

BMJ Open Opportunities and challenges in public-private partnerships to reduce social inequality in health in upper-middle-income and high-income countries: a systematic review and meta-synthesis

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ABSTRACT

Objectives There is a need for novel approaches to address the complexity of social inequality in health. Public-private partnerships (PPPs) have been proposed as a promising approach; however, knowledge on lessons learnt from such partnerships remain unclear. This study synthesises evidence on opportunities and challenges of PPPs focusing on social inequality in health in upper-middle-income and high-income countries.

Design A systematic literature review and meta-synthesis was conducted using the Mixed Methods Appraisal Tool for quality appraisal.

Data sources PubMed, PsychInfo, Embase, Sociological Abstracts and SocIndex were searched for studies published between January 2013 and January 2023.

Eligibility criteria Studies were eligible if they applied a quantitative, qualitative, or mixed methods design and reported on lessons learnt from PPPs focusing on social inequality in health in upper-middle-income and high-income countries. Studies had to be published in either English, Danish, German, Norwegian or Swedish.

Data extraction and synthesis Two independent reviewers extracted data and appraised the quality of the included studies. A meta-synthesis with a descriptive intent was conducted and data were grouped into opportunities and challenges.

Results A total of 16 studies of varying methodological quality were included. Opportunities covered three themes: (1) creating synergies, (2) clear communication and coordination, and (3) trust to sustain partnerships. Challenges were identified as reflected in the following three themes: (1) scarce resources, (2) inadequate communication and coordination, and (3) concerns on distrust and conflicting interest.

Conclusions Partnerships across public, private and academic institutions hold the potential to address social inequality in health. Nevertheless, a variety of important lessons learnt are identified in the scientific literature. For future PPPs to be successful, partners should be aware of the availability of resources, provide clear communication and coordination, and address concerns on distrust and conflicting interests among partners.

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STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ A comprehensive search strategy for five electronic databases was developed using Medical Subject Headings, Emtree and Index Terms.
- ⇒ Restricting the search to upper-middle-income and high-income countries enabled a thorough and nuanced exploration of public-private partnerships.
- ⇒ The Mixed Methods Appraisal Tool allowed for appraisal of various types of study designs.
- ⇒ The heterogeneity of the included studies in terms of interventions and reported outcomes challenged the synthesis of learnings across studies.
- ⇒ Ambiguity in country-specific circumstances in classification of institutions as 'public', 'private' or 'academic' influenced comparison between countries.

INTRODUCTION

Social inequality in health persists as a major public health challenge across upper-middle-income and high-income countries.^{1–7} Such systematic differences in health trajectories are caused by complex interplays between microlevel and macrolevel factors.^{1–4} This complexity impedes single institutions in resolving social inequality in health alone,^{5–9} and therefore engagement of multiple partners across public, private and academic institutions has been suggested as a way forward.^{9–17} Thus, to address some of the complex drivers of social inequality in health, potentials in long-term, extensive and innovative collaborations in public-private partnerships (PPPs) based on targeted interventions have been identified.^{5 6 9 18 19}

PPPs is used as an umbrella term for the continuum of voluntary cooperative arrangements between public and private institutions, which entails all involved partners agreeing to collaborate to achieve a common purpose.^{8 20} By bringing together different perspectives across institutions, innovative solutions based

on collaborative efforts and technological development can be introduced.^{5 6 20–22} The value of partnerships for addressing social inequality in health has further been highlighted in the United Nations Sustainable Development Goals, Goal 17, ‘Partnerships for the goals’ which aims to “Strengthen the means of implementation and revitalize the global partnership for sustainable development”²³ (p24).

Nevertheless, concerns related to public institutions partnering with private institutions driven by commercial agendas and challenges in the implementation phase may occur, thereby affecting the potentials of these partnerships.^{5 6 18 19} To our knowledge, no systematic review of lessons learnt from PPPs to address social inequality in health from an upper-middle-income and high-income country perspective has been conducted.¹⁸ Therefore, the aim of this study was to conduct a systematic review and meta-synthesis of the existing evidence on opportunities and challenges of PPPs as an approach to reduce social inequality in health in upper-middle-income and high-income countries.

METHODS

The reporting for this systematic review follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses²⁴ (see online supplemental file 1).

Study selection criteria

The eligibility criteria for study inclusion were as follows:

- ▶ Population: upper-middle-income and high-income countries defined according to the New World Bank country classifications by income level as per publication year.²⁵
- ▶ Intervention: PPPs with a strategic focus on social inequality in health. PPPs had to consist of at least one public institution (national and subnational governments and governmental services) and at least one private institution (for-profit and non-profit businesses).^{18 20} Social inequalities in health are defined as systematic differences in health trajectories between different socioeconomic and population groups.¹²
- ▶ Outcome: data reporting on lessons learnt that emerge as part of reporting on the strategic public-private partnership.

