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Birth centres in Greece
The role of the midwifery model of intrapartum care on the timing of births

D. Papoutsis,[1] A. Antonakou[2]

[1]Department of Midwifery, School of Health Sciences, University of Western Macedonia, Ptolemaida
[2]Department of Midwifery, School of Health Sciences, International Hellenic University, Thessaloniki, Greece

Κέντρα Φυσικού Τοκετού στην Ελλάδα: Ο ρόλος του μαιοκεντρικού μοντέλου στη χρονική διάσταση του τοκετού και των γεννήσεων

Περίληψη στο τέλος του άρθρου

Key words: Birth centres, Intrapartum care, Midwifery care, Normal childbirth, Timing of birth

In Greece, the model of women's healthcare across pregnancy, childbirthing and postpartum has so far been predominantly led by obstetricians with almost all births being performed in public or private maternity hospitals with high rates of medical interventions.[1,2] A landmark healthcare reform has recently taken place in 2022 with the legislative decision of the relevant government authorities to introduce for the very first time the founding of birth centres in the Greek healthcare system.[3] These birth centres will be led exclusively by midwives and will represent autonomous and independent free-standing entities or entities alongside the main hospital and will provide maternity services to pregnant women during pregnancy, childbirth and postnatally. In these settings, midwives will be completely autonomous since at the moment in Greek maternity hospitals their autonomy is very restricted, as they are usually part of a team where the obstetrician is the lead professional and they do not provide midwifery-led care.

This much awaited model of care will create multiple benefits both short-term and long-term. First, the target population of these birth centres will consist of pregnant women who are considered low-risk according to the National Institute for Health and Care Excellence (NICE) clinical guidance criteria.[4] There is evidence that at least one in two pregnant women are low-risk in the general obstetric population.[4] This means that the burden of pregnant women currently attending tertiary hospitals can potentially be reduced by up to 50%, since these low-risk women will be seen and managed at the birth centres by midwives. Secondly, the caesarean section (CS) rates in Greece are well in excess of 50% and are continuously on the rise like in all developed countries. The literature suggests that effectively tackling the CS pandemic requires organisational changes to be implemented within the healthcare system.[5] Evidence states that care provided to women by midwives rather than obstetricians is ideal in supporting normal childbirthing and reducing CS rates and medical interventions among maternity population.[5,6] Countries like the United Kingdom with a long tradition in midwifery-led units, promote midwifery settings as the optimal place of birth for low-risk pregnant women and advocate their significant role in keeping the overall CS and intrapartum intervention rates low.[4]

Establishing of birth centres is a crucial first step toward shaping a new model of maternity care in Greece. The next equally significant step is to carefully organise this model of care and to allow time for the proper implementation of this new health policy. One of the key challenges will be to map the potential workload and timing of births in the birthing suite of the birth centres. For the first time in Greece, pregnant women will have the option to move away from highly medicalised, obstetric-led births, with midwife-led natural births being supported to progress

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spontaneously according to the body's hormonal blueprint.

The literature reports that labour is considered a physiological event that has its own circadian (diurnal) rhythm with a preference for a spontaneous onset in the evening or night time rather than daytime.[7,8] The underlying biological mechanisms that have been found to trigger the spontaneous uterine contractions involve the increased sensibility of the oxytocin receptors in the myometrium of the uterus to maternal oxytocin in the night compared to the daytime along with the increase in the oxytocin receptor concentration.[7–9] However, despite the well-established fact in the literature that labours are more frequently initiated spontaneously at night than during the day, there is a significant variation in the timing of births across different healthcare systems and birthing practices in various countries.

