Trauma-informed approaches in community engaged research (CEnR) and programming for public health and health inequities.

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Key Findings

- Trauma-informed approaches (TIAs) can support community engaged public health work to minimize unintended consequences, avoid re-traumatization and maximize benefits for communities heavily burdened by collective traumatic events and health inequities
- Trauma-informed principles can be used as guidance to enhance the community engagement process for both community-engaged research (CEnR) and practice
- Community partners and community engaged research teams are often informally implementing TIAs
- Building capacity to use TIAs intentionally is an opportunity for all partners in community engaged public health teams, including community partners and researchers.

Abstract

In communities heavily impacted by trauma, trauma-informed approaches (TIAs) are essential practices to minimize unintended consequences and harm associated with receiving clinical, social, and other support services. The incidence and visibility of individual and community traumatic events continues to increase. In turn, it is necessary for public health teams to build capacity and integrate TIAs into public health research and practice, particularly for communities managing multiple health inequities. Community engaged approaches have become increasingly common in public health to address health inequity. Community engaged research (CEnR) is a TIA used by public health researchers to meaningfully and respectfully serve traumatized individuals and communities. CEnR is often intended to address health disparities and inequities, and similar engagement strategies can be used for public health program development. Community engaged public health teams usually include partners from community, research, and other disciplines, and they often work in minoritized and vulnerable communities. In community engaged research (CEnR) and program design, the team can use principles of TIAs to guide the development and decision-making processes; they can also use feedback during the process to enhance the community benefit of the research and programs being offered. The team can benefit from training to understand and use TIAs to support their work. Finally, CEnR can be enhanced by building upon the scientific literature about TIAs to extract strategies and practices to exert more positive impact on the people served by their work and their organizations.

In communities heavily impacted by trauma, trauma-informed approaches (TIAs) are essential practices to minimize unintended consequences and harm associated with receiving clinical, social, and other support services. TIAs have gained traction in clinical and social systems to promote psychological wellbeing and minimize unintended consequences for individuals receiving services within these systems¹. According to the Substance Abuse and Mental Health Services Administration (SAMHSA), "A program, organization, or system that is trauma-informed realizes the widespread impact of trauma and understands potential paths for recovery; recognizes the signs and symptoms of trauma in clients, families, staff, and others involved with the system; and responds by fully integrating knowledge about trauma into policies, procedures, and practices, and seeks to actively resist re-traumatization"². The prevalence and visibility of individual and collective traumatic events is increasing, and public health efforts are often paired with clinical and human services activities to respond to traumatic events. In response, public health professionals and researchers can integrate TIAs into public health efforts as they more frequently engage with trauma-impacted populations.

SAMHSA highlights six key principles of a TIA to include: (1) safety, (2) trustworthiness and transparency; (3) peer support; (4) collaboration and mutuality; (5) empowerment, voice and choice; and (6) cultural, historical, and gender issues². TIAs adhere to these principles through the processes, design, implementation, and evaluation for any trauma-informed program, organization, or system. TIAs have a significant value because they can be used with a range of programs, organizations, and systems intended to address social, community, clinical, and environmental factors that define community environments and impact multiple dimensions of lifestyle and behavior among community members.

Public health efforts often take a community or population level approach to address recognized health and safety concerns, and are often designed to complement individualized clinical and social/human services^{3,4}. Trauma is a recognized public health issue⁵ that has largely been addressed through the study of traumatic stress and other individual health responses to trauma such as post-traumatic stress disorder (PTSD). Traumatic events usurp resources in minoritized and socioeconomically disadvantaged settings. They also have individual and community-wide effects on social⁶, health⁷⁻¹⁰, and wellbeing outcomes that affect residents across the life course.

Exposure to multiple traumatic events has a strong association with symptoms of depression, anxiety, and PTSD¹¹. Exposure to continuous chronic trauma with community violence, cumulative stress, and secondary trauma is positively associated with PTSD, depression, and anxiety¹². Individualized and tailored services may be necessary to manage the health and social consequences associated with traumatic experiences. Unfortunately, community traumas can amplify the mental health concerns of people managing their individual trauma. Community trauma, also referred to as collective trauma, has been defined as "an aggregate of trauma experienced by community members or an event that impacts a few people but has structural and social traumatic consequences"¹³. Other definitions describe collective trauma as "a shared feeling of being subjected to horrendous events that leave negative marks on group consciousness"^{14,15}. There remains a need for collective, population-level supports for mental and behavioral health that strengthen the community environments in which individuals with traumatic and other lived experiences reside.

Community traumas disproportionately impacts minoritized communities, as they have more likely been impacted by violence, historical discrimination, oppression, and poverty¹⁶. While causes of community trauma vary, research suggests that it is typically rooted in social inequities such as racism, poverty, oppression, and erasure of culture/communities¹⁷. These conditions tend to exacerbate known health inequities and problems related to injury¹⁸, interpersonal violence¹⁹, morbidity²⁰, and mortality²¹. Residents in these communities often have a need for multiple public health, clinical, social, and community services to navigate these community conditions. The subset of collective traumas that are identified as public health disasters, like the Flint Water Crisis²²⁻²⁴, may receive such a designation because they have obvious effects on physical health. In this case, the link between lead exposure and cognitive impairment²⁵ was the alarming concern that precipitated public health responses²⁶. However, shared experiences of worry²⁷, fear²⁸, and distrust²⁹ across communities can also increase the risk of psychological distress and other mental and behavioral health problems, consistent with experiences of Flint residents^{30.32}. Traumatic psychological stress responses may also occur more frequently³³, with negative mental and physical health implications³⁴.