Eligible studies were those that applied a quantitative, qualitative or mixed methods design and were published in English, Danish, German, Norwegian or Swedish. Studies were limited to those published in the past 10 years (January 2013 to January 2023) to ensure that identified opportunities and challenges reflected contemporary societal issues.

Information sources and search strategy

A preplanned and comprehensive systematic literature search was conducted on 23 January 2023 in the following search engines: PubMed, PsychInfo (through EBSCOhost), Embase, Sociological Abstracts (through ProQuest)

and SocIndex (through EBSCOhost). Together these databases index a broad range of quantitative, qualitative and mixed methods publications within the intersecting areas of public health and life science, PPPs and social inequality in health.

The search strategy contained combinations of the following keywords related to concepts of interest: Public-Private Sector Partnerships OR Public Private Collaboration AND Public Health Prevention OR Healthcare AND Social Deprivation OR Health Disparity AND Biological Science Disciplines OR Precision Medicine. The full search strings used in each database are available in online supplemental file 2.

Data extraction

The search was conducted by two reviewers (AS and ANJ), and the software tool Covidence was applied for data management and selection of studies. Initially, titles and abstracts of the identified studies were imported, and duplicates were automatically removed. After title and abstract screening including manual removal of additional duplicates, full texts of potential relevance were assessed. In cases of disagreement between the two reviewers (AS and ANJ), a third reviewer (MK) was consulted to reach consensus. For the title and abstract screening, attention towards the study setting (country) enabled the reviewers to narrow the included studies. The detailed data extraction process is illustrated in figure 1 (Preferred Reporting Items for Systematic Reviews and Meta-Analyses flow diagram).

Descriptive information from each study, including design, population and intervention characteristics was independently extracted by two reviewers (AS and ANJ). A summary of the original results is provided for each included study (see table 1). For this systematic review, we employed a meta-synthesis with a descriptive intent, where unaltered texts of the included studies informed the data analysis process.²⁶ Data related to opportunities and challenges of the PPPs were independently extracted from the results and discussion sections of the included studies by two reviewers (AS and ANJ). The identified opportunities and challenges were continuously reviewed and discussed among all three reviewers to establish consensus.

Quality appraisal

The quality of the included studies in this review was appraised using the Mixed Methods Appraisal Tool, V.2018.²⁷ The tool allows for an assessment of the methodological quality of a wide range of study designs, which is appropriate when conducting syntheses on qualitative, quantitative and mixed methods.²⁷ The quality appraisal aimed to evaluate the reporting of research questions and methodological consistency.²⁷ Two reviewers (AS and ANJ) independently appraised the included studies, and consensus was reached.

Patient and public involvement

For this specific publication, there has not been any direct patient or public involvement. Nevertheless, the study is

