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**Analiza przebiegu porodu
oraz wyników okołoporodowych matek i noworodków
po porodzie w domu i Przyszpitalnym Domu Narodzin**

A comparative analysis of the perinatal outcomes
of mothers and their newborns after delivery at home
and the Hospital Midwife-led Birth Center

Rozprawa doktorska na stopień doktora
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Streszczenie w języku angielskim

Introduction The dissertation focused on the analysis of the perinatal outcomes of mothers and their children after delivery at home and the Hospital Midwife-led Birth Center. The perinatal outcomes of mothers and their offspring were compared in terms of the place of delivery: at home, a hospital birth center or hospital delivery room. According to the literature, the majority of women experienced an uncomplicated pregnancy and did not always require specialized hospital care. Birthplaces are divided into hospital settings, which are associated with medical supervision, and out-of-hospital settings, perceived as intimate ones, thereby supporting the natural process of childbirth and the autonomy of women. The choice of the birthplace depends on the women's preferences, their sense of security, confidence in medical personnel and self-confidence. A significant role is also attributed to the availability of midwifery services. The dissertation also tackled the issue of the midwife-led model of care, with the midwife being the leading specialist as regards planning and organizing the care of a woman from the beginning of pregnancy until the postpartum period. The importance of the Standard of Perinatal Care in Poland was also emphasized. The document regulates the principles of care for women in the perinatal period. Moreover, due attention was paid to the legal conditions of the profession of a midwife as an independent specialist who may provide care to women at a low risk of complications. Childbirth may be associated with the necessity to transfer to a hospital and unfavourable perinatal results regardless of the place of delivery. The birth environment is shaped on the basis of the organization of perinatal care in a given country. A planned home birth is a situation in which a woman and her family prepare for the birth in a conscious and deliberate way, arranging for midwife or doctor care to be provided during the birth. Globally, childbirth at home and birth centers is considered safe in case of low-risk pregnancies in countries where home birth is a well-integrated part of perinatal care incorporated into the organizational structure of health care.

Purpose of the study The aim of the study was to compare the perinatal outcomes of mothers and newborns depending on the place of delivery. It aimed at assessing the safety of birth at home and hospital birth centers, identifying key medical interventions and their impact on the course of childbirth. Another aim was to develop data on home births, which had not been described in the Polish literature so far.

Material and method The study involved a retrospective analysis of medical records. The analysis covered the data of women giving birth in three settings: at home (HOME

studygroup), at a hospital birth center (DN study group), and in the delivery suite (BPO reference group). A special form was used to collect data on home births from midwives who were the members of the "Dobrze Urodzeni" ("Well-Born") Association. Data concerning deliveries at the hospital and hospital birth center were retrieved from electronic medical records. The study included data from January 2017 to June 2023. The Propensity Score Matching (PSM) method was applied to match the groups in terms of confounding variables (gravidity, parity, age of the woman giving birth, gestational week). Ultimately, a total of 4046 women were included in the analysis. Statistical methods were used to analyze intergroup differences and logistic regression models were used to assess risk factors.

Results. Data analysis revealed that deliveries at home and the hospital birth center were associated with fewer medical interventions, including episiotomy, oxytocin administration, and cesarean sections compared to hospital births. No significant differences occurred between the groups in terms of maternal age at delivery, and the number of pregnancies and deliveries. Differences were noted in the mean values and standard deviations. However, they were clinically insignificant. Compared to the group of women giving birth in the delivery suite, women delivering at home were at a lower risk of undergoing episiotomy, uterine curettage, experiencing first-degree perineal tears, increased bleeding in the fourth stage of labor, being administered oxytocin in the third stage of labor or delivering in the classic position. Moreover, home birth carried a lower risk of postpartum transfer for maternal and neonatal reasons. Transfers following delivery at home or birth center were most commonly necessary due to the lack of progress in childbirth, both during the first and second stage. No significant differences were noted in the state of newborns assessed on the Apgar scale. However, a higher percentage of newborns requiring additional monitoring in the first hours of life was recorded in the group of births at home and birth centers.

Conclusions. The study confirmed the safety of out-of-hospital births in a group of women with low-risk pregnancies, while emphasizing the importance of proper qualification and close supervision of mothers by midwives. The results indicated the benefits of delivering at home and birth centers, both in terms of fewer medical interventions and a greater chance of the physiological course of childbirth. Key challenges were also identified, including the need for a well-organized system of transfer to the hospital and further integration of home births and birth centers in the healthcare system. Further research is necessary to optimize the standards of care and increase the availability of alternative birthplaces.