LHSS ACTIVITY 10

LITERATURE REVIEW OF THE INTEGRATION OF THE SOCIAL DETERMINANTS OF HEALTH IN HUMAN RESOURCES FOR HEALTH APPROACHES

Local Health System Sustainability Project

Task Order 1, USAID Integrated Health Systems IDIQ

Local Health System Sustainability Project

The Local Health System Sustainability Project (LHSS) under the USAID Integrated Health Systems IDIQ helps low- and middle-income countries transition to sustainable, self-financed health systems as a means to support universal health coverage. The project works with partner countries and local stakeholders to reduce financial barriers to care and treatment, ensure equitable access to essential health services for all people, and improve the quality of health services. Led by Abt Associates, the five-year, $209 million project will build local capacity to sustain strong health system performance, supporting countries on their journey to self-reliance and prosperity.

Submitted to: Scott Stewart, COR
Office of Health Systems
Bureau for Global Health

USAID Contract No: 7200AA18D00023 / 7200AA19F00014

Recommended Citation: The Local Health System Sustainability Project (LHSS) under the USAID Integrated Health Systems IDIQ. September 2021. *Literature review of the integration of the social determinants of health in human resources for health approaches*. Rockville, MD: Abt Associates.

CONTENTS

List of Tables

List of Figures

ACRONYMS

CBO	Community-based organization
CHW	Community health worker
CSDH	Commission on the Social Determinants of Health
DREAMS	Determined, Resilient, Empowered, AIDS-free Mentored, and Safe
HIC	High-income country
HRH	Human resources for health
IDIQ	Indefinite Delivery Indefinite Quantity
LHSS	Local Health System Sustainability Project
LMIC	Low- and middle-income countries
NHWA	National health workforce accounts
PHU	Primary health care units
PICO	Population, intervention, comparison, outcome
SAHPE	Socially Accountable Health Professions Education
SDG	Sustainable Development Goal
SDoH	Social determinants of health
WFME	World Federation Medical Education
WHO	World Health Organization

EXECUTIVE SUMMARY

Introduction

A significant body of evidence has emerged on how the circumstances in which people are born, grow, live, work, and age impact health. The distribution of money, power, and resources—influenced by a range of global, national, and local policy choices—shape these social determinants of health (SDoH). Socially stratifying forces, such as place of residence, race, ethnicity, culture, language, occupation, gender, religion, education, and socioeconomic status further drive inequities across populations.

Social factors and other structural determinants of health inequities—including the socioeconomic and political context and the social status of individuals and groups—affect access to, and delivery and outcomes of health care. To deliver relevant, quality care effectively and equitably, the health care workforce—including health professionals, planners, health managers, and community health workers—must understand the complex factors that impact patients and communities and must possess competencies to mitigate the negative effects of these factors.

This literature review is a part of Activity 10 of the Local Health System Sustainability (LHSS) project, and seeks to identify, analyze, and document successful efforts to integrate SDoH into health workforce education, training, and service delivery in low- and middle-income countries (LMIC).

Objectives

This literature review had two objectives:

1. To determine the range of evidence describing education approaches and tools for integrating SDoH in pre- and in-service health workforce education, clinical training, and service delivery, and the impact of those approaches and tools on quality of care and health equity for underserved or marginalized communities.

2. To determine what SDoH competencies are reflected in accreditation and/or quality assurance standards for health workforce education and service delivery, and how implementation is monitored and evaluated.

Methods

The research team applied two literature review methods to accomplish the research objectives: a scoping review to achieve Objective 1, and a traditional review of the literature for Objective 2. The traditional review also included searching relevant websites of USAID's LHSS priority countries.

The scoping review sought to map the breadth of the literature on SDoH and health workforce education, and to identify key concepts, evidence gaps, and evidence to inform best practices for integrating SDoH into health workforce education and practice. It sought to answer the following research questions:

1. How are SDoH and related competencies described within medical, nursing, and other clinical health workforce pre- and in-service education and clinical training programs?

2. What health workforce education approaches support the implementation of SDoH and with what effects for quality of care and health equity for the communities that students serve?

3. What interventions assist health workers to identify SDoH-related barriers and mitigate their effect on quality of care and health equity in medically underserved populations?

The traditional review focused on the following research questions:

1. What SDoH competencies are evident in accreditation of and/or quality assurance standards for health workforce education?

2. How do accreditation and/or quality assurance authorities monitor and evaluate the implementation of standards associated with SDoH in LMIC?

The scoping review focused on LMICs. However, due to the lack of relevant articles about SDoH and health workforce education in LMIC, researchers included in the review articles about high-income countries (HICs) that they judged to be highly relevant for LMIC contexts. After screening, researchers analyzed 54 articles; 56 percent were about HIC, 39 percent about LMIC, and 6 percent did not specify a country or region.

Most of the articles about HICs focused on interventions in urban settings, while studies in LMIC were more evenly distributed across rural and urban settings. Varying study methods were evenly distributed across the country income categories. Studies describing program development and evaluation were the most frequent across both income categories. Articles identified nine categories of health workers, with physicians identified the most frequently, followed by nurses and midwives, community health workers, unspecified health care workers, public health practitioners, accelerated medically trained clinicians, dentists, and social workers. Almost 50 percent of the desired outcomes of the SDoH education and training interventions focused on providing a general understanding of SDoH including learning about terminology, elements of SDoH, and concepts and competencies relevant to SDoH.

Findings

There are significant gaps in knowledge related to the integration of SDoH into health workforce education and training, accreditation and quality assurance standards, and service delivery. Critically, the review revealed **a lack of shared understanding of and approaches to addressing SDoH.** There is not yet consensus on SDoH terminology, exactly what is considered a SDoH, how to mitigate the negative effects of SDoH, and the role(s) of different health sector actors in addressing those effects or the social determinants themselves. There are no global or general agreements on core SDoH competencies for pre-service health workforce education, in-service training, or continued professional development in HICs or LMIC. The terms associated with SDoH are often unclear and therefore interpreted and applied differently. The resulting array of models, approaches, and theories creates ambiguity around addressing individual or multiple SDoH and who should be involved. This lack of consensus may hinder effective research, practice, and analysis, and mislead policy makers, planners, program designers, and health workers.

The scoping review (supporting Objective 1) found **a lack of articles on how SDoH are incorporated into the education and training of the clinical health workforce,** particularly in LMIC. Most of the literature on SDoH education, training, and service delivery interventions comes from HICs, and North America in particular. Most of the analyzed articles emphasized the need to address SDoH and described education, training, and screening for SDoH, and interventions to address specific conditions. In most articles, however, there is a limited description of the exact competencies being developed or required to implement SDoH-related interventions.

Of the included studies, most focused on pre-service education in medicine. While learning objectives did not explicitly focus on SDoH, some studies described education programs in which learners spend up to half of their clinical learning time in poor rural communities and work with communities to address SDoH.

Additionally, the review **identified interventions, largely from lower income, lower middle income and some from higher income countries, that assist health workers to identify SDoH-related barriers and mitigate their effect** on quality of care and health equity in medically

underserved populations. The articles identify interventions at systems and community levels, organizational levels, and at the level of patients and providers. At systems and community levels, interventions included sustained community engagement and intersectoral action and data collection and sharing to support evidence-based decision-making. At the organizational level, strategies (mostly community-based) included context-specific design and alignment with population needs and using clinical experiences and research to bring attention to the health impacts of socioeconomic challenges and advocate for policy changes.

At the level of patients and providers, the review revealed that **SDoH screening tools are increasingly being used in HICs** by health workers serving in areas including immigrant and refugee health, poor urban communities, Indigenous communities, and community-oriented primary care. Using screening tools improved social conditions for patients and their families, while outcomes for health care workers included lighter workloads. There may be ethical concerns about using SDoH screening tools if service availability, accessibility, and acceptability is in question or if clinicians/staff do not have the resources or competencies to address difficult challenges such as domestic violence.

The traditional literature review (supporting Objective 2) found **limited information on accreditation and quality assurance standards or monitoring** that specifically referred to SDoH competencies in LMIC or HICs. The global literature on accreditation and its impact is limited, particularly in LMIC. In medical education, many LMIC use global standards such as those from the World Federation of Medical Education (WFME). These standards only provide a general reference to incorporating SDoH into health workforce education and training, and the language is vague. However, several global professional associations are beginning to incorporate SDoH into their professional standards and some LMICs are developing competency-based standards that include SDoH.

Main Recommendations

To better integrate SDoH into health workforce education and training, accreditation, and quality assurance standards, and to better address its negative effects through service delivery, the review makes six main recommendations.

- **Engage key stakeholders** to identify SDoH-related challenges and to develop interventions.

- **Develop clarity around terms, roles, and intervention objectives.** If there are no agreed-upon global terms, those designing interventions should work with key stakeholders (including potential beneficiaries of interventions) to clarify what is meant by each term and to delineate realistic goals and objectives for interventions.

- **Incorporate SDoH considerations into equity-focused and quality-of-care efforts, processes, and standards.** It requires a deliberate focus on SDoH and the context patients and communities live in, and additional research to identify and design interventions likely to optimize resource use while improving equity and quality of care for vulnerable populations.

- **Conduct additional research on the health workforce competencies required to mitigate the negative effects of SDoH**—what methods and approaches work, how they work, and in what context. This research should inform the design of health workforce education programs which produce a workforce with the competencies required to meet evolving needs of the health systems and populations they serve, including those related to mitigating the effects of SDoH.

- **Develop consensus on core SDoH-related competencies** to help guide curriculum development and quality assurance efforts.

- **Invest in improving the capacities of health workers already in practice** and health institutions to address and/or mitigate the effects of SDoH in order to optimize resource allocation in the provision of more equitable and higher quality care.

1. INTRODUCTION

Since the release of the World Health Organization (WHO) report by the Commission on the Social Determinants of Health (CSDH) in 2008, a significant body of evidence has emerged on how the social determinants of health (SDoH)—the conditions in which people are born, grow, live, work, and age—impact health (WHO n.d.). Social forces such as place of residence, education, employment, race, ethnicity, gender, and other structural determinants (e.g., socioeconomic and political contexts) drive inequities across populations and affect health care equity, quality, and outcomes (Crear-Perry et al. 2021; Plamondon et al. 2020).

The WHO Statement on *Health in All Policies* (WHO 2014) and the 2015 Sustainable Development Goals (SDGs) raised awareness about the need for multisectoral action to improve health equity and outcomes. In the ensuing decade, public health policies in high-, middle-, and low-income countries have sought to address SDoH with varying degrees of success (Donkin et al. 2018). However, there is a lack of solid evidence on what, how, and in what context interventions work. Consequently, broad public health measures have been less effective at reducing inequities than hoped for (Frank et al. 2020).

While public health and cross-sectoral policy-level interventions such as improving access to health care, education, housing, water, and sanitation are essential, social and economic factors affect health care delivery and outcomes (Crear-Perry et al. 2021). To effectively and equitably deliver relevant, quality care, the workforce (including health educators, health care providers, planners, health managers, and accreditation bodies) must understand the complex factors that impact patients and communities; possess competencies to reduce negative effects of these factors; and develop health workforce education, training, quality assurance, and accreditation policies that respond to these factors (Allen et al. 2011; Solar and Irwin 2010).

Education institutions such as universities, vocational training institutes, and organizations responsible for continuous professional development also play a role in addressing health inequities. The global mismatch between health workforce education outcomes (location of and competency to practice) and communities' health priorities and health service needs is well documented (Mwakigonja 2016; Knaul et al. 2012). Evidence is emerging that socially accountable health workforce education positively affects the distribution, availability and performance of health professionals when that education seeks to align strategies and curricula (identified in collaboration with key stakeholders) with local needs and contexts, (WHO 2013; WHO 2016; WHO, 2017). Strategies associated with social accountability include curricula incorporating local priority health issues and SDoH, significant amounts of training taking place in primary care and underserved settings, recruitment of students from marginalized communities, team-oriented training, and sustained and meaningful intersectoral partnerships including with underserved communities (WHO, 2017).

Health workforce education institutions are increasingly incorporating SDoH-related content into their education programs and emphasizing principles and strategies for transformative learning. Strategies such as community engagement, community-based education, and service learning in diverse settings (e.g., remote and rural communities) aim to align education outcomes with community needs and ultimately to increase access to quality care for underserved and marginalized or medically disadvantaged populations. Similarly, there is emerging evidence of transformation of education institutions (in both high- and middle-income countries) adopting "socially accountable," "social mission," "social compact," or "community engagement" oriented strategies. Through curriculum development and collaboration with communities in the design and implementation of activities with both educational and community health benefits, such education efforts prioritize and address the health and social needs of the communities providers serve (WHO 2013; 2016b; Pálsdóttir et al. 2016).

Whether aimed at changing the behavior of individuals or population groups, interventions related to SDoH are highly context-driven and influenced by a range of psychological, historical, social, cultural, and political factors. Without the competencies to identify, mitigate, and address conditions that result from or are aggravated by social factors in service delivery settings, health care providers risk misdiagnosing, mistreating, or developing inappropriate treatment plans for patients (Holmes et al. 2020; Andermann 2016; Westergaard et al. 2019; Fitzgerald and Hurst 2017; Pereda and Montoya 2018). Such SDoH-related competencies, including awareness of one's own bias and stereotyping, are key to improving the quality and equity of care (Marcelin et al. 2019; Tilburt 2010).

For example, increasingly SDoH-related interventions are integrated into addressing complex challenges such as HIV/AIDS. Some such interventions target structural or environmental factors (defined by Sipe et al. as being distal to addressing the infection). Interventions might include microfinance opportunities for sex workers or advocacy to reduce societal homophobia (Sipe et al. 2017). SDoH-related interventions might also focus on particularly vulnerable groups such as adolescent girls and young women, a group that PEPFAR's Determined, Resilient, Empowered, AIDS-free Mentored, and Safe (DREAMS) program targets. To identify particularly vulnerable girls and young women to enroll in DREAMS, implementers used screening tools that looked at SDoH such as if the girls and young women were in school, were falling behind in school, had multiple sex partners, or had children. Effective DREAMS interventions include regular meetings to build confidence, mentoring and peer support, education support, and curricula on violence prevention (Fleischman 2021).

Within the domain of maternal health care, the availability of transportation and the provision of equitable and respectful care can affect whether women choose to deliver at a health care facility and thereby health outcomes. Shakibazadeh et al. identified 12 domains of respectful maternity care including being free from harm and mistreatment, maintaining privacy and confidentiality, preserving women's dignity, engaging with effective communication, and respecting women's choices. Thus, interventions addressing such diverse factors can contribute to reducing maternal mortality (Shimoda et al. 2018; Shakibazadeh et al. 2018).