A large population-based study in England in 2018 showed that the peak time for births after spontaneous onset of labour is around 4:00 am.[10] Another large population-based study from the United States of America in 2015 demonstrated completely different patterns of birth with vaginal births after spontaneous onset occurring more often between noon and 5:00 pm than at any other times of the day.[11] It has been further found that labours starting with spontaneous contractions peak between 6:00 and 7:00 am, while labours starting with a spontaneous rupture of membranes peak at 1:00 am in the morning.[12] A more recent comparative analysis of population-based cohorts in 2023 showed that in England and the Netherlands, hospital spontaneous vaginal births demonstrated a generally similar timing pattern to home births with a peak of births in early morning between 2:00 am and 5:00 am, whereas in the United States the pattern was reversed with a peak of hospital spontaneous vaginal births at daytime between 8:00 am to 5:00 pm.[13] It is interesting that in the United States the pattern of timing of homebirths in contrast to the hospital spontaneous vaginal births was similar to that in England and the Netherlands.[13]

According to literature, the variation in the timing of spontaneous vaginal births may be largely influenced by the impact of the maternity care model on the birthing process.[13] In the United States, the maternity care system largely relies on obstetricians, with only a relatively low proportion of women receiving midwifery care during labour. In contrast, the maternity care systems in the Netherlands and England primarily rely on midwives, who serve as the lead providers of intrapartum care.[10,14] It has been reported that women who received intrapartum care from midwives experienced shorter labours compared to those who received intrapartum care from obstetricians.[15] It has also been found that obstetric-led labours and births are associated with higher rates of interventions and stress levels for women.[15] Moreover, the literature reports that the time of day may influence the clinical decision to perform medical interventions with higher rates of interventions being recorded during daytime than night.[13] The fact that there seems to be a natural pattern of timing of an "undisturbed" birth without intervention which is more likely to occur in the early hours of the morning, was initially speculated from earlier studies in the twentieth century when there was much less or no medical interventions at all in the management of labour.[16]

In Greece, there is a gap in the literature, as there is no study that exists at the moment exploring the timing of spontaneous onset labours. However, since so far there are no actual birth centres running yet and almost all births are highly-medicalised, obstetric-led births in maternity hospitals,[2] we can only postulate that the current Greek birthing practice is likely similar to the intrapartum care provided in the United States. Consequently, most births most likely occur during daytime instead of early morning or night hours.

Based on the previously mentioned literature data, it should be expected that the midwifery model of care that will be utilised in the Greek birth centres will impact on the timing of births that will take place within these novel clinical settings. The anticipated birthing pattern during the night than daytime will be completely different from what has been experienced all these years in the Greek maternity hospitals. The immediate clinical implications of such a birthing pattern are that it is imperative that the birth centre is able to meet the increased demands and peaks of birthing at night so as to not compromise the perinatal outcome. Literature indicates that night shifts may lead to sleep deprivation and fatigue in healthcare workers. In addition, the night shift is typically where most new healthcare staff begin their careers.[17] Sleep-deprived and fatigued inexperienced clinicians may experience decreased situational awareness and ineffective teamwork, thus affecting the clinical outcome.[17] Other studies report that one organizational element that has been implicated as a substantial contributor to adverse obstetric events in hospital settings is the timing of birth.[18] A significant association was found between evening and night time births and a higher proportion of adverse neonatal outcomes compared with daytime births.[18] Moreover, some scientific reports in different settings have identified both evening births and night time births as a significant pre-

dictor of increased intrapartum and neonatal morbidity and mortality.[19–21]

The existing literature can serve as a guide and provide useful insights indicating that the birthing practice will be different in the birth centres than the hospital-based births in Greece. It highlights that there will most likely be a variation in the timing of births, which means that the local data from the Greek birth centres when available will have to be taken into account for decisions to be made about midwifery staffing on the birthing suite so as not to compromise the quality and safety of intrapartum care during the night time births that are expected to comprise most of the birthing workload. In addition, a Greek study designed to map the hours of birthing in maternity hospitals, birth centres or even in home-births could address the aforementioned gap in the literature caused by the absence of local data mentioned above, and may provide useful and necessary information to guide local protocols and the midwifery practice in Greece.

