

Involvement of Local Health Departments in Obesity Prevention: A Scoping Review

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ABSTRACT

Introduction: Local health department (LHD) obesity prevention (OP) efforts, particularly by rural LHDs, are seemingly uncommon, in part, due to limited infrastructure, workforce capacity, accessible data, and available population-level interventions aimed at social determinants of health (SDOH).

Methods: We conducted a scoping review to determine LHD roles in OP efforts and interventions. Inclusion criteria were articles including evidence-based OP and LHD leaders or staff. Articles were coded by type of LHD involvement, data use, intervention characteristics, use of an SDOH lens, and urban or rural setting.

Results: We found 154 articles on LHD OP—52 articles met inclusion criteria. Typically, LHDs engaged in only surveillance, initial intervention development, or evaluation and were not LHD led. Data and SDOH lens use were infrequent, and interventions typically took place in urban settings.

Conclusion: LHDs could likely play a greater role in OP and population-level interventions and use data in intervention decision making. However, literature is limited. Future research should focus on LHD capacity building, including academic-public health partnerships. Studies should include rural populations, data, and SDOH frameworks addressing “upstream” factors.

KEY WORDS: local health department, obesity prevention, public health data, rural health, social determinants of health

Obesity in the United States has risen to 42.4% of adults in 2017-2018,¹ and obesity-related diseases (eg, diabetes, hypertension, cancer)² are the leading causes of preventable, premature death.^{1,3} Obesity causes are complex; however, diet and physical activity (PA) are major associated factors.⁴ Interventions that can be tailored

to support healthy diets and PA access and behavior change at the population level are needed to reduce obesity rates and related outcomes.⁵ Rural, low-income, and ethnic minority populations experience higher obesity rates and negative health-related outcomes compared with urban populations,^{1,3,6-10} predominantly rooted in social determinants of health (SDOH).⁷ These social factors—lack of health care access, socioeconomic status, education, and the built environment—can limit rural and ethnic minority residents’ access to adequate employment and the resources needed to maintain healthy weight and prevent disease,¹¹⁻¹³ producing health disparities in obesity and obesity-related health outcomes.

Local health departments (LHDs) are essential in coordinating disease prevention, developing health policy, and promoting population health. Yet, despite community-based efforts, obesity prevention (OP) activity by LHDs is not widespread, with 46.1% of LHDs reporting no OP activity in 2016.¹⁴ Reasons for low LHD OP activity may include government mandates focused on other areas (eg, infectious disease control), lack of workforce capacity, funding and infrastructure limitations, and limited accessible relevant data to guide practice.¹⁴⁻¹⁷ These constraints are particularly burdensome in rural counties.¹¹ The

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widening gap in rural-urban health disparities,¹⁸ paired with limited rural LHD capacity and information technology,^{7,11} hinders LHDs in their efforts to improve population health.

Given these disparities and the need for local preventive interventions by LHDs, we conducted a scoping review to examine how LHDs are engaged in OP activity in their jurisdictions. We sought to understand the type of LHD involvement in OP, data use by LHDs to address OP, intervention characteristics, use of an SDOH lens, and urban and rural differences. Our study did not undergo University of Washington Institution Review Board review, as it was not human subjects research.

Methods

Data sources

The scoping review approach differs from other types of literature reviews by addressing broad topics (ie, all OP interventions rather than nutrition or PA alone) and not assessing study quality.^{19,22} We conducted a scoping review because we were particularly interested in evidence about LHD involvement in OP. We followed the Arksey and O'Malley¹⁹ methodological framework to guide our review. It consists of a 6-stage process: (1) identifying the research question; (2) identifying relevant studies; (3) study selection; (4) charting the data; (5) collating, summarizing, and reporting the results; and (6) an optional consultation exercise.

