

## Cell phones usage and cancers: a review

### ABSTRACT

**Background:** Certain electromagnetic fields (at extremely low frequency) have been recognized as possibly carcinogenic by the International Agency for Research on Cancer. Given the use of radiofrequency technology in cell phones, the rapid increase in the number of cell phones has generated concerns about the existence of a potential health hazard. Use of cellular telephones is increasing exponentially and has become part of everyday life. Concerns about possible carcinogenic effects of radiofrequency signals have been raised, although they are based on limited scientific evidence. Thus, a scoping systematic review was to ascertain this.

**Materials and Methods:** Full-text articles on Cohort studies and/or randomized controlled trials published from 1st January 2000 to 8th June 2016 were searched using Proquest and other sources. People of all age group and cellular phones users were the type of participant and exposure used for the search strategy, respectively. Data collection was done by 1 reviewer and checked by 2 reviewers for discrepancies. All the papers were critically appraised using the STROBE statement. Qualitative synthesis was done by descriptive comparison, risk of bias comparison and effect of exposure comparison.

**Result:** 5 out of 15 articles met the eligibility criteria and were selected. Four articles showed low risk of bias due to low confounding bias. One article had high risk of bias due to information bias. All five articles showed low quality evidences using GRADE. There was no evidence for a dose-response relationship for these cancers based on number of years as a subscriber. Analyses by anatomic location of the brain tumors within the head revealed no unusual clustering that could be related to increased exposure to RF radiation from cellular telephones. The absence of statistically significant increases in cancer risks applied equally to analogue and digital systems. Therefore, it can be said that there is no association of exposure with the studied cancers.

**Conclusion:** There were no insufficient evidence to implicate and suggest that the usage of cell phones exposure towards cancer occurrence. All studies showed that exposure to cell phone usage, regardless the time of exposure, the onset or the duration can give a significant results of association towards cancer. However, due to small number of studies obtained from this scoping systematic review, results from this review should be interpreted with caution.

**Keyword:** Cellular phone; Electromagnetic field; Cancer; Cohort studies; EMF