

Avenues of Influence: the Relationship between Health Impact Assessment and Determinants of Health and Health Equity

Elizabeth Kelley Sohn · Lauren J. Stein ·
Allison Wolpoff · Ruth Lindberg · Abigail Baum ·
Arielle McInnis-Simoncelli · Keshia M. Pollack

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Abstract This study aims to identify perceived impacts of Health Impact Assessment (HIA) on decision-making, determinants of health, and determinants of health equity and outline the mechanisms through which these impacts can occur. The research team conducted a mixed-methods study of HIAs in the USA. First, investigators collected data regarding perceived HIA impacts through an online questionnaire, which was completed by 149 stakeholders representing 126 unique HIAs. To explore in greater depth the themes that arose from the online survey, investigators conducted semi-structured interviews with 46 stakeholders involved with 27 HIAs related to the built environment. This preliminary study suggests that HIAs can strengthen relationships and build trust between community and government institutions. In addition, this study suggests that HIA recommendations can inform policy

and decision-making systems that determine the distribution of health-promoting resources and health risks. HIA outcomes may in turn lead to more equitable access to health resources and reduce exposure to environmental harms among at-risk populations. Future research should further explore associations between HIAs and changes in determinants of health and health equity by corroborating findings with other data sources and documenting potential impacts and outcomes of HIAs in other sectors.

Keywords Health impact assessment · Social determinants of health · Health equity

Introduction

Determinants of health, which are the physical, economic, and social conditions that shape individual and population health, may account for as much as 50% of health status, and decision-makers and public health practitioners have become increasingly aware of their important role in driving health outcomes [1–3]. Determinants of health equity—the systems and structures that drive disparities in the distribution of determinants of health across populations—are also an important target for intervention [4–6] (see Table 1 for definitions of these and other key terms).

Changes to political systems that increase the influence of certain populations and shift power toward underserved or historically disadvantaged populations can improve health equity [4]. Decisions in various sectors such as transportation, energy, and criminal justice can unintentionally perpetuate or exacerbate negative health impacts or health inequities if health is not considered and if residents are not engaged in decisions affecting their

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E. K. Sohn (✉) · L. J. Stein
Harder+Company Community Research, San Francisco, CA,
USA
e-mail: ekelley@harderco.com

A. Wolpoff
Harder+Company Community Research, San Diego, CA, USA

R. Lindberg · A. Baum · A. McInnis-Simoncelli
Health Impact Project - The Pew Charitable Trusts, Washington,
DC, USA

K. M. Pollack
Johns Hopkins Bloomberg School of Public Health, Baltimore,
MD, USA

Table 1 Definitions of key terms

Term	Definition
Health	A state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity [7]
Health equity	The absence of systematic disparities in health, mental health, or factors that shape health that are systemic and avoidable and, therefore, considered unjust or unfair [8]
Determinants of health	Conditions in which people live that impact opportunities to be healthy, including factors such as economic circumstances, housing, transportation, access to health-promoting resources, social norms, and social and environmental stressors [2, 5, 9, 10]
Determinants of health equity	Structural drivers of disparities in these conditions of daily life, such as relationships between communities and institutions, as well as the social, political, and economic systems and the unequal distribution of power, money, and resources that results from these systems [2, 5, 9, 10]
Health Impact Assessment (HIA)	A systematic process that uses an array of data sources and analytic methods and considers input from stakeholders to determine the potential effects of a proposed policy, plan, program, or project on the health of a population and the distribution of those effects within the population. HIA provides recommendations on monitoring and managing those effects [11]

communities. Although not standard practice, an increasing number of decision-makers are using tools and approaches to address determinants of health in their communities and supporting policies that aim to give all community members an opportunity to live the healthiest life possible [5, 12, 13].