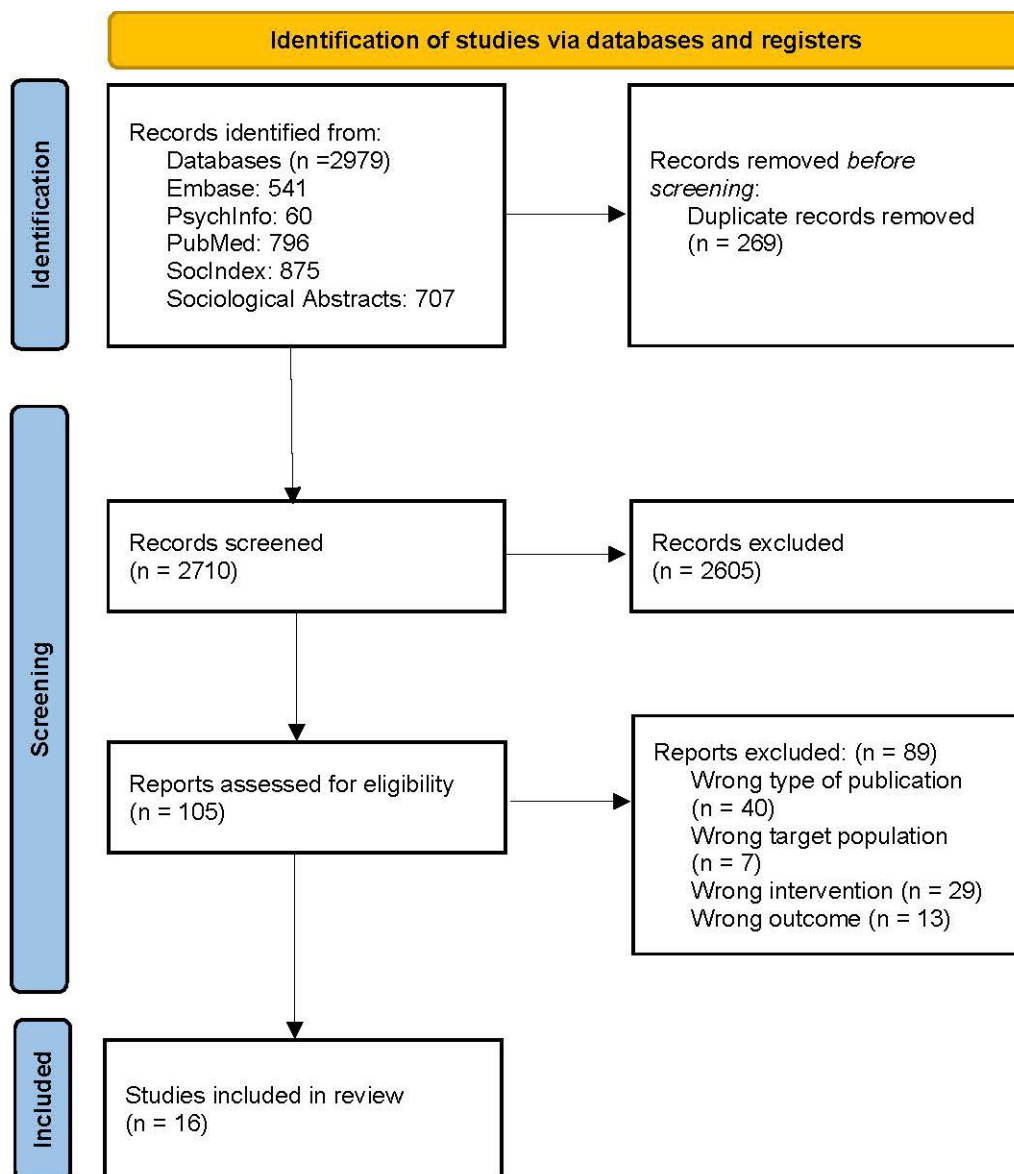


Figure 1 Preferred Reporting Items for Systematic Reviews and Meta-Analyses flow diagram for new systematic reviews which included searches of databases and registers only.

conducted as part of a larger research project on strategic PPPs to reduce social inequality in health, which involves a broad range of stakeholders from public, private and academic institutions, and advisory boards with patient organisations represented.

RESULTS

Study selection

A total of 2979 records were identified from the electronic database search, of which 269 duplicates were removed. The remaining 2710 records were subsequently screened based on title and abstract, whereby 2605 were excluded. Two reviewers (AS and ANJ) independently assessed the full text of 105 records. During this stage, 89 records were excluded due to wrong population, intervention, outcome and type of publication referring to, that is, editorials, non-empirical studies and letters to

editor. Thus, 16 studies were included in this review. Two of the studies included were based on the same primary data.^{28 29} Since these were published as separate articles with different research questions and analytical foci, they were included as two separate studies.^{28 29} Figure 1 illustrates the systematic search and screening process.

Study characteristics

The characteristics of the 16 included studies are presented in table 1. Most studies were conducted in the USA (n=11), while the remaining studies were carried out in Slovakia (n=2), Israel (n=1), Norway (n=1) and Thailand (n=1), respectively. Eight studies applied a qualitative study design. Two studies employed a quantitative non-randomised study design, and two studies were based on a quantitative descriptive study design. Lastly, four studies used a mixed methods study design. All studies targeted underserved populations including immigrants,

Table 1 Characteristics of studies included in this review

Author, year	Country	Design*	Population†	Intervention	Results	Lessons learnt
Ayala <i>et al</i> , 2022 ¹⁶	USA	Qualitative study	Target group: Low-income and communities of colour. Partners: Governmental department, a technology-based company, food businesses and community-based organisations.	A mobile app that redistributes surplus food from food businesses to community-based organisations.	Diverting food waste. Increasing food access. Obtaining food of high nutritional value.	Opportunities: Ensure nutrition security and access to nutritious food. Outreach and stakeholder engagement. Challenges: Adaptation and integration of new technology. Subscription cost of using the app. Missing expectation alignment. Liability and safety concerns.
Best and Johnson, 2016 ¹²	USA	Qualitative study	Target group: Low-income residents. Partners: Governmental departments, food banks and local advisory neighbourhood commissions.	Mobile farmers' market food programme.	Improved food access with expansion of farmer's market. Sharing of food knowledge between residents and growers.	Opportunities: Greater understanding of formal and informal partnerships. Better communication and realisation of city policy goals. Challenges: Lack of long-time presence to promote intervention.
Bosakova <i>et al</i> , 2019 ²⁸	Slovakia	Qualitative study	Target group: Segregated Roma community. Partners: A private company, municipality, Roma community professionals and faith-based professionals.	An employment programme, where Roma populations are offered jobs and training.	Increased employability. Improved well-being and health.	Opportunities: Reduce the education gap in vocational training. Contribute to well-being and health by providing special work opportunities. Provide sufficient opportunities for segregated Roma to develop their skills. Challenges: Non-applicable.
Bosakova <i>et al</i> , 2020 ²⁹	Slovakia	Qualitative study	Target group: Segregated Roma community. Partners: A private company, municipality, Roma community professionals and faith-based professionals.	An employment programme, where Roma populations are offered jobs and training.	The types of mechanisms that lead to increased employability are formal jobs, sustainability and cultural mechanisms.	Opportunities: Ensure sufficient, appropriate and equal employment opportunities by private capital and public monitoring. Improve ties within the Roma community. Provide social services and mentoring, counselling, and assistance at multiple levels. Challenges: Temporality of the partnership. Lack of coordination across partners.
Boudreaux <i>et al</i> , 2020 ³⁰	USA	Non-randomised quantitative study	Target population: Women at risk for unintended pregnancy aged 20 years and above. Partners: The state of Delaware and non-profit organisations within reproductive health.	Training and technical assistance to clinical sites and a public awareness campaign.	The initiative was associated with a 3.2% increase in long-acting reversible contraceptive use, a 40% relative change from baseline.	Opportunities: Increase access to long-acting reversible contraceptives. Increase use of the most effective reversible methods. Improve outcomes for women and their children. Challenges: Non-applicable.

