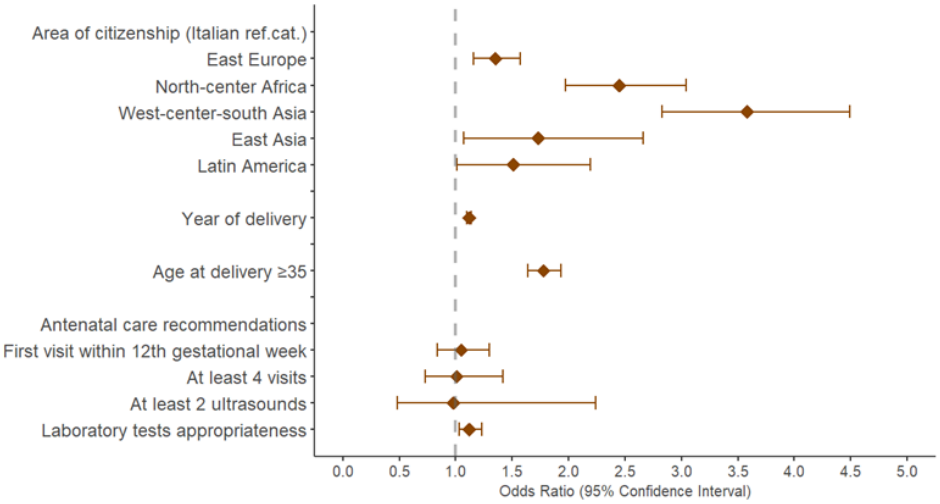
Figure 1. Factors associated to Gestational Diabetes risk in women at their first pregnancy between 2013-2020. Results of the multiple logistic regression model



Hosmer and Lemeshow test: X-squared = 6.65, df = 8, p = 0.575
Likelihood Ratio test: X-squared = 378.6, df =6, p<0.001

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