Health Impact Assessment (HIA) is one approach that can be used to support decision-making processes that promote public health benefits, mitigate risks, and ensure equitable distribution of health-promoting resources. Broadly defined, HIA is an approach that is designed to identify the potential health effects of a proposed policy, project, plan, or program in a non-health sector to inform decision-makers, those affected by the decision, and others with an interest in the outcome of those potential health effects [11]. By employing a combination of

methods, HIAs identify health concerns and opportunities related to proposals and describe how these impacts may be distributed among the population, especially for subgroups already at higher risk, such as seniors, children, and low-income families [11]. HIA reports include practical recommendations for maximizing health benefits while minimizing health risks [11]. HIAs have been conducted in a variety of sectors including transportation, housing, education, and criminal justice [14–16].

Given its focus on identifying health impacts and describing their potential distribution among populations, HIA is a practice that aims to protect and promote health and to reduce inequities in health during a decision-making process by encouraging decision-makers to consider the needs of underserved populations in policy and program development and implementation [17]. HIA Practice Standards require that HIAs evaluate proposed decisions' potential impacts on health equity and develop recommendations to address equity impacts [17–19]. HIA Practice Standards also encourage practitioners to solicit meaningful community participation in the HIA process [17].

Only a few studies in the extant literature have documented direct and indirect impacts of HIAs. Examples of direct effects include the incorporation of HIA recommendations and inclusion of health objectives into plans, policies, and programs of non-health-related agencies [20]. Indirect impacts of HIAs include raising decision-makers' awareness of the connection between their work and health in a way that impacts future decisions beyond the target decision, strengthening future planning processes, fostering cross-sector collaborations that enable organizations to achieve greater impact, providing communities with a stronger voice in decisions that affect them, and building stakeholders' capacity to engage in collective action and advocate for their self-interest [18, 20, 21]. For example, one study of 23 HIAs found that in 17 (74%) of the cases, the HIA process resulted in the creation, strengthening, or institutionalizing of relationships, such as partnerships between public health and planning or transportation departments [22]. Few outcome evaluations of HIA have been conducted because of the resources and time required to document improvements and challenges to measuring such changes [18, 20]. As a result, little is known about whether and how HIAs influence determinants of health, health outcomes, and health equity [18].

The objective of this study is to begin to fill this gap in knowledge by identifying perceived impacts of HIAs and outline the mechanisms through which these impacts can occur. This mixed-methods study is intended

to be a precursor to a larger, longer-term study of the association between HIA and changes in determinants of health and health equity.

Methods

The investigators first conducted an online questionnaire of key stakeholders involved in HIAs conducted in the USA in multiple sectors to identify perceived direct and indirect impacts of HIAs, and the mechanisms by which those impacts may occur. Building on information gathered in the online questionnaire, the investigators conducted semi-structured interviews with key stakeholders from HIAs that sought to inform decisions related to the built environment. Built environment HIAs focused on decisions regarding community and regional planning, housing, recreational spaces, and transportation. The interviews provided an opportunity to explore in greater depth the themes that arose from the questionnaire data. Harder+Company Community Research designed the study and data collection instruments with input from the Health Impact Project, a collaboration of the Robert Wood Johnson Foundation and The Pew Charitable Trusts, as well as an Expert Panel of over a dozen experts from universities, philanthropic organizations, and HIA-focused organizations. This study was reviewed by the Johns Hopkins Bloomberg School of Public Health Institutional Review Board and determined not to qualify as human subjects research.

Online Questionnaire

The research team designed the online questionnaire to include questions to gather basic information about the HIA such as key contacts involved in the HIA and their roles, key recommendations and outcomes of the HIA, and questions to identify the ways in which HIAs may have led to changes in community health and health equity. In particular, the questionnaire included questions to tease out the specific aspects of an HIA process and HIA outcomes that were most likely responsible for influencing changes.

