

Air ions and mood outcomes: a review and meta-analysis

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Abstract

Background

Psychological effects of air ions have been reported for more than 80 years in the media and scientific literature. This study summarizes a qualitative literature review and quantitative meta-analysis, where applicable, that examines the potential effects of exposure to negative and positive air ions on psychological measures of mood and emotional state.

Methods

A structured literature review was conducted to identify human experimental studies published through August, 2012. Thirty-three studies (1957–2012) evaluating the effects of air ionization on depression, anxiety, mood states, and subjective feelings of mental well-being in humans were included. Five studies on negative ionization and depression (measured using a structured interview guide) were evaluated by level of exposure intensity (high vs. low) using meta-analysis.

Results

Consistent ionization effects were not observed for anxiety, mood, relaxation/sleep, and personal comfort. In contrast, meta-analysis results showed that negative ionization, overall, was significantly associated with lower depression ratings, with a stronger association observed at high levels of negative ion exposure (mean summary effect and 95% confidence interval (CI) following high- and low-density exposure: 14.28 (95% CI: 12.93-15.62) and 7.23 (95% CI: 2.62-11.83), respectively). The response to high-density ionization was observed in patients with seasonal or chronic depression, but an effect of low-density ionization was observed only in patients with seasonal depression. However, no relationship between the duration or frequency of ionization treatment on depression ratings was evident.

Conclusions

No consistent influence of positive or negative air ionization on anxiety, mood, relaxation, sleep, and personal comfort measures was observed. Negative air ionization was associated with lower depression scores particularly at the highest exposure level. Future research is needed to evaluate the biological plausibility of this association.

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<https://bmcp psychiatry.biomedcentral.com/articles/10.1186/1471-244X-13-29>