



Electromagnetic Radiation Generating by Device Usage; Birth Weight and Delivery Time

Tuncay Muge Alvur,¹ Nursan Cinar,^{2*} Dilek Menekse,² Selim Oncel,³ Ilker Duran,⁴ and Cemile Dede⁵

¹Faculty of Medicine, Department of Family Medicine, Kocaeli University, Kocaeli, Turkey

²Faculty of Health Sciences, Sakarya, Turkey

³Faculty of Medicine Department of Pediatrics, Kocaeli University, Kocaeli, Turkey

⁴The Ministry of Health of Turkey, Ankara, Turkey

⁵Vocational School of Health Sciences, Sakarya University, Sakarya, Turkey

*Corresponding author: Dr Nursan Cinar, Sakarya University, School of Health Sciences, Esentepe Campus, 54187 Sakarya, Turkey. Tel: +90-2642956621, Fax: +90-2642956602, E-mail: ndede@sakarya.edu.tr

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Dear Editor,

The World Health Organization (WHO) defines babies who are born weighing less than 2500 g as low birth weight (LBW). LBW consist of 60% of the infant mortality in infancy and carries 40 times increase in the risk of neonatal mortality during the first 28 days. Preterm babies account for 27% of nearly 4 million neonatal deaths worldwide every year (1, 2).

All devices have electric current, power lines generate electric, and magnetic fields that are collectively defined EMFs. All individuals are exposed to electromagnetic fields (EMFs) by I. extremely low frequency (ELF) fields from electrical and electronic appliances and power lines, and II. radiation emissions (R) from wireless devices such as cell and cordless phones, cellular antennas and towers, and broadcast transmission towers. Exposure to ELF and EMFs is considered a genotoxic factor due to ending of DNA breakage and damage. Its role as a cancerogenic agent, particularly in brain tumors and childhood leukemia, is expressed in previous studies (3-7).

The current study aimed at making a descriptive presentation of normal and LBW infants (proportionate and disproportionate) and some risk factors, which also include exposure to different EMFs from a variety of sources.

The current cross sectional study was conducted in Sakarya province of Turkey in 2014. The infants and their mothers were selected from the Sakarya research hospital inpatients. The mothers of the infants were interviewed face-to-face using a questionnaire. The neonatal birth weight was used to classify them as LBW or normal. The mothers were inquired about their daily cell phone

and computer uses and the duration of TV watching.

Mean age of the mothers was 27.7 years; ranged 16 to 43. Most of the mothers (n = 492, 72%) had nuclear family; 72 (10.5%) mothers were married to a relative, and 191 (28%) gave birth to their first baby. While none of the mothers consumed alcohol during their pregnancies, 92 (13.5%) smoked. Body mass index (BMI) before pregnancy revealed that 390 (57.1%) of the mothers were in the normal range ($18.5 \leq \text{BMI kg/m}^2 \leq 24.9$).

The ratio of any mental stress during the pregnancy and having preterm baby odds was 1.83 (confidence interval (CI): 1.19 - 2.83). The odds of preterm delivery and fetal malnutrition below 30 years maternal age (odds ratio (OR) = 1, CI: 0.63 - 1.59; OR = 83, CI: 0.51 - 1.33) or having lower economic status (OR = 0.96, CI: 0.60 - 1.54; OR = 0.78, CI: 0.49 - 1.24) or higher level of education (OR = 0.75, CI: 0.48 - 1.16; OR = 82, CI: 0.53 - 1.27) were not significant. Smoking during pregnancy and preterm delivery odds was 0.99 (CI: 0.53 - 1.87) and fetal malnutrition odds was 0.91 (CI: 0.48 - 1.76). Application of electronic devices (watching television, and cellular phone and computer usage) was not associated with delivery time or malnutrition ($P > 0.05$).

Based on the results of the current study and those of most of the similar studies, it was found that pregnant females and their unborn fetuses exposed to the EMF were not affected during pregnancy in terms of fetal growth and development.

Footnote

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