Public health activities (research and programs) are often (necessarily) structured to focus on a particular disease or health concern, and thus requires alignment with other public health activities and community priorities when serving in the same population or community. For public health practitioners and researchers that center health equity in their work, this alignment is essential to ensure that the benefits of the multiple programs are realized within the intended community. For those who also use community-engaged strategies to conduct their work, this message resounds from community partners as necessary to minimize unintended consequences, especially if there are similar but different messages (as in recent crises^{35,36}) and see actual health improvements. Without alignment in under-resourced and minoritized communities, there is greater potential for misunderstanding, missed opportunities for collaboration, loss of synergy, and low awareness of key facilitators and barriers to effective programming and research. The integration of TIAs into public health work, including prevention and intervention work¹³, can enhance the intended benefits and limit unintended consequences in service of supporting the community.

Knowledge About TIAs among Public Health Partners

CEnR Partners are Expert Drivers of TIAs. Community engaged research (CEnR) is a TIA often used in public health to meaningfully and respectfully serve traumatized individuals and communities^{37,38}. We can bring the body of literature around TIAs to CEnR and practice work in vulnerable communities by building on the principles associated with TIAs. CEnR is usually structured to build trust³⁹, operate with transparency⁴⁰, and foster collaboration⁴¹ and mutuality^{42,43} Various community-engaged projects and studies also acknowledge cultural^{44,45}, historical⁴⁶, and gender^{47,48} issues, empower community voices^{45,49}, and engage community partners in decision-making^{50,51} processes (selecting choices) for public health action.

The benefits of CEnR and community partnerships extend from the professional and personal expertise of the individuals involved. These benefits center on the ability of CEnR teams (inclusive of community, academic, and other institutionally affiliated partners) to collaboratively identify barriers and nuances of the community that have been overlooked, minimized or unaddressed in previous efforts⁵². Partners that work to promote public health often implicitly or anecdotally acknowledge the worst-case scenarios that they or their clients/consumers have faced and use these encounters to inform their recommendations for best health promotion practice. Within the work of community-engaged public health research, non-academic partners come from multiple settings, including school, justice, clinical, and community organizations, and together create a multidisciplinary team to address some of the most critical health issues facing vulnerable communities. The team serves to address the

problem using their expertise from working within their respective professions and based on their individual experiences in their community setting. Successful CEnR in the United States has been in collaboration with several academic institutions. Example studies include the use citizen science to examine physical activity patterns on greenways at Wake Forest School of Medicine/Wake Forest Baptist Health⁵³⁻⁵⁴ and the Mind Your Heart Intervention for American Indian Women at the University of North Carolina at Chapel Hill⁵⁵. Community-partnered research centers have also developed in collaboration with academic institutions. Examples include the Detroit Community-Academic Urban Research Center at the University of Michigan⁵⁶ and the Flint Center for Health Equity Solutions at Michigan State University⁵⁷ among many others.

Knowledge about TIAs among Community Partners. Community members, leaders, and other partners have long recognized, perhaps informally, the need for their programs to address the principles of TIAs. Community partners often carry a significant amount of institutional knowledge about policies and practices that function as social determinants of health. Partners also have (some) power to integrate language that supports TIAs throughout their institutions. Partners may have an implicit understanding of the ways in which those communities have been shaped by complex and systemic factors that have created various forms of community trauma, chronic stress, and health inequities for the residents.

In community engaged public health work, community champions bring this recognition to the work. However, their knowledge does not always become foundational knowledge for public health work in their communities. This represents an opportunity to extend practice-based evidence in promoting health and wellbeing in vulnerable communities. It also has the potential to generate new evidence-based practices that can be applied and disseminated for use by public health professionals in various communities.

Knowledge about TIAs among Researchers. Public health researchers and practitioners (our team included) have used multilevel framing, including the socioecological model⁵⁸ and Social Determinants of Health models⁵⁹ to identify and act upon the upstream and downstream factors that contribute to public health. Using community engaged approaches, we examine community-based and evidence-based practices and interventions that are designed to improve health and social outcomes influenced by social factors. We center our work in the communities where we seek to achieve the greatest impact through our research. We turn to community

partners as experts to understand the cultural, historical, and social contexts that can limit the potential benefits of public health interventions and programs. We also turn to community experts to share in the decision-making process about the appropriateness of potential interventions and programs in various community contexts. Traumatic events define the community landscape within which public health interventions for other health concerns are offered. Integrating research on TIA into public health research design enables traditional academic researchers to consider unintended consequences of their well-intended work (both with organizational partners and residents)⁶⁰.

