

CONVERGE COVID-19 Working Groups for Public Health and Social Sciences Research

Research Agenda-Setting Paper

This paper was written to help advance convergence-oriented research in the hazards and disaster field. It highlights areas where additional research could contribute new knowledge to the response to and recovery from the pandemic and other disasters yet to come. Questions about the research topics and ethical and methodological issues highlighted here should be directed to the authors who contributed to this paper.

Working Group Name:

Intersection of Transportation Justice and Public Health in COVID-19

Working Group Description:

This Working Group focuses on the impact of the COVID-19 outbreak on transportation systems and traveler behavior (e.g., origins, destinations) and mobility service delivery (e.g., personal auto, transit, TNCs, dockless bikeshare,). In addition, efforts will concentrate on public health perceptions and concerns as well as trends related to individual users and their interaction with other transportation travelers.

Priority Research Topics and Specific Research Questions:

The Intersection of Transportation Justice and Public Health in COVID-19 Working Group prioritizes three main research topics. The research topics are defined based on: (1) the current availability of related information, (2) general public interest, and (3) societal implications.

Research Topic 1: The impact of COVID-19 on the mobility of the elderly population.

The COVID-19 pandemic has severely strained health care resources, resulting in increased risk and impact for the most vulnerable populations. The elderly population especially depends on some of the most fragile parts of the healthcare system (e.g., dialysis care and assisted living) for daily care due to the increasing complexity of their illnesses as they age. Today, the US population aged 65 or older represents approximately 15% of all residents, with over 60% of older adults being affected by two or more chronic conditions such as diabetes and hypertension. As such, access to quality and safe transportation to be able to travel to health care facilities and appointments is essential. *Primary Research Question:* With the uncertain access or limited exposure to transportation, how has the COVID-19 pandemic impacted the mobility of the elderly population and in turn their health?

Research Topic 2: The impact of COVID-19 on the mobility of populations in environmental justice communities.

Environmental justice communities are often majority-minority neighborhoods whose residents' health is disproportionately impacted due to residential racial segregation, low income, inadequate access to healthy

food, inadequate transportation, air and water pollution, and unsafe homes. Many of these factors contribute to significant health disparities that align with many of the risk factors for higher mortality and morbidity rates due to COVID-19 illness and/or hospitalization. For these communities, these vulnerabilities contribute to a higher likelihood of a poor health outcome after exposure to SARS-CoV-2. In addition, members of these communities may have more difficulty limiting their exposure due to the nature of their work. *Primary Research Question:* How has the COVID-19 pandemic impacted the mobility of the people living in environmental justice communities and their respective health outcomes?

Research Topic 3: The impact of COVID-19 on the mobility of elderly populations within environmental justice communities.

Populations who are at the intersection of being elderly and living in environmental justice communities are at a compounded level of higher mortality and morbidity rates due to COVID-19. However, these groups are less likely to receive the adequate public health resources due to significant decreases in funding compounded by a generational mistrust of the government and the healthcare system. Mistrust of the health care system and social determinants of health contribute to delay in care seeking, which complicates the care process and often worsens patient outcomes.¹ *Primary Research Questions:* During the COVID-19 pandemic response, how have health care systems and public health officials improved access to critical health care resources and services? How have these resources been directed to the most vulnerable populations, specifically the elderly living in environmental justice communities?