ΠΕΡΙΛΗΨΗ

Κέντρα Φυσικού Τοκετού στην Ελλάδα: Ο ρόλος του μαιοκεντρικού μοντέλου στη χρονική διάσταση του τοκετού και των γεννήσεων

Δ. ΠΑΠΟΥΤΣΗΣ,[1] Α. ΑΝΤΩΝΑΚΟΥ[2]

[1]Τμήμα Μαιευτικής, Σχολή Επιστημών Υγείας, Πανεπιστήμιο Δυτικής Μακεδονίας, Πτολεμαΐδα, [2]Τμήμα Μαιευτικής, Σχολή Επιστημών Υγείας, Διεθνές Πανεπιστήμιο Ελλάδος, Θεσσαλονίκη

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Τα Κέντρα Φυσικού Τοκετού (ΚΦΤ) στην Ελλάδα θεσμοθετήθηκαν για πρώτη φορά το 2022 και πρόκειται να λειτουργήσουν ακολουθώντας το μαιοκεντρικό μοντέλο φροντίδας, προσφέροντας υποστήριξη στις γυναίκες κατά την κύηση, τον τοκετό και τη λοχεία. Σε αντίθεση με το ιατρικοποιημένο μοντέλο φροντίδας που εφαρμόζεται στα ελληνικά νοσοκομεία και χαρακτηρίζεται από υψηλά ποσοστά ιατρικών παρεμβάσεων, στα ΚΦΤ αναμένεται σημαντική μείωση των παρεμβάσεων κατά τον τοκετό και συνολική μείωση των καισαρικών τομών στον μαιευτικό πληθυσμό. Έρευνες δείχνουν ότι η αυτόματη έναρξη τοκετού ακολουθεί έναν φυσικό κιρκάδιο ρυθμό, με συχνότερη έναρξη κατά τη διάρκεια της νύκτας. Ωστόσο, η χρονική στιγμή της γέννησης επηρεάζεται σημαντικά από το μοντέλο φροντίδας – είτε μαιοκεντρικό είτε ιατροκεντρικό. Στα ΚΦΤ, τα οποία αναμένεται να λειτουργήσουν σύντομα, προβλέπεται αυξημένη συχνότητα γεννήσεων κατά τη νύκτα, σε αντίθεση με τα νοσοκομεία όπου οι γεννήσεις συμβαίνουν συχνότερα την ημέρα σύμφωνα με τη βιβλιογραφία. Η σωστή οργάνωση των κέντρων τοκετού θα είναι κρίσιμη για τη διασφάλιση της ποιότητας και της ασφάλειας της φροντίδας στη νέα πραγματικότητα του ελληνικού μαιευτικού συστήματος.

Λέξεις ευρετηρίου: Κέντρα Φυσικού Τοκετού, Μαιοκεντρική φροντίδα, Φροντίδα στη διάρκεια του τοκετού, Φυσιολογικός τοκετός, Χρόνος τοκετού