Taking Action

Using Trauma-Informed Principles to Inform Priority Program and Research Areas. Interests from institutional and academic practitioners and researchers can vary substantially, even within a single community. While some professionals may focus on narrow but high need populations, others may address more prevalent conditions. Community partners may have different experiences with different research teams, and they may share their experiences across teams in finding ways to best support their community. In sharing perspectives, the priorities for community partners, programs, and research teams can create tension that warrants management using an agreed upon framework to navigate the process. In this context, the trauma-informed principles help to form a framework to be used and minimize unintended consequences or retraumatization in the process of service, program, and intervention development and delivery. Potential benefits of using trauma-informed principles include that they may strengthen community interest in various forms of public health research, including disease surveillance, vaccine uptake, school health, community violence, behavioral health, mental health, and others that are often influenced by social factors.

Incorporating TIAs to Address Barriers to Public Health Intervention Activities (including research and program development processes). An opportunity for strengthening CEnR is centering attention on limiting unintended consequences and managing conflicting priorities between researchers, providers, and intended users of public health activities. As an example, managing obesity generally includes a significant dietary change and increased physical activity. The language used to describe the need, emotions attached to the behavioral changes, and ideal activities embedded in the related intervention for weight change may be significantly different for community members and partners in contrast to clinicians, researchers,

and programming teams. The CEnR team could use the principles of TIAs to navigate their discussions to arrive at a well-received obesity management intervention. In addition, for communities burden by trauma, the principles of TIA can also be used to identify potential intervention activities that elicit trauma-related mental health concerns. This balance of priorities between providers and individuals must be managed to determine what interventions, if any, are appropriate⁶¹. This requires researchers and practitioners (academic, community, and otherwise) to become more knowledgeable about TIAs both conceptually and practically.

Training on TIAs for Community Partners. There is significant value in equipping partners from the community and other organizations to use TIAs. Existing programs and resources are available⁶²⁻⁷² to support providers from multiple backgrounds to build their capacity around TIAs. TIAs carry important value in the community. In the same ways that clinical and social services systems use these practices to motivate systemic change and promote empathy in responding to individuals that may have experienced traumatic events, it would be equally as important to use similar practices within community organizations that also serve large numbers of community members. Building the TIA knowledge would heighten their capacity to acknowledge the socially constructed aspects of mental health and wellness that may vary across societies and cultures⁷³.

The expertise required to implement TIAs is significantly less attributable to professional discipline and more aligned with the amount of required interpersonal communication and interactions with people managing traumatizing experiences. Using CEnR practices, public health professionals can use health communications strategies to translate language around TIAs from clinical to community spaces.

In vulnerable communities, access to community resources is not governed by use of individual use of clinical and mental health services. For staff of organizations that provide community resources to many community members, TIA training designed for direct service providers may be beneficial to learn how to interact with persons managing (potentially unaddressed) trauma. It is essential to ensure the staff that works directly with clients (which could be congregants in faith organizations, children in youth programs or on sports teams, and adults in various community spaces as well) realize the potential for recovery, recognize the symptoms, and avoid re-traumatizing their clients. Such TIA training may emphasize working

with empathy and awareness to (1) encourage staff to monitor their reactions to reactive clients and (2) minimize the likelihood of unintended re-traumatization.

Other relevant training content would provide an opportunity for community partners to understand effective and appropriate strategies for examine common decision-making practices for their potential unintended consequences on the vulnerability of the individuals and communities served. This type of training content would also review example situations in which similar patient/consumer populations have experienced health (physical and psychological), social, and other unintended consequences seemingly not connected to the program services being offered, or influenced by having traumatic lived experiences.

Community members and leaders with frequent social interactions would also benefit from TIA training designed to create community spaces and conversations that limit the potential for unintentional psychological distress. They may also benefit from training to recognize signs of mental health issues when needed (e.g., mental health first aid⁷⁴, community members can be empowered to support each other, and importantly support their peers as they seek the health services they need. For this to happen, we need to ask what resources have been offered to enhance their capacity to meaningfully contribute their expertise without also creating unintended consequences that increase individual vulnerabilities. The systemic use of TIAs can ensure accessibility for individuals using various forms of clinical (e.g., in health systems) and community services/programs for health promotion (e.g., disease management programs or fitness classes) and social connection/well-being (e.g., community clean-ups or celebrations).

Trauma-Informed Training for Research Teams. In action, the additional of the traumainformed lens to community engaged public health research can have multiple dimensions, but always with diligent monitoring for unintended material, relational, and research-related consequences. Researchers should also seek training and engage in thoughtful consideration about each principle of being trauma-informed within their work. We encourage researchers to explore existing continuing education opportunities about TIAs within their own fields, disciplines⁷⁵, and professional organizations. With a CEnR approach, advisory groups representative of intended intervention/program participants are often engaged in intervention or program design. This may be the case when a shared leadership approach is not feasible⁴¹. Through a trauma-informed lens, such an advisory group can collaborate with or aid the research team to ensure that research activities have been examined and as needed, adapted to integrate community culture^{76,77}, historical treatment or experiences that are recognized barriers to trust and partnership with the populations to be served. Such committees can also assess whether research activities seem appropriate, safe, and realistic. When this feedback is used to ensure benefit of the research for the intended communities and demonstrate appreciation to those who gave the feedback, these actions bolster the trauma-informed principle of empowerment, voice, and choice. The research team can promote trustworthiness, transparency, collaboration, and mutuality by seeking partner input in the development of project materials rather than feedback after development; ensuring partners have the language to engage in the research process; by communicating and brainstorming together often about barriers and facilitators to the research process; discussing indicators of equity and fairness upfront, including compensation for their contributions; demonstrating adoption of partner feedback in project materials and activities; and respectfully addressing boundaries in the scope of the project work.

