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Psychological Effects of Chronic Exposure to 50 Hz Magnet Fields in Humans Living Near Extra-High-Voltage Transmission Lines.

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The validity of several published investigations of the possibity that residential exposures to 50Hz or 60Hz electromagnetic fields might cause adverse physiological effects, such as suicide and depression, may have been limited by inadequate controlling for confounders or inadequate measurement of exposures. We investigated the relationships between magnetic field exposure and physiological and mental health variables while controlling for potential confounders and careful characterising individual magnetic field exposures. Five-hundred-and forty adults living near transmission lines completed neuropsychological tests in major domains of memory and attentional functioning, mental health rating scales and other questionnaires. Magnetic field measurements were taken in each room occupied for at least one hour per day to provide an estimate of total-time-integrated exposure.
The data were subjected to joint multivariate multiple regression analysis to test for a linear reaction between field exposure and dependent variables, while controlling for effects of possible confounders. Performance on most memory and attention measures was unrelated to exposure, but significant linear dose-response relationships were found between exposure and some physiological and mental health variables. In particular, higher time-integrated exposure was associated with poorer coding-test performance and more adverse psychiatric symptomatology. These associations were found to be independent of participants' beliefs about effects of electromagnetic fields. *Bioelectromagnetics 18: 584 – 594, 1997.*

Key words: cross-sectional study; psychological effects; mental health; electromagnetic fields; powerlines; dose-response.