We identified articles through Web-based searches and bibliography reviews¹⁹ (see Supplemental Digital Content Figure, available at <http://links.lww.com/JPHMP/A771>) and included key terms from previously reviewed literature on LHDs and OP. The most relevant terms were “obesity,” “public health,” “local health department,” “health planning guidelines,” “community health services,” “decision-making,” and “nutrition policy.” After reviewing search results, articles specifically involving “local health departments” and “obesity prevention” terms were used to search PubMed and Scopus, as this yielded the most studies with explicit LHD involvement. Other meshed terms resulted in community-only studies, or studies with academic partnerships, rather than LHDs. Reference lists of the searched articles were manually reviewed using a snowball technique¹⁹ and our inclusion criteria. An expert librarian from the University of Washington Health Sciences Library also peer reviewed our terms and search strategies. E-mail alerts were set to monitor new articles.

Database searches using key terms “local health departments” and “obesity prevention” yielded 76 results in PubMed and 55 results in Scopus, totaling

131 articles. An additional 23 articles were included through manual search strategies, totaling 154 articles. After duplicates ($n = 44$) were removed, articles were screened and 58 did not meet inclusion criteria regarding LHD involvement in community OP efforts. This left 52 publications in the final review (see Supplemental Digital Content Figure 1, available at <http://links.lww.com/JPHMP/A771>).

Article selection

Publications were included if key stakeholders included LHD staff or it was stated that an LHD was involved in the OP efforts. All articles were peer reviewed and published from 2010 to July 2020. Only studies in English and conducted in the United States were included, as health department organization, structure, and responsibility vary greatly worldwide.²³ We included articles that were research studies, as well as practice-based descriptions of an intervention or program evaluation. This latter inclusion allowed for the broadest possible universe of articles that described LHD OP partnerships and interventions to provide a full assessment of literature describing LHDs and OP. Both quantitative and qualitative publications were included. Some studies were found through manual searches of “Communities Putting Prevention to Work” programs, as these Centers for Disease Control and Prevention (CDC) grants aimed to reduce obesity in communities.²⁴

Data extraction

We used the US Department of Health and Human Services' Public Health 3.0 framework, and its attention to addressing SDOH, to frame our approach in our scoping review.²⁵ Public Health 3.0 guides LHD leaders toward population health approaches that focus on data-driven decisions, evidence-based interventions, and local capacity building.²⁵ It emphasizes implementing population-level interventions, engaging multiple sectors and community partners to generate collective impact, and addressing health through SDOH.²⁵ The Public Health 3.0 framework also indicates that “timely, reliable, granular-level (ie, subcounty), and actionable data should be made accessible to communities”^{25(p4)} for targeting SDOH and to build health equity. LHDs are increasingly using Public Health 3.0 as a means for driving their agency's approach to health equity, systems change, and population health improvement in their jurisdictions.^{26,27}

The first (A.P.) and second (B.B.) authors reviewed the articles. The first author abstracted and coded information from articles, and the second author acted

TABLE
Article Codes

Type of LHD involvement (0-2, U)	<p>0—LHDs only used surveillance or provided minimal technical support for the intervention or policy.</p> <p>1—LHDs helped with initial intervention development, or the study evaluated an LHD intervention.</p> <p>2—Intervention was LHD led and included LHDs throughout process, often in conjunction with an academic partnership.</p> <p>U—Unknown type of LHD involvement.</p>
Intervention characteristics	<i>Surveillance, nutrition, physical activity, partnership, policy, built environment, school-based intervention, and breastfeeding.</i>
Intervention specifics	<i>This further categorized the intervention. If multiple interventions were used within our publication, we listed "various interventions."</i>
Data use	<p><i>Yes</i>—LHDs used secondary data sets, such as NACCHO or BRFSS data, or geographical data, such as GIS data.</p> <p><i>No</i>—No secondary data used.</p>
SDOH lens	<p><i>Yes</i>—Explicitly stated SDOH guided their intervention development, implementation, or evaluation including socioeconomic status, education, health care access, built environment, or social support networks.</p> <p><i>No</i>—No SDOH lens used.</p>
Setting	<p><i>Rural</i>—LHDs served populations <50 000²⁹</p> <p><i>Urban</i>—LHDs served populations >50 000</p> <p>LHD jurisdiction populations verified from the US Census Bureau Web site</p>