Conclusion

As health equity remains a primary goal of public health programming and research, we can strengthen the integrate existing scientific literature about TIAs to enhance the benefits of CEnR for equitable health outcomes. Partners in health equity work often join such activities with a range of lived experiences that motivated their participation. This motivation leads to the development of well-intended programs and research studies, which should now be augmented by TIAs to deliberately monitor the potential for unintended consequences. Community engaged public health teams, including partners, researchers, and others, can strengthen their capacity to use TIAs by participating in trainings about TIAs and collaborating with clinical and human services professionals to advance public health work. Community engaged programming and research teams can choose to implement activities and benchmark their progress for alignment with trauma-informed principles. As this type of public health work progresses, meaningful research will be necessary to evaluate how CEnR can contribute to understanding the benefits of the systematic and community-wide use of TIA. These evaluation efforts will also need to capture the collective benefit of using TIA to addressing health disparities and inequities, and the ways in which the use of TIA can increase the effectiveness and reach of interventions across communities and populations that have experienced various forms of collective trauma.

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References

- Bruce MM, Kassam-Adams N, Rogers M, Anderson KM, Sluys KP, Richmond TS. Trauma Providers' Knowledge, Views, and Practice of Trauma-Informed Care. J Trauma Nurs. 2018 Mar/Apr;25(2):131-138. doi: 10.1097/JTN.000000000000356. PMID: 29521782; PMCID: PMC5968451.
- Substance Abuse and Mental Health Services Administration. SAMHSA's Concept of Trauma and Guidance for a Trauma-Informed Approach. HHS Publication No. (SMA) 14-4884. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2014. Available from: https://ncsacw.samhsa.gov/userfiles/files/SAMHSA_Trauma.pdf
- Kreuter MW, Thompson T, McQueen A, Garg R. Addressing Social Needs in Health Care Settings: Evidence, Challenges, and Opportunities for Public Health. Annu Rev Public Health. 2021 Apr 1;42:329-344. doi: 10.1146/annurev-publhealth-090419-102204. Epub 2021 Dec 16. PMID: 33326298; PMCID: PMC8240195.
- Choi BCK, King AS, Graham K, Bilotta R, Selby P, Harvey BJ, et al. Clinical public health: harnessing the best of both worlds in sickness and in health. Health Promot Chronic Dis Prev Can. 2022 Oct;42(10):440-444. doi: 10.24095/hpcdp.42.10.03. PMID: 36223159; PMCID: PMC9584176.
- Magruder KM, McLaughlin KA, Elmore Borbon DL. Trauma is a public health issue. Eur J Psychotraumatol. 2017 Oct 9;8(1):1375338. doi: 10.1080/20008198.2017.1375338. PMID: 29435198; PMCID: PMC5800738.
- Rubens SL, Vernberg EM, Felix ED, Canino G. Peer deviance, social support, and symptoms of internalizing disorders among youth exposed to Hurricane Georges. Psychiatry. 2013 Summer;76(2):169-81. doi: 10.1521/psyc.2013.76.2.169. PMID: 23631546; PMCID: PMC4160439.
- Center for Substance Abuse Treatment (US). Trauma-Informed Care in Behavioral Health Services. Rockville (MD): Substance Abuse and Mental Health Services Administration (US); 2014. (Treatment Improvement Protocol (TIP) Series, No. 57.) Chapter 1, Trauma-Informed Care: A Sociocultural Perspective. Available from: https://www.ncbi.nlm.nih.gov/books/NBK207195/

- McFarlane AC. The long-term costs of traumatic stress: intertwined physical and psychological consequences. World Psychiatry. 2010 Feb;9(1):3-10. doi: 10.1002/j.2051-5545.2010.tb00254.x. PMID: 20148146; PMCID: PMC2816923.
- Alexander AC, Ali J, McDevitt-Murphy ME, Forde DR, Stockton M, et al. Racial Differences in Posttraumatic Stress Disorder Vulnerability Following Hurricane Katrina Among a Sample of Adult Cigarette Smokers from New Orleans. J Racial Ethn Health Disparities. 2017 Feb;4(1):94-103. doi: 10.1007/s40615-015-0206-8. Epub 2016 Jan 28. PMID: 26823065; PMCID: PMC4965333.
- Sastry N, Gregory J. The effect of Hurricane Katrina on the prevalence of health impairments and disability among adults in New Orleans: differences by age, race, and sex. Soc Sci Med. 2013 Mar;80:121-9. doi: 10.1016/j.socscimed.2012.12.009. Epub 2012 Dec 20. PMID: 23321678; PMCID: PMC3640812.
- Do TTH, Correa-Velez I, Dunne MP. Trauma Exposure and Mental Health Problems Among Adults in Central Vietnam: A Randomized Cross-Sectional Survey. Front Psychiatry. 2019 Feb 22;10:31. doi: 10.3389/fpsyt.2019.00031. PMID: 30853915; PMCID: PMC6395446.
- Kira I, Ashby J, Lewandowski L, Alawneh AW, Mohanesh J, Odenat L. Advances in continuous traumatic stress theory: traumatogenic dynamics and consequences of intergroup conflict: the Palestinian adolescents case. Psychology. 2013;4(4):396–409.
- Pinderhughes H, Davis RA, Williams, M. Adverse community experiences and resilience: A framework for addressing and preventing community trauma [Internet]. Prevention Institute; Oakland, CA. 2015 - [cited 2023 Mar 10]. Available from: https://bit.ly/2Phz53G.
- 14. Gupta R & Vozar T. Psychotherapy Bulletin: A psychological perspective on collective action and healing [Internet]. [cited 2024 Jan 10]. Society for the Advancement of Psychotherapy. Available from: https://societyforpsychotherapy.org/a-psychologicalperspective-on-collective-action-and-healing/.
- Gorman-Smith D, Tolan P. The role of exposure to community violence and developmental problems among inner-city youth. Dev Psychopathol. 1998 Winter;10(1):101-16. doi: 10.1017/s0954579498001539. PMID: 9524810.
- 16. Lopez-Zeron G, Parra-Cardona JR. Elements of change across community-based trauma interventions. Journal of Systemic Therapies. 2015;34(3):60-76.

