Fracking the brain: Ethical and neurological considerations of unconventional oil and gas development

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INTRODUCTION

THE CONTROVERSY:
- Chemicals used in the fracking process can contaminate water sources from fracking sites.1
- Fracking operations and disposal sites are often placed in rural, minority group areas.1
- Indigenous communities have faced unique challenges from UOGD.1

OBJECTIVE:
In consideration of these issues, we sought to conduct a contemporary analysis of ethics discourse and inquiry in the published fracking literature as it pertains to brain and mental health from 2016-2022.

RESULTS
- The majority of the papers mentioned brain or mental health (76%).
- A handful went into discussion about specific impacts on brain or mental health (13%).
- Safety was a prominent theme in the dataset (77%).
- Discourse about environmental racism and injustices were apparent (38%).

Fig. 2. Distribution of the articles according to country and year.

Fig. 3. Prevalence and depth of discussion of brain and mental health in the dataset.

PRIMARY AND COLLATERAL HARMS
- Water and air contamination pose a serious risk to brain health.
- Pregnant women living near fracking sites received specific attention in the dataset.
- The developing brain is particularly vulnerable to neurotoxic insult.
- Fracking has negative impacts on the mental health of nearby community members and UOGD workers.

Fig. 4. Outline and steps of content coding analysis.

METHODS

THE SEARCH:
Primary search terms used:
- (unconventional natural gas (+/-) development), (shale gas (+/-) development), (fracking) and (hydraulic fracturing)
Combined with:
- (brain), (neuro), (neurological) and (mental) or (ethics), (safety), (environmental racism)

Table 1. Key words used for coding to identify themes.

Fig. 5. Prevalence and depth of discussion of brain and mental health in the dataset.

KEY POINTS
- Fracking disproportionally impacts vulnerable populations.
- Safety is the most common ethics concern.
- Experts have called for a ban on fracking due to the documented and unknown long-term consequences of fracking on human health.1
- This highlights the need to view human-made environmental changes, particularly from UOGD, with a focus on the brain, mental health, and ethics.

ACKNOWLEDGEMENTS
The authors thank Alaa Yehia for research assistance and members of the Neuroethics Canada team for valuable insights.


1. CHPNYPSR. “Compendium of Scientific, Medical, and Media Findings Demonstrating Risks and Harms of...