USAID's new *Vision for Health System Strengthening 2030* emphasizes USAID's systems-thinking and outcome-orientation and its cross-cutting approaches, including a focus on social and behavior change and cross-sectoral linkages that are at the heart of addressing SDoH. Engaging with stakeholders in defining problems and interventions is another key element of USAID's *Vision* that aligns well with the findings of this literature review (USAID 2021).

Led by Abt Associates and awarded under the USAID Integrated Health Systems Indefinite Delivery Indefinite Quantity (IDIQ), the Local Health System Sustainability Project (LHSS) helps low- and middle-income countries (LMIC) transition to sustainable, self-financed health systems to support access to universal health coverage. The project works with partner countries and local stakeholders to reduce financial barriers to care and treatment, ensure equitable access to essential health services, and improve the quality of health services. This review is a part of Core Activity 10 of LHSS, and seeks to identify, analyze, and document successful efforts to integrate SDoH into health workforce education, training, and service delivery in LMIC. This literature review explores the design, delivery, and institutional practices in the integration of SDoH-related competencies into health workforce education, in-service and continuous professional development, and service delivery in LMIC and how that integration contributes to improved quality of care and more-equitable health outcomes. It also examines efforts to integrate SDoH-related standards into accreditation and quality assurance mechanisms in LMIC.

2. CONCEPTUAL APPROACH

LHSS used the globally accepted Conceptual Framework for Action on the Social Determinants of Health as the underlying conceptual framework for this literature review. Developed by the WHO CSDH, the framework stresses the importance of understanding how a country's socioeconomic, cultural, and political contexts shape the health of its individuals and populations, and how the health system itself is a SDoH. This broad and systems-oriented approach shaped the LHSS team's scoping approach, search strategy, research questions, and analysis. Our review and coding of articles paid particular attention to descriptions of whether and how the health system and social context shaped interventions and excluded articles that only described a narrow course or training focusing on one specific competency such as advocacy skills or a narrow, disease-specific intervention.

A framework for educating health professionals to address SDoH developed by an expert committee of the National Academies of Sciences, Engineering, and Medicine (NASEM) also shaped the literature review (National Academies of Sciences 2016). Using the CSDH framework as a basis, NASEM put lifelong learning at the center of its framework and included pre-service, in-service, and continued professional development. The NASEM framework is built around three domains (education, community, and organization) that helped guide the inclusion, coding, and analysis of articles in our review. For example, instead of focusing on curricular interventions, our review also identified institutional strategies such as community engagement that did or had the potential to influence whether and how students in health care programs attained SDoH-related competencies. Our review also looked at if and how facility-level organizational strategies reflected SDoH considerations.

3. METHODS

The purpose of this literature review is to describe efforts to integrate SDoH competencies in the domains of health workforce education and training, service delivery, quality assurance, and accreditation standards, and their impact on quality of care and health services in LMIC.

3.1 RESEARCH OBJECTIVES AND RESEARCH QUESTIONS

The authors developed two research objectives and associated research questions to facilitate the review and synthesis of information. As the literature review progressed, we iteratively refined and then reduced the number of research questions associated with each objective.

Objective 1. To determine the range of evidence describing education approaches and tools for integrating SDoH in pre- and in-service health workforce education, clinical training, and service delivery, and the impact of those approaches and tools on quality of care and health equity for underserved or marginalized communities.

1. How are SDoH and related competencies described within medical, nursing, and other clinical health workforce pre- and in-service education and clinical training programs?

2. What health workforce education approaches support the implementation of SDoH and with what effects for quality of care and health equity for the communities that students serve?

3. What interventions assist health workers to identify SDoH-related barriers and mitigate their effect on quality of care and health equity in medically underserved populations?

Objective 2. To determine what SDoH competencies are reflected in accreditation and/or quality assurance standards for health workforce education and service delivery, and how implementation is monitored and evaluated.

1. What SDoH competencies are evident in accreditation of and/or quality assurance standards for health workforce education?

2. How do accreditation and/or quality assurance authorities monitor and evaluate the implementation of standards associated with SDoH in LMIC?

3.2 METHODOLOGY

We applied two literature review methods to refine the research questions and accomplish the research objectives. In developing research questions, the initial literature search showed a potentially substantive body of published and unpublished literature for Objective 1 and limited and primarily gray literature for Objective 2. For practical reasons, we therefore employed a scoping review methodology to achieve Objective 1 and completed a traditional review of the literature to achieve Objective 2. The critical difference between these two reviews is that the traditional review does not describe the notation of search methods criteria and may be open to biases. However, because Objective 2 is a discrete and more minor component of the review, bias is addressed by having two researchers review abstracts or document descriptions for inclusion.

The scoping review for Objective 1 was informed by Arksey and O'Malley's (2005) methodological framework. We used their iterative approach to map the breadth of the literature on SDoH and health workforce education, and to identify key concepts, evidence gaps, and evidence to inform best practices for integrating SDoH into health workforce education and clinical training programs and practice (Arksey and O'Malley 2005). The traditional literature review for Objective 2 aimed to determine if

accreditation and quality assurance standards for health workforce education and service delivery reflect SDoH and if and how their implementation is monitored and evaluated.

3.3   SEARCH STRATEGY

We developed a search strategy to identify potential published studies with qualitative and quantitative data, position papers, case study reports, editorials, workshop reports, and technical reports published in English between 2012 and 2020, available in full text. For Objective 2 we did not use a specific timeframe but sought to identify the most up-to-date documents and standards. The searches for both objectives were not limited by study design but were limited by language of publication as we only searched publications and documents in English.

Researchers searched the following databases for relevant, English-language material published between January 2012 and January 2020: PUBMED, CINAHL, EBSCOHOST, EMBASE, MEDLINE, PsycINFO, Google Scholar, and Google (for gray literature). We selected the start date of 2012 because the WHO transformative guidelines for health professions education were published in this year and speak to the re-orientation of health professions education from a biomedical-perspective to a people-centered perspective that encompasses some of the conditions in which people are born, live, and work.

3.3.1 SEARCH STRATEGY FOR OBJECTIVE 1

For the scoping review (supporting Objective 1) we used a modified version of the population, intervention, comparison, outcome (PICO) model to identify and define the key concepts with synonyms and closely related words (Table 1).

Table 1. PICO Key Concepts and Related Terms

Element	Key Concepts	Examples of Additional Terms
Population	Health workforce cadres AND education programs	Health professions* OR medical* OR nursing* OR midwifery OR pharmacy OR dental OR clinical associate* OR allied health professional* OR community health worker *
		Pre-service curriculum* OR undergraduate curriculum OR post-graduate curriculum* OR in-service curriculum* OR continuing professional development curriculum*
Intervention	AND social determinants of health	Social determinants* OR social determinant of health competencies* OR social needs OR social risk factors OR health determinants
		AND clinical intervention* OR service delivery intervention* OR health promotion program
	AND health workforce education approaches	Service learning* OR interprofessional learning* OR longitudinal clinical rotations* OR rural rotations OR community engagement* OR community-based education* OR socially accountable approaches*
Comparison	AND country income classification OR geographical distribution OR clinical service setting	Low- and middle-income countries* OR low-income OR marginalized* OR medically disadvantaged communities* OR rural OR urban OR clinic* OR hospital* OR community setting*
Outcome	Quality of care AND health equity	Quality of health care* OR health equity* OR accessible health services* OR health outcomes* OR community health outcomes*

* *After a word includes all variations of the word in the search.*

3.3.2 SEARCH STRATEGY FOR OBJECTIVE 2

For the traditional literature review (supporting Objective 2), we used terms from the research questions. We identified further publications by examining the reference lists of all included articles and hand-searching relevant websites.

3.4   SCREENING AND ELIGIBILITY

3.4.1 SCREENING AND ELIGIBILITY FOR OBJECTIVE 1

The research team used EPPI-Reviewer Web, a web-based software program, to manage and analyze data for the scoping review. We developed eligibility criteria based on the initial literature search to focus and support the data-screening process (Table 2).
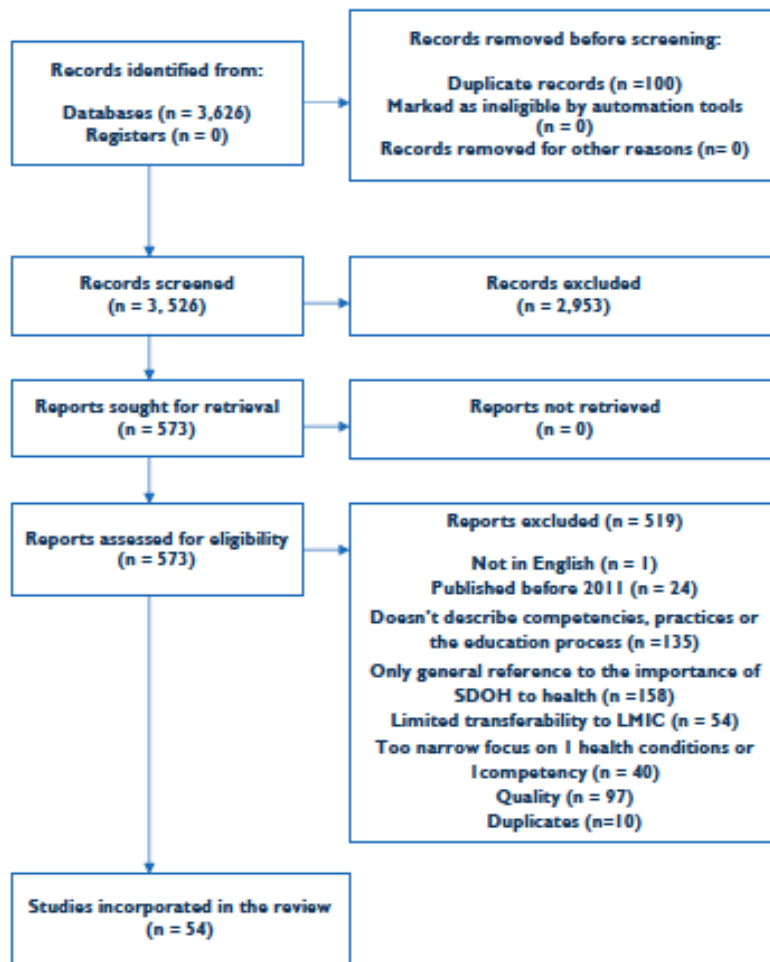
In total, we retrieved 3,626 records from the electronic databases and removed duplicates. Three research team members performed the first screen by reviewing titles and abstracts to select reports that met the inclusion criteria and eliminate those reports outside the review scope. Two reviewers screened each article on title and abstract. We also included articles that appeared relevant but did not contain precise data or information in the abstract for full-text screening. The research team's call for documents and publications from its global networks yielded duplicates of existing records; duplicates were discarded.

After that, two research team members sourced and assessed the eligibility of each of the 573 full-text documents with 54 studies finally incorporated for review. Table 2 presents the criteria for inclusion and exclusion, while Figure 1 outlines the identification, selection, and incorporation process.

Table 2. Literature Inclusion and Exclusion Criteria

Inclusion Criteria (all present)	Exclusion Criteria
- Published 2012 and after 2012 - Description of intervention or program that fosters application of more than one SDoH competency or condition - Originates from or can be adapted/transferred to LMIC settings relatively easily - The intervention(s) has been evaluated beyond knowledge acquisition	- Not in English - Published before 2012 - Doesn't describe competencies, practices or the education process - Only provides a general reference to SDoH - Limited transferability to LMIC - Focusing only on one SDoH competency or condition - Limited measurement of outcomes

Figure 1. Identification and Selection of Literature via Databases and Registers

Records identified from:
Databases (n = 3,626)
Registers (n = 0)

Records removed before screening:
Duplicate records (n =100)
Marked as ineligible by automation tools (n = 0)
Records removed for other reasons (n= 0)

Records screened (n = 3, 526)

Records excluded (n = 2,953)

Reports sought for retrieval (n = 573)

Reports not retrieved (n = 0)

Reports assessed for eligibility (n = 573)

Reports excluded (n = 519)

Not in English (n = 1)
Published before 2011 (n = 24)
Doesn't describe competencies, practices or the education process (n =135)
Only general reference to the importance of SDOH to health (n =158)
Limited transferability to LMIC (n = 54)
Too narrow focus on 1 health conditions or 1competency (n = 40)
Quality (n = 97)
Duplicates (n=10)

Studies incorporated in the review (n = 54)

3.4.2 SCREENING AND ELIGIBILITY FOR OBJECTIVE 2

The team performed separate hand-searches to identify articles related to accreditation and quality assurance relevant to SDoH. While we reviewed several articles related to accreditation of health professions education and health facilities, none of them referred specifically to standards or processes related to SDoH in LMIC—the key eligibility criteria for Objective 2. As a result, the team focused on Google searches and reviewing websites of international and national accreditation entities, professional associations, and quality assurance organizations in LMIC. We found only a few general references to SDoH, hence the traditional review did not require a specific process for data extraction or charting.

3.5   DATA EXTRACTION AND CHARTING FOR OBJECTIVE 1

We developed a thematic coding matrix aligned with the research objectives and the PICO framework. Data extraction codes (themes) included a description of the participants, intervention (including enablers and barriers), context, and outcomes, and impacts related to the implementation of SDoH competencies in pre- and in-service health professions education and service delivery in LMIC.

To test the thematic coding and extraction process, three members of the research team coded and extracted the same data from a sample of 5 articles (from the pool of 54 articles) using the EPPI-

reviewer data extraction tool. The code lists were subsequently reviewed and thematically synthesized, and differences resolved through team discussion and as-needed consultation with EPPI-Reviewer support personnel.

The team next extracted and thematically charted data from the total sample. After downloading the data chart to Microsoft Excel, three members of the research team reviewed the data for thematic consensus. Finally, two members of the research team searched again across all 54 studies to ensure that the included material accurately represented the themes.

4. FINDINGS

This section presents the contextual characteristics of the studies incorporated from both reviews, followed by a thematic synthesis of quantitative and qualitative findings organized by the study's research questions.

4.1 CHARACTERISTICS OF INCORPORATED STUDIES

4.1.1 CONTEXTS

Of the 54 studies included in the scoping review, the majority (n=30; 56 percent) focused on high-income countries (HICs), while LMIC accounted for less than half (n=21; 39 percent). The remaining studies did not specify the context. Within the HIC category, studies occurred more frequently in urban settings (n=23; 77 percent) than rural settings (n=7; 23 percent). Studies in LMIC settings were more evenly distributed across geographic locations, with 11 (52 percent) in rural settings and 10 (40 percent) in urban settings. Additionally, 39 of the 54 studies indicated their service delivery context. Of these 39 studies, 48 percent (n=19) occurred in community settings, 36 percent (n=14) at clinics, and only 15 percent (n=6) in hospitals.