The investigators used a mix of purposive and snowball sampling to develop the sampling frame. The initial sample included 388 stakeholders from all of the 388 HIAs in the database maintained by the Health Impact Project, as of August 2016. In the online questionnaire, respondents had the opportunity to refer up to three other stakeholders who were involved in the same HIA to increase the

number of perspectives on each HIA included in the study. The research team sent an additional 133 invitations to these referrals; as such, a total of 521 individuals were invited to participate in the online questionnaire between August and September 2016. One hundred forty-nine complete responses were received representing 126 unique HIAs (33% response rate at the HIA level; 29% response rate among solicited respondents). Most HIAs ($N = 103$) in the sample had a single respondent; 23 HIAs had two respondents. The majority of questionnaire respondents ($N = 87$) replied about one HIA; 15 individuals replied about 2 HIAs, and 7 individuals replied about multiple HIAs (between 3 and 10 HIAs). Questionnaire responders and non-responders did not differ significantly by sector, geographic region, or year of HIA completion.

Semi-Structured Interviews

The research team designed the semi-structured interview protocol to dive deeper on themes identified in the questionnaire, such as the ways in which HIAs may have impacted community health or factors that influence health in the community. More specifically, the interview protocol included questions regarding whether and how the HIA had an influence on determinants of health and health equity and the mechanisms by which the HIA achieved this influence, as well as the contextual facilitators and barriers to HIAs' impact. During the interview, interviewers provided respondents with definitions of health and health equity (see Table 1).

Although the online questionnaire sought perspectives from respondents involved in HIAs across a range of sectors, the research team chose to focus on HIAs related to the built environment for the qualitative interviews to ensure that HIAs were similar enough to draw cross-cutting conclusions from the data. Additionally, these built environment HIAs encompassed the largest number of HIAs in the questionnaire respondent sample as well as in the HIA field overall, and decisions in this sector can directly affect such determinants of health and health equity as physical activity, availability of healthy foods, and access to medical care [23, 21.]

Forty questionnaire respondents were initially identified to participate in interviews. The research team purposively selected these potential respondents because their questionnaire responses indicated that the decision the HIA sought to inform had been made, which created the potential to examine the

relationship between the HIA, the decision and its implementation, and corresponding determinants of health and health equity. From this initial sample of HIA practitioners, community members, and decision-makers, the research team used snowball sampling to identify an additional 40 stakeholders who could confirm perspectives of the initial sample. The team invited a total of 80 stakeholders representing 39 unique HIAs to participate in interviews, of which 46 respondents from 27 HIAs were interviewed and 34 did not participate (58% response rate for respondents). Of those who did not participate, 10 actively declined and 24 never responded to the invitation. Harder+Company conducted interviews via telephone between October and November 2016. For roughly half of the HIAs in the sample ($n = 14$ out of 27 HIAs), the study team was able to speak with two or three respondents to gather and triangulate narrative data about a singular HIA. Individuals who did not respond to the invitation to participate in semi-structured interviews did not differ from respondents based on year of HIA completion, geographic region, or respondents' role in the HIA.

Analysis Approach

The research team asked questionnaire respondents about the extent to which the HIA influenced community engagement, decision-makers' opinions or behaviors, health equity, local infrastructure, local policies, local services and programs, partnerships and collaboration, and population or community health using a five-point Likert scale: *not at all*, *slightly*, *somewhat*, *very*, and *extremely*, in addition to options for *not sure* and *not applicable*. This scale did not assess whether respondents perceived the impact to be positive or a negative. The HIA team combined the two highest response options—*very much* and *extremely*—to create the “strong impact” category. Respondents were then asked to report whether the HIA process and/or products contributed to each of the areas that it influenced.

With participant consent, interviews were recorded and transcribed verbatim by a professional transcription company. Team members who conducted the interviews coded the data using an inductive constant comparison approach [24]. All transcripts were coded using the final codebook in ATLAS.ti 7.5.15 for thematic analysis [8]. The research team analyzed the questionnaire results using SPSS [25].

Results

Table 2 describes the characteristics of respondents to the online questionnaire ($n = 149$) and in-depth qualitative interviews ($n = 46$). For both data collection methods, respondents most frequently reported on HIAs from the western (38% questionnaire, 22% interview) or southern (25% questionnaire, 43% interview) regions of the USA. A majority of respondents represented government agencies (50% questionnaire, 61% interview), including city, county, and state agencies such as health, housing, and planning departments. Questionnaire respondents conducted HIAs across a range of sectors, with the most common being HIAs focused on the built environment (63%). HIA practitioners—those who led the HIA efforts—were a majority of respondents to both the online questionnaire (83%) and interviews (72%).