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Table 1 Continued

Author, year	Country	Design*	Population†	Intervention	Results	Lessons learnt
Chemtob <i>et al</i> , 2019 ¹⁴	Israel	Mixed methods study	Target group: Undocumented HIV-positive migrants. Partners: Governmental departments, pharmaceutical drug companies and non-governmental organisations.	Provision of HIV testing and treatment services.	373 patients have been referred to the programme. 350 (93.8%) have been monitored. 316 (90.3%) have received treatment.	Opportunities: Increase access to anti-retroviral treatment without charge. Unify abilities and talents of stakeholders. Enhance trust to patient groups. Challenges: Financial constraints related to production of pharmaceutical drugs.
Deavenport-Saman <i>et al</i> , 2019 ³¹	USA	Quantitative descriptive study	Target group: English-speaking and Spanish-speaking parents with children. Partners: Governmental department, preschools, early intervention centres and food businesses.	Preschool-oriented Supermarket tours, parenting workshops, restaurant recognition programmes, parent-driven policy campaign.	Preschoolers were significantly better at identifying snacks as unhealthy ($p<0.001$). Parents were more likely to read nutrition labels to buy healthy foods ($p<0.001$). Increased frequency of serving fresh fruits ($p<0.05$) and vegetables ($p<0.05$).	Opportunities: Provide health education and technical assistance for underserved families with young children. Create environmental change to address early childhood obesity among underserved families. Challenges: Non-applicable.
Fox and Kahn-Troster, 2022 ¹¹	USA	Qualitative study	Target group: Recent immigrants, non-English speakers, members of Native American tribal organisations, people living in rural areas, and seasonal workers. Partners: Governmental departments, foundations, Medicaid agency, university, media campaign advisors, and community-based organisations.	A joint funding approach based on a communication campaign, targeted local outreach and enrolment assistance.	Greater awareness of new coverage options in diverse communities requires culturally appropriate approaches.	Opportunities: Space for thinking creatively together. Discuss barriers to enrolment with the target group. Greater flexibility and more timely fund distribution. Provide culturally appropriate messaging to raise awareness. Foster relationships that informed enrolment and facilitation of intervention. Challenges: Limited infrastructure to collect data and perform grant-reporting.
Gorham <i>et al</i> , 2015 ³²	USA	Mixed methods study	Target group: Low-income, ethnically diverse children, whose parents shopped at the markets. Partners: Community-based organisations, elementary schools, job training site, middle school and community health centre.	Fresh fruit and vegetables markets in low-income neighbourhoods.	A significant increase in children's fruit and vegetable consumption ($p<0.05$). The target group experienced that the markets increased their access to affordable, high-quality fruits and vegetables and enticed their children to eat more fruits and vegetables.	Opportunities: Increase access to fresh fruit and vegetables. Enable purchasing small quantities of fresh produce at affordable prices. Challenges: Lack of time to promote markets to target group. Cost of involvement of local fruit and vegetables distributors.