4.1.2 STUDY METHODS

Researchers found that studies included in the scoping review identified a variety of study methods and were reasonably distributed across the country income categories (see Table 8 in Annex 1). The most frequently occurring study method across both income categories was description of program development and evaluation; it occurred in 29 percent of HIC studies and 27 percent of LMIC studies description. Qualitative methods occurred more frequently in studies from lower-middle-income settings than high-income settings (29 percent and 7 percent, respectively).

4.1.3 SOCIAL DETERMINANTS OF HEALTH

The team identified a total of 98 statements of information relevant to the incorporation of SDoH into education, training, and/or practice. We categorized the statements under five themes with several articles contributing to multiple themes. The themes are listed in Table 3 and discussed in section 4.2.1. Almost 50 percent (n=48) of the statements focused on the theme of providing general understanding of SDoH. That theme included understanding SDoH terminology, elements, concepts, and related competencies in education and training. Of the remaining four themes, 15 percent (n=15) of statements focused on the application of SDoH screening tools, 14 percent (n=14) on enablers to integrating SDoH in education and practice, 13 percent (n=13) on barriers to integrating SDoH, and 9 percent (n=9) described interventions focusing on multiple determinants, health conditions, or competencies.

4.1.4 HEALTH WORKFORCE, EDUCATION APPROACHES, AND OUTCOMES

Many of the incorporated studies referred to more than one type of health worker, yielding a total of 77 references to health workers. The highest proportion of statements were associated with physicians (42 percent, n=32); followed by nursing and midwifery (21 percent, n=16); community health workers (9 percent, n=7); unspecified health care workers (8 percent, n=6); public health (5 percent, n=4); and pharmacy, accelerated medical technicians, dentists, or social workers (16 percent, n=12). The highest proportion of statements about education across all SDoH themes occurred in studies of pre-service education (n=41), a lower proportion in studies of advanced education (n=7), and a much lower

proportion in studies of in-service training (n=1). With respect to outcomes, the most statements focus on "improved practice in diverse settings" (n=18; 48 percent) and the fewest on "improved patient service satisfaction and health outcomes" (n=3; 8 percent). Eleven statements (30 percent) focused on "improved quality care" and five statements (14 percent) focused on "improved access to health care."

4.2   SDOH AND RELATED COMPETENCIES

This section describes the response to research question 1 under Objective 1: *How are SDoH and related competencies described within medical, nursing, and other clinical health workforce pre- and in-service education and clinical training programs?* The three main findings are listed below, followed by further discussion.

First, the review found that while almost all the studies addressed the SDoH generally, there is little evidence of global agreements on a set of specific SDoH core competencies for pre-service health workforce education, in-service training, or continued professional development in either HICs or LMIC. Of the total 98 statements associated with SDoH (Table 3), almost half focused on a general understanding of SDoH such as terminology and concepts.

Second, there is an absence of consensus on exactly what is considered a SDoH, how to mitigate the negative effects of SDoH, and the role(s) of different health sector actors in addressing those effects. The terms associated with SDoH are often "misunderstood, conflated and confused" (Henschke et al. 2017), and therefore interpreted and applied differently. Table 9 (in Annex 1) defines terms that are often conflated or confused and the potential consequences of this lack of clarity. The array of models, approaches, and theories resulting from this lack of agreement creates ambiguity around how to address SDoH (individual or a range) and who is responsible for what (Lucyk and McLaren 2017).

A wide range of terms are used to describe curricula that focus on or include SDoH. They include *social accountability, ethics, professionalism, social responsibility, health equity, public health, service-learning, social justice, marginalized population,* and *cultural competencies* (Sharma, Pinto, and Kumagai 2018). In addition, while gaining recognition (at least in HICs), SDoH is still a relatively new subject in health professions education from foundational training through continuous professional development.

Table 3. SDoH Themes in Education, Training, and Service Delivery

SDoH Theme	Number of Statements	Percent of Statements
General understanding of SDoH (such as terminology, dimensions, and concepts)	47	48
Intervention focusing on multiple SDoH, health conditions, or competencies	9	9
Application of screening tools for SDoH	15	15
Barriers to addressing SDoH in practice	13	13
Enablers to addressing SDoH in practice	14	14
Total	**98**	**100**

The review found that most of the literature on SDoH education, interventions, and competencies comes from HICs, and the United States and Canada in particular. However, the HIC interventions included in the review all focused on the needs of underserved and marginalized populations and addressed conditions that were equally relevant in LMIC. Much of the literature is focused on the need to address SDoH and describes education, training, and screening for SDoH, and interventions to address specific social conditions (WHO 2010; Frenk et al. 2010; Strand and Miller 2014; FIP 2020; Mendes et al. 2018; Torres-Alzate 2019; Thornton and Persaud 2018). The literature suggests that

SDoH were most consistently mentioned, but often not significantly described, in the education of public health professionals. In the included articles, competencies for public health professionals tended to center on understanding and addressing SDoH at policy and program levels (Davó-Blanes et al. 2016; Damari and Ehsani Chimeh 2017; Zwanikken et al. 2014; PHF 2019). At the same time, the review also included articles describing the need to strengthen SDoH-related components in public health education curricula in LMIC (Henschke et al. 2017). These findings are notable given that public health education curricula often forms the basis for educating other cadres on on SDoH (Hunter and Thomson 2019; Siegel, Coleman, and James 2018; Torres-Alzate 2019; Monekosso 2016; Drobac and Morse 2016; Lucyk and McLaren 2017).

There is limited focus on describing the exact competencies being developed or the competencies required to implement an intervention, revealing an important knowledge gap. With the exception of postgraduate clinical training for physicians in HICs, the lack of articles describing in-service training related to SDoH was also notable.

4.3 SDOH IN HEALTH WORKFORCE EDUCATION AND TRAINING

This section describes the response to research question 2 under Objective 1 of the review: *What health workforce education approaches support the implementation of SDoH and with what effects for quality of care and health equity for the communities that students serve?* We also consider barriers and enablers to implementation.

The four main findings related to SDoH in health workforce education and training are listed immediately below and detailed in subsequent subsections.

- Most studies of health **workforce education programs** focused on pre-service training in medicine.

- The review identified the importance of service-learning at the community level as a learning approach and an **education institution strategy**.

- Most studies measure the outcomes of education and training in terms of learning outcomes; of those that looked beyond learning outcomes, the focus was on **improved practice or quality of care**.

- The review identified **enablers and barriers** for effective training programs on SDoH. Effective approaches included components such as community-based learning and linkages to community-based organizations while cost, inadequate supervision and mentoring, and of lack of structure in clinical placement programs hindered training program impact.

4.3.1 HEALTH WORKFORCE EDUCATION PROGRAMS

Of the health workforce education programs identified in the review (Table 4), 76 percent (n=41) focused on pre-service education, 13 percent (n=7) on advanced or postgraduate education, and 11 percent (n=6) on in-service training related to nursing, community health worker education, and dentistry.

The highest proportion of studies focusing on pre-service education were in medicine (n=19; 46 percent), followed by nursing and midwifery (n=11; 27 percent). All of the advanced or postgraduate studies were in the field of postgraduate medicine. Of the in-service training programs included, most focused on training community health workers (n=4; 66 percent).

Table 4: Health Workforce Education Programs by Health Workforce Population

Health workforce population	Health workforce education program			
	Pre-service	Advanced	In-service	Total
Nursing	11 (27%)	0	1 (16%)	12 (22%)
Medicine	19 (46%)	7 (100%)	0	26 (48%)
Pharmacy	2 (5%)	0	0	2 (4%)
Accelerated medically trained Clinicians	2 (5%)	0	0	2 (4%)
Dentistry	1 (2%)	0	1 (16%)	2 (4%)
Social worker	2 (5%)	0	0	2 (4%)
Community health worker	0	0	4 (66%)	4 (7%)
Health care workers	2 (5%)	0	0	2 (4%)
Public health	2 (5%)	0	0	2 (4%)
Total	**41 (76%)**	**7 (13%)**	**6 (11%)**	**54 (100%)**

4.3.2 HEALTH WORKFORCE EDUCATION APPROACHES

Sharma, Pinto, and Kumagai (2018) suggest that the SDOH components of medical education focus on generally learning about SDoH as opposed to responding to them. They suggest that learners need to acquire competencies that help them understand "how [SDoH] came to be; who benefits and who suffers; and what can be done about them, how, and by whom" (Sharma, Pinto, and Kumagai 2018).

Our review sought to identify studies that covered learning how to address the negative consequences of SDoH. Almost all the included studies referenced more than one pedagogical learning method (n=100 statements), with 44 percent of the statements describing service-learning in community settings. Twenty-six percent of the statements referred to student-centered learning methods such as problem- or case-based learning, 25 percent referred to interprofessional education approaches including partnering and collaboration, and 5 percent applied lecture-based teaching methods.

The programs that sought to assess their impact on health services and health outcomes all included a substantive service-learning component in underserved communities. One such study, the MESAU-MEPI program in Uganda, measured the impact of students' activities related to health services. The study assessed the impact of students' malaria community outreach on the served community's prevention and treatment-seeking behaviors as compared to other similar communities without student interventions. The study suggested that the presence of MESAU-MEPI students in communities was associated with improved malaria prevention and treatment-seeking behavior, and researchers determined that further studies were needed to assess long-term impact (Obol et al. 2018).

Engaging with patients and family in the context in which they live was a recurring theme of studies in our review, with community engagement often described as a learning approach. One US-based study conducted a quantitative analysis of a postgraduate medical education learning intervention that included a program in which postgraduate medical residents provided home-based primary care to patients in low-income communities. The exposure to patients' home environment and personal circumstances encouraged learners to provide more holistic care, including reflections on the effect of SDoH, the patient-physician relationship, how patients live, and the patient's autonomy and independence (Goroncy et al. 2020).

4.3.3 EDUCATION INSTITUTION STRATEGIES

SDoH-related interventions at education institutions focused on what and how students learn, and certain institutional strategies often appeared in conjunction with SDoH learning approaches. Of the 35 statements in the review that related to institutional strategies at education institutions, 57 percent (n=20) related to institutional community engagement, 29 percent (n=10) to training in underserved areas, and 14 percent (n=5) to inclusive student admission criteria (Figure 2).

Figure 2. Frequency of Institutional Strategy Themes
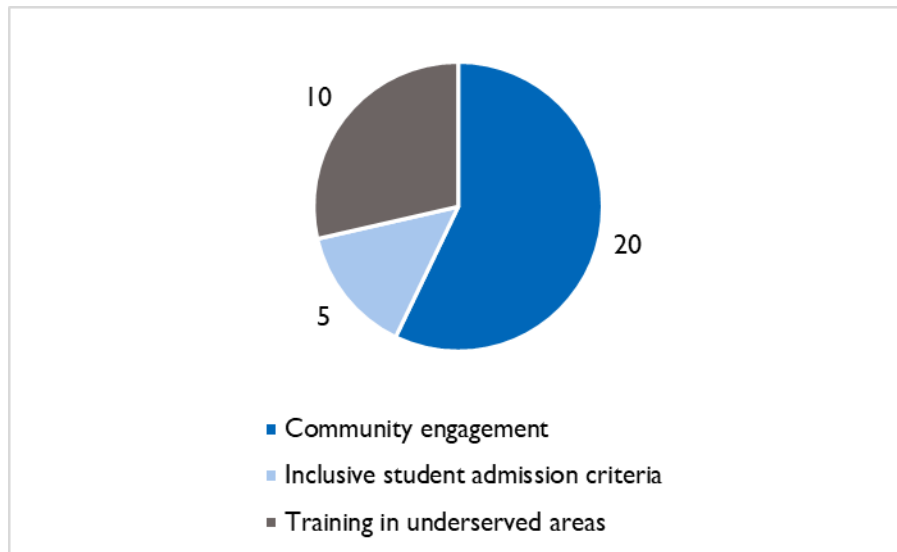
While community engagement appeared as a pedagogical or learning intervention, it also emerged as an institutional strategy at the education institutions. This means that the education institutions established long-term partnerships with various community-based groups including non-profits, community leaders, legal groups, and community-based clinics. The community partners provided input into the design, implementation, and evaluation of educational interventions and programs. These efforts often resulted in SDoH-related elements being reflected throughout the education programs, in how the education institutions operated, and in how institutions evaluated outcomes.

The review identified two education institutions in the Philippines that apply strategies associated with social accountability. Both programs recruit learners with the goal of increasing health care worker deployment and retention in underserved regions. One program selects learners from underserved communities and the other uses metrics to identify learners with the personality traits and commitment to serve the marginalized. The studies did not compare the impact of these different admission strategies. Their pedagogical methods include service-learning, theoretical and practical application of SDoH competencies, learner-centered approaches, and community engagement and mobilization. Learners at both institutions spend up to half of their clinical learning time in poor rural communities where they gain practical understanding of SDoH and work with communities to address the negative effects of SDoH. A non-randomized, controlled study investigated the impact of students and graduates from these socially accountable health professions education (SAHPE) institutions on child and maternal health services and outcomes. After adjusting for socioeconomic status, recent mothers in communities served by SAHPE medical graduates and interns were more likely than mothers in communities served by conventional (non-SAHPE) medical graduates to report receiving all the USAID-recommended prenatal, newborn, and postnatal examinations, measurements, and injections. In particular, mothers from communities served by SAHPE graduates and interns were significantly more likely to have better care during delivery, postnatal care, and the first postnatal check-up. The findings also show that

communities staffed with SAHPE graduates and interns may be better than non-SAHPE communities at reducing socioeconomic inequalities through more equitable access to essential maternal health services (Siega-Sur et al. 2017; Halili et al. 2017; Woolley et al. 2018).

In the US state of Oregon, a collaboration of schools of medicine, pharmacy, dentistry, and nursing developed a similarly holistic approach and long-term, community-based partnerships in marginalized communities. The schools worked with a range of partners through the development of the Interprofessional Care Access Network, a model of healthcare delivery and interprofessional education to improve the quality of care and population health, and to reduce the per-capita cost of health care. Close to 600 students from four professions were trained while they provided interprofessional care and helped patients who had been referred to the Network by community partners, mitigating the effects of SDoH. Patients' access to primary care services increased and hospitalizations and emergency care visits dropped substantially; the reduced utilization of these high-cost services saved an estimated $244,000 over a six-month period (Bradley et al. 2018).