Among respondents to the online questionnaire, the largest proportion indicated that the HIAs they were reporting on had a strong impact on partnerships and collaboration (55%), decision-makers' opinions or behaviors (46%), and community engagement (45%) (Table 3). One quarter of the questionnaire respondents indicated that the HIAs had a strong impact on health equity. An additional 20% of respondents indicated they were unsure of impacts on health equity, primarily because not enough time had passed to see changes (44%) or because the evidence of these impacts was unclear (40%). Participants that reported the HIA strongly affected community engagement or local policies were more likely to report that it affected health equity. Specifically, among the 55 HIAs in the questionnaire sample where respondents indicated a strong impact on community engagement, 42% also reported a strong impact on health equity, compared with 12% of HIAs that did not report a strong impact on engagement ($p < 0.001$). Among the 36 HIAs in the questionnaire sample where respondents indicated a strong impact on local policies, 50% also reported a strong impact on health equity, compared with 15% of HIAs that did not report a strong impact on local policies ($p < 0.001$).

Perceived impacts of HIAs on communities' social and built environments also emerged as a key theme in interviews (Table 4). Many interviewees described how HIAs changed decision-makers' opinions and cited examples of how the HIA process or outcomes helped to increase political will around issues of health and equity and contributed to changes in policy decisions. Most interviewees described that the

Table 2 Characteristics of respondents' HIAs, online questionnaire, and semi-structured interviews

Characteristic	Questionnaire (n = 149)		Interviews (n = 46)	
	Frequency	Percent	Frequency	Percent
Geographic region of the HIA	37 states		22 states	
Federal-level	8	5%	0	0%
Midwest	32	21%	10	22%
Northeast	16	11%	6	13%
South	37	25%	20	43%
West	56	38%	10	22%
Type of organization				
Educational institution/university	25	17%	7	15%
Government agency	75	50%	28	61%
Nonprofit	49	33%	11	24%
Sector of HIA work				
Agriculture, food and drug	14	9%	–	–
Built environment	95	63%	46	100%
Climate change	2	1%	–	–
Community development	3	2%	–	–
Criminal Justice	3	2%	–	–
Economic policy	4	3%	–	–
Education	7	5%	–	–
Gambling	1	1%	–	–
Immigration reform	1	1%	–	–
Labor and employment	2	1%	–	–
Natural resources and energy	12	8%	–	–
Water	3	2%	–	–
Other	2	1%	–	–
Respondents' role(s) in the HIA <i>multiple responses accepted</i>				
Community participant	6	4%	3	7%
Decision-maker	7	5%	6	13%
Practitioner	123	83%	33	72%
Other	27	18%	12	26%
<i>Business community</i>	0	0%	1	2%
<i>Community organizations</i>	5	3%	3	7%
<i>Other government agencies</i>	4	3%	0	0%
<i>Public health department</i>	21	14%	4	9%
<i>Planning department</i>	9	6%	4	9%

HIA positively influenced partnerships in the community, citing examples where the HIA helped to increase alignment among partner organizations or resulted in the formation of neighborhood associations or other entities. The mechanisms through which these perceived impacts occurred are described in more depth below.

