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RE: Cellular Telephone Use and the Risk of Brain Tumors: Update of the UK Million Women Study

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Like the Danish Cohort study (1), the recent article by Schüz et al. (2), which examined cellular telephone use and brain tumor risk in the Million Women Study, suffered from poor exposure assessment that likely contributed to exposure misclassification. Moreover, participant attrition in this study was high (68%), and the study was underpowered; the analysis sample included few participants with heavier cell phone use, the group with the greatest brain tumor risk (2). Only 18% of cell phone users talked on cell phones 30 or more minutes per week (approximately 4 min/d or 26 h/y) (2). Not "more than 3%" of cell phone users had cumulative call time of 1640 or more hours, the top decile of cell phone use in the 13-nation Interphone Study (3), the only subgroup for which there was statistically significantly greater brain tumor risk.

Other methodological limitations of the study include failure to control for cordless phone use, a potential confounder, and failure to control for hands-free cell phone use, which reduces brain tumor risk from microwave radiation exposure by keeping cell phones away from the head during calls (4).

Although the Schüz et al. (2) article provides sound advice to "reduce unnecessary exposures," the abstract in this article is a disservice to public health because it ends with a misleading assertion: "Our findings support the accumulating evidence that cellular telephone use under usual conditions does not increase brain tumor incidence."

How can the authors of this article argue that their results apply to "usual conditions" when the amount of cell phone use in their analysis sample was much less than "usual" for the United Kingdom? According to cellular industry estimates, in 2011 the average mobile phone subscriber in the United Kingdom had 126 minutes of call time per month for outgoing calls (29 min/wk or 4.1 min/d) (5). This is a conservative estimate of overall call time because it does not account for incoming calls. In the United States, call time was approximately 3 times greater than in the United Kingdom (5).

This assertion is also problematic because a recent meta-analysis of 46 case-control studies (6) found statistically significantly increased brain tumor incidence with cumulative call time of 1000 or more hours (approximately 17 min/d over a 10-year period). Furthermore, Philips et al. (7) examined brain tumor incidence in England from 1995 to 2015 and found a twofold increase in the standardized incidence of the most common malignant brain tumor, glioblastoma multiforme, along with reduced incidence of lower-grade brain tumors, which could indicate a tumor promotion effect from the increased uptake in cell phone use during this time period.

In sum, the Schüz et al. (2) study provides no assurance of safety from brain tumors for most cell phone users, especially those who start using cell phones at a younger age than the middle-aged and elderly women who participated in this study.

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Data Availability

No data were analyzed or generated in this correspondence.

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