4.3.4 OUTCOMES

Illustrated in Figure 3, of the 37 statements associated with education and training outcomes, the highest proportion focused on "improved practice in diverse settings" (n=18; 48 percent) which included coding for "learning outcomes." Only three statements (8 percent) linked to "improved patient service satisfaction and health outcomes." "Improved quality of care" and "improved access to health care" yielded 11 (30 percent) and 5 (14 percent) statements, respectively.

Figure 3. Frequency of Intervention Outcomes Assessed
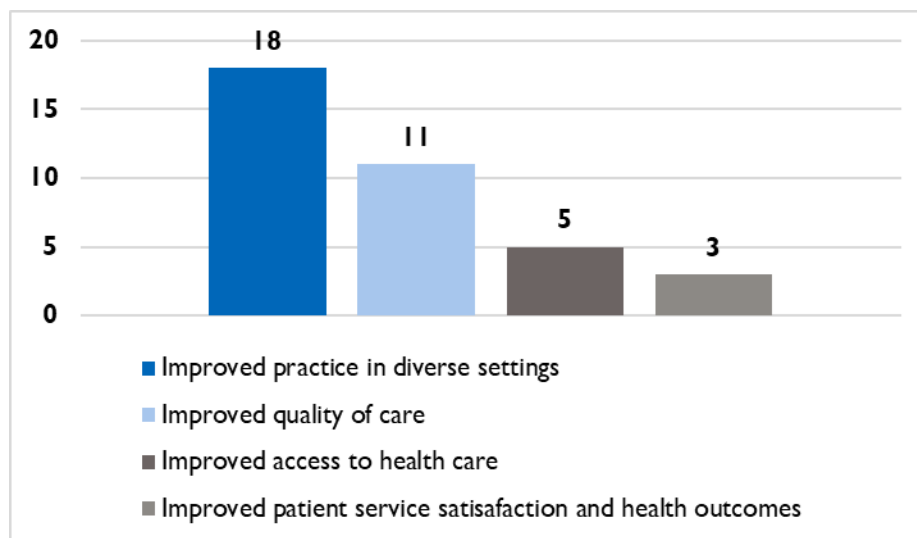
Overall, a higher proportion of the 37 outcome statements in the included studies occurred in medicine (n=17; 46 percent), followed by community health workers (n=9; 24 percent), nursing and midwifery (n=7; 19 percent), and health care worker (unspecified) (n=4; 11 percent) (Table 5). Cross-tabulating outcomes with the study method shows that qualitative research accounts for 51 percent (n=19) of the outcomes followed by mixed methods (n=7; 19 percent), program evaluation and quantitative methods (n=4; 11 percent) respectively, and by control trials (n=3; 7 percent).

Table 5. Outcomes by Health Workforce Cadre

Outcomes by health workforce cadre	Improved practice in diverse settings	Improved quality of care	Improved access to health care	Improved patient service satisfaction and health outcomes	Total
Nursing and midwifery	3	3	1	0	7 (19%)
Medicine	12	3	1	1	17 (46%)
Community health worker	2	3	2	2	09 (24%)
Health care worker	1	2	1	0	04 (11%)
Total	**18 (49%)**	**11 (30%)**	**5 (14%)**	**3 (8%)**	**37**

4.3.5 ENABLERS AND BARRIERS FOR ADDRESSING SDOH IN EDUCATION AND TRAINING

With respect to health workforce education, most enablers and barriers were mentioned in studies on pre-service education (Figure 5, Annex 1). This is consistent with the finding that the highest proportion of education across all SDoH themes occurs in pre-service education studies (Table 4, section 4.3.1).

The included articles highlighted the importance of education institutions collaborating and engaging with individuals and organizations in underserved communities to develop effective educational content and service-learning components (Institute of Medicine 2014). Other enablers included research on the population served, committed and qualified faculty, social mission of the university and the academic program, and learning in community-based settings where a focus on equity and SDoH are incorporated into primary health care (Hernández-Rincón et al. 2016).

With respect to challenges, some studies identified the biomedical and disease-oriented focus of the health system as a barrier to the development and institutionalization of health workforce curricula that focus on health equity and SDoH (Hernández-Rincón et al. 2016; Andermann 2016; Crear-Perry et al. 2021). Hernández-Rincón et al. suggest that Colombia's hospital-centric (as opposed to community-centric) health system has a limited focus on intersectoral action and may also act as a barrier. Another limiting factor mentioned in a study in India was the lack of systematic data collection related to SDoH and a lack of available information to guide strategy and program development (Nambiar et al. 2015).

Lack of investment in health workforce education overall—including resources to fund community-based training programs and the human resources to provide adequate support, supervision, and mentoring—is a challenge in including SDoH in education and training interventions (Pálsdóttir et al. 2016). Lack of structured partnerships and/or trust among academic centers and community-based clinics or organizations can also be a barrier (Institute of Medicine 2014).

In our review, researchers identified implementation challenges for effective training programs on SDoH; challenges include cost, inadequate supervision and mentoring, and of lack of structure in clinical placement programs (van Wieren et al. 2014; Mpofu et al. 2014; Kaye et al. 2011). Additionally, when the learning programs on SDoH are interprofessional, it is important that all departments or schools are involved in developing programs and goals, and training supervisors to ensure that the goals are being met (Institute of Medicine 2014).

4.4   SDOH IN SERVICE DELIVERY

This section describes the response to research question 3 under Objective 1 of the review: *What interventions assist health workers to identify SDoH-related barriers and mitigate their effect on quality of care and health equity in medically underserved populations?* We also identified reported enablers and barriers to implementation.

In addition to overall contextual characteristics, 39 of the 54 studies reported on their service delivery context (Table 6). Of the 39 studies, 46 percent occurred in LMIC and 45 percent in HIC. Of these studies 48 percent (n=19) occurred in community settings, 36 percent (n=14) at clinics, and only 15 percent (n=6) at hospitals. Overall, 56 percent (n=22) of studies reporting on their service delivery context occurred at urban sites and 44 percent (n=17) at rural sites.

Table 6. Service Delivery Contexts

Health Service Setting	Urban	Rural	Total
Clinic	9 (64%)	5 (36%)	14 (36%)
Hospital	3 (14%)	3 (18%)	6 (15%)
Community settings (e.g., households, NGOs, social services, non-health services)	10 (45%)	9 (53%)	19 (48%)
Totals	**22 (56%)**	**17 (44%)**	**39**

The articles that describe how the negative effects of SDoH are mitigated in service delivery settings range widely. They include efforts to mobilize community health workers (CHWs) and community leaders to gather data; reviews of the use of SDoH screening tools; and descriptions of organization-level, equity-oriented strategies applied in primary care settings to serve marginalized populations. In the literature from HICs, SDoH interventions tend to focus on population subgroups that are highly marginalized; tend to be disempowered; have poor access to adequate housing; and are at greater risk than other population groups of experiencing environmental, social, and psychological factors that contribute to ill health and shorter lifespans (Andermann 2016). The articles identify interventions at systems and community levels, organizational levels, and at the level of patients and providers.

4.4.1   ALIGNING PROGRAMS AND INTERVENTIONS TO NEEDS AND CONTEXT

The review's first main finding suggests that interventions should be designed for the specific context and aligned with the needs of the populations served. Browne et al. (2016) describe effective organizational strategies and approaches in primary healthcare services designed to meet the needs of Indigenous peoples in Canada. The authors identify four evidence-based, equity-oriented dimensions and ten strategies developed to optimize the effectiveness of primary health care interventions for Indigenous Canadian populations. According to the authors, the four dimensions that underpin the understanding of how to increase health equity for marginalized population groups in the study are trauma- and violence-informed care, culturally competent care, contextually tailored care, and inequity-responsive care. See Box 1 for Browne et al.'s suggested essential elements of care. The authors suggest that, given the similar history and context of Indigenous populations in the United States and Australia, comparable strategies might be used in both countries. Other articles in the review describe how everything from clinic set-up and opening hours to available services are designed with target or specific vulnerable populations in mind.

Other community-oriented strategies include establishing on-going substantive partnerships with local community groups, local leaders, and other stakeholders; using clinical experiences and research to bring attention to the health impacts of social challenges and advocate for policy changes; getting involved in community needs assessments and health planning activities; and engaging with communities to tackle social challenges that become entrenched in social norms such as gender-based violence (Andermann 2016).

4.4.2 APPLICATION OF SCREENING TOOLS FOR SDOH

The review's second main finding in response to research question 3 under Objective 1, suggests that SDoH screening tools are useful during routine assessments in clinical settings but need to be backed up by the availability of services that address patients' needs and challenges. As illustrated in Table 3 (section 4.2.1), of the 98 SDoH information statements in the literature, 15 (15 percent) focused on the "application of screening tools for SDoH."

Andermann discusses how health workers in clinical settings can mitigate the effect of SDoH. At the patient level, health workers can consistently and empathically enquire about social history and challenges, offer advice, and facilitate access to local support services as part of routine assessments. For example, the question "do you have difficulty making ends meet at the end of the month" is 98 percent sensitive and 64 percent specific for identifying people living below the poverty line. Social diagnosis (identification of social needs) and social prescriptions (linking patients to available resources) are crucial elements of the comprehensive care and treatment process (Andermann 2016). It is important that health care providers also reflect on the extent to which their own clinical settings, personal actions, and perspectives entrench broader social prejudices and stereotypes against specific groups of health seekers (Bachrach 2014; Andermann 2016).

Box 1. Browne et al.: Essential Elements of Equity-Oriented Primary Health Care with Indigenous Populations

Key Dimensions of Equity Oriented Services

- Trauma- and violence-informed care
- Culturally competent care
- Contextually tailored care
- Inequity-responsive care

General Approaches

- Partnerships with Indigenous peoples
- Action at patient-provider, organization, & systems levels
- Attention to local and global histories
- Attention to unintended and potentially harmful impact of each strategy

10 Strategies to Guide Equity-Oriented Services with Indigenous Peoples

- Explicitly commit to fostering health equity
- Develop supportive organizational structures, policies, and processes
- Ensure meaningful engagement of patients and community leaders
- Re-vision the use of time [for care coordination and patient-centered care]
- Attend to power differentials

- Actively counter racism and discrimination
- Tailor care programs and services to local Indigenous contexts
- Tailor care to address the SDoH
- Tailor care to address interrelated forms of violence
- Optimize use of place and space

(Browne et al. 2016)

A scoping review of SDoH-related screening tools revealed that they are increasingly used in HICs among health workers serving in the areas of immigrant and refugee health, homelessness and marginally housed people, poor urban communities, Indigenous communities, social pediatrics, cultural psychiatry,

community-oriented primary care, and global health. Some tools focus on specific populations such as pregnant women, children, diabetics, veterans, and the elderly. Other tools seek to identify specific risks such as food insecurity, violence, stress, childhood trauma, housing conditions, and poverty. Some tools cover multiple SDoH domains. There are also tools for different settings such as emergency departments and operating rooms. According to the scoping review, screening tools for violence are the most developed (Andermann 2018). The U.S. Preventive Services Task Force provides evidence-based guidance on a list of SDoH-related tools and interventions for populations in the United States (Davidson et al. 2020). Other tools described are a logic framework for evaluating SDoH interventions in primary care (Coughlin et al. 2019) and a tool entitled Patient Centered Assessment Method. These tools seek to improve the quality of care and patient experience during critical transitions between the hospital and home (Bagdan 2018).

Several studies reported on the outcomes of using screening tools. Garg et al. (2015) reported that parents who participated in SDoH screening during regular child health care visits were more likely to receive referrals, more likely to contact a community resource, more likely to access a community resource, and more likely to obtain employment or enroll in job training after referrals. Screened children were more likely to be enrolled in childcare, and screened families with children were more likely to receive fuel assistance and less likely to remain in a homeless shelter. While such services might not always be available in LMIC, the studies suggested that screening tools and referrals to services that address the needs of communities served can mitigate the negative effects of SDoH.

Such interventions can also affect health care providers. Clinicians at primary care clinics in poor urban communities in the US state of New Mexico, where SDoH screening tools were used and CHWs helped patients address social needs, reported that "their workloads had lightened, leading to a greater ease of practice and greater confidence that their patients were receiving quality care" (Page-Reeves et al. 2016). The study also reported that the success of this WellRx screening tool and CHW approach quickened the official integration of CHWs into primary care teams in New Mexico.

While SDoH screening tools are increasingly used in HICs, their use is not without controversy. While multidomain tools may help identify patients' needs and potential risks, it is essential that patients are engaged in the identification of priorities and to determine patients' willingness or ability to use needed services (Andermann 2016; Garg, Boynton-Jarrett, and Dworkin 2016).

In addition to providing clinical expertise, studies indicate that care providers should understand what patients feel is most important and possible in the context of their lives at a particular time. A screening tool might identify food insecurity as a concern but finding safe housing away from a violent spouse may be more important to the client at that moment (Davidson et al. 2020; Alderwick and Gottlieb 2019).

Clinicians and decision makers must consider the ethics of screening for social needs or identifying social risks if the availability, accessibility, and acceptability of services is in question, or if clinicians or staff do not have the competencies or access to resources to effectively handle challenging issues such as violence (Garg, Boynton-Jarrett, and Dworkin 2016).

4.4.3 ENABLERS AND BARRIERS FOR ADDRESSING SDOH IN SERVICE DELIVERY

Literature review findings suggest that, with respect to service delivery contexts, a higher proportion of enabling factors supported the implementation of SDoH in community settings (n=7) whereas studies occurring in clinics referenced a higher proportion of barriers to integration (n=5) (Figure 4).