Abbreviations: BRFSS, Behavioral Risk Factor Surveillance System; GIS, Geographic Information System; LHD, local health department; NACCHO, National Association of County and City Health Officials; SDOH, social determinants of health.

as secondary reviewer and coded a subsample of articles for intercoder reliability. The 2 reviewers agreed on 93% of reviewed codes. Areas of disagreement were discussed. Data were compiled into a table to track author, year, study type, sample, setting, purpose, and findings.

Five main categories were selected to accomplish the scoping review: *type of LHD involvement, intervention characteristics, data use, use of an SDOH lens, and urban versus rural setting* (Table). *LHD involvement* was given a value of 0, 1, 2, or U (*unknown*), with 2 considered the highest level. Within *intervention characteristics*, we subcoded interventions based on CDC-recommended obesity interventions and strategies.²⁸ Intervention characteristics were coded for all subcategories and typically did not fall into one category alone. Specific characteristics are further detailed in Supplemental Digital Content Table 3 (available at <http://links.lww.com/JPHMP/A772>). *Data use* and *SDOH lens* were coded *yes* or *no*, and *setting* was coded *urban*, *rural*, or *mixed*. City and county LHDs were included on the basis of governmental structure of the state, and LHDs were defined as *urban* or *rural* based on population sizes used in the National Association of County and City Health Officials (NACCHO) codebook.²⁹ *Study setting* was coded *mixed urban/rural* when the study included jurisdictions of both population sizes. The table was uploaded into Excel for validation and

coding (see Supplemental Digital Content Table 3, available at <http://links.lww.com/JPHMP/A772>).

Results

The 52 publications reviewed were experimental or nonexperimental research studies, intervention descriptions, and evaluation studies that focused on LHD OP (see Supplemental Digital Content Table 2, available at <http://links.lww.com/JPHMP/A773>). Most were cross-sectional studies ($n = 27$), case studies ($n = 13$), and evaluations ($n = 16$). Our review included 1 randomized controlled trial. Most publications ($n = 43$) described the type of LHD involvement; however, LHD involvement was unknown for some ($n = 9$). Most studies were either in an urban setting ($n = 26$) or a mixed urban/rural setting ($n = 20$). Half the studies described using data in their intervention development or implementation ($n = 26$) and about half indicated using an SDOH lens ($n = 29$).

Type of LHD involvement

The *type of LHD involvement* varied widely between publications. Publications that only included LHDs conducting *surveillance* or *minimal technical support* ($n = 0$) were approximately 8% (4/52) of publications.³⁰⁻³³ For example, LHD staff were described in these publications as acting only as

consultants, not collaborators or implementers. This role included, for example, providing obesity surveillance data to schools implementing OP interventions.³¹ It was unclear who led these interventions (eg, setting school meal nutrition standards), but LHDs were described as only providing data. Similarly, New York City's LHD was described as disseminating information on required policy changes, including reducing screen time and sugary beverages in child care centers.³²

Of the 52 publications, approximately 42% (22/52) had LHD involvement in *initial intervention development* or *intervention and program evaluation* ($n = 1$).^{26,34-54} For example, one study examined built environment interventions across LHDs to understand the degree to which LHDs engaged in these interventions and what factors helped and hindered their activity.⁵¹ Another study developed a lexicon of existing LHD policy, systems, and environment (PSE) interventions to better assist other LHDs in PSE changes and develop future PSE interventions addressing obesity among SNAP-Ed participants.⁴⁴ Other publications included LHD leaders on their programs' steering committees to conduct research on community needs and develop interventions alongside community or academic partners.^{49,52}

