Integrating the Social Determinants of Health into Graduate Medical Education training: a Scoping Review

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Abstract

Background

The social determinants of health (SDH) play a key role in the health of individuals, communities, and populations. Academic institutions and clinical licensing bodies increasingly recognize the need for healthcare professionals to understand the importance of considering the SDH to engage with patients and manage their care effectively. However, incorporating relevant skills, knowledge, and attitudes relating to the SDH into curricula must be more consistent. This scoping review explores the integration of the SDH into graduate medical education training programs.

Methods

A systematic search was performed of PubMed, Ovid MEDLINE, ERIC, and Scopus databases for articles published between January 2010 and March 2023. A scoping review methodology was employed, and articles related to training in medical or surgical specialities for registrars and residents were included. Pilot studies, non-SDH-related programs, and studies published in languages other than English were excluded.

Results

The initial search produced 829 articles after removing duplicates. The total number of articles included in the review was 24. Most articles were from developed countries such as the USA (22), one from Canada, and only one from a low-and middle-income country, Kenya. The most highly represented discipline was paediatrics. Six papers explored the inclusion of SDH in internal medicine training, with the remaining articles covering family medicine, obstetrics, gynecology, or a combination of disciplines. Longitudinal programs are the most effective and frequently employed educational method regarding SDH in graduate training. Most programs utilize combined teaching methods and rely on participant surveys to evaluate their curriculum.

Conclusion

Applying standardized educational and evaluation strategies for SDH training programs can pose a challenge due to the diversity of the techniques reported in the literature. Exploring the most effective educational strategy in delivering these concepts and evaluating the downstream impacts on patient care, particularly in surgical and non-clinical specialties and low- and middle-income countries, can be essential in integrating and creating a sustainable healthcare force.

Introduction

The World Health Organization (WHO) defines the social determinants of health (SDH) as "the conditions in which people are born, grow, live, work, and age, that affects a wide range of health and quality of life outcomes". These conditions are brought about by the nature in which resources, finances, and power are distributed locally, nationally, and globally and may include economic policies and systems, development agendas, social norms, social policies, and political systems [1] SDH can have a significant impact on individual and population health. Studies have demonstrated that marginalized individuals and communities suffering discrimination have noticeably poorer health outcomes[2].

There has been a clarion call to integrate SDH concepts for doctors seeking postgraduate training to equip future healthcare professionals with the appropriate competencies to tackle SDH-related factors at the patient and community level [3–5]. A critical understanding of the causes and impacts of SDH by doctors is needed to provide effective healthcare while offering adequate stewardship of limited resources and promoting health equity of the populations they serve [6]. Orienting medical training towards SDH is a significant step to equip physicians with the understanding, proficiencies and attitudes needed to begin to address health inequalities [7]

Medical education regarding the SDH is crucial for future medical practitioners [8]. Besides potentially enhancing health outcomes for individual patients, physicians tackling these disparities will adopt the initiatives calling for changes to influence population and community health[9–11]. Thus, understanding social determinants of health requires a perspective shift for graduate learners, with the desired educational outcome being transformative learning [12, 13]

Despite a growing understanding of the importance of integrating SDH into health professional curricula, the optimum approach to incorporating SDH teaching into undergraduate and graduate training curricula has yet to be clarified. A comprehensive guide for SDH teaching strategies would promote consistency in graduate training. A previous scoping review explored the inclusion of SDH in undergraduate medical curricula. The study highlighted the benefits of longitudinal curricula with community involvement in developing retainable knowledge and skills regarding SDH for medical students[14]. In 2019, a scoping review exploring the graduate curriculum interventions focused on SDH objectives concluded the insufficient physician training regarding SDH covering Canada only.[15]

This scoping review was performed to explore the extent of integration of SDH in graduate medical education curricula globally. The study objective was to explore the structure, content, training strategies, and evaluation methods used in incorporating SDH into training qualified doctors seeking higher medical training.