Figure 4. Barriers and Enablers to Integrating SDoH in Service Delivery Contexts
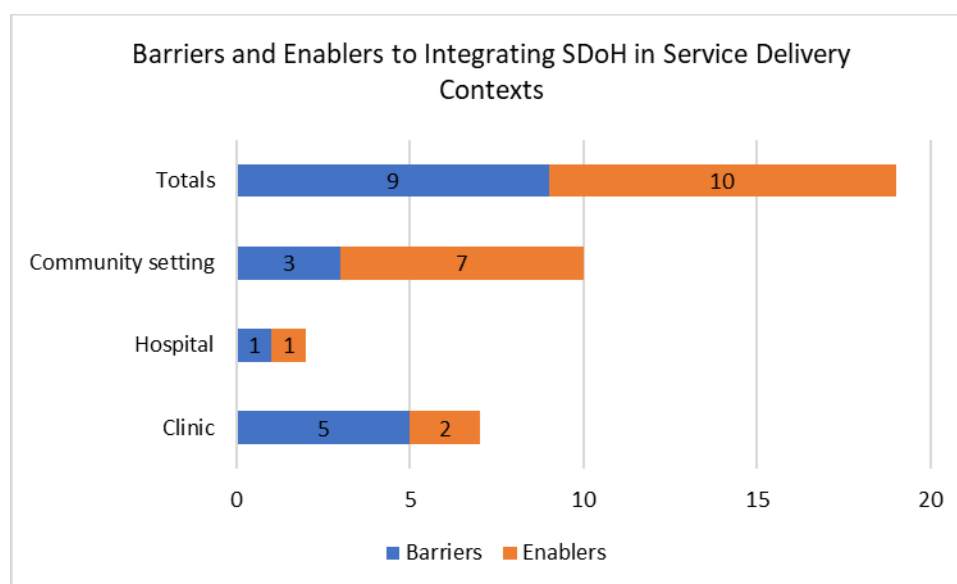
Literature review findings also suggest that working with community-based organizations (CBOs) and CHWs can facilitate effective SDoH-related interventions at the community level. Working with CBOs was mentioned—along with access to social resources and social workers—as a key enabler in incorporating SDoH into clinical practice settings (Girgis et al. 2018). Girgis et al. also mentioned the need to enable social policies and investment in social services and to remunerate health professionals adequately.

Grossman-Kahn et al. explained that, in Brazil, CHWs were important primary care partners in mitigating the impact of SDoH. However, CHWs needed to be well trained and integrated into decision-making and the clinical workflow, and communities needed to be aware of the importance and role of CHWs (Grossman-Kahn et al. 2018; Nelligan et al. 2016).

Raphael and Brassolotto's study examined the factors that influence the actions of Canadian primary health care units (PHU) on SDoH and found that the perspectives of individuals and leaders within primary care units influenced whether they incorporated SDoH into their services. "In essence, when there is a will to address the SDH [SDoH] in a broad manner, PHUs are able to find a way" (Raphael and Brassolotto 2015).

Key barriers to implementing SDoH-related interventions in clinical settings in both HICs and LMIC include a lack of time with each patient, a lack of training on SDoH and effective communication, discomfort with screening, and a lack of social support resources or knowledge of community-based or other social resources (Girgis et al. 2018; Klein et al. 2014; Grossman-Kahn et al. 2018; Holland, Vanderboom, and Harder 2019; Andermann 2016). Girgis et al. compared how physicians in Canada and the Eastern Mediterranean Region addressed SDoH. Some challenges were similar, however, the overall lack of access to care and social services and resources were often considered to be beyond physicians' control and sometimes created a sense of helplessness among physicians in Eastern Mediterranean Region.

4.5   SDOH IN ACCREDITATION AND QUALITY ASSURANCE

Accreditation of health workforce education is a tool to guide education programs and ensure that training institutions produce a health workforce with the competencies to meet the health needs of the

societies they serve (Frank et al. 2020). Accreditation of clinical facilities serves the purpose of ensuring the quality of the services delivered in health facilities (Chan et al. 2019). Health workforce education and health facility accreditation has been implemented to various degrees in LMIC with processes and challenges highlighted in few studies. None referred specifically to SDoH (Mate et al. 2014; Mansour, Boyd, and Walshe 2020). Our literature review process included searching relevant websites of the USAID LHSS project priority countries but did not find documents in the public domain that referred to education or health facility standards explicitly focused on SDoH.

The review found limited information on accreditation and quality assurance standards or monitoring that referred to SDoH competencies in LMIC and only a few general references mentioning the need to understand the effect of SDoH in HICs.

Although the importance of addressing SDoH is acknowledged and referenced in global resolutions (United Nations 2019; WHO and UNICEF 2018; WHO 2016a), there is limited if any explanation of relevant competencies or health workforce interventions in global guidance documents. For example, to optimize the use of scarce resources and maximize impact, in its 2016 Framework on Integrated People-centered Health Services, the WHO World Health Assembly calls for partnerships and intersectoral action to address the SDOH without specifying the role of health professionals. Similarly, global quality guidance documents such as the *Handbook for National Quality Policy and Strategy* recommend intersectoral partnerships and community engagement mechanisms to ensure stakeholder input in strategy development and to ensure accountability, but do not refer specifically to SDoH (WHO 2018a).

Despite this, there is growing momentum to mobilize action on SDoH at all levels, particularly in light of the ongoing COVID-19 pandemic and its amplification of existing health inequities. In January 2021, the Executive Board of the WHO proposed a World Health Assembly resolution on SDoH, calling for governments to, among other things:

- Establish systems to monitor SDoH

- Strengthen efforts to address the social, economic, and environmental determinants of health with the aim of reducing health inequities, and to accelerate progress in addressing the unequal distribution of health resources within and among countries

- Integrate considerations related to SDoH in public policies and programs, by applying a health-in-all-policies approach and in order to improve population health and reduce health inequities. (WHO 2021)

4.5.1 ACCREDITATION AND EDUCATION STANDARDS

While the team found references to the need to incorporate SDoH competencies into accreditation and standards such as those related to communication and public health, the review found no publicly available national or international accreditation standards with an explicit focus on SDoH. However, increasingly competency-based education standards developed by professional organizations refer to SDoH or are in the process to developing standards related to SDoH. The review found that the Eswatini Nursing Council's Competency Framework has two education standards focusing on SDoH, and that the standards are included in newly developed entry-to-practice exams (Msibi, Nkwanyana, and Kuebel 2020).

WHO recognizes the importance of ensuring that the health workforce is educated, trained, and equipped to address SDoH within a framework of social accountability and that processes are in place to ensure the quality of the education, training, and service delivery (WHO 2013). This is also reflected in the *Global Strategy on Human Resources for Health* (WHO 2016b) and the National Health Workforce Accounts (NHWA) that track progress on WHO's human resources for health (HRH) goals (WHO 2019). One NHWA indicator asks countries to report whether they have "national and/or subnational

standards for the social determinants of health in accreditation mechanisms for health professionals." The NHWA also included two indicators on social accountability in health workforce education.

Ensuring the quality of education through accreditation is a challenge in many LMIC, and our review found that many education and training programs are not accredited. For example, McCarthy et. al.'s study of 16 countries in Africa found that while 80 percent of nursing doctorate programs were accredited, only 62 percent of master's programs, 50 percent of degree nursing and 35 percent of diploma nursing programs were accredited. Fifty-six percent of survey respondents suggested that lack of financial resources in their country was a barrier to effective quality assurance through accreditation and 44 percent cited lack of technical expertise and material (McCarthy et al. 2017).

The global literature on accreditation and its impact is limited, particularly in LMIC (Tackett et al. 2019). In medical education, many LMIC use global standards such as those from the World Federation of Medical Education (WFME). The 2015 WFME standards incorporated several elements of social accountability including statements such as "…encompassing the health needs of the community would imply interaction with the local community, especially the health and health related sectors" (WFME 2015). However, the most updated standards for 2020 only provide a general reference to social accountability and incorporating the social and behavioral sciences or social and cultural context into foundational training of health professionals (WFME 2020). The explanation given was that WFME was "moving away from prescriptive, process-based requirements towards a principles-based approach which allows each agency or institution to make its own version of the basic standards that is contextually appropriate." While the language is vague, WFME's 2015 standards on postgraduate medical education do incorporate the term *SDoH*. Most of the relevant articles recommend changes towards greater social accountability and incorporation of SDoH (Ventres, Boelen, and Haq 2018; Boelen et al. 2019; WHO 2019). However, as mentioned, several global professional associations are beginning to incorporate SDoH into their professional standards and some LMIC are developing competency-based standards that include SDoH ("Swaziland Nursing Council" n.d.; Msibi, Nkwanyana, and Kuebel 2020).

4.5.2 SDOH AND IMPROVING QUALITY AND EQUITY OF CARE

The review found that ensuring that health systems deliver equitable and quality care for underserved populations requires cross-sectoral, systems-level efforts and action on SDoH at primary care levels (DeVoe et al. 2016). Addressing the effects of SDoH is also increasingly deemed essential to improving care for individuals with complex health conditions, and therefore SDoH need to be incorporated into quality improvement efforts (Hanefeld, Powell-Jackson, and Balabanova 2017; Katz et al. 2018; Schaink et al. 2012).

Clithero et al. propose a continuous quality improvement approach incorporating SDoH that helps health education institutions produce a health workforce that is trained to optimize equity of health outcomes and health systems performance (Clithero et al. 2017).

Chisolm (2017) suggests that improving quality and equity of care requires incorporating SDoH into quality improvement efforts in pediatric care. The approach she suggests offers a useful frame to conduct quality improvement processes for other populations and in both HIC and LMIC contexts. Elements in Table 7 are adapted from Chisolm's approach (Chisolm 2017).

Table 7. Guide to Improving Quality of Care Focusing on SDOH

Improving quality of care focusing on SDoH
Defining the Problem What are the contextual factors in the life of the patient that might be barriers to goals related to outcomes and quality?
Designating the Drivers Which factors related to SDoH might affect the success of proposed health interventions?
Thinking Outside the Walls Which individuals, organizations, or agencies need to be engaged to understand or address the factors that could limit the success of interventions?
Developing New Measures of Success What would measures of success look like when you look beyond health care to health improvement?

(Crear-Perry et al. 2021; Plamondon et al. 2020)

5. DISCUSSION AND RECOMMENDATIONS

This literature review set out to determine the range of evidence describing education approaches and tools for integrating SDoH in pre- and in-service health workforce education and clinical training and in service delivery, and the impact of these interventions on quality of care and health equity in LMIC. It also examined systemic barriers and promising practices in health workforce education and service delivery related to SDoH and the role of accreditation and quality assurance in ensuring that all patients receive the quality health care and social services they need.

5.1 WHAT DO WE STILL NEED TO KNOW ABOUT SDOH?

The literature review may have revealed more about what we do not know than what we do know. A wide range of global reports and declarations, academic research, and literature have been published that emphasize the importance of SDoH in the health of individuals and populations. The World Health Assembly—the globe's highest health policy-setting body, composed of health ministers from Member States—has delivered several resolutions on SDoH and the 2019 United Nations Declaration on Universal Health Coverage included commitments to act on SDoH. The devastating impact of the COVID-19 pandemic on already-marginalized populations pushed the term SDoH to the forefront of major media and prompted calls from some health experts to acknowledge SDoH as the major contributors to ill health (Maani and Galea 2020).

Notwithstanding the overwhelming evidence supporting the need to mitigate the negative effects of SDoH to improve health outcomes and optimize scarce resources, the term *SDoH* lacks conceptual clarity with implications for integrating SDoH into health workforce education programs, policies, service delivery, and accreditation standards (O'Neill et al. 2014). Articles and global reports revealed that there is not yet consensus on exactly what is considered a SDoH, how to mitigate their negative effect, and the role(s) of different health sector actors to addressing those effects. The reviewed documents revealed that terms associated with SDoH are often "misunderstood, conflated, and confused" (Alderwick and Gottlieb 2019) and therefore interpreted and applied differently. Conflating different terms also hinders effective research, practice, and analysis, and can mislead policy makers, planners, program designers, and health care workers (Gottlieb et al. 2019; Solar and Irwin 2010; Browne et al. 2016). See Table 9 in Annex 1 for frequently conflated and misunderstood terms.

5.1.1 KNOWLEDGE GAPS AROUND SDOH IN HEALTH WORKFORCE EDUCATION AND TRAINING

There are significant gaps in knowledge about the degree to which SDoH are covered in health workforce curricula globally (National Academies of Sciences, Engineering 2016). Gaps may be wider in LMIC; several articles call for improving education and research on SDoH in LMIC specifically (Lewis et al. 2020; Alderwick and Gottlieb 2019; Solar and Irwin 2010; Browne et al. 2016).

There is also a substantive knowledge gap in how SDoH are incorporated into education and training in LMIC. Our review identified only six articles on education interventions from low-income countries and five from middle-income countries. Most described community-based education programs that resulted in improving SDoH-related competencies rather than describing how SDoH were integrated into the education or training. There is limited information on SDoH-related postgraduate training in all cadres, and very little on in-service training for all cadres. There is limited research on health workforce education in LMIC in general, and most publications focus on medicine or nursing. Annex 2 shows the Gap Map frequency of references to the key themes across the incorporated studies. The red squares illustrate potential literature gaps in thematic areas such as limited data on the integration of SDoH in

advanced or postgraduate and in-service programs, on the integration of SDoH in service delivery in general (and not just focused on one health condition), on barriers to integrating SDoH in practice, and on outcomes in general. This does not mean that learners in LMIC are not acquiring SDoH competencies, but documented evidence is certainly lacking. For example, review authors are aware that several education institutions applying strategies associated with social accountability include the development of SDoH-related content and competencies throughout the education and training process. However, articles on such programs did not describe those competencies or the education process. They focused on outcomes (e.g., whether graduates choose to work in underserved areas) rather than on competencies acquired. Consequently, such articles could not be included.

Accreditation and quality assurance mechanisms can play a pivotal role in ensuring that health workforce education and continuing professional development competencies address the health and social needs of populations and communities. The 2010 Lancet Commission on the future of health professions education found many accreditation systems to be weak and called for such systems to ensure that the competencies of graduates were in greater alignment with the needs of the societies they served (Frenk et al. 2010). Largely in response to this call, the WHO's HRH 2030 goals now include indicators on the presence of national and/or subnational standards for social accountability and SDoH in accreditation mechanisms for health professionals (WHO 2016b). The literature review suggests that progress on the ground has been somewhat limited, and that without clearly defined competencies to help health professionals identify and address the needs and risks related to SDoH, vague accreditation standards are not likely to have significant impact. More research is also needed to understand whether and how standards are being enforced in LMIC and whether and how private institutions are being accredited.

5.1.2 KNOWLEDGE GAPS AROUND SDOH IN SERVICE DELIVERY

There are similar gaps in research and knowledge on integrating SDoH interventions into service delivery in LMIC. The reviewers came across a range of articles focusing on health issues such as maternal and child health, HIV/AIDS, and specific non-communicable diseases that either highlighted the importance of SDoH or incorporated some form of SDoH-related interventions. Those articles were not included because addressing SDoH was not the focus of the intervention, because it only addressed one SDoH, or because the article did not provide sufficient detail on SDoH implementation.

It must be highlighted that in many health facilities in LMIC, health care providers often lack the time, resources, competencies, and support to provide essential services. Adding interventions related to SDoH could be seen as adding to the existing burden and moral distress that health workers might feel when not being able to address the needs of patients. However, the literature shows that, even in the most resource-constrained settings, care providers who possess the competencies to work with communities and partners across private, nonprofit, and public sectors are able to co-create solutions to address SDoH-related challenges such as access to clean water, transportation, nutrition, and waste management (Pálsdóttir et al. 2016, Guignona et al. 2021).