Interviewees also described physical environment changes that they perceived resulted from the HIAs including improvements to pedestrian-oriented transportation infrastructure, adoption of HIA recommendations in community plans such as improved lighting or parks facilities, and the development of a new medical clinic. Some interviewees described how these changes

Table 3 HIA areas and mechanisms of influence, online questionnaire ($n = 149$)

	Community engagement	Decision-makers' opinions or behaviors	Health equity	Local infrastructure	Local policies	Local services and programs	Partnerships and collaboration	Population or community health
Extent of impact								
<i>N</i>	124	125	124	105	119	116	126	122
Not sure	6%	14%	20%	22%	18%	22%	5%	35%
Not at all	7%	4%	8%	24%	8%	15%	3%	9%
Very little	12%	11%	10%	12%	19%	12%	7%	9%
Somewhat	29%	26%	36%	19%	24%	29%	30%	27%
strong	45%	46%	25%	23%	31%	22%	55%	20%
Mechanism of influence, among HIAs with some level of impact								
<i>N</i>	104	102	87	58	86	71	115	67
HIA process	93%	60%	57%	45%	65%	49%	91%	54%
HIA outputs	38%	86%	78%	81%	79%	70%	42%	73%
Other	10%	12%	16%	16%	16%	20%	10%	19%
Reasons for unknown influence, among HIAs where level of impact was unsure								
<i>N</i>	8	17	25	23	22	25	6	43
Changes not monitored	38%	35%	20%	22%	27%	28%	17%	19%
Evidence unclear	25%	0%	40%	30%	9%	8%	17%	23%
No longer with HIA	25%	29%	20%	26%	27%	24%	17%	26%
Not enough time for change	13%	24%	44%	48%	50%	48%	17%	65%
Other	13%	29%	16%	22%	18%	12%	33%	12%

could affect health determinants, such as access to healthy food or medical care, and health outcomes, such as stress or injury, though they noted that these effects can be difficult to monitor or would occur further in the future.

Many interviewees also perceived that the HIAs were able to affect health equity by elevating the voices of residents and population groups that are traditionally excluded from decision-making. Most interview participants described how the HIAs explicitly considered the impacts of the proposed decision on specific population groups, such as low-income residents or residents from various racial and ethnic groups, citing examples of how HIAs led decision-makers to review data and information regarding specific underserved communities and neighborhoods. Most interviewees also described how the participation of underserved communities in the HIA and decision-making processes helped to shape the final decision.

HIA Impact on Determinants of Health Equity

Interview participants highlighted three specific determinants of health equity that they believed HIAs have impacted—community-government relationships, systems and processes that determine the distribution of health-promoting resources, and systems and processes that determine the distribution exposure to environmental risks. These themes are described in detail in Table 4.

Interview participants from nearly a third of HIAs in the interview sample indicated that increased community engagement through the HIA process improved historically tenuous relationships between residents and local government institutions. For example, one respondent who worked on an HIA in the south that focused on proposed policy and programming changes to local parks and recreation centers described how the HIA team, with support from local community-based organizations, solicited meaningful community input from residents and addressed mistrust of the health

