



BMJ Open Urban neighbourhood elements that influence psychoactive substance use among populations with adverse childhood experiences: a scoping review protocol

Mona Baishya ¹, Yaara Zisman-Ilani ¹, Ariel Hoadley,¹ Diana Litsas,¹ Stephanie Roth ¹,² Bradley N Collins¹

To cite: Baishya M, Zisman-Ilani Y, Hoadley A, *et al.* Urban neighbourhood elements that influence psychoactive substance use among populations with adverse childhood experiences: a scoping review protocol. *BMJ Open* 2023;**13**:e066796. doi:10.1136/bmjopen-2022-066796

► Prepublication history and additional supplemental material for this paper are available online. To view these files, please visit the journal online (<http://dx.doi.org/10.1136/bmjopen-2022-066796>).

YZ-I and BNC are joint senior authors.

Received 26 July 2022
Accepted 09 May 2023



© Author(s) (or their employer(s)) 2023. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.

¹Department of Social and Behavioral Sciences, College of Public Health, Temple University, Philadelphia, Pennsylvania, USA

²Junior Board Cancer Resource Library, Christiana Care, Newark, Delaware, USA

Correspondence to
Dr Bradley N Collins;
collinsb@temple.edu

ABSTRACT

Introduction Adverse childhood experiences (ACEs) are stressful or traumatic events experienced before the age of 18 years old. ACEs have been associated with an increased risk for substance use in adulthood. While an abundance of research has examined psychosocial factors that explain the link between ACEs and psychoactive substance use, little is known about the additional influence of the urban neighbourhood environment, including community-level factors, that influence the risk of substance use among populations with a history of ACEs.

Methods and analysis The following databases will be systematically searched: PubMed, Embase, Web of Science, Cochrane, PsycInfo, CINAHL, Clinicaltrials.gov and TRIP medical databases. After the title and abstract screening and full-text screening, we will also conduct a manual search of the reference sections of included articles and include relevant citations. Eligibility criteria include peer-reviewed articles that focus on populations with at least one ACE, factors from the urban neighbourhood community, such as elements from the built environment, presence of community service programmes, quality and vacancy of housing, neighbourhood level social cohesion, and neighbourhood level collective efficacy or crime. Included articles should also include terms such as 'substance abuse', 'prescription misuse' and 'dependence'. Only studies written or translated into the English language will be included.

Ethics and dissemination This systematic and scoping review will focus on peer-reviewed publications and does not require ethics approval. Findings will be available for clinicians, researchers and community members via publications and social media. This protocol describes the rationale and methods for the first scoping review to inform future research and community-level intervention development that targets substance use among populations who have experienced ACEs.

PROSPERO registration number CRD42023405151.

INTRODUCTION

Adverse childhood experiences (ACEs) are traumatic events experienced before the age

STRENGTH AND LIMITATIONS OF THIS STUDY

- ⇒ This protocol will guide the first systematic effort to scope the literature describing both social and built environment neighbourhood elements among populations with adverse childhood experiences (ACEs) who also experience substance use.
- ⇒ The systematic review focuses on the unique relationship between ACEs and substance use in an urban environment.
- ⇒ Future research could compare rural to urban environments to elucidate the unique attributes that influence substance use among populations with ACEs.
- ⇒ The search is restricted to the English language and therefore excludes studies that were published in other languages.
- ⇒ The definition of ACEs can be expanded, but for this paper, ACEs are defined by the original ACEs study done in 1998 and by the Centres for Disease Control and Prevention definitions.

of 18 years old.¹ ACEs include abuse, neglect and household dysfunction (ie, household substance abuse, mental illness and criminal behaviour; domestic violence; parental divorce or separation),² and can lead to adverse health outcomes in adulthood that cut across experiential domains from social (eg, inability to maintain a steady job, problems within relationships),³ psychological (eg, mental illness, emotional dysregulation)⁴⁻⁶ and physical (eg, ischaemic heart disease, cancer).⁷ Additionally, Healthy People 2030 outlines addressing both ACEs and various types of substance use (SU) as a public health priority.^{8,9}