References

1. PAPOUTSIS D, LABIRIS G, NIAKAS D. Midwives' job satisfaction and its main determinants: A survey of midwifery practice in Greece. *Br J Midwifery* 2014, 22:480–486
2. PAPOUTSIS D, CHATZIPANAGIOTIDOU N. A survey on the type and prevalence of medical interventions during labor and childbirth in Greek pregnant women. *Clin Exp Obstet Gynecol* 2023, 50:258–263
3. LAW 4999/2022. Articles 38, 39. Official Government Gazette of the Hellenic Republic no 225/A/7.12.2022
4. NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE. Intrapartum care. Clinical guideline NG 235. NICE, London, 2023
5. CHAPMAN A, NAGLE C, BICK D, LINDBERG R, KENT B, CALACHE J ET AL. Maternity service organisational interventions that aim to reduce caesarean section: A systematic review and meta-analyses. *BMC Pregnancy Childbirth* 2019, 19:206
6. WORLD HEALTH ORGANIZATION. WHO recommendations: Intrapartum care for a positive childbirth experience. WHO, Geneva, 2018
7. BACKE B. A circadian variation in the observed duration of labor. Possible causes and implications. *Acta Obstet Gynecol Scand* 1991, 70:465–468
8. LINDOW SW, JHA RR, THOMPSON JW. 24hour rhythm to the onset of preterm labour. *BJOG* 2000, 107:1145–1148
9. BAKKER JJ, VAN DER GOES BY, PEL M, MOL BWJ, VAN DER POST JAM. Morning versus evening induction of labour for improving outcomes. *Cochrane Database Syst Rev* 2013, 2013:CD007707
10. MARTIN P, CORTINA-BORJA M, NEWBURN M, HARPER G, GIBSON R, DODWELL M ET AL. Timing of singleton births by onset of labour and mode of birth in NHS maternity units in England, 2005–2014: A study of linked birth registration, birth notification, and hospital episode data. *PLoS One* 2018, 13:e0198183
11. MATHEWS TJ, CURTIN S. When are babies born: Morning, noon, or night? Birth certificate data for 2013. *NCHS Data Brief* 2015, 200:200
12. MOŠKON M, KOVAČ U, DALL'OLIO LR, GERŠAK K, KAVŠEK G, ŠMID EB ET AL. Circadian characteristics of term and preterm labors. *Sci Rep* 2024, 14:4033
13. DECLERCQ E, WOLTERINK A, ROWE R, DE JONGE A, DE VRIES R, NIEUWENHUIJZE M ET AL. The natural pattern of birth timing and gestational age in the US compared to England, and the Netherlands. *PLoS One* 2023, 18:e0278856
14. KENNEDY HP, BALAAM MC, DAHLEN H, DECLERCQ E, DE JONGE A,

DOWNE S ET AL. The role of midwifery and other international insights for maternity care in the United States: An analysis of four countries. *Birth* 2020, 47:332–345

15. HERES MH, PEL M, BORKENT-POLET M, TREFFERS PE, MIRMIRAN M. The hour of birth: Comparisons of circadian pattern between women cared for by midwives and obstetricians. *Midwifery* 2000, 16:173–176
16. CHARLES E. The hour of birth: A study of the distribution of times of onset of labour and of delivery throughout the 24-hour period. *Br J Prev Soc Med* 1953, 7:43–59
17. LYNDON A, LEE HC, GAY C, GILBERT WM, GOULD JB, LEE KA. Effect of time of birth on maternal morbidity during childbirth hospitalization in California. *Am J Obstet Gynecol* 2015, 213:705.e1–e11
18. WINDSPERGER K, KISS H, OBERAIGNER W, LEITNER H, MUIN DA, HUSSLEIN PW ET AL. Working-hour phenomenon in obstetrics is an attainable target to improve neonatal outcomes. *Am J Obstet Gynecol* 2019, 221:257.e1–257.e9
19. DE GRAAF JP, RAVELLI ACJ, VISSER GHA, HUKKELHOVEN C, TONG WH, BONSEL GJ ET AL. Increased adverse perinatal outcome of hospital delivery at night. *BJOG* 2010, 117:1098–1107
20. GIJSEN R, HUKKELHOVEN CWPM, SCHIPPER CMA, OGBU UC, DE BRUIN-KOOISTRA M, WESTERT GP. Effects of hospital delivery during off-hours on perinatal outcome in several subgroups: A retrospective cohort study. *BMC Pregnancy Childbirth* 2012, 12:92
21. REIF P, PICHLER G, GRIESBACHER A, LEHNER G, SCHÖLL W, LANG U ET AL. Do time of birth, unit volume, and staff seniority affect neonatal outcome in deliveries at $\geq 34^{+0}$ weeks of gestation? *BJOG* 2018, 125:884–891

Corresponding author:

D. Papoutsis, Department of Midwifery, School of Health Sciences, University of Western Macedonia, 502 00 Ptolemaida, Greece
e-mail: dpapoutsis@uowm.gr