LHDs *fully engaged* ($n = 2$) throughout the OP activity accounted for approximately 33% (17/52) of publications.⁵⁵⁻⁷¹ For example, LHDs led interventions using Geographic Information System to better understand social factors related to food access and to develop community interventions.^{56,67} Using dashboard data, the North Carolina Division of Public Health was able to show its state's low ranking for PA among people living near a park, prioritizing this issue in funding and grant applications.⁶⁷ Another study maintained an LHD partnership throughout the intervention process with a faith-based organization using community-based participatory research and evaluation approaches.⁷¹ Three other publications included LHD-school partnerships to develop healthier lunch menus and nutrition education, although LHD staff were not specified.^{55,64,67}

LHD involvement was *unknown* (U) in approximately 17% (9/52) of publications due to lack of description in their methods.^{14,15,72-78} These *unknown* studies typically used large data sets, such as the NACCHO Profile of Local Health Departments Survey²⁹ that broadly asks LHD leaders about nutrition, PA, and policy interventions (among other topics) in their jurisdictions. Although the NACCHO Profile Survey asks whether OP activities are "LHD led,"²⁹ the survey does not state how extensively LHDs engage in the particular OP activity or whether the LHD monitors or evaluates the intervention.

Data use

Secondary *data* sources were used in approximately 50% (26/52) of publications.* Eight publications utilized NACCHO data examining LHD OP activity.^{14,15,36,51,54,65,74,76} The OP portion of the NACCHO Profile Survey asked LHDs whether they were actively involved in specific evidence-based strategies, including, for example, policy and advocacy in community-level urban design, school policies, recreation, nutritional labeling, fruit and vegetable availability, and/or policies to promote breastfeeding.²⁹ Some studies ($n = 3$) utilized Behavioral Risk Factor Surveillance System (BRFSS) data, examining individual health behaviors and disease prevalence.^{15,45,74} Three studies used clinic data such as obesity prevalence, blood pressure surveillance, and youth risk behavior data from schools to implement obesity interventions.^{30,31,34} Kern et al³¹ specifically used obesity surveillance data to evaluate school-based intervention efficacy.

Ten publications employed other types of *data* sets such as geographical data,⁵⁶ CDC's Data, Trends, and Maps dashboard with state-specific PA, obesity, nutrition, and breastfeeding data,⁶⁷ data from Public Health Activities and Services Tracking studies,⁴⁵ and Prevention Impact Simulation Model (PRISM) data.⁵⁴ The PRISM model, simulated projected outcomes including changes in obesity and health behaviors, based on PSE interventions in Los Angeles' LHD. Another study consolidated mapped CDC data on breastfeeding rates and SDOH (ie, food or PA access) to improve data accessibility and use among LHDs for improved priority setting and OP policy development.⁶⁷ A different study developed a taxonomy for LHDs using SNAP-Ed to standardize SNAP-Ed reporting and intervention selection.⁴⁴

Fifty percent (26/52) of the publications did not mention using *data* to develop or implement OP interventions.[†] Some publications described difficulties in measuring OP implementation and effectiveness across LHDs.^{15,32,52,74,76} Interventions varied between LHDs or sometimes were nonexperimental in design.⁷⁶ Others reported missing data, often among marginalized groups most affected by SDOH,⁵⁶ as well data limitations for measuring OP activity.¹⁵

Intervention characteristics

Intervention characteristics varied widely. *Surveillance* measures to address OP were cited in

*References 14, 15, 31, 32, 34-36, 39, 43-45, 48, 50, 51, 54, 62-64, 67, 69, 72-74, 76, 78.

†References 26, 30, 33, 37, 38, 40-42, 46, 47, 49, 52, 53, 55, 57-61, 65, 66, 68, 70, 71, 75, 77.

approximately 27% (14/52) of studies.[‡] Studies most often used NACCHO or BRFSS data to measure OP activity and obesity prevalence.