ACEs are associated with a greater risk of poor health outcomes,^{1,4} including SU.¹⁰⁻¹³ For example, individuals in addiction treatment programmes have a greater likelihood



of ACEs compared with the general population.^{14–17} Hypotheses that link ACEs to SU highlight neuropsychological mechanisms that are affected by ACEs in early life (eg, alterations in the hypothalamic–pituitary–adrenal (HPA) and autonomic nervous system (ANS)) that affect well one regulates, or copes with ongoing or future stress. The HPA and ANS are involved in regulating one's stress responses.¹⁸ When the stress response is excessively activated, it results in dysregulation of the stress system, abnormal levels of cortisol, decrease immune function and increased inflammation.^{7 18 19} ACEs also lead to an inability to emotionally regulate in a healthy and adaptive way.²⁰ SU plays a role in the relationship between ACEs and emotional regulation because SU can be used as a method of coping with distressing emotions.^{14 21}

Scoping reviews are conducted with the intention to provide readers with a quick synthesis of evidence on a broader research topic. Methods for conducting a scoping review lead to structured research questions once the researcher has become familiar with the existing literature.²² Scoping reviews are usually done when there is little or emerging evidence of a respective topic.²³ Because scoping reviews can include a group of scientific articles that employed a diverse range of study designs, they provide a more holistic view of the existing evidence.²³

Previous research studies, systematic reviews and scoping reviews have tended to focus on individual and immediate interpersonal level behaviours and characteristics that are associated with SU among populations with ACEs.^{2 24–26} However, these reviews have not extended to include the influence of the neighbourhood environment, such as tobacco and alcohol retailer density and proximity, community violence, community-level social cohesion, neighbourhood trust, etc, suggesting that community-level research regarding the relationship of ACEs and SU is lacking. In a commentary published in 2021, Schroeder *et al.* defined trauma-informed neighbourhoods as 'a neighborhood in which trauma-informed principles are adapted for and applied to the built environment'.²⁷ While their definition focuses on the built environment, community-level behaviours or norms within a neighbourhood or community also contribute to and influence the people living or working in those communities. Understanding the influence of neighbourhood and community factors on the relationship between ACEs and SU is an important next step in prevention and policy efforts when considering trauma-informed neighbourhoods.²⁷

Aims and objectives

This scoping review aims to synthesise existing research that examined the relationship between ACEs, SU and neighbourhood environment. The objective of this scoping review is three-fold:

1. To improve understanding of potential associations between ACEs, SU and neighbourhood environment.

2. To understand whether neighbourhood-level factors influence SU among populations who have experienced ACEs.
3. To identify key concepts and gaps regarding the influence of the neighbourhood environment that can inform future areas of research that could expand or improve on drug-related public policy and SU focused interventions.

METHODS

Protocol design and registration

Methods for the review were developed based on criteria for conducting a scoping of the review.^{22 23 28–30} The Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist, developed in 2018,³¹ guided the development of this protocol.

Review team

The review will be conducted by a team of public health academics with focal training in social and behavioural sciences. This team shares content interest and expertise in, mental health, ACEs, SU and multilevel (including community-level) factors affecting health disparities. The backgrounds of this team will contribute a wide lens related to the topic of this scoping review. Based on best practices, a biomedical librarian conducted the search.³²

Patient and public involvement

Patients and/or the public will not be directly involved in the design, conduct, reporting or dissemination plans of this research.

Information sources and search

The following electronic databases will be systematically searched: PubMed, Embase, Web of Science, Cochrane, PsycInfo, CINAHL, Clinicaltrials.gov and TRIP medical databases. The search syntax was developed by the primary researcher and translated across databases by a university librarian who has expertise in systematic reviews. A draft of the search strategy used for all databases is included in online supplemental appendix 1.

Search terms included MeSH and keywords that focus on individual and collective ACEs, neighbourhoods and any form of SU, substance abuse and substance misuse. There are no limitations on the year of publication to gain a comprehensive search of this research evidence. PubMed was used to refine the original search strategy. Following the PubMed search, the search strategy was translated by the librarian to be applied to the remaining databases. Results from the database searches will be imported to EndNote,³³ bibliographic software. EndNote will facilitate the removal of duplicates.

Eligibility criteria and selection of sources of evidence

Using Abstrackr, a pilot of 200 articles was conducted to develop consensus among the researchers regarding the inclusion criteria for the screening process. The pilot

helped guide discussion about discrepancies in screening and informed more concrete development of frameworks for inclusion criteria.

Studies included as sources of evidence will describe participants or populations with at least one ACE and any SU behaviours. Specific types of ACEs are outlined in the original ACEs study done by Kaiser Permanente in 1998¹ and by the Centre for Disease Control and Prevention.³⁴ These categories of ACEs include exposure to physical abuse, psychological abuse, sexual abuse, neglect, parental substance abuse, parental mental illness, parental criminal behaviour, witnessing a caregiver experiencing intimate partner violence, parental divorce or separation, and/or death of a parent).

Criteria for SU will include searches for all psychoactive substances. These substances are alcohol, tobacco, cannabis, hallucinogens, inhalants, opioids, sedatives, hypnotics, anxiolytics, stimulants and other or unknown psychoactive substances described in papers. The Diagnostic and Statistical Manual of Mental Disorders (DSM-5) was used to identify search terms that reflect SU, misuse, abuse or dependence. Terms used to define these populations will be derived from the following descriptions: taking the substance in larger amounts or for longer periods of time than what is appropriate or recommended, not being able to cut back on using a substance, spending a lot of time recovering from use of the substance, having cravings or urges to use the substance, not being able to manage daily tasks or responsibilities due to SU, causing problems in relationships, not participating in social, occupational or recreational activities because of SU, using a substance despite the risk of dangerous situations, having withdrawal symptoms and building a tolerance of the substance.³⁵ These are based on criteria listed in the DSM-5 to help provide some structure and information to the review team regarding SU. 'Social use' or occasional use will not be considered for this review.

Neighbourhood characteristics described in studies will include neighbourhood or community-level beliefs and behaviours (eg, collective efficacy, community-level social support), and neighbourhood or community-level characteristics (eg, crime, neighbourhood-level socioeconomic status, retailer density and proximity). Inclusion criteria also include quantitative, qualitative and mixed-methods studies. All included publications will have been published in a peer-reviewed journal.

Studies that describe or centre around rural neighbourhoods and communities or rural-only populations will be excluded. Studies that have not been translated into English will also be excluded.

Once duplicate articles are removed, the remaining articles will then be imported into Abstrackr,³⁶ an open-access tool that facilitates article screening. Abstrackr includes a web-based annotation tool that allows researchers to highlight keywords that are relevant to the review, essentially teaching the tool to semiautomate screening and can potentially provide a sensitivity output for predicted screening results that can be reported. Abstrackr also

identifies articles where there are conflicts between researchers about inclusion or exclusion criteria, which can be utilised to come to a consensus about whether the article should be included or excluded.

Then, two separate researchers will review all titles and abstracts to prevent bias. If a tiebreak is needed, a third researcher will review the respective titles and abstracts and discuss them with the lead and secondary researchers. Titles and abstracts that meet the eligibility criteria will then undergo a full-text review using the same hierarchy of researchers. A short pilot of 10% of the included articles will be done to promote fidelity of the inclusion criteria for each of the review team members. Each researcher will note their reasons for excluding a full-text article. Any conflicts will be resolved by a discussion between the two conflicting reviewers and a third researcher who will function as a tie-breaker. A PRISMA flow diagram will be used to present the inclusion and exclusion of the literature at each stage.

Data extraction

For the data extraction, each full-text article will be reviewed by two separate researchers who will independently fill out a customised data extraction form that has been created by the research group together. The form will be amended based on group consensus. A fourth reviewer will cross-check forms to identify inconsistencies and will moderate discussions about inconsistencies. Extracted data will include the type of study (ie, qualitative, quantitative and mixed-method), year of publication, the stated objective or hypotheses of the study, location of the study, characteristics of the sample population, ACEs item, type of SU, including frequency and severity of SU, specific elements of the neighbourhood analysis type.

DISCUSSION AND POTENTIAL IMPLICATIONS

The goal of this scoping review is to better understand how urban neighbourhoods' social and built environment characteristics influence substance use among populations that have experienced ACEs. Currently, research that addresses child trauma focuses on individual and interpersonal components of behaviour and outcomes, while the role of the neighbourhood environment and communities in which these populations live has been overlooked. The influence of neighbourhoods is often overlooked. Elements of neighbourhoods can both trigger symptoms of trauma (eg, factors that elicit elevated or chronic stress) or promote healing (eg, green spaces, walking trails, healthy and available community programmes).

By identifying gaps in existing research, future efforts can be developed and conducted to better understand these relationships, identify targets of interventions and policy and promote individual behaviours that can decrease SU in populations with childhood trauma. Understanding the role of neighbourhoods for those who

have a history of trauma and who participate in SU is valuable for numerous reasons. Behaviours and facilitators of SU are often translatable across multiple substances and multiple health behaviours. Understanding how neighbourhoods influence SU can therefore bolster research and intervention work focused on health outcomes such as obesity, increasing physical activity and social support. The results will help map the SU behaviours and the influence of the neighbourhood among populations with ACEs. Additionally, the results may help identify key mechanisms that explain the relationship between ACEs and SU behaviours in the context of urban environments.

Twitter Mona Baishya @by_monab

Contributors MB is the guarantor. MB, YZ-I and SR contributed to developing the search strategy and methodology, including risk of bias assessment strategy and data extraction criteria. AH and DL contributed to developing the methodology. YZ-I lent expertise in developing a review protocol and refining the review question. BNC lent expertise in substance use.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting or dissemination plans of this research.

Patient consent for publication Not required.

Provenance and peer review Not commissioned; externally peer reviewed.

Supplemental material This content has been supplied by the author(s). It has not been vetted by BMJ Publishing Group Limited (BMJ) and may not have been peer-reviewed. Any opinions or recommendations discussed are solely those of the author(s) and are not endorsed by BMJ. BMJ disclaims all liability and responsibility arising from any reliance placed on the content. Where the content includes any translated material, BMJ does not warrant the accuracy and reliability of the translations (including but not limited to local regulations, clinical guidelines, terminology, drug names and drug dosages), and is not responsible for any error and/or omissions arising from translation and adaptation or otherwise.

Open access This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>.

ORCID iDs

Mona Baishya <http://orcid.org/0000-0001-8697-5746>

Yaara Zisman-Ilani <http://orcid.org/0000-0001-6852-2583>

Stephanie Roth <http://orcid.org/0000-0001-5415-1718>

REFERENCES

- Felitti VJ, Anda RF, Nordenberg D, *et al.* Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. *Am J Prev Med* 1998;14:245–58.
- Hughes K, Bellis MA, Hardcastle KA, *et al.* The effect of multiple adverse childhood experiences on health: a systematic review and meta-analysis. *Lancet Public Health* 2017;2:e356–66.
- Anda RF, Fleisher VI, Felitti VJ, *et al.* Childhood abuse, household dysfunction, and indicators of impaired adult worker performance. *Perm J* 2004;8:30–8.
- Anda RF, Felitti VJ, Bremner JD, *et al.* The enduring effects of abuse and related adverse experiences in childhood. A convergence of evidence from Neurobiology and epidemiology. *Eur Arch Psychiatry Clin Neurosci* 2006;256:174–86.
- Glaser R, Kiecolt-Glaser JK. Stress-induced immune dysfunction: health implications. *Nat Rev Immunol* 2005;5:243–51.
- Shonkoff JP, Garner AS, Siegel BS, *et al.* The lifelong effects of early childhood adversity and toxic stress. *Pediatrics* 2012;129:e232–46.
- Franke HA. Toxic stress: effects, prevention and treatment. *Children (Basel)* 2014;1:390–402.
- U.S. Department of Health and Human Services. Healthy people 2030: reduce the number of young adults who report 3 or more adverse childhood experiences — IVP-D03. 2022. Available: <https://health.gov/healthypeople/objectives-and-data/browse-objectives/violence-prevention/reduce-number-young-adults-who-report-3-or-more-adverse-childhood-experiences-ivp-d03>
- U.S. Department of Health and Human Services. Healthy people 2030: reduce current tobacco use in adults — TU-01. 2022. Available: <https://health.gov/healthypeople/objectives-and-data/browse-objectives/tobacco-use/reduce-current-tobacco-use-adults-tu-01>
- Buckingham ET, Daniolos P. Longitudinal outcomes for victims of child abuse. *Curr Psychiatry Rep* 2013;15.
- Dube SR, Anda RF, Felitti VJ, *et al.* Adverse childhood experiences and personal alcohol abuse as an adult. *Addictive Behaviors* 2002;27:713–25.
- Khoury L, Tang YL, Bradley B, *et al.* Substance use, childhood traumatic experience, and Posttraumatic stress disorder in an urban civilian population. *Depress Anxiety* 2010;27:1077–86.
- Wendland J, Lebert A, de Oliveira C, *et al.* Links between Maltreatment during childhood or adolescence and risk-related substance use among young adults. *L'Évolution Psychiatrique* 2017;82:e17–26.
- Chandler GE, Kalmakis KA, Murtha T. Screening adults with substance use disorder for adverse childhood experiences. *J Addict Nurs* 2018;29:172–8.
- Philogene-Khalid HL, Cunningham E, Yu D, *et al.* Depression and its association with adverse childhood experiences in people with substance use disorders and comorbid medical illness recruited during medical hospitalization. *Addict Behav* 2020;110:106489.
- Dube SR, Felitti VJ, Dong M, *et al.* Childhood abuse, neglect, and household dysfunction and the risk of illicit drug use: the adverse childhood experiences study. *Pediatrics* 2003;111:564–72.
- LeTendre ML, Reed MB. The effect of adverse childhood experience on clinical diagnosis of a substance use disorder: results of a nationally representative study. *Subst Use Misuse* 2017;52:689–97.
- Berens AE, Jensen SKG, Nelson CA. Biological Embedding of childhood adversity: from physiological mechanisms to clinical implications. *BMC Med* 2017;15:135.
- Audage NC, Middlebrooks JS. *The Effects of childhood stress on health across the lifespan*. 2008.
- Cloitre M, Stolbach BC, Herman JL, *et al.* A developmental approach to complex PTSD: childhood and adult cumulative trauma as predictors of symptom complexity. *J Trauma Stress* 2009;22:399–408.
- Ducci F, Goldman D. The genetic basis of addictive disorders. *Psychiatr Clin North Am* 2012;35:495–519.
- Daudt HML, van Mossel C, Scott SJ. Enhancing the scoping study methodology: a large, inter-professional team's experience with Arksey and O'Malley's framework. *BMC Med Res Methodol* 2013;13:48.
- Levac D, Colquhoun H, O'Brien KK. Scoping studies: advancing the methodology. *Implement Sci* 2010;5:69.
- Leza L, Siria S, López-Goñi JJ, *et al.* Adverse childhood experiences (ACEs) and substance use disorder (SUD): a scoping review. *Drug Alcohol Depend* 2021;221:108563.
- Lee KA, Bright CL, Betz G. Adverse childhood experiences (ACEs), alcohol use in adulthood, and intimate partner violence (IPV) perpetration by black men: a systematic review. *Trauma, Violence, & Abuse* 2022;23:372–89.
- Grummitt L, Kelly E, Barrett E, *et al.* Targets for intervention to prevent substance use in young people exposed to childhood adversity: a systematic review. *PLoS One* 2021;16:e0252815.
- Schroeder K, Noll JG, Henry KA, *et al.* Trauma-informed neighborhoods: making the built environment trauma-informed. *Prev Med Rep* 2021;23:101501.
- Sutton A, Clowes M, Preston L, *et al.* Meeting the review family: exploring review types and associated information retrieval requirements. *Health Info Libr J* 2019;36:202–22.
- Grant MJ, Booth A. A typology of reviews: an analysis of 14 review types and associated Methodologies. *Health Info Libr J* 2009;26:91–108.
- Munn Z, Peters MDJ, Stern C, *et al.* Systematic review or Scoping review? Guidance for authors when choosing between a systematic or scoping review approach. *BMC Med Res Methodol* 2018;18.
- Tricco AC, Lillie E, Zarin W, *et al.* PRISMA extension for Scoping reviews (PRISMA-SCR): checklist and explanation. *Ann Intern Med* 2018;169:467–73.

- 32 Harris MR. The librarian's roles in the systematic review process: a case study. *J Med Libr Assoc* 2005;93:81–7.
- 33 Endnote [program]. Endnote 20 version. Philadelphia, PA Clarivate; 2013.
- 34 CDC. Preventing adverse childhood experiences (ACEs): leveraging the best available evidence; 2019.
- 35 American Psychiatric Association D, Association AP. Diagnostic and statistical manual of mental disorders: DSM-5: American psychiatric association. Washington, DC; 2013.
- 36 Wallace BC, Small K, Brodley CE, *et al*. Deploying an interactive machine learning system in an evidence-based practice center: Abstract. In: *Proceedings of the 2nd ACM SIGHIT international health informatics symposium*. Miami, Florida, USA: Association for Computing Machinery, 2012: 819–24.