Employing or linking to and training CHWs might be one option for effectively addressing the negative effects of SDoH. CHWs featured quite strongly in articles about interventions in underserved communities in LMIC and CHWs are increasingly being used in HICs. The *WHO Guideline on Health Policy and System Support to Optimize Community Health Worker Programmes* refers to CHWs' great potential to address SDoH (WHO 2018b).

The review also exposed the general lack of alignment among pre-service, postgraduate, and advanced degree education; public health and continuous professional development; service delivery; and health system development. Few articles focused on the continuum of education and practice. Articles on education interventions were often written by educators, published in education-oriented journals, and tended not to assess health outcomes at the service delivery level. Articles describing interventions in service delivery were often written by clinicians or public health experts.

While it is important that all members of the health workforce have competencies to mitigate the effects of SDoH, many determinants that need to be addressed are out of the realm of the health sector and call for a cross-sectoral approach. It is essential to address the problem at the systems level to ensure a close collaboration and coordination of policies, services, and communities (Hernández-Rincón et al. 2016). Raphael et al. suggest that addressing system health inequities requires more systemic interventions.

5.2 RECOMMENDATIONS

Significant action on the SDoH will be best accomplished by taking a systems approach to public health issues and seeking structural solutions. We base this claim on the evolving evidence from the political economy of health literature that shows that fundamental shifts in the negative effects of SDoH and health outcomes requires attention to societal structures and processes that shape health (Raphael, Brassolotto, and Baldeo 2015). Based on the evidence from our study, we have identified five key recommendations within the domain of human resources for health to catalyze action on SDoH:

I. **Engage community-based stakeholders across sectors to identify SDoH-related challenges and to develop interventions.**

Addressing the negative consequences of SDoH requires inputs and action from across sectors and stakeholder groups, including health care providers, patients, and communities. Interventions related to SDoH are often aimed at changing the behavior of individuals or population groups and are highly context driven. They require engagement with key stakeholders (including patients and communities) in the identification of social needs and risks, the availability or resources at facility and community levels, and to co-create context-specific interventions.

II. **Global health, and continent-wide health and health workforce education groups and organizations should develop clarity around SDoH terms, roles, competencies and intervention objectives.**

The World Health Organization is well-positioned to lead this effort. If there are no agreed-upon global terms, those designing interventions should work with key stakeholders (including potential beneficiaries of interventions) to clarify what is meant by each term and to delineate realistic goals and objectives for interventions.

Experts including in the field of quality assurance, education and practice should also develop global consensus on core SDoH-related competencies to help guide curriculum development and quality assurance efforts. Some competencies may be context specific and based on the priority social needs, risk factors, culture, and context of the populations that the education institutions' graduates serve. This consensus on competencies should be derived from participatory implementation and evaluation research. It should be supported by policy-level initiatives such as the development of accreditation standards for monitoring the implementation of SDoH competencies in health workforce education and continuing professional development. Global organizations and international agencies such as the WHO should also seek to develop global agreement on core competencies and provide guidance on how to develop context-specific competencies.

III. **Health and health workforce institutions should incorporate SDoH considerations into equity-focused and quality-of-care efforts, processes, and standards.**

Health workforce mitigation of SDoH requires a deliberate focus on the context patients and communities live in, and additional research to identify and design interventions likely to optimize resource use while improving equity and quality of care for vulnerable populations. The country systems

that produce and manage the health workforce should align their incentives and processes to support the health workers in this effort.

IV. **Researchers should conduct additional research in LMIC and elsewhere on what works, how, and in what context to understand the impact of education and training on practice**.

Health workforce education programs should focus on producing a workforce with the competencies required to meet evolving needs of the health systems and populations they serve, including those related to mitigating the effects of SDoH. Context-specific research might reveal a need to, for example, review curricula to ensure alignment with local needs and should include more assessments that focus on the impact of education interventions on practice and the performance of graduates, rather than solely on learning outcomes.

V. **Invest in improving the capacities of practicing health workers and health institutions to address and/or mitigate the effects of SDoH in order to optimize resource allocation in the provision of more equitable and higher quality care.**

Additional investment in health workforce education and SDoH-related research in LMIC is needed to ensure that health workforce education is aligned with the needs of the populations that graduates serve and that, more specifically, SDoH competencies are integrated into educational requirements. This will require country-level stakeholders across sectors—including health care providers and community members—to jointly review curricula. The assessment of competencies and evaluation of education interventions need to measure more than simply basic learning outcomes; they also need to explore the impact of education interventions on practice and the performance of graduates.

5.3   LIMITATIONS

In addition to the well-known paucity of educational outcomes studies that systematically evaluate student learning outcomes and their impact on service delivery, health outcomes, and reduction of health inequities, this review had four main limitations:

- Our researchers intended to focus on LMIC but over half of the included studies reported data from HICs (56 percent) and only 39 percent from LMIC. In mitigation, the research team reviewed all 54 articles for the socioeconomic status of the target community or patient population.

- By including only English publications, we potentially excluded publications from a wider range of non-anglophone LMIC.

- While we used synonymous terms for the "social determinants of health," the concept is variously described and we may have missed potentially relevant studies that used different terms.

- The plethora of terms and meanings associated with SDoH introduced a level of complexity to the coding and thematic analysis processes, thus we might have overlooked potentially relevant data. The research team iteratively reviewed all 54 studies and coded data to reduce this bias.

ANNEX 1: ADDITIONAL FIGURES AND TABLES

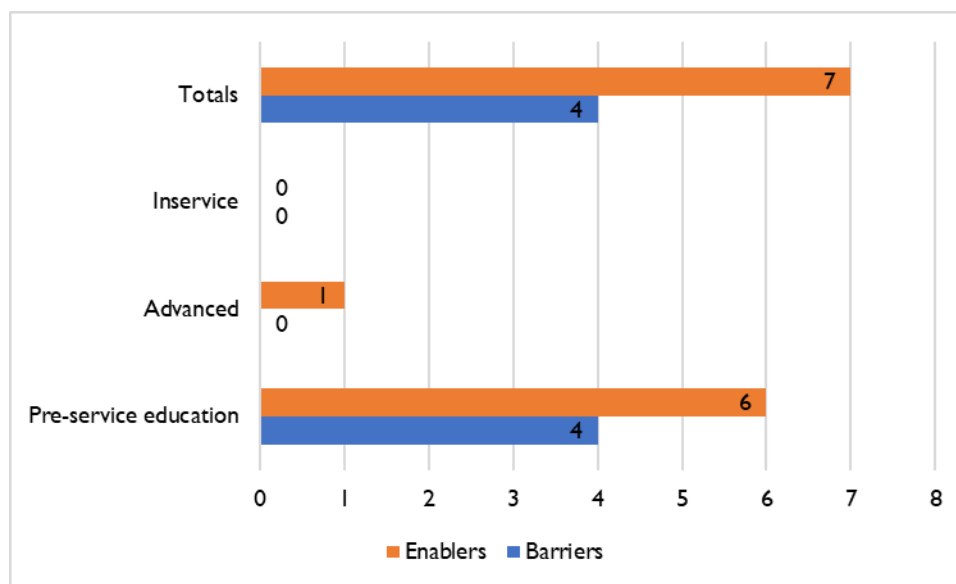**Figure 5. Barriers and Enablers to Integrating SDoH in Health Workforce Education Programs**

Table 8: Study Methods, by Setting

Type of study method	Lower-middle-income	High-income	Context not specified	Total
Control trials	1 (5%)	3 (10%)		4 (7%)
Case study	2	2		4 (7%)
Literature review	1	4	2	7 (13%
Qualitative	6 (29%)	2 (7%)		8 (15%)
Quantitative	1	3		4 (7%)
Mixed methods	3	7		10 (18%)
Program development & evaluation	6 (29%)	8 (27%)		14 (26%)
Scoping review	1	1	1	3 (6%)
Total	**21 (100%)**	**30 (100%)**	**3**	**54 (100%)**

Table 9: Frequently Misunderstood and Conflated Terms

Terms	Difference	Implication for Policy and Practice
Social determinants of health vs. Population health	SDoH are the living, working, and social conditions influenced by underlying structural factors; the interaction between these factors shapes health and health inequity. Population health is the "health outcomes, patterns of health determinants, and policies and interventions that link these two" (Browne et al. 2016). SDoH are a series of factors affecting population health.	SDoH and other non-medical factors play an enormous role in determining population health; differentiating between *SDoH* and *population health* will help address SDoH (informed by structural factors) which can in turn improve population health. Conflating the two terms will miss this critical link.
Social determinants of health vs. Social risk factors	Social determinants of health are the living, working, and social conditions which may negatively or positively affect health. Social risk factors are specific detrimental social conditions which may negatively affect health.	Differentiating between *SDoH* and *social risk factors* will enable enhancements of protective factors in the social environment, and the development of targeted interventions to address individual-level social risk factors.
Social risk factors vs. Behavior risk factors	Social risk factors are specific detrimental social conditions which may negatively affect health. Behavior risk factors are individual behaviors which put the individual at risk of poor health. The different terms are intertwined: social factors often shape behavior, and individual behaviors may impact social conditions.	Conflation of the two terms can lead to approaches that do not consider the multitude of forces that shape the circumstances influencing behavior and that overemphasize individual behaviors.
Social risk factors vs. Social needs	Social risk factors are specific detrimental social conditions which may negatively affect health. Social needs are a measurement of what the individual patient feels to be important in their life. For example, a patient's social risk factors may reveal food insecurity, but the patient's most important social need may be to escape an abusive partner.	Differentiating between *social risk* and *social needs*, especially during screening, will give the patient a say in the treatment plan. "Failing to understand the patient's perspective … could lead to the wrong immediate treatment." Combining an understanding of social needs with clinical expertise allows for high-quality treatment decisions.
Social needs– informed care vs. Social needs– targeted care	Social needs–informed care involves provision of medical care that is informed by the patients' social circumstances. Social needs–targeted care involves directly addressing the patients' social needs, such as assistance in accessing housing support.	Differentiation between these terms is critical to ensure that they are both carried out. Social needs–informed care alone is insufficient; it needs to be combined with social needs–targeted care to mitigate underlying social risks. Neither is sufficient to improve overall population health; this requires cross-sectoral collaboration (e.g., among government, social agencies, and schools) and nation-wide policies and interventions.

GAP MAP

FREQUENCY OF STATEMENTS FOR KEY THEMES ACROSS INCORPORATED STUDIES BY HEALTH WORKFORCE TYPE

Key: **0** (red)

Health workforce	Location		HWFE programs			HWFE methods				HWFE Institution strategies & policies			SDoH					Outcomes				Service delivery		
	Urban	Rural	Pre-service	Advanced	Inservice	Lecture based	Student centred learning methods	Service learning in communities	Interprofessional education	Community engagement	Inclusive student admission criteria	Training in underserved areas	General understanding of SDoH	Intervention on more than one health condition or competency	Application of screening tools for SDoH	Enablers	Barriers	Improved practice in diverse settings	Improved quality of care	Improved access to health care	Patient service satisfaction & health outcomes	Clinic	Community health centre	Hospital
Nursing	9	13	10	0	0	1	3	10	6	9	3	7	8	1	2	5	4	3	3	1	0	3	4	2
Midwifery	1	2	1	0	0	0	1	1	1	1	1	1	1	0	0	1	0	0	0	0	0	0	0	0
Medicine	20	20	19	5	0	4	14	20	7	14	5	8	16	3	8	6	7	12	3	1	0	6	10	3
Pharmacy	1	3	2	0	0	0	1	2	2	2	1	2	1	0	0	1	0	0	0	0	0	0	0	0
AMTC	3	4	2	0	0	0	1	2	2	2	1	2	2	0	0	1	0	0	0	0	0	0	1	0
Dentistry	2	2	1	0	1	0	1	1	1	1	1	1	1	0	0	3	0	0	0	0	0	0	1	0
Social workers	3	3	2	0	0	0	1	2	2	3	1	2	3	1	1	3	1	0	0	0	0	0	1	0
CHW	5	3	4	0	0	0	2	4	2	5	1	3	7	2	2	3	2	2	3	2	3	4	7	0
Health workers	5	6	2	0	0	0	1	1	1	3	1	1	5	1	2	3	2	1	2	1	0	2	1	0
Public health	4	4	2	0	0	0	1	1	1	1	1	1	3	2	0	2	1	0	0	0	0	0	1	0

AMTC = Acelerated Medically Trained Clinicians   CHW = Community Health Worker

REFERENCES

Alderwick, Hugh, and Laura M. Gottlieb. 2019. "Meanings and Misunderstandings: A Social Determinants of Health Lexicon for Health Care Systems." *The Milbank Quarterly* 97 (2): 407–19. https://doi.org/10.1111/1468-0009.12390.

Allen, M, J Allen, S Hogarth, and M Marmot. 2011. *Working for Health Equity: The Role of Health Professionals*. UCL Institute of Health Equity.

Andermann, Anne. 2016. "Taking Action on the Social Determinants of Health in Clinical Practice: A Framework for Health Professionals." *CMAJ* 188 (17–18): E474–83. https://doi.org/10.1503/cmaj.160177.

———. 2018. "Screening for Social Determinants of Health in Clinical Care: Moving From the Margins to the Mainstream." *Public Health Reviews*. BioMed Central Ltd. https://doi.org/10.1186/s40985-018-0094-7.

Arksey, Hilary, and Lisa O'Malley. 2005. "Scoping Studies: Towards a Methodological Framework." *International Journal of Social Research Methodology: Theory and Practice* 8 (1): 19–32. https://doi.org/10.1080/1364557032000119616.

Bachrach, Christine A. 2014. "Culture and Demography: From Reluctant Bedfellows to Committed Partners." *Demography* 51 (1): 3–25. https://doi.org/10.1007/s13524-013-0257-6.

Bagdan, Lisa J. 2018. "Incorporating Social Determinants of Health in Associate Degree Nursing Education." Buffalo, New York. https://search.proquest.com/openview/bbc5435a4f29b8ca2c66db9d1ab8d61f/1?pq-origsite=gscholar&cbl=18750&diss=y.

Boelen, Charles, Danielle Blouin, Trevor Gibbs, and Robert Woollard. 2019. "Accrediting Excellence for a Medical School's Impact on Population Health." *Education for Health: Change in Learning and Practice* 32 (1): 41–48. https://doi.org/10.4103/efh.EfH_204_19.