Continued

Table 1 Continued

Author, year	Country	Design*	Population†	Intervention	Results	Lessons learnt
Gruner <i>et al</i> , 2020 ¹⁰	USA	Qualitative study	Target group: Low-income communities. Partners: Grocery store and produce managers, schools and parents.	Fresh fruit and vegetable programme in schools.	Children requested more fruits and vegetables at home. Greater awareness among parents and children of fruit and vegetables. The entire family is exposed to more fresh produce.	Opportunities: Enhance public relations with community. Extend impact of the partnership to further settings. Partnerships between schools and retailers can be mutually beneficial and have a positive impact. Challenges: Cost of produce. Inadequate communication and lack of alignment.
Kalef <i>et al</i> , 2014 ³³	Norway	Qualitative study	Target group: Adults with disabilities. Partners: Governmental department and a telecommunication company.	A qualification period of computer courses and self-development training followed by an internship.	Participants can identify work-related strengths and weaknesses, see themselves as a resource for an employer, and become familiar with the working environment.	Opportunities: Win-win approach for all partners. Challenges: Constantly changing and updating software system. Missing expectation alignment. Lack of understanding the intervention.
Kelly <i>et al</i> , 2019 ¹⁵	USA	Mixed methods study	Target group: Citizens with low income, who live in vulnerable communities. Partners: A non-governmental organisation, and a university medical centre.	Health workshops and seminars, community gardens and cooking classes.	Critical to continually monitor and evaluate strategies.	Opportunities: Information sharing, broadening amount of expertise and efficient use of resources. Capacity built within individuals and organisations to advocate for change, and perseverance. Responsiveness to the needs of the community. Challenges: Missing expectation alignment. Distrust between public and private partners.
Mitchell <i>et al</i> , 2012 ³⁴	USA	Quantitative non-randomised study	Target group: Overweight and obese children aged in low-income households. Partners: Insurance programme and a weight loss business.	Weekly meetings with private weight in and educational topic on lifestyle modification.	Children and adolescents who attended the programme for more than 12 weeks and those who attended 10 or more meetings had a 5% decrease in their BMI z score.	Opportunities: Reduce the trajectory of weight gain among overweight and obese low-income children and adolescents. Participate in a structured and evidence-based programme. Challenges: Need to determine the long-term effectiveness and cost-effectiveness.
Moss <i>et al</i> , 2022 ¹³	USA	Quantitative descriptive study	Target group: Families in Chicago who give birth. Partners: Governmental departments, university medical centre, nursing college and non-governmental organisation.	A nurse home visit.	Of the 1570 visits that occurred by a supportive call or in-home visit, 81% (n=1272) resulted in one or more referrals to other maternal and child health services.	Opportunities: Meet health and social needs of patients. New educational opportunities for health profession students. Strengthened partnerships and collaboration helps break down silos of care. Challenges: Data sharing and lack of data access. Lack of capacity to analyse implementation processes.

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Table 1 Continued

Author, year	Country	Design*	Population†	Intervention	Results	Lessons learnt
Narasri <i>et al</i> , 2020 ¹⁷	Thailand	Qualitative study	Target group: Populations impacted by COVID-19 resulting in food insecurities. Partners: Female stakeholders, food providers, community leaders and health providers.	Self-help groups in local communities to increase food access.	Empathy, empowerment and engagement were identified as strategies to ensure food security in times of the COVID-19 pandemic and global economic recession.	Opportunities: Community engagement and synergetic social networks as a tool to manage food security. Empowerment of housewife groups. Experiential learning, participation, and collaboration. Challenges: Non-applicable.
Senier <i>et al</i> , 2016 ³⁵	USA	Mixed methods study	Target group: Medically underserved populations in rural and urban communities. Partners: Governmental department, outreach clinics and federal grants.	Outreach clinics that provide clinical genetic services to improve access to specialty healthcare in underserved communities.	Shifting organisational contexts, changing market dynamics and motivations dramatically reduced the overall number of patients served.	Opportunities Enhance trust to patient groups. Challenges: Lack of capacity to promote the clinics. The programme did not accommodate changing institutional capacity, which influence the formation of partnerships, shape their trajectories, and threaten their longevity. Missing expectations alignment and coordination of outcomes. Ethics and conflicts of interest related to maximise profit of genetic services.

*The Mixed Methods Appraisal Tool, V2018 was used to categorise the design of the included studies.

†The target group is defined in alignment with the descriptions in the included studies.

BMI, body mass index.

low-income individuals and adults with disabilities. Partners included a range of public, private and academic institutions such as public schools, health departments, municipalities and community-based organisations from the public sector, funding agencies, non-governmental organisations, and companies from the private sector, and finally universities and colleges as academic institutions. Interventions were implemented at microlevels and macrolevels, ranging from long-active reversible contraceptives to Medicaid enrolment.^{11 30} Several of the American studies focused on food security.^{10 12 31 32} Two partnerships focused on broader determinants of health such as employment rates among immigrants and education among individuals with disabilities.^{28 29 33} All studies were published between 2013 and January 2023.

Appraisal of studies

An overview of the methodological quality appraisal of each study is provided online (online supplemental file 3). All studies reported clear research questions and the collected data allowed addressing the research questions (n=16). The studies using qualitative design, quantitative non-randomised design and one study employing mixed methods design were appraised to be of high quality. Two studies applying mixed methods design were assessed to be of medium quality, because these did not report on the rationale for using a mixed methods design to address the research question.²⁷ One mixed methods study was appraised to be of low quality. The studies using quantitative descriptive design (n=2) were appraised to be of low quality, since these did not provide descriptions of the measurements, non-response bias, nor the statistical analyses conducted.²⁷