Priority Research Topics	Potential Research Questions
<p>1. The impact of COVID-19 on the mobility of the elderly population in urban areas.</p>	<ul style="list-style-type: none"> • <u>Research Question 1:</u> How has the COVID-19 pandemic impacted the mobility of the people living in environmental justice communities and their respective health outcomes? • <u>Research Question 2:</u> How has the rate of compliance with social distancing or stay-at-home orders impacted transportation network performance measures (e.g., travel time, number of travelers, levels of accessibility to transportation,)? • <u>Research Question 3:</u> How have social distancing measures impacted public transport usage?
<p>2. The impact of COVID-19 on the mobility of populations in environmental justice communities.</p>	<ul style="list-style-type: none"> • <u>Research Question 1:</u> How has the COVID-19 pandemic impacted the mobility of the people living in environmental justice communities and their respective health outcomes? • <u>Research Question 2:</u> How has travel behavior changed in relation to active mode uptake (walking and cycling) and its impact on community well-being for communities lacking adequate transportation pre-COVID-19?
<p>3. The impact of COVID-19 on the mobility of elderly populations within environmental justice communities.</p>	<ul style="list-style-type: none"> • <u>Research Question 1:</u> How have health care systems and public health officials improved access to critical health care resources and services to the most vulnerable populations, specifically the elderly living in environmental justice communities during the COVID-19 pandemic response? • <u>Research Question 2:</u> What has been the impact of the various newly implemented transport and public health policies (e.g., decreased transportation services, increased cleaning, adherence to physical distancing in transportation hubs, etc.) to prevent the spread of COVID-19 infections across communities?

Ethical / Methodological Considerations:

For the Intersection of Transportation Justice and Public Health in COVID-19 Working Group, any findings must be placed in an appropriate context and evaluated with a high degree of scrutiny if extrapolation to larger populations of the same group is intended. For any research related to vulnerable populations like the elderly and populations within environmental justice communities, several ethical and methodological considerations must be acknowledged. Diligence and forethought must be taken when conducting any research involving vulnerable persons, whether it is related to primary or secondary data collection.² Research must be executed in a manner that is consistent with ethical principles to avoid indirect or direct exploitation or harm the wellbeing of those populations. It is also important to note that the research conducted will not be an exhaustive process but will provide a snapshot in time.³

The goal of this Working Group is to aggregate the impact of COVID-19 on transportation and public health outcomes through a mixed-methods approach integrating qualitative and quantitative data. The aim is to use primarily open and public data so findings can be verified and reproduced. The types of information and data collected and examined will vary from standard operating procedures of existing public health programs to local and state executive orders related to COVID-19. Another primary source of media will be other academic, popular, and government communications including news articles, search engine results, social media posts as well as official reports by relevant government agencies such as Morbidity and Mortality Weekly Reports (MMWR) from the Centers for Disease Control and Prevention (CDC) as well as transportation service providers' performance metrics.⁴

For the Working Group, other topics or issues of importance include identifying unique indicators for transportation use during the pandemic amongst the most vulnerable populations as compared to traditional transportation performance measures; the monitoring of current and future trends of the socioeconomic status of the most vulnerable populations, identifying and correlating existing comorbidities, as well as developing best-practices for improving quality and access to healthcare as it relates to transportation modalities.

Working Group Commitments:

The Intersection of Transportation Justice and Public Health in COVID-19 will:

- Explore the intersection of transportation and public health through the incorporation of other types of perspectives and promoting opportunities for collaboration
- Align with mission of Natural Hazards Center of sharing disaster research, building connections with various stakeholders, advancing new knowledge, as well as training and mentoring of next generation
- Align with the mission of National Science Foundation of promoting science to advance the national research and education properties
- Maintain a minimum of 50% membership of women/underrepresented groups within natural hazards fields
- Allocate 50% of the CONVERGE COVID-19 Working Group budget to fund student support for research.

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References

1. Mistrust & Under utilization: <https://onlinelibrary.wiley.com/doi/epdf/10.1111/j.1475-6773.2009.01017.x>
 2. The poor, the Black, and the marginalized as the source of cadavers in United States anatomical education: <https://onlinelibrary.wiley.com/doi/abs/10.1002/ca.20445>
 3. Non-communicable disease burden and COVID-19 outcomes: <https://jech.bmj.com/content/jech/early/2020/06/13/jech-2020-214401.full.pdf> 4 Current MMWR and COVID outcomes: https://www.cdc.gov/mmwr/volumes/69/wr/mm6924e2.htm?s_cid=mm6924e2_w
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