Table 4 Key themes from in-depth interviews with HIA participants^a

Domain	Themes	Frequency of Theme ^b	Illustrative Quotations
HIA impact on community social and built environment	HIA changed decision-makers' opinions	Many	"I think a lot of the issues that we mentioned [in the HIA] were things that the community had been talking about for a long time... Having it in writing, I think, made a big difference... made policy-makers really listen more."
	HIA impacted partnerships in community	Most	"I think [the HIA process] did increase collaboration, and certainly influenced the different partners that became involved. There were some groups that were formed specifically to try to help move this [work] along."
	HIA increased understanding of connection between health and built environment	Most	"We conducted a pre-meeting survey [at community meetings] to... measure awareness of the HIA and awareness of how it's connected to health... When they did the post-survey... it seems that there was quite an increase in terms of folks reporting on their understanding that transit was connected to different health outcomes."
	HIA impacted physical or built environment	Many	"One of the things that was very important to use when we designed those neighborhood [bus] routes was to make sure that those routes had a variety of different services that the community could [access]. For instance, on every one of those neighborhood routes, we tried to make sure there was a grocery store, parks, healthcare facilities, so that a person that was transit-dependent wouldn't have to make a transfer to a variety of different routes."
Inclusion of equity principles in HIA	HIA process explicitly considered at-risk subpopulations	Most	"In our findings we noted the disproportional impacts on some populations. In our analysis we made sure that we highlighted which groups in the population are always experiencing inequities about how their mobility can be impacted."
	Participation of vulnerable communities influenced outcomes	Most	"At almost every meeting I would say that there were suggestions and recommendations that came from the public that influenced even small changes to routes and helped us really make a decision that was community based. I think that was really integral in getting the support that we did from the community and the city council as well."
	HIA impact on health equity was explicitly noted	Many	"My position on health equity is that by elevating voices to the decision-making table that aren't traditionally involved in the conversation, it inevitably changes the outcome and the decisions by making sure that there is more information taken into account. Sometimes that information is shared and ignored, but I don't think that was the case here."
HIA impact on determinants of health equity	HIA impacted community-government relationships	Some	"One of the biggest barriers that we saw change a little bit through the process was trust and trust building, trusting the government... I think as a result of this HIA, we started to rebuild community trust, at least with the city and the kinds of things that we can do as a city agency to try to mitigate those environmental injustices."
	HIA impacted distribution of health-promoting resources	Many	"For the older adults, they are in a rural area, so they don't have very good access to [things] like healthcare services or pharmacies or anything related to healthcare. The big impact is connecting them better [via transit] to areas where there would be more services available."
	HIA impacted distribution of exposure to environmental risks	Some	"This housing project is built in the inside of a curve of a freeway [and] there were a number of environmental

Table 4 (continued)

Domain	Themes	Frequency of Theme ^b	Illustrative Quotations
			concerns that were raised. The children and probably the adults had asthma at higher rates than the population as a whole. The recommendations were very specific around the housing units themselves [and included putting] in air conditioning units which are designed differently so they don't create that same propensity for mold, sealing the windows, and redesigning the doors."

^a Only topics that were mentioned across at least 5 HIAs were categorized into themes

^b Some = 5–9 HIAs; many = 10–18 HIAs most = 19–27 HIAs

department. Interviewees from this HIA also described how decision-makers became more aware of community members' capacity to participate in decision-making processes through the HIA, which allowed them to be more open to a community-driven, rather than city-driven, process for future improvements to parks and services. Community-based organizations that participated in this HIA process are now represented on the advisory board of the Parks Department and a newly formed community advisory group helps "to liaise between the Parks Department and the community on a continuing basis." Strengthening community-government relationships through meaningful engagement of underrepresented communities in decision-making processes can increase civic agency and build trust between residents and institutions, which can, in turn, lead to improved health equity [5].

Respondents from half of the HIAs included in the interview sample perceived HIA to lead decision-makers to change processes related to how projects are prioritized or resources are distributed in their communities. For example, one HIA assessing the potential health impacts of a comprehensive city plan influenced the final adopted plan to include policies related to sidewalk and bicycle lanes. As a result of the HIA, the city changed the prioritization process for allocating limited resources for new sidewalks to now include consideration of contextual factors that take into account historic isolation or disenfranchisement with the ultimate goal of increasing pedestrian activity where it is most needed. These factors are measured together to determine "pedestrian priority areas," and subsequent plans ensure that transit routes through these underserved communities include adequate pedestrian infrastructure.

Interviewees representing nearly one third of HIAs reported that HIAs, either through the HIA process or the recommendations, helped address disproportionately high exposure to environmental risks and associated negative health outcomes for some communities. For example, through an HIA process in the south, a predominantly low-income, black community developed relationships with staff from a federal agency and was able to leverage resources to secure the removal of hazardous tires from their neighborhood. Implementation of policies that prioritize improving access to health-promoting resources for vulnerable communities and mitigate their exposure to environmental risks can also lead to improved health equity [6].

Discussion

This is the first study to examine the impact of HIAs on determinants of health and health equity. Though limited to the perceptions of practitioners and others involved in the HIAs, the study confirmed findings of prior work suggesting direct impacts of HIAs on policy decisions, increased community participation in decision-making, the formation of organizational partnerships, and influence on subsequent policy decisions. This study identified new information regarding impacts of HIA on determinants of health equity, notably community-government relationships, systems and processes that determine the distribution of health-promoting resources, and structural factors that influence exposure to environmental risks.