Bradley, Katherine J., Peggy Wros, Nicholas Bookman, Launa Rae Mathews, Heather Voss, Tanya L. Ostrogorsky, and Kate LaForge. 2018. "The Interprofessional Care Access Network (I-Can): Achieving Client Health Outcomes by Addressing Social Determinants in the Community." *Journal of Interprofessional Care*. https://doi.org/10.1080/13561820.2018.1560246.

Browne, Annette J., Colleen Varcoe, Josée Lavoie, Victoria Smye, Sabrina T. Wong, Murry Krause, David Tu, Olive Godwin, Koushambhi Khan, and Alycia Fridkin. 2016. "Enhancing Health Care Equity with Indigenous Populations: Evidence-Based Strategies from an Ethnographic Study." *BMC Health Services Research* 16 (1): 1–17. https://doi.org/10.1186/s12913-016-1707-9.

Chan, Benjamin T.B., Jeremy H.M. Veillard, Krycia Cowling, Niek S. Klazinga, Adalsteinn D. Brown, and Sheila Leatherman. 2019. "Stewardship of Quality of Care in Health Systems: Core Functions, Common Pitfalls, and Potential Solutions." *Public Administration and Development* 39 (1): 34–46. https://doi.org/10.1002/pad.1835.

Chisolm, Deena J. 2017. "Quality in Context: The Role of Social Determinants of Health in Pediatric Quality Improvement." *Pediatric Quality & Safety* 2 (5): e036. https://doi.org/10.1097/pq9.0000000000000036.

Clithero, Amy, Simone Jacquelyn Ross, Lyn Middleton, Carole Reeve, and Andre Jacques Neusy. 2017. "Improving Community Health Using an Outcome-Oriented CQI Approach to Community-Engaged Health Professions Education." *Frontiers in Public Health* 5 (FEB): 26. https://doi.org/10.3389/FPUBH.2017.00026.

Coughlin, Steven S., Paul Mann, Marlo Vernon, Lufei Young, Deepak Ayyala, Richard Sams, and Christos Hatzigeorgiou. 2019. "A Logic Framework for Evaluating Social Determinants of Health Interventions in Primary Care." *Journal of Hospital Management and Health Policy* 3 (September): 23–23. https://doi.org/10.21037/jhmhp.2019.09.03.

Crear-Perry, Joia, Rosaly Correa-De-Araujo, Tamara Lewis Johnson, Monica R Mclemore, Elizabeth Neilson, and Maeve Wallace. 2021. "Social and Structural Determinants of Health Inequities in Maternal Health." *Journal of Womens Health (Larchmt)* 30 (2). https://doi.org/10.1089/jwh.2020.8882.

CSDH. 2008. *Closing the Gap in a Generation: Health Equity through Action on the Social Determinants of Health. Final Report of the Commission on Social Determinants of Health*. Geneva: World Health Organization. https://www.who.int/publications/i/item/9789241563703.

Damari, Behzad, and Elham Ehsani Chimeh. 2017. "Public Health Activist Skills Pyramid: A Model for Implementing Health in All Policies." *Social Work in Public Health* 32 (7): 407–20. https://doi.org/10.1080/19371918.2017.1344600.

Davidson, Karina W., Alex R. Kemper, Chyke A. Doubeni, Chien Wen Tseng, Melissa A. Simon, Martha Kubik, Susan J. Curry, et al. 2020. "Developing Primary Care-Based Recommendations for Social Determinants of Health: Methods of the U.S. Preventive Services Task Force." *Annals of Internal Medicine* 173 (6): 461–67. https://doi.org/10.7326/M20-0730.

Davó-Blanes, M Carmen, Carmen Vives-Cases, José Luis Barrio-Fernández, Miquel Porta, Fernando G. Benavides, Ángel Gil de Miguel, Carlos Aibar Remón, et al. 2016. "Public Health Competencies and Contents in Spanish Undergraduate Medical Degrees." *Gaceta Sanitaria* 30 (2): 97–103. https://doi.org/10.1016/j.gaceta.2015.11.006.

DeVoe, Jennifer E., Andrew W. Bazemore, Erika K. Cottrell, Sonja Likumahuwa-Ackman, Jené Grandmont, Natalie Spach, and Rachel Gold. 2016. "Perspectives in Primary Care: A Conceptual Framework and Path for Integrating Social Determinants of Health into Primary Care Practice." *Chinese General Practice*. Chinese General Practice. https://doi.org/10.1370/afm.1903.

Donkin, Angela, Peter Goldblatt, Jessica Allen, Vivienne Nathanson, and Michael Marmot. 2018. "Global Action on the Social Determinants of Health." *BMJ Global Health* 3 (Suppl 1): e000603. https://doi.org/10.1136/bmjgh-2017-000603.

Drobac, Peter, and Michelle Morse. 2016. "Medical Education and Global Health Equity." *AMA Journal of Ethics* 18 (7): 702–9. https://doi.org/10.1001/journalofethics.2016.18.7.medu1-1607.

Edelman, Alexandra, Judy Taylor, Pavel v. Ovseiko, and Stephanie M. Topp. 2018. "The Role of Academic Health Centres in Improving Health Equity: A Systematic Review." *Journal of Health Organization and Management*. Emerald Group Publishing Ltd. https://doi.org/10.1108/JHOM-09-2017-0255.

FIP. 2020. *The FIP Development Goals: Transforming Global Pharmacy*. The Hague: International Pharmaceutical Federation.

Fitzgerald, Chloë, and Samia Hurst. 2017. "Implicit Bias in Healthcare Professionals: A Systematic Review." *BMC Medical Ethics* 18 (1): 19. https://doi.org/10.1186/s12910-017-0179-8.

Frank, John, Thomas Abel, Stefano Campostrini, Sarah Cook, Vivian K. Lin, and David v. McQueen. 2020. "The Social Determinants of Health: Time to Re-Think?" *International Journal of Environmental Research and Public Health*. MDPI AG. https://doi.org/10.3390/ijerph17165856.

Frenk, Julio, Lincoln Chen, Zulfiqar A. Bhutta, Jordan Cohen, Nigel Crisp, Timothy Evans, Harvey Fineberg, et al. 2010. "Health Professionals for a New Century: Transforming Education to Strengthen Health Systems in an Interdependent World." *The Lancet*, December, 1923–58. https://doi.org/10.1016/S0140-6736(10)61854-5.

Garg, Arvin, Renée Boynton-Jarrett, and Paul H. Dworkin. 2016. "Avoiding the Unintended Consequences of Screening For Social Determinants of Health." *JAMA - Journal of the American Medical Association*. American Medical Association. https://doi.org/10.1001/jama.2016.9282.

Garg, Arvin, Sarah Toy, Yorghos Tripodis, Michael Silverstein, and Elmer Freeman. 2015. "Addressing Social Determinants of Health at Well Child Care Visits: A Cluster RCT." *Pediatrics* 135 (2): e296–304. https://doi.org/10.1542/peds.2014-2888.

Girgis, Labib, Gerald van Gurp, David Zakus, and Anne Andermann. 2018. "Physician Experiences and Barriers to Addressing the Social Determinants of Health in the Eastern Mediterranean Region: A Qualitative Research Study." *BMC Health Services Research* 18 (1): 1–7. https://doi.org/10.1186/s12913-018-3408-z.

Goroncy, Anna, Katherine Makaroff, Marcus Trybula, Saundra Regan, Harini Pallerla, Keesha Goodnow, and Jeffrey Schlaudecker. 2020. "Home Visits Improve Attitudes and Self-Efficacy: A Longitudinal Curriculum for Residents." *Journal of the American Geriatrics Society* 68 (4): 852–58. https://doi.org/10.1111/jgs.16390.

Gottlieb, Laura, Caroline Fichtenberg, Hugh Alderwick, and Nancy Adler. 2019. "Social Determinants of Health: What's a Healthcare System to Do?" *Journal of Healthcare Management* 64 (4): 243–57. https://doi.org/10.1097/JHM-D-18-00160.

Grossman-Kahn, Rebecca, Julia Schoen, John William Mallett, Alexandra Brentani, Elizabeth Kaselitz, and Michele Heisler. 2018. "Challenges Facing Community Health Workers in Brazil's Family Health Strategy: A Qualitative Study." *International Journal of Health Planning and Management* 33 (2): 309–20. https://doi.org/10.1002/hpm.2456.

Halili, Servando 'Ben,' Fortunato Cristobal, Torres Woolley, Simone J. Ross, Carole Reeve, and A. J. Neusy. 2017. "Addressing Health Workforce Inequities in the Mindanao Regions of the Philippines: Tracer Study

of Graduates from a Socially-Accountable, Community-Engaged Medical School and Graduates from a Conventional Medical School." *Medical Teacher* 39 (8): 859–65. https://doi.org/10.1080/0142159X.2017.1331035.

Hanefeld, Johanna, Timothy Powell-Jackson, and Dina Balabanova. 2017. "Understanding and Measuring Quality of Care: Dealing with Complexity." *Bulletin of the World Health Organization*, 368–74.

Henschke, Nicholas, Anna Mirny, Joke A. Haafkens, Heribert Ramroth, Siwi Padmawati, Martin Bangha, Lisa Berkman, et al. 2017. "Strengthening Capacity to Research the Social Determinants of Health in Low-And Middle-Income Countries: Lessons from the INTREC Programme." *BMC Public Health* 17 (1). https://doi.org/10.1186/s12889-017-4399-0.

Hernández-Rincón, Erwin H., Juan P. Pimentel-González, Domingo Orozco-Beltrán, and Concepción Carratalá-Munuera. 2016. "Inclusion of the Equity Focus and Social Determinants of Health in Health Care Education Programmes in Colombia: A Qualitative Approach." *Family Practice* 33 (3): 268–73. https://doi.org/10.1093/fampra/cmw010.

Holland, Diane E., Catherine E. Vanderboom, and Tanya M. Harder. 2019. "Fostering Cross-Sector Partnerships: Lessons Learned From a Community Care Team." *Professional Case Management* 24 (2): 66–75. https://doi.org/10.1097/NCM.0000000000000310.

Holmes, Seth M., Helena Hansen, Angela Jenks, Scott D. Stonington, Michelle Morse, Jeremy A. Greene, Keith A. Wailoo, Michael G. Marmot, and Paul E. Farmer. 2020. "Misdiagnosis, Mistreatment, And Harm — When Medical Care Ignores Social Forces." *New England Journal of Medicine* 382 (12): 1083–86. https://doi.org/10.1056/nejmp1916269.

Hunter, Kimberly Anne, and Ben Thomson. 2019. "A Scoping Review of Social Determinants of Health Curricula in Post-Graduate Medical Education." *Canadian Medical Education Journal* 10 (3): e61-71. https://doi.org/10.36834/cmej.61709.

Institute of Medicine. 2014. *Building Health Workforce Capacity Through Community-Based Health Professional Education: Workshop Summary. Workshop Summary*. Washington, DC: National Academies Press. https://doi.org/10.17226/18973.

Katz, Alan, Dan Chateau, Jennifer E. Enns, Jeff Valdivia, Carole Taylor, Randy Walld, and Scott McCulloch. 2018. "Association of the Social Determinants of Health with Quality of Primary Care." *Annals of Family Medicine* 16 (3): 217–24. https://doi.org/10.1370/afm.2236.

Kaye, Dan, Andrew Mwanika, Gilbert Burnham, Larry W. Chang, Scovia N. Mbalinda, Isaac Okullo, Rose C. Nabirye, et al. 2011. "The Organization and Implementation of Community-Based Education Programs for Health Worker Training Institutions in Uganda." *BMC International Health and Human Rights* 11 (SUPPL. 1). https://doi.org/10.1186/1472-698X-11-S1-S4.

Klein, Melissa D., Alicia M. Alcamo, Andrew F. Beck, Jennifer K. O'Toole, Daniel McLinden, Adrienne Henize, and Robert S. Kahn. 2014. "Can a Video Curriculum on the Social Determinants of Health Affect Residents' Practice and Families' Perceptions of Care?" *Academic Pediatrics* 14 (2): 159–66. https://doi.org/10.1016/j.acap.2013.11.002.

Knaul, Felicia Marie, Eduardo González-Pier, Octavio Gómez-Dantés, David García-Junco, Héctor Arreola-Ornelas, Mariana Barraza-Lloréns, Rosa Sandoval, et al. 2012. "The Quest for Universal Health Coverage: Achieving Social Protection for All in Mexico." *The Lancet* 380 (9849): 1259–79. https://doi.org/10.1016/S0140-6736(12)61068-X.

Leon, Beatus K., and Julie Riise Kolstad. 2010. "Wrong Schools or Wrong Students? The Potential Role of Medical Education in Regional Imbalances of the Health Workforce in the United Republic of Tanzania." *Human Resources for Health* 8 (February). https://doi.org/10.1186/1478-4491-8-3.

Lewis, Joy H., Onelia G. Lage, B. Kay Grant, Senthil K. Rajasekaran, Mekbib Gemeda, Robert C. Like, Sally Santen, and Michael Dekhtyar. 2020. "Addressing the Social Determinants of Health in Undergraduate Medical Education Curricula: A Survey Report." *Advances in Medical Education and Practice* 11: 369–77. https://doi.org/10.2147/AMEP.S243827.

Lucyk, Kelsey, and Lindsay McLaren. 2017. "Taking Stock of the Social Determinants of Health: A Scoping Review." *PLoS ONE* 12 (5). https://doi.org/10.1371/journal.pone.0177306.

Maani, Nason, and Sandro Galea. 2020. "COVID-19 and Underinvestment in the Health of the US Population." *Milbank Quarterly* 98 (2): 239–49. https://www.milbank.org/quarterly/articles/covid-19-and-underinvestment-in-the-health-of-the-us-population/.

Mansour, Wesam, Alan Boyd, and Kieran Walshe. 2020. "The Development of Hospital Accreditation in Low- and Middle-Income Countries: A Literature Review." *Health Policy and Planning* 35 (6): 684–700. https://doi.org/10.1093/heapol/czaa011.

Marcelin, Jasmine R, Dawd S Siraj, Robert Victor, Shaila Kotadia, and Yvonne A Maldonado. 2019. "The Impact of Unconscious Bias in Healthcare: How to Recognize and Mitigate It." *The Journal of Infectious Diseases* 220 (Supplement_2): S62–73. https://doi.org/10.1093/infdis/jiz214.

Mate, Kedar S., Anne L. Rooney, Anuwat Supachutikul, and Girdhar Gyani. 2014. "Accreditation as a Path to Achieving Universal Quality Health Coverage." *Globalization and Health* 10 (1): 68. https://doi.org/10.1186/s12992-014-0068-6.