Synthesis of results

Most studies identified both opportunities and challenges of PPPs to reduce social inequality in health, while four studies only described opportunities. Some studies discussed opportunities and challenges as implications for future practice of PPPs, while other studies more directly focused on lessons learnt of the partnership. While most studies identified opportunities and challenges at microlevels and macrolevels, only one study explicitly reported on factors at individual, interpersonal, organisational, community and policy levels.³¹ However, this study was appraised to be of low methodological quality.³¹

Lessons learnt

From the lessons learnt, it appeared that PPPs hold the potential to help reduce social inequality in health. All studies reported that the partnership addressed systematic differences in health trajectories among underserved populations. Nevertheless, important lessons learnt were reported. The identified opportunities were categorised under three themes: (1) creating synergies, (2) clear communication and coordination, and (3) trust to sustain partnerships. The identified challenges were categorised under three themes: (1) scarce resources, (2) inadequate

communication and coordination, and (3) concerns on distrust and conflicts of interest.

Creating synergies

For partners across three studies, a greater understanding of the perspectives and competencies of each partner facilitated the implementation of the partnership.^{11 13 14} The diversity among partners created a space for thinking creatively together based on synergies in perspectives and competencies, which was underlined as a driving factor for an American partnership on Medicaid enrolment.¹¹ This was further elaborated in another American study on diabetes prevention, where partners explained that through information sharing, broadening amount of experience and efficient use of time, synergy between public, private and academic partners was created.¹⁵ This partnership was used to advocate for policy change and addressing social inequality in health.¹⁵ Diversity in disciplines and experiences was perceived to enable the provision of social services and mentoring, counselling and assistance at individual, community and policy levels in a Slovakian partnership to increase employment rate and associated health and well-being benefits among Roma communities.^{28 29} An American study on early childhood obesity showed that partners from academic institutions provided structured and evidence-based knowledge that qualified the intervention.³⁴

Clear communication and coordination

In six partnerships, clear communication and coordination emerged as important.^{10-13 15 35} Ensuring that all partners were aligned in terms of expectations and coordination of roles and responsibilities provided greater flexibility and more timely delivery of the intervention.¹¹ An American study on maternal and child health, appraised to be of low methodological quality, reported that strengthened coordination of the partnership helped break down silos of care.¹³ Thereby, the partnership enabled accommodation of health and social needs of underserved families with newborns.¹³ The ability to provide coordinated care was particularly important among underserved populations, since their health and social needs evolved around complex psychosocial circumstances that demanded cross-institutional care.^{13 15 35} Efficient communication echoed as important to provide culturally appropriate messaging and raise awareness of the intervention among the target group of recent immigrants, seasonal workers and people living in rural areas in an American study.¹¹ Solid coordination of the partnership based on clear communication was further mentioned as essential to extend the impact of the partnership to additional settings.¹⁰

Trust to sustain partnerships

Four studies explicitly emphasised trust as an important lesson learnt.^{13-15 35} In an American study on genetic services, public partners highlighted the significance of trust in the communities and the target group they

provided care for.³⁵ The trust established to undocumented HIV positive migrants facilitated treatment attendance, since the migrants did not fear being deported from Israel for seeking treatment.¹⁴ The above-mentioned four studies specifically identified community-based organisations as trust-building partners.^{13–15 35} Based on trustful relationships, an American study identified that the partners from public institutions were better able to discuss barriers with the target group and develop interventions that were perceived as relevant.¹¹ The responsiveness to the needs of the community among public and private partners further helped to sustain the partnership in another American study on diabetes prevention.¹⁵ Lastly, trustful relationships were underlined as essential to enhance public relations with underserved populations and implement successful interventions on fruit and vegetable consumption in American low-income elementary schools, where donation from partnering grocery stores increased involvement and trust within the community.¹⁰

Scarce resources

The scarcity of resources related to time, capacity and finance within institutions challenged the workflow of the partnership in 10 of the 16 included studies.^{10–14 16 29 32 33 35}

In two American partnerships that focused on farmers' food markets, shortage of time challenged the promotion of the intervention among low-income families.^{12 32} For some private partners, shortage of time affected adaptation and integration of new technologies into the regular workflow.¹⁶ This impeded the transferability of the partnership to other private institutions.¹⁶ Therefore, partners stressed the need for long-term collaborations to overcome challenges related to shortage of time.^{11 14 15 34} To determine the effectiveness of the partnership over time, academic partners additionally stressed the importance of conducting longitudinal studies including multiple data collections.³⁴

In some studies, public partners found it difficult to analyse and document implementation processes, as it required additional capacities that were not available within the institution.^{11 13 35} Organisational infrastructures such as constantly changing and updating software systems within the individual institution at microlevel and data sharing policies across institutions at macrolevel challenged the partnerships.^{11 13 33} Such factors created loss of information which consequently led to unequal learning between partners.^{13 33}