- Falkenburger E, Arena O, Wolin J. Trauma-informed community building and engagement [Internet]. Washington, DC: Urban Institute. 2018- [cited 2 Jan 2024]. Available from: https://urbn.is/2sORHiv.
- Karb RA, Subramanian SV, Fleegler EW. County Poverty Concentration and Disparities in Unintentional Injury Deaths: A Fourteen-Year Analysis of 1.6 Million U.S. Fatalities. PLoS One. 2016 May 4;11(5):e0153516. doi: 10.1371/journal.pone.0153516. PMID: 27144919; PMCID: PMC4856406.
- Harrell E, Langton L, Berzofsky M, Couzens L, Smiley-McDonald H. Household poverty and nonfatal violent victimization, 2008-2012 [Internet]. 2014. Washington, DC: US Department of Justice, Office of Justice Programs, Bureau of Justice Statistics. Available from: https://bjs.ojp.gov/content/pub/pdf/hpnvv0812.pdf.
- 20. Khullar D, Chokshi, DA.Health, Income, & Poverty: Where We Are & What Could Help. Health Affairs Health Policy Brief. October 4, 2018.doi: 10.1377/hpb20180817.901935.
- Brady D, Kohler U, Zheng H. Novel Estimates of Mortality Associated With Poverty in the US. JAMA Intern Med. 2023 Jun 1;183(6):618-619. doi: 10.1001/jamainternmed.2023.0276.
 PMID: 37067817; PMCID: PMC10111231.
- 22. Adityavarman, R. The Flint Water Crisis: Using Systems Thinking to Understand Critical Failures. Cornell Policy Review. 2017- [cited 10 Jan 2024]. Accessed from https://www.cornellpolicyreview.com/flint_water_crisis/?pdf=3841.
- 23. Michigan Civil Rights Commission (2017). The Flint Water Crisis: Systemic Racism Through the Lens of Flint. Report of the Michigan Civil Rights Commission. Michigan Department of Civil Rights. Lansing, MI: Michigan Department of Civil Rights. 2017- [cited 1 Mar 2023]. Available from: https://www.michigan.gov/-/media/Project/Websites/mdcr/mcrc/reports/2017/flint-crisis-report-edited.pdf.
- 24. Ruckart PZ, Ettinger AS, Hanna-Attisha M, Jones N, Davis SI, Breysse PN. The Flint Water Crisis: A Coordinated Public Health Emergency Response and Recovery Initiative. J Public Health Manag Pract. 2019 Jan/Feb;25 Suppl 1, Lead Poisoning Prevention(Suppl 1 LEAD POISONING PREVENTION):S84-S90. doi: 10.1097/PHH.000000000000871. PMID: 30507775; PMCID: PMC6309965.
- 25. Ramírez Ortega D, González Esquivel DF, Blanco Ayala T, Pineda B, Gómez Manzo S, Marcial Quino J, et al. Cognitive Impairment Induced by Lead Exposure during Lifespan:

Mechanisms of Lead Neurotoxicity. Toxics. 2021 Jan 28;9(2):23. doi: 10.3390/toxics9020023. PMID: 33525464; PMCID: PMC7912619.