McCarthy, Carey F., Jessica M. Gross, Andre R. Verani, Annette M. Nkowane, Erica L. Wheeler, Thokozire J. Lipato, and Maureen A. Kelley. 2017. "Cross-Sectional Description of Nursing and Midwifery Pre-Service Education Accreditation in East, Central, and Southern Africa in 2013." *Human Resources for Health* 15 (1): 48. https://doi.org/10.1186/s12960-017-0224-1.

Mendes, Isabel Amélia Costa, Carla Aparecida Arena Ventura, Laís Fumincelli, Valtuir Duarte de Souza-Junior, and Simone de Godoy. 2018. "Nursing and Global Health: Social Determinants of Health in the Training of Nurses." *Revista Brasileira de Enfermagem* 71 (4): 1700–1705. https://doi.org/10.1590/0034-7167-2017-0631.

Monekosso. 2016. "Have Non-Physician Clinicians Come to Stay?; Comment on 'Non-Physician Clinicians in Sub-Saharan Africa and the Evolving Role of Physicians.'" *International Journal of Health Policy Management* 5 (11): 671–72. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2868943.

Mpofu, Ratie, Priscilla S Daniels, Tracey-Ann Adonis, and Wallace Karuguti. 2014. "Impact of an Interprofessional Education Program on Developing Skilled Graduates Well-Equipped to Practise in Rural and Underserved Areas." *Rural Remote Health* 14 (3): 2671-undefined. https://doi.org/10.22605/RRH2671.

Msibi, Glory, Nkosinathi Nkwanyana, and Helen Kuebel. 2020. "Eswatini Nursing Council Regulatory Reforms: Process towards Entry to Practice Examination." *Annals of Global Health* 86 (1). https://doi.org/10.5334/aogh.2800.

Mwakigonja, Amos Rodger. 2016. "The Doctor of Medicine Curriculum Review at the School of Medicine, Muhimbili University of Health and Allied Sciences, Dar Es Salaam, Tanzania: A Tracer Study Report from 2009." *BMC Medical Education* 16 (1): 223. https://doi.org/10.1186/s12909-016-0745-7.

Nambiar, Devaki, Arundati Muralidharan, Samir Garg, Nayreen Daruwalla, and Prathibha Ganesan. 2015. "Analysing Implementer Narratives on Addressing Health Inequity through Convergent Action on the Social Determinants of Health in India." *International Journal for Equity in Health* 14 (1). https://doi.org/10.1186/s12939-015-0267-7.

National Academies of Sciences, Engineering, and Medicine. 2016. *A Framework for Educating Health Professionals to Address the Social Determinants of Health.* Washington, DC: National Academies Press. https://doi.org/10.17226/21923.

Nelligan, Ian J., Jacob Shabani, Stephanie Taché, Gulnaz Mohamoud, and Megan Mahoney. 2016. "An Assessment of Implementation of Communityoriented Primary Care in Kenyan Family Medicine Postgraduate Medical Education Programmes." *African Journal of Primary Health Care & Family Medicine* 8 (1). https://doi.org/10.4102/phcfm.v8i1.1064.

Obol, James Henry, Peter Akera, Pamela Atim Ochola, Wilfred Arubaku, Hussein Oria, Kenneth Luryama Moi, Denis Anywar Arony, and Kaducu Felix. 2018. "Community-Based Training Of Medical Students Is Associated With Malaria Prevention and Treatment Seeking Behaviour for Children under 5 Years in Uganda: A Study of Mesau-Mepi Cobers in Uganda." *BMC Medical Education* 18 (1). https://doi.org/10.1186/s12909-018-1250-y.

O'Neill, Jennifer, Hilary Tabish, Vivian Welch, Mark Petticrew, Kevin Pottie, Mike Clarke, Tim Evans, et al. 2014. "Applying an Equity Lens to Interventions: Using PROGRESS Ensures Consideration of Socially Stratifying Factors to Illuminate Inequities in Health." *Journal of Clinical Epidemiology* 67 (1): 56–64. https://doi.org/10.1016/j.jclinepi.2013.08.005.

Page-Reeves, Janet, Will Kaufman, Molly Bleecker, Jeffrey Norris, Kate McCalmont, Veneta Ianakieva, Dessislava Ianakieva, and Arthur Kaufman. 2016. "Addressing Social Determinants of Health in a Clinic Setting: The WellRx Pilot in Albuquerque, New Mexico." *Journal of the American Board of Family Medicine* 29 (3): 414–18. https://doi.org/10.3122/jabfm.2016.03.150272.

Pálsdóttir, Björg, Jean Barry, Andreia Bruno, Hugh Barr, Amy Clithero, Nadia Cobb, Jan de Maeseneer, et al. 2016. "Training For Impact: The Socio-Economic Impact of a Fit for Purpose Health Workforce on Communities." *Human Resources for Health* 14 (1). https://doi.org/10.1186/s12960-016-0143-6.

Pereda, Brenda, and Margaret Montoya. 2018. "Addressing Implicit Bias to Improve Cross-Cultural Care." *Clinical Obstetrics and Gynecology* 61 (1): 2–9. https://doi.org/10.1097/GRF.0000000000000341.

PHF. 2019. *Competencies for Population Health Professionals: March 20, 2019*. The Public Health Foundation.

Plamondon, Katrina M., Joan L. Bottorff, C. Susana Caxaj, and Ian D. Graham. 2020. "The Integration of Evidence from the Commission on Social Determinants of Health in the Field of Health Equity: A Scoping Review." *Critical Public Health* 30 (4): 415–28. https://doi.org/10.1080/09581596.2018.1551613.

Raphael, Dennis, and Julia Brassolotto. 2015. "Understanding Action on the Social Determinants of Health: A Critical Realist Analysis of in-Depth Interviews with Staff of Nine Ontario Public Health Units." *BMC Research Notes* 8 (1). https://doi.org/10.1186/s13104-015-1064-5.

Raphael, Dennis, Julia Brassolotto, and Navindra Baldeo. 2015. "Ideological and Organizational Components of Differing Public Health Strategies for Addressing the Social Determinants of Health." *Health Promotion International* 30 (4): 855–67. https://doi.org/10.1093/heapro/dau022.

Schaink, Alexis K., Kerry Kuluski, Renée F. Lyons, Martin Fortin, Alejandro R. Jadad, Ross Upshur, and Walter P. Wodchis. 2012. "A Scoping Review and Thematic Classification of Patient Complexity: Offering a Unifying Framework." *Journal of Comorbidity* 2 (1): 1–9. https://doi.org/10.15256/joc.2012.2.15.

Shakibazadeh, E, M Namadian, MA Bohren, JP Vogel, A Rashidian, V Nogueira Pileggi, S Madeira, et al. 2018. "Respectful Care during Childbirth in Health Facilities Globally: A Qualitative Evidence Synthesis." *BJOG: An International Journal of Obstetrics & Gynaecology* 125 (8): 932–42. https://doi.org/10.1111/1471-0528.15015.

Sharma, Malika, Andrew D. Pinto, and Arno K. Kumagai. 2018. "Teaching the Social Determinants of Health: A Path to Equity or a Road to Nowhere?" *Academic Medicine* 93 (1): 25–30. https://doi.org/10.1097/ACM.0000000000001689.

Shimoda, Kana, Shigeko Horiuchi, Sebalda Leshabari, and Yoko Shimpuku. 2018. "Midwives' Respect and Disrespect of Women during Facility-Based Childbirth in Urban Tanzania: A Qualitative Study." *Academic Medicin* 93 (1): 25–30.

Siega-Sur, J. L., T. Woolley, S. J. Ross, C. Reeve, and A. J. Neusy. 2017. "The Impact of Socially-Accountable, Community-Engaged Medical Education on Graduates in the Central Philippines: Implications for the Global Rural Medical Workforce." *Medical Teacher* 39 (10): 1084–91. https://doi.org/10.1080/0142159X.2017.1354126.

Siegel, Jennifer, David L. Coleman, and Thea James. 2018. "Integrating Social Determinants of Health into Graduate Medical Education: A Call for Action." *Academic Medicine* 93 (2): 159–62. https://doi.org/10.1097/ACM.0000000000002054.

Smedley, Brian D., Adrienne Y. Stith, and Alan R. Nelson. 2003. *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care*. Edited by Brian D. Smedley, Adrienne Y. Stith, and Alan R. Nelson. *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care (with CD)*. National Academies Press. https://doi.org/10.17226/12875.

Solar, Orielle, and Alec Irwin. 2010. *A Conceptual Framework for Action on the Social Determinants of Health. Social Determinants of Health Discussion Paper 2 (Policy and Practice).* Geneva: World Health Organization. http://www.who.int/sdhconference/resources/ConceptualframeworkforactiononSDH_eng.pdf.

Strand, Mark A., and Donald R. Miller. 2014. "Pharmacy and Public Health: A Pathway Forward." *Journal of the American Pharmacists Association* 54 (2): 193–97. https://doi.org/10.1331/JAPhA.2014.13145.

"Swaziland Nursing Council." n.d. Swaziland Ministry of Health. Accessed April 8, 2021. http://www.gov.sz/index.php/departments-sp-654042511/73-health/health/748-swaziland-nursing-council.

Tackett, Sean, Christiana Zhang, Najlla Nassery, Christine Caufield-Noll, and Marta van Zanten. 2019. "Describing the Evidence Base for Accreditation in Undergraduate Medical Education Internationally." *Academic Medicine* 94 (12): 1995–2008. https://doi.org/10.1097/ACM.0000000000002857.

Thornton, Marleen, and Sabita Persaud. 2018. "Preparing Today's Nurses: Social Determinants of Health and Nursing Education." *Online Journal of Issues in Nursing* 23 (3, Manuscript 5). https://ojin.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableofContents/Vol-23-2018/No3-Sept-2018/Social-Determinants-of-Health-Nursing-Education.html.

Tilburt, Jon C. 2010. "The Role of Worldviews in Health Disparities Education." *Journal of General Internal Medicine* 25 Suppl 2 (Suppl 2): 178. https://doi.org/10.1007/s11606-009-1229-9.

Torres-Alzate, Herica. 2019. "Nursing Global Health Competencies Framework." *Nursing Education Perspectives* 40 (5): 295–99. https://doi.org/10.1097/01.NEP.0000000000000558.

United Nations. 2019. *Political Declaration of the High-Level Meeting on Universal Health Coverage "Universal Health Coverage: Moving Together to Build a Healthier World."* United Nations.

USAID. 2021. *USAID Vision for Health System Strengthening 2030 | U.S. Agency for International Development.* Washington, DC: USAID. https://www.usaid.gov/global-health/health-systems-innovation/health-systems/Vision-HSS-2030-download.

Ventres, William, Charles Boelen, and Cynthia Haq. 2018. "Time for Action: Key Considerations for Implementing Social Accountability in the Education of Health Professionals." *Advances in Health Sciences Education* 23 (4): 853–62. https://doi.org/10.1007/s10459-017-9792-z.

Westergaard, David, Pope Moseley, Freja Karuna Hemmingsen Sørup, Pierre Baldi, and Søren Brunak. 2019. "Population-Wide Analysis of Differences in Disease Progression Patterns in Men and Women." *Nature Communications* 10 (1): 666. https://doi.org/10.1038/s41467-019-08475-9.

WFME. 2015. "Basic Medical Education WFME Global Standards for Quality Improvement Explanatory Note to Guide the Use of the Standards." www.wfme.orgadmin@wfme.org.

———. 2020. *Basic Medical Education WFME Global Standards for Quality Improvement Explanatory Note to Guide the Use of the Standards: The 2020 Revision.*

WHO. 2010. *Framework for Action on Interprofessional Education and Collaborative Practice.* Geneva: World Health Organization.

———. 2013. *Transforming and Scaling up Health Professionals' Education and Training: World Health Organization Guidelines 2013*. Geneva: World Health Organization.

———. 2014. "Health in All Policies (HiAP) Framework for Country Action." *Health Promotion International*. Vol. 29. Geneva. https://doi.org/10.1093/heapro/dau035.

———. 2016a. *Global Monitoring Of Action on the Social Determinants of Health : A Proposed Framework and Basket of Core Indicators. Consultation Paper*. Geneva: World Health Organization.

———. 2016b. *Global Strategy on Human Resources for Health: Workforce 2030. WHO*. World Health Organization. http://www.who.int/hrh/resources/pub_globstrathrh-2030/en/.

———. 2018a. *Handbook for National Quality Policy and Strategy. WHO*. Geneva: World Health Organization. http://www.who.int/servicedeliverysafety/areas/qhc/nqps_handbook/en/.

———. 2018b. *WHO Guideline on Health Policy and System Support to Optimize Community Health Worker Programmes*. Geneva: World Health Organization.

———. 2019. *Evidence and Resources to Act on Health Inequities, Social Determinants and Meet the Sdgs*. Denmark: WHO Regional Office for Europe.

———. 2021. *Social Determinants of Health: Draft Resolution Proposed By Argentina, Brazil, Canada, Ecuador, Israel, Japan, Mexico, Peru, Switzerland, Thailand, United States of America and the Member States of the European Union*. Geneva: World Health Organization.

———. n.d. "Social Determinants of Health." World Health Organization. Accessed April 8, 2021. https://www.who.int/health-topics/social-determinants-of-health#tab=tab_1.

WHO, and UNICEF. 2018. *Declaration of Astana*. Geneva: World Health Organization.

Wieren, Andrew van, Lindsay Palazuelos, Patrick F. Elliott, Jafet Arrieta, Hugo Flores, and Daniel Palazuelos. 2014. "Service, Training, Mentorship: First Report of an Innovative Education-Support Program to Revitalize Primary Care Social Service in Chiapas, Mexico." *Global Health Action* 7 (1): 25139. https://doi.org/10.3402/gha.v7.25139.

Woolley, Torres, Fortunato Cristobal, Jusie J. Siega-Sur, Simone Ross, Andre Jacques Neusy, Servando D. Halili, and Carole Reeve. 2018. "Positive Implications from Socially Accountable, Community-Engaged Medical Education across Two Philippines Regions." *Rural and Remote Health* 18 (1). https://doi.org/10.22605/RRH4264.

Zwanikken, Prisca A.C., Lucy Alexander, Nguyen Thanh Huong, Xu Qian, Laura Magana Valladares, Nazar A. Mohamed, Xiao Hua Ying, et al. 2014. "Validation of Public Health Competencies and Impact Variables for Low- and Middle-Income Countries." *BMC Public Health* 14 (1): 55. https://doi.org/10.1186/1471-2458-14-55.