

FULL TEXT LINKS



[Drug Alcohol Depend.](#) 2023 Apr 1:245:109827. doi: 10.1016/j.drugalcdep.2023.109827.

Epub 2023 Feb 25.

# The journey to overdose: Using spatial social network analysis as a novel framework to study geographic discordance in overdose deaths

[Amir Forati](#)<sup>1</sup>, [Rina Ghose](#)<sup>1</sup>, [Fahimeh Mohebbi](#)<sup>2</sup>, [John R Mantsch](#)<sup>3</sup>

Affiliations

PMID: 36868092 DOI: [10.1016/j.drugalcdep.2023.109827](#)

## Abstract

**Introduction:** Drug overdose deaths are often geographically discordant (the community in which the overdose death occurs is different from the community of residence). Thus, in many cases there is a journey to overdose.

**Methods:** We applied geospatial analysis to examine characteristics that define journeys to overdoses using Milwaukee, Wisconsin, a diverse and segregated metropolitan area in which 26.72 % of overdose deaths are geographically discordant, as a case study. First, we deployed spatial social network analysis to identify hubs (census tracts that are focal points of geographically discordant overdoses) and authorities (the communities of residence from which journeys to overdoses commonly begin) for overdose deaths and characterized them according to key demographics. Second, we used temporal trend analysis to identify communities that were consistent, sporadic, and emergent hotspots for overdose deaths. Third, we identified characteristics that differentiated discordant versus non-discordant overdose deaths.

**Results:** Authority communities had lower housing stability and were younger, more impoverished, and less educated relative to hubs and county-wide numbers. White communities were more likely to be hubs, while Hispanic communities were more likely to be authorities. Geographically discordant deaths more commonly involved fentanyl, cocaine, and amphetamines and were more likely to be accidental. Non-discordant deaths more commonly involved opioids other than fentanyl or heroin and were more likely to be the result of suicide.

**Conclusion:** This study is the first to examine the journey to overdose and demonstrates that such analysis can be applied in metropolitan areas to better understand and guide community responses.

**Keywords:** Epidemiology; Geospatial; Opioid; Overdose; Population health; Social network analysis; Socioeconomic.

Copyright © 2023 Elsevier B.V. All rights reserved.

[PubMed Disclaimer](#)

## Related information

[GEO Profiles](#)

[MedGen](#)

[PubChem Compound \(MeSH Keyword\)](#)

## LinkOut - more resources

### Full Text Sources

[ClinicalKey](#)

[Elsevier Science](#)