- 26. Hanna-Attisha M, LaChance J, Sadler RC, Champney Schnepp A. Elevated Blood Lead Levels in Children Associated With the Flint Drinking Water Crisis: A Spatial Analysis of Risk and Public Health Response. Am J Public Health. 2016 Feb;106(2):283-90. doi: 10.2105/AJPH.2015.303003. Epub 2015 Dec 21. PMID: 26691115; PMCID: PMC4985856.
- 27. Silver RC, Holman EA, Garfin DR. Coping with cascading collective traumas in the United States. Nat Hum Behav. 2021 Jan;5(1):4-6. doi: 10.1038/s41562-020-00981-x. PMID: 33106630; PMCID: PMC7855984.
- 28. Hirschberger G. Collective Trauma and the Social Construction of Meaning. Front Psychol.
 2018 Aug 10;9:1441. doi: 10.3389/fpsyg.2018.01441. PMID: 30147669; PMCID:
 PMC6095989.
- 29. Fukasawa M, Kawakami N, Umeda M, Akiyama T, Horikoshi N, Yasumura S, Yabe H, Suzuki Y, Bromet EJ. Long-lasting effects of distrust in government and science on mental health eight years after the Fukushima nuclear power plant disaster. Soc Sci Med. 2020 Aug;258:113108. doi: 10.1016/j.socscimed.2020.113108. Epub 2020 Jun 14. PMID: 32574887.
- Sneed RS, Dotson K, Brewer A, Pugh P, Johnson-Lawrence V. Behavioral Health Concerns During the Flint Water Crisis, 2016-2018. Community Ment Health J. 2020 Jul;56(5):793-803. doi: 10.1007/s10597-019-00520-7. Epub 2020 Jan 14. PMID: 31938924; PMCID: PMC8557358.
- 31. Hamm JA, Carrera JS, Van Fossen JA, Key KD, Woolford SJ, Bailey SB, et al. Conceptualizing Trust and Distrust as Alternative Stable States: Lessons from the Flint Water Crisis. Ecol Soc. 2023 Sep;28(3):14. doi: 10.5751/es-14410-280314. PMID: 38179152; PMCID: PMC10766421.
- Fortenberry GZ, Reynolds P, Burrer SL, Johnson-Lawrence V, Wang A, Schnall A, et al. Assessment of Behavioral Health Concerns in the Community Affected by the Flint Water Crisis - Michigan (USA) 2016. Prehosp Disaster Med. 2018 Jun;33(3):256-265. doi: 10.1017/S1049023X18000250. Epub 2018 Apr 19. PMID: 29669608.

- 33. Sareen J. Posttraumatic stress disorder in adults: impact, comorbidity, risk factors, and treatment. Can J Psychiatry. 2014 Sep;59(9):460-7. doi: 10.1177/070674371405900902.
 PMID: 25565692; PMCID: PMC4168808.
- 34. D'Andrea W, Sharma R, Zelechoski AD, Spinazzola J. Physical health problems after single trauma exposure: when stress takes root in the body. J Am Psychiatr Nurses Assoc. 2011 Nov-Dec;17(6):378-92. doi: 10.1177/1078390311425187. PMID: 22142975.
- 35. Benham JL, Lang R, Kovacs Burns K, MacKean G, Léveillé T, McCormack B, et al. Attitudes, current behaviours and barriers to public health measures that reduce COVID-19 transmission: A qualitative study to inform public health messaging. PLoS One. 2021 Feb 19;16(2):e0246941. doi: 10.1371/journal.pone.0246941. PMID: 33606782; PMCID: PMC7895406.
- 36. Boufides CH, Gable L, Jacobson PD. Learning from the Flint Water Crisis: Restoring and Improving Public Health Practice, Accountability, and Trust. J Law Med Ethics. 2019 Jun;47(2_suppl):23-26. doi: 10.1177/1073110519857310. PMID: 31298121.
- 37. Shetgiri R, Kataoka SH, Ryan GW, Askew LM, Chung PJ, Schuster MA. Risk and resilience in Latinos: a community-based participatory research study. Am J Prev Med. 2009 Dec;37(6 Suppl 1):S217-24. doi: 10.1016/j.amepre.2009.08.001. PMID: 19896022.
- 38. Gagnon E, O'Sullivan T, Lane D, Paré N. Exploring partnership functioning within a community-based participatory intervention to improve disaster resilience. Journal of Higher Education Outreach and Engagement. 2016;20:25-52. Available from: https://files.eric.ed.gov/fulltext/EJ1106757.pdf
- Christopher S, Watts V, McCormick AK, Young S. Building and maintaining trust in a community-based participatory research partnership. Am J Public Health. 2008 Aug;98(8):1398-406. doi: 10.2105/AJPH.2007.125757. Epub 2008 Jun 12. PMID: 18556605; PMCID: PMC2446462.
- 40. McMaughan DJ, Grieb SM, Kteily-Hawa R, Key KD. Promoting and Advocating for Ethical Community Engagement: Transparency in the Community-engaged Research Spectrum.
 Prog Community Health Partnersh. 2021;15(4):419-424. doi: 10.1353/cpr.2021.0054. PMID: 34975024.
- 41. Key KD, Furr-Holden D, Lewis EY, Cunningham R, Zimmerman MA, Johnson-LawrenceV, et al. The Continuum of Community Engagement in Research: A Roadmap for

Understanding and Assessing Progress. Prog Community Health Partnersh. 2019;13(4):427-434. doi: 10.1353/cpr.2019.0064. PMID: 31866597.