Nutrition interventions were the most commonly cited OP intervention, accounting for 75% (39/52) of publications.[§] Nutrition interventions varied widely and included healthy food access, such as increasing fruit and vegetable availability and providing food assistance,^{35,43,48,50,54,63} farmers' market interventions,^{39,58,77} SNAP-Ed interventions,^{37,44,46,78} and school gardens.^{34,37,43,52,68,69} One study analyzed one county's interventions, which included restricting unhealthy foods served at venues operated by county government, cities, and schools.⁵⁴

Physical activity interventions were cited in approximately 54% (28/52) of publications,[¶] some in conjunction with nutrition interventions. Interventions included exercise programs,^{32,45,57,59,68,71} recreation facility access,⁵¹ school-based programs,^{32,52,55,59,61} and built environment interventions.^{26,37,39,45,51,61} The only randomized controlled trial identified was a PA intervention through 6 LHDs in North Carolina.⁵⁷ Another study developed and examined PA classes and walking groups through a faith-based organization.⁴⁹

Existing *partnerships* or partnership development to implement OP interventions were noted in approximately 69% (36/52) of publications.^{||} One study cited cross-jurisdictional resource-sharing to increase LHD participation in OP activity.⁷² Another report described a co-mentoring program between LHDs and local entities including government agencies, community organizations, and academic institutions to better combine expertise to implement built environment interventions.³⁷

Of the 52 publications, approximately 52% (27/52) described efforts in *policy* development and implementation for OP.[#] Policies varied but were often developed alongside nutrition interventions. These included policies for food store produce availability,⁵⁴ school-based nutrition,^{32,39,40,44,52-55,69} vending machines,^{41,58,69} menu labeling,^{39,68,70,72} and limiting sugary beverages.^{14,15,54,72} Some studies also cited PA policies.^{51,68}

Fifty percent of publications (26/52) included built environment interventions.^{**} These included

developing and implementing active transportation,^{51,54} green spaces,⁵⁴ recreation facilities,^{42,51,54} and community gardens.^{††}

School-based interventions to address OP were cited in approximately 37% (19/52) of publications.^{‡‡} School-based interventions included nutrition,^{32,55,64,69} exercise,⁶⁸ policy,⁵⁴ advertising/campaigns,^{31,71} and gardens.^{34,37,43,52,68,69} One study, for example, developed a school health council to implement a garden, healthy food options at school events, PA programs, and advertising about their health council.⁵² All publications with pediatric populations were in school-based settings.

Breastfeeding interventions were cited in approximately 12% (6/52) of the publications.^{14,15,54,58,67,72} Kuo et al,⁵⁴ for example, described lactation rooms provided for mothers to facilitate breastfeeding as part of the "Communities Putting Prevention to Work" initiative.

SDOH lens

Approximately 56% of publications (29/52) explicitly described SDOH as relating to obesity prevalence in their background sections (see Supplemental Digital Content Table 3, available at <http://links.lww.com/JPHMP/A772>).^{§§} The SDOH most frequently cited included socioeconomic status,⁵⁴ neighborhood safety,⁵⁶ health care access,⁴³ built environment,^{37,45} food access,^{39,42} and social support networks.^{49,71} Studies often focused on populations with low-socioeconomic status,^{15,46,68} for example, assessing facilitators and barriers in SNAP-Ed interventions—a program (SNAP-Ed) only available to low-income families.⁴⁶ Another study developed and evaluated a community health assessment in California, which included SDOH questions addressing job opportunity, poverty, and homelessness.⁶⁶ The assessment was then used to implement OP interventions.⁶⁶ Other studies implemented and evaluated food access interventions in schools with disproportionately low access to healthy foods³¹ and evaluated a county's distribution of built environment interventions, including access to farmers' markets and gardens.⁵⁸ Another report described the nationwide Built Environment Mentoring Program, where LHDs partnered with professionals in local agencies, such as transportation departments, to combine expertise in creating built environment interventions to decrease obesity.³⁷ A similar case study

[‡]References 14, 15, 30, 34, 36, 37, 45, 47, 55, 56, 64, 67, 74, 78.

