

Abstract citation ID: ckaf161.027

Public health impacts of potable water supply disruptions during droughts in high income settings

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Background: Climate change is expected to increase the severity and frequency of drought in England. During periods of water supply disruption potable water quality may be affected leading to increased risk to health. The nature and extent of public health impacts of potable water disruptions during droughts are not well understood in England. This scoping review synthesises available literature on potable water supply disruptions and their public health impacts in high income settings.

Methods: Biomedical, public health, and multidisciplinary databases were searched using terms relating to drought, water supply and public health. Titles and abstracts were initially screened followed by full-text review. To ensure consistency and reduce bias, 10% of articles were double-screened, with discrepancies reconciled by three reviewers. Studies were included if they met predefined criteria: English-language research in high-income countries, addressing clear pathways to potable water and health outcomes.

Results: Preliminary findings show that most of the existing literature reports on impacts on water quality; these results are mixed, although there is an indication that drought may raise concentrations of harmful elements. Studies also suggest there may be an indirect impact on mental health through water security. Drought may also increase health risks from usage of unregulated water sources such as wells and streams. Finally, drought increases the use of water recycling systems with further research needed on their safety and acceptability.

Discussion: The potential impacts of drought to human health from potable water supply disruption in high income settings are understudied. Drought often occurs concurrently with other extreme events such as heat or wildfires, making it particularly difficult to disentangle its health impacts. Findings of this review will inform future development of the Adverse Weather and Health Plan for England and wider public health guidance.