Although this study provides preliminary evidence of perceived HIA impacts, interview responses indicated that in many cases, not enough time had passed to see

changes in determinants of health or health equity or that the monitoring step was lacking due to limited financial or human resources; this confirms findings from prior literature [26]. For example, practitioners who worked on an HIA that sought to inform citywide bus routes hypothesized that the new transit routes might lead to fewer missed appointments at a local health clinic and increase preventive health service usage. However, the respondents lacked monitoring data to confirm this theory. As noted in other publications, additional financial and human resources are needed to gather information on the effects of HIAs. Making monitoring plans for HIAs publicly available would be one possible way to improve accountability for monitoring.

The limitations of this study include that both the questionnaire and the interviews relied on self-reported, perceptual data, which may be subject to recall bias among respondents that completed HIAs many years ago. These data also may have been subject to response bias because respondents are likely to interpret concepts such as health equity and community engagement in a variety of ways. In addition, despite efforts to recruit diverse stakeholder types (e.g., community members, decision-makers, HIA practitioners), the majority of respondents to both the questionnaire and the interviews are HIA practitioners, limiting triangulation of the findings which would further strengthen their validity. In addition, the interview data are drawn from built environment HIAs, so the findings cannot be generalized to HIAs in other sectors. The HIAs are also not necessarily representative of all built environment-related HIAs.

Studying outcomes of HIAs, including changes in health determinants as a result of the HIA, is challenging for a variety of reasons. Few—if any—outcome evaluations of HIAs have been published because of the resources and time required to document health effects and/or challenges to measuring such changes [18, 20]. It is difficult to attribute impacts on policy decisions to HIA, as opposed to other influences, such as economic, political, or social factors, as well as concurrent community changes and initiatives, which also contribute to policy decisions [18, 26, 27]. Additionally, HIA impacts are often not tracked, either due to a lack of funding or resources, because data do not exist at a level sufficient to evaluate progress, or because certain health indicators take multiple years or even a decade or more to see changes. HIA teams may need additional support, resources, or incentives to adequately monitor and

evaluate outcomes following the completion of the HIA. Further, generalizing findings regarding the impacts that HIAs can lead to may not be possible, given the unique contexts in which HIAs are conducted.

Future research that seeks to measure the effects of HIAs on determinants of health and health equity must address and account for these challenges. Longer-term studies of HIAs may be needed to track impact of HIAs on determinants of health and health equity over time. Studies that investigate HIAs seeking to inform similar changes that occur in different contexts may be needed to tease out which changes can be attributed to HIAs versus other influences. A primary impetus of using HIA as a tool is to promote opportunities to advance health through purposeful policy and programmatic decisions; this study provides preliminary evidence that HIAs can influence determinants of health and health equity. Future research is needed to corroborate these self-reported findings with other data sources and to document other determinants of health and health equity that may be influenced by HIA processes or the incorporation of HIA recommendations into consequential decisions in a range of sectors. More specifically, future studies should investigate if equitable access to resources leads to equitable use of resources and if removing environmental risks in these communities leads to better health outcomes in the future, building on existing literature [28–31].

Conclusion

Improved understanding of the relationship between HIA processes and outcomes and determinants of health and health equity will contribute to more effective use of HIA as a tool and strengthen the field's understanding of how HIAs can be used to positively influence health. This study suggests that HIAs can influence changes in the physical environment that may ultimately benefit health and illuminated mechanisms that may contribute to a more effective use of HIA. The findings also suggest that HIAs may influence community-government relationships and the systems and processes that determine the distribution of health-promoting resources and exposure to environmental risks, which may promote health equity.

This study lays a foundation for future research that seeks to document the effects of HIA on

determinants of health equity and their implications for health outcomes. Additionally, the findings echo prior studies that demonstrate the important role HIAs can play in strengthening community engagement and relationships and how they can enhance decision-making processes.

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