[§]References 14, 15, 31, 32, 35, 39-44, 46, 48-50, 52-60, 62-65, 67-72, 74-78.

[¶]References 14, 15, 31, 32, 39, 41-45, 49, 52-55, 57, 59-61, 65, 67, 68, 71, 72, 74-76, 78.

^{||}References 26, 30-34, 36-40, 43, 47-55, 59-63, 66, 70-75, 77, 78.

[#]References 14, 15, 26, 32, 33, 36, 37, 39-43, 47, 49, 51, 54, 55, 58, 59, 62, 63, 67, 69-72, 75.

^{**}References 14, 15, 26, 35, 37, 39, 41-45, 48, 50, 51, 54-56, 58, 59, 61-63, 65, 68, 77, 78.

^{††}References 34, 37, 43, 44, 52, 65, 68, 69, 71.

^{‡‡}References 31, 32, 34, 39-41, 43-45, 52-55, 59, 61, 64, 68, 69, 75.

^{§§}References 26, 30-32, 35, 37-40, 43-46, 48, 49, 51, 54-56, 61-63, 65-68, 71, 77, 78.

in rural Washington State developed bike lanes and green spaces to increase PA access.⁶⁵

Rural-urban divide

Publications examining rural-specific populations or jurisdictions accounted for approximately 12% (6/52) of publications.^{30,53,65,66,72,77} Most publications (~88%; 46/52) examined either *urban* populations (n = 26)^{¶¶} or *mixed urban/rural* populations (n = 20).^{¶¶¶} Studies with *mixed urban/rural* populations often had large LHD sample sizes, for example, studies using NACCHO data, examining hundreds of LHDs. It was sometimes unclear how many LHDs in these studies served rural populations if descriptive statistics were not provided.

Discussion

The results of this review suggest that many LHDs do have experience in OP and some are actively engaged. However, specific types of LHD involvement were often unknown due to limited intervention detail or involvement is limited, with only 17 publications citing full LHD engagement in OP.

Our review found few publications with full LHD engagement, as LHD-led interventions were infrequent (~33%; 17/52). This is consistent with a 2019 study finding that 46.1% of LHDs reporting no OP activity in 2016.¹⁴ Obesity prevention activity with LHD involvement is, nonetheless, more widely occurring than is apparent in peer-reviewed journals; however, the limited literature is a barrier to the evidence needed to guide practice. Effective OP should include interventions related to a specific SDOH, relevant to a community's needs, and inclusive of LHDs that bring data, evidence, and partnerships together. Such an approach includes interventions using an SDOH framework that are aimed at structural change, rather than individual-focused interventions. A study by Bekemeier et al⁴⁵ showed that more comprehensive, community-wide interventions by LHDs, including built environment approaches, were significantly associated with lower obesity prevalence. The Public Health 3.0 framework would suggest that OP interventions by LHDs should be grounded in SDOH data and emphasize the factors that underlie obesity disparities. Many publications in our review did create interventions in hopes of ameliorating a disparity.

However, many did not cite or emphasize the underlying SDOH (eg, socioeconomic status or the built environment).

A driving force for level of LHD engagement in some cases could be “Communities Putting Prevention to Work” and Community Transformation Grants.^{35,39,54,61,68,77} These funding sources were mentioned in 6 studies and were important national efforts by the CDC to address obesity through PSE changes. Often it was difficult to otherwise tell whether funding existed for OP efforts; however, many cited external grants such as the Childhood Research Obesity Demonstration and private funding such as through the California Endowment. Some interventions with academic-LHD partnerships included funding from academic institutions. Sustaining grant-funded interventions was cited as a barrier in several projects.^{49,55,62} However, cost-effective strategies, such as partnerships,⁶⁰ and incorporating OP into LHDs' strategic plans⁵⁹ showed potential for sustainability.