Methods

The scoping review was performed by searching four relevant databases – PubMed, Ovid MEDLINE, ERIC, and Scopus. The process was undertaken in accordance with standard scoping review methodology, including identifying the research question, identifying relevant studies, selecting studies, charting the data, and collating, summarizing, and reporting the results [16].

i. Formulation of the research question

All authors participated in the formulation of the research question, which was guided by the WHO's definition of social determinants of health [1]. The overall question: what has been published on the topic of the integration of SDH into graduate medical education curricula. Specifically, the research question focused on the content of the SDH teaching in the graduate medical curriculum, their presentation, teaching strategies, program evaluation and aimed to identify any gaps in the available literature to guide future research.

ii. Identification of relevant studies, including the data sources and search strategy

The searches in PubMed, Ovid MEDLINE, ERIC, and Scopus were conducted in March 2023. Individual search strategies were developed for each database and searches were run for each database (**Table 1).** The search strategy was comprehensive to capture the diversity of the potential SDH integrated into the graduate medical education curricula. PRISMA-ScR guidelines [17, 18] were followed as illustrated in (Fig. 1**).** The study population consisted of medical professionals (doctors) in any discipline undertaking postgraduate training, including specialty trainees, residents, fellows, and registrars; the concept was the content of the curriculum used for teaching the SDH, with the context being graduate medical schools and training health facilities and institutes globally.

Table 1 to be inserted here.

iii. Identifying relevant studies

The authors reviewed relevant articles in three phases. After the initial removal of duplicates by exporting the references to Mendeley Reference Manager [19], articles were analyzed using Rayyan [20]; online software that helps with blinded screening of articles. Two reviewers (DO, NN) then screened the titles and the abstracts without limiting the articles' publication dates, population, and study locations. two reviewers then performed full-text screening (DO, NN) on the resulting articles, and a third reviewer was called to arbitrate where there were differences in screening outcomes.

iv. Inclusion and exclusion criteria

Articles were deemed eligible for inclusion if they focused on graduate SDH curricula, including fellows, registrars, trainees, and residents. Studies had to contain structural curricula to qualify for inclusion. Articles published in the English language between January 2012 and March 2023 were included in the current study. If the program did not intend to integrate the SDH in graduate medical education or did not indicate a mechanism for evaluating the curriculum, they were excluded from this review. Also, the following exclusion criteria were applied: undergraduate studies, reports, systematic reviews, pilot courses, unstructured courses, programs not focusing on SDH teaching, programs not in English, internship studies, and studies that focused on allied health programs such as nursing, public health, global health, dentistry, and pharmacy.

v. Charting the data

The main characteristics of each graduate SDH medical curriculum were detailed, including the program title, length, educational methods, teaching concepts, and methods of curriculum evaluation. In this stage, data from the selected articles were extracted to a Microsoft Excel sheet, and key information about the authors and year of publication was included.

vi. Collating, summarizing, and reporting results.

Information from the selected articles was categorized, reviewed, and edited for data accuracy corresponding to the specific study objectives. After scrutiny, any data that was deemed inadequate was excluded and any disagreements were resolved by consensus. The agreed text from each article was selected and assigned into relevant categories. The analysis of the agreed data involved the assessment of qualitative themes and frequency analysis of the program contents.

vii. Quality assessment tool.

Two reviewers (DO, NN) performed an independent quality assessment for each article. The Medical Education Research Study Quality Instrument (MERSQI)[21] was selected for quality appraisal of the included articles. The appraisal tools assessed the articles over six domains – study design, sampling, type of data, validity of the evaluation, data synthesis and outcome. All the included articles had a score of 9 and above, which is acceptable.

Results

The original search yielded 970 articles. A total of 141 duplicates were removed. In the initial title and abstract screening step, 829 articles were examined. A further 801 articles were removed upon applying exclusion criteria. The exclusion criteria were: unrelated to SDH (n = 229), associated with undergraduate curricula (n = 129), not curriculum-based (n = 97), irrelevant (n = 71), nursing curricula (n = 62), related to public health and disease prevention (n = 57), allied health curricula (n = 50), considered with global health and elimination of global issues (n = 25), internship (n = 20), unstructured programs (n = 20), social accountability (n = 