- 42. Mikesell L, Bromley E, Khodyakov D. Ethical community-engaged research: a literature review. Am J Public Health. 2013 Dec;103(12):e7-e14. doi: 10.2105/AJPH.2013.301605. Epub 2013 Oct 17. PMID: 24134352; PMCID: PMC3828990.
- 43. Duran B, Oetzel J, Magarati M, Parker M, Zhou C, Roubideaux Y, et al. Toward Health Equity: A National Study of Promising Practices in Community-Based Participatory Research. Prog Community Health Partnersh. 2019;13(4):337-352. doi: 10.1353/cpr.2019.0067. PMID: 31866589; PMCID: PMC10765098.
- 44. Nagy GA, Solorzano R, Stafford AM, Mercado Emerson M, Gonzalez-Guarda R. Cultural and linguistic adaptation of psychosocial measurements for latinx participants-Leveraging community-engaged research methods. Res Nurs Health. 2021 Jun;44(3):581-590. doi: 10.1002/nur.22134. Epub 2021 Apr 12. PMID: 33844312; PMCID: PMC8189653.
- 45. Hicks S, Duran B, Wallerstein N, Avila M, Belone L, Lucero J, Magarati M, Mainer E, Martin D, Muhammad M, Oetzel J, Pearson C, Sahota P, Simonds V, Sussman A, Tafoya G, Hat EW. Evaluating community-based participatory research to improve communitypartnered science and community health. Prog Community Health Partnersh. 2012 Fall;6(3):289-99. doi: 10.1353/cpr.2012.0049. PMID: 22982842; PMCID: PMC3586244.
- 46. London JK, Haapanen KA, Backus A, Mack SM, Lindsey M, Andrade K. Aligning Community-Engaged Research to Context. Int J Environ Res Public Health. 2020 Feb 13;17(4):1187. doi: 10.3390/ijerph17041187. PMID: 32069817; PMCID: PMC7068394.
- 47. Morse B, Allen M, Schilling LM, Soares A, DeSanto K, Holliman BD, et al. Community Engagement in Research and Design of a Transgender Health Information Resource. Appl Clin Inform. 2023 Mar;14(2):263-272. doi: 10.1055/s-0043-1763290. Epub 2023 Apr 5. PMID: 37019175; PMCID: PMC10076103.
- Restar A, Minalga BJ, Quilantang MI, Adamson T, Dusic E, van der Merwe LA, et al. Mapping Community-Engaged Implementation Strategies with Transgender Scientists, Stakeholders, and Trans-Led Community Organizations. Curr HIV/AIDS Rep. 2023 Jun;20(3):160-169. doi: 10.1007/s11904-023-00656-y. Epub 2023 Apr 4. PMID: 37012537; PMCID: PMC10071255.

- Ramsden VR, McKay S, Crowe J. The pursuit of excellence: engaging the community in participatory health research. Glob Health Promot. 2010 Dec;17(4):32-42. doi: 10.1177/1757975910383929. PMID: 21510097.
- Johnson-Lawrence V, Bailey S, Sanders PE, Sneed R, Angel-Vincent A, Brewer A, et al. The Church Challenge: A community-based multilevel cluster randomized controlled trial to improve blood pressure and wellness in African American churches in Flint, Michigan. Contemp Clin Trials Commun. 2019 Feb 2;14:100329. doi: 10.1016/j.conctc.2019.100329. PMID: 30886933; PMCID: PMC6402374.
- 51. Isler MR, Corbie-Smith G. Practical Steps to Community Engaged Research: From Inputs to Outcomes. Journal of Law, Medicine & Ethics. 2012;40(4):904-914. doi:10.1111/j.1748-720X.2012.00719.x
- 52. Irby MB, Moore KR, Mann-Jackson L, Hamlin D, Randall I, Summers P, et al. Community-Engaged Research: Common Themes and Needs Identified by Investigators and Research Teams at an Emerging Academic Learning Health System. Int J Environ Res Public Health. 2021 Apr 8;18(8):3893. doi: 10.3390/ijerph18083893. PMID: 33917675; PMCID: PMC8068003.
- 53. Dilley JR, Moore JB, Summers P, Price AA, Burczyk M, Byrd L, et al. A Citizen Science Approach to Determine Physical Activity Patterns and Demographics of Greenway Users in Winston-Salem, North Carolina. Int J Environ Res Public Health. 2019 Aug 29;16(17):3150. doi: 10.3390/ijerph16173150. PMID: 31470544; PMCID: PMC6747415.
- 54. Program in Community-Engaged Research [Internet]. Winston Salem, NC: Wake Forest University School of Medicine. 2024 - [cited 10 Jan 2024]. Available from: https://ctsi.wakehealth.edu/community-resources/program-in-community-engaged-research.
- 55. Mind Your Heart Intervention for American Indian Women [Internet]. Chapel Hill, NC: University of North Carolina at Chapel Hill School of Nursing. 2024 - [cited 10 Jan 2024]. Available from: https://nursing.unc.edu/projects/mind-your-heart-intervention-for-americanindian-

women#:~:text=Brooks'%20research%20study%20%E2%80%9CMind%20Your,women%2 0living%20in%20the%20southeast.

 56. Detroit Community-Academic Urban Research Center [Internet]. Detroit, MI. 2024 - [cited 10 Jan 2024]. Available from: https://www.detroiturc.org/.