Financial constraints related to involvement of local partners and cost of produce were identified as barriers.^{10 14 16 32} Challenges related to product costs were particularly mentioned in the studies focusing on food security.^{10 16 32} Consequently, the financial constraints affected reach of the interventions.^{10 16 32} As an example, reluctance to pay a subscription cost of a mobile app connecting partnering organisations with surplus food redistribution affected the intervention impact.¹⁶

Inadequate communication and coordination

Several partners identified missing expectation alignment between partners as a challenge.^{10 15 16 33 35} An American study on genetic services showed that each partner made assumptions about the desirability of the partnership.³⁵ However, they were not able to collaboratively think strategically about how to cultivate the partnership to accommodate the unmet needs of the target group, nor how to implement the partnership, so it considered the interests of every partner.³⁵ A Norwegian partnership on employment for individuals with disabilities identified a disconnect between the management and frontline workers, which was caused by inadequate communication about the intervention content among the public and private partners.³³ An American study on diabetes prevention showed that despite the willingness to engage in and prioritise PPPs among the involved partners, they were not able to obtain alignment from needed decision-makers, which challenged the sustainability of the partnership.¹⁵

Concerns on distrust and conflicts of interest

Concerns on distrust among public and private partners appeared to challenge the partnership.^{10 15 16 35} The inclusion of private partners caused concerns related to liability and safety of the intended target group.¹⁶ Such concerns created reluctance to participate in PPPs from some public institutions.¹⁶ This challenge was further reinforced, when public partners expressed worries about unequal benefits including ethics and conflicts of interest related to maximising profit of healthcare services to reduce social inequality in health.¹⁰ For macrolevel partnerships focusing on policy change, eroded trust between partners could result in policy change efforts stall and that the partnership would eventually fall apart.¹⁵

DISCUSSION

This systematic review synthesised evidence on opportunities and challenges of PPPs to reduce social inequality in health in upper-middle-income and high-income countries. Based on the application of a comprehensive and robust methodology, a rather limited source of evidence comprising 16 studies published between 2013 and January 2023 was identified. The studies were primarily based on qualitative methods, followed by mixed methods, and quantitative non-randomised and descriptive methods. The included studies were appraised to be of varying quality, and conducted among a diversity of partners across public, private and academic institutions. Opportunities were identified under three themes: (1) creating synergies, (2) clear communication and coordination, and (3) trust to sustain partnerships. Similarly, challenges were identified under three themes: (1) scarce resources, (2) inadequate communication and coordination, and (3) concerns on distrust and conflicts of interest. Even though opportunities and challenges are presented as separate themes, these are interconnected,

and we acknowledge the complex interplay between the factors.

The findings show that partnerships across public, private and academic institutions hold potential to address some of the complexity of social inequality in health. However, the identified lessons learnt raise several implications for the development of successful partnerships.

First, our analysis shows that diversity in terms of abilities and talents among the partners create synergy within the partnership.^{11 13–15} Based on information sharing, broadening amount of experience and efficient use of time, this synergy enables the partnership to advocate for policy change aiming to reduce social inequality in health.^{15 20–22} However, our review identified scarcity in resources such as shortage of time, inadequate capacities and financial constraints as barriers for the realising the potential of PPPs.^{10–14 16 29 32 33 35} Thus, sustainable funding reflecting the conditions and resources of the various partners involved is needed. A balance between business promotion funds, public funds and private investment may optimise resources and address governance concerns.

Second, we found that clear communication and coordination are important.^{10–13 15 35} Particularly, alignment of expectations related to roles and responsibilities among partners is key.^{10 15 16 35} Situations where partners are better able to understand and mutually define expectations of each other, the partnership and a shared goal seem to facilitate an optimised delivery of the intervention to the target group of underserved populations.^{11 15} In contrast, expectation gaps among partners often result in unrealistic assumptions related to capacities and demands concerning deliveries.¹⁶ Consequently, this may hinder the success of the partnership.¹⁶ The importance of clear expectations of roles and responsibilities is not only limited to the partnership itself, but also the interventions targeting underserved populations.³³ Further, to secure awareness and enrolment, there is a need for partners to have a clear understanding of the intervention.³³ This aligns with research on PPPs highlighting the above-mentioned factors as essential criteria for achieving success and establishing accountability.^{7 18 21 22} Several recommendations have been proposed to ensure alignment of expectations in PPPs including determination of a shared goal, strong governance and coordination.⁷

Third, our findings show that trust is important.^{10 13–16 35} The establishment and perseverance of trust in the context of social inequality in health was particularly emphasised as important in the included studies.^{13–15 35} The trust built through the involvement of community-based organisations was singled out as vital for connecting with the target group and addressing social inequality in health.^{13–15 35} Contrarily, concerns on distrust and conflict of interests can cause partnerships to stagnate in their efforts, consequently leading to termination of the partnership.¹⁵ This underscores the need to engage in partnerships with partners and institutions who can be trusted and counted on.¹⁵ These results are in line with previous studies, in which the trustworthiness of private partners has been

underlined as a challenge for PPPs within life science.^{20–22} Transparency has been promoted as a strategy to build and maintain trust, which can be facilitated through conflict-of-interest statements.^{7 21}