Only half of publications (26/52) described using data in their intervention development or evaluation despite surveillance and intervention development being a key responsibility of LHDs.⁸⁰ Data for evidence-based decision making are important for effective population-level interventions²⁵ and should be particularly critical for LHDs needing to make highest and best use of their limited capacity and funding.⁷ Moreover, studies we examined that did use surveillance data for examining prevalence did not always speak to subsequent obesity interventions or policy, or detail the data's impact on decision making.

The apparent use of data in relation to OP specifically among rural LHDs was particularly lacking, with only one of the 6 rural-focused studies describing data utilization.⁷² Often, rural LHDs develop community interventions or policies, using the evidence generated from urban populations, as urban data are often more accessible or where resources support strong evaluations and research.¹⁷ These urban data and the evidence generated, however, may not be relevant to application in rural communities.

Although we had particular interest in rural LHDs, few rural-focused publications were identified, perhaps, in part, due to a lack of academic partnership. Many studies, however, had mixed settings that included rural and urban LHDs. However, the number of rural LHDs in mixed studies often remained unknown and studies did not always analyze results by population size. As a result, gaps remain regarding rural-specific tailored interventions and LHDs' involvement. Academic partnerships with LHDs may help facilitate research and publications with regard to OP, and these partnerships might be more prevalent

¶¶ References 26, 31-35, 37, 38, 44, 48-50, 52, 54, 55, 57, 58, 61, 62, 64, 70, 71, 75, 78.

¶¶¶ References 14, 15, 36, 39, 41-43, 45-47, 51, 56, 59, 67-69, 73, 74, 76, 79.

Implications for Policy & Practice

- Increasing LHD involvement in OP interventions may improve population health, as LHDs can provide critical surveillance support regarding population-level needs and can partner with other policy makers to implement OP policies as long as data are accessible and relevant.
- Rural jurisdictions need resources, data, and support in the development of OP interventions to serve their communities and address rural disparities.
- LHDs appear to need a means of support to access and use data in intervention development and implementation to effectively focus limited resources on the populations in greatest need.
- Using an SDOH framework to comprehensively address underlying causes of obesity would advance the efforts of LHD involvement in OP interventions in their communities.
- COVID-19 has exposed a weakened and underresourced public health and population health infrastructure and exacerbated health disparities.⁸¹ The pandemic has also highlighted the profound links between (1) obesity and chronic disease, (2) infectious disease, and (3) SDOH such as housing, working conditions, rurality, and access to health,⁸² which must be the basis for future LHD-led interventions.

in urban settings. Studies also suggest that chronic disease prevention interventions may be lacking in rural areas due to particularly challenging rural funding, workforce capacity, and data accessibility.^{11,17,53} In light of already limited rural LHD capacity and resources,¹⁸ coupled with health disparities, this review suggests a need for further evidence regarding OP aimed at SDOH in rural settings.

Our study had limitations. It is important to note our exclusion of the term “rural” in our search. “Rural”-specific publications resulted in several studies in the community but did not describe LHD involvement. Thus, community-based interventions exist but a gap in understanding LHD-community partnerships remains. This is important, given widening rural health disparities and the emphasis on partnership, SDOH, and evidence-based interventions in the Public Health 3.0 framework.²⁵ Our expanded search, therefore, included mixed urban/rural-setting publications to expand what could be known about rural OP activities. The scoping review approach is also relatively narrow and addresses specific questions, typically excluding study quality. Finally, most publications in our sample were either descriptive cross-sectional or single case studies. Despite these limitations, our review describes the published literature regarding LHD OP activity.

Conclusion

Our review found that LHDs do have experience in OP and some are actively engaged. But we have highlighted a gap in the literature regarding how LHDs engage in OP, particularly in rural areas where academic partnerships, and thus research or evaluation publications, may not be as robust. The existing disparities related to obesity underscore the urgency for generating OP evidence for public health practice and for facilitating the uptake of effective interventions to support data-driven OP interventions that address SDOH.

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