- 57. Flint Center for Health Equity Solutions [Internet]. Lansing, MI: Michigan State University.2018 [cited 10 Jan 2024]. Available from: https://flintcenter.org/.
- 58. Centers for Disease Control and Prevention. The social-ecological model [Internet]. 2019 -[cited 10 Jan 2024]. Available from: https://bit.ly/2TSj86I
- 59. Solar O, Irwin A. A conceptual framework for action on the social determinants of health. Social Determinants of Health Discussion Paper 2 (Policy and Practice). Geneva, Switzerland: World Health Organization. 2010. [cited 02 Feb 2023]. Available from: https://iris.who.int/bitstream/handle/10665/44489/?sequence=1.
- 60. Shimmin C, Wittmeier KDM, Lavoie JG, Wicklund ED, Sibley KM. Moving towards a more inclusive patient and public involvement in health research paradigm: the incorporation of a trauma-informed intersectional analysis. BMC Health Serv Res. 2017 Aug 7;17(1):539. doi: 10.1186/s12913-017-2463-1. PMID: 28784138; PMCID: PMC5547533.
- 61. Amuyunzu-Nyamongo A. The social and cultural aspects of mental health in African societies [Internet]. Nairobi, Kenya: Commonwealth Health Partnerships. 2013 [cited 02 Feb 2023]. Available from: https://www.commonwealthhealth.org/wp-content/uploads/2013/07/The-social-and-cultural-aspects-of-mental-health-in-African-societies_CHP13.pdf.
- 62. Trauma Informed Oregon. Training Modules Introduction [Internet]. [cited 10 Jan 2024]. Available from: https://traumainformedoregon.org/resources/training/tic-intro-training-modules/.
- 63. Easterseals. Trauma Informed Care [Internet]. [cited 10 Jan 2024]. Available from: https://www.esinservice.com/home/track-b/trauma-informed-care-a.
- 64. Texas Department of Family and Protective Services. Trauma-Informed Care Training [Internet]. [cited 10 Jan 2024]. Available from: https://www.dfps.texas.gov/training/trauma_informed_care/.
- 65. Trauma Resource Institute. The Community Model [Internet]. [cited 10 Jan 2024]. Available from: https://www.traumaresourceinstitute.com/crm.
- 66. Community Resilience Initiative. Trainings [Internet]. [cited 10 Jan 2024]. Available from: https://criresilient.org/training/.
- 67. The National Child Traumatic Stress Network. Trauma-Informed Care [Internet]. [cited 10 Jan 2024]. Available from: https://www.nctsn.org/trauma-informed-care.

- 68. Washington Health Care Authority. Trauma-informed Approach [Internet]. [cited 10 Jan 2024]. Available from: https://www.hca.wa.gov/about-hca/programs-and-initiatives/trauma-informed-approach-tia.
- 69. Stokes J. Sacred Series Toolkit: Becoming a trauma-informed faith community [Internet]. Raleigh, NC: North Carolina Council of Churches. [cited 10 Jan 2024]. Available from: https://ncchurches.org/sacred-series-toolkit-becoming-a-trauma-informed-faith-community/.
- 70. Act for Youth. Using a Trauma-Informed Approach [Internet]. [cited 10 Jan 2024]. Available from: https://actforyouth.net/program-toolkit/trauma-informed.cfm#:~:text=A%20trauma%2Dinformed%20approach%20to,may%20have%20on %20program%20participants.
- 71. Boys & Girls Clubs of America. Trauma Informed Boys & Girls Club Standards of Practice [Internet]. 2022 – [cited 10 Jan 2024]. Available from: https://bgcaboards.org/wpcontent/uploads/2022/01/Trauma-Informed-Standards.pdf.
- 72. Weinstein E, Wolin J, Rose S. Trauma Informed Community Building Model: A Model for Strengthening Community in Trauma Affected Neighborhoods. San Francisco, CA: Bridge Housing. 2014 – [cited 10 Jan 2024]. Available from: https://bridgehousing.com/PDFs/TICB.Paper5.14.pdf
- 73. Gopalkrishnan N. Cultural Diversity and Mental Health: Considerations for Policy and Practice. Front Public Health. 2018 Jun 19;6:179. doi: 10.3389/fpubh.2018.00179. PMID: 29971226; PMCID: PMC6018386.
- 74. National Council for Mental Wellbeing. Mental Health First Aid [Internet]. [cited 10 Jan 2024]. Available from: https://www.mentalhealthfirstaid.org/.
- 75. Parker S, Johnson-Lawrence V. Addressing Trauma-Informed Principles in Public Health through Training and Practice. Int J Environ Res Public Health. 2022 Jul 11;19(14):8437. doi: 10.3390/ijerph19148437. PMID: 35886289; PMCID: PMC9319668.
- 76. Hood S, Campbell B, Baker K. Culturally Informed Community Engagement: Implications for Inclusive Science and Health Equity [Internet]. Research Triangle Park (NC): RTI Press; 2023 Jan. Available from: https://www.ncbi.nlm.nih.gov/books/NBK592587/ doi: 10.3768/rtipress.2023.op.0083.2301
- 77. Palmer-Wackerly AL, Krok JL, Dailey PM, Kight L, Krieger JL. Community engagement as a process and an outcome of developing culturally grounded health communication

interventions: an example from the DECIDE project. Am J Community Psychol. 2014 Jun;53(3-4):261-74. doi: 10.1007/s10464-013-9615-1. PMID: 24567052.