Public health challenges such as social inequality in health are dynamic and persistent over time and space.^{1 2} Thus, to document the effect of PPPs in addressing social inequality in health requires more than snapshots of information based on cross-sectional data. Conversely, our analysis emphasises the need for long-term inclusion of academic institutions to ensure that knowledge on lessons learnt from PPPs to reduce social inequality in health is systematically documented.^{18 20 21} This may be achieved by conducting longitudinal and more experimental studies using qualitative and quantitative methods to provide insights into the long-term effectiveness of PPPs. Further, there is a need to secure continuous adaptations of partnerships and knowledge sharing to determine effectiveness and impact in a long-term perspective. Lastly, social inequality is deeply rooted in complex factors at microlevels and macrolevels.^{1 2} Although the included studies report on lessons learnt from PPPs to reduce social inequality in health, the partnerships do not explicitly report on nor tackle the root causes of these inequalities. It is important that PPPs acknowledge the existence of, and seek to address, the broader social determinants of health, including wider governance structures and political economy concerns to effectively combat social inequality in health.^{1 2}

Strengths and limitations

To our knowledge, no previous systematic reviews focusing on PPPs to reduce social inequality in health in upper-middle-income and high-income countries have been conducted. Studies relevant for inclusion were identified and selected based on a robust methodological approach, and included studies were thoroughly assessed. Based on the systematic approach inherent in the meta-synthesis, we were able to synthesise results and obtain knowledge on lessons learnt across public, private and academic institutions. Nevertheless, the small sample size and heterogeneity in terminology, study designs, partners, intervention components, settings, outcomes and risk factors targeted in the included studies limit the level of learning across studies.

Despite the robust methodology, results should be interpreted with caution given the following methodological limitations. First, only studies published between 2013 and 2023 were included to ensure that lessons learnt reflected contemporary societal issues related to PPPs, potentially omitting relevant studies published prior to this date. Second, the included studies were conducted in upper-middle-income and high-income countries. Thus, knowledge on opportunities and challenges of PPPs implemented in low-income and lower-middle-income countries is omitted from this review. However, the focus on upper-middle-income and high-income countries enabled a thorough and nuanced exploration of the

diverse factors impacting the implementation and sustainability of PPPs for this specific context. Third, the quality appraisal of the mixed methods studies was influenced by the rather limited amount of information provided in the studies. Considerations on word count limitation should be made for future appraisal of mixed methods studies. Fourth, we encountered ambiguity in identifying partners as 'public', 'private' or 'academic'.²⁰ For institutions such as hospitals and educational systems, country-specific circumstances determine whether an institution is considered 'public' or 'private', which challenges classification and comparison across countries.²⁰ As an attempt to capture such nuances, we employed a broad definition of 'private' by including both for profit and non-profit institutions.²⁰ Nevertheless, this discrepancy in PPP terminology limits the transferability of the current findings to other public health challenges. Fifth, the selected search engines and search strings might have affected the search results. Considering the complexity of PPPs and social inequality in health, the terminology describing these concepts often varies. Based on instructions and feedback from an information specialist, we identified a range of keywords that were relevant to the specific databases and broad enough to capture studies involving partnerships across public, private and academic institutions within the wider field of social inequalities in health. However, the current review embraced this complexity by including biomedical, psychological and sociological search engines and keywords spanning across public health and life science. Lastly, the data extracting process on perceived opportunities and challenges of PPPs needs to be considered. While some studies more explicitly reported on the lessons learnt in the results section, other studies discussed opportunities and challenges as implications for future practice. The latter might influence the accuracy of lessons learnt, since implications are formulated in a more theoretical manner. Several of the identified factors interplayed, which made it difficult to sharply classify these into either an opportunity or a challenge. Hence, opportunities and challenges should not be viewed as isolated and independent terms, but rather as dynamic at microlevels and macrolevels that shape the implementation of partnerships across public, private and academic institutions.

CONCLUSION

Social inequality in health is a major challenge for contemporary healthcare and social service systems across upper-middle-income and high-income countries. This calls for collaborative efforts involving partnerships across public, private and academic institutions. Nevertheless, little is known about the lessons learnt from PPPs on social inequality in health from the different partners involved. Therefore, knowledge is needed to ensure that partnerships are effective. Based on identification, appraisal and synthesis of the existing evidence, this systematic review provides an overview of key points of awareness for future

partnerships. Partners identify various opportunities and challenges based on their engagement in PPPs. To ensure that PPPs are successful, synergies based on shared resources, clear communication and coordination and trustful relationships between partners are emphasised as important lessons learnt. Given the need for long-term evaluation of PPPs, future research efforts should focus on documenting lessons learnt on the partnerships over an extended period to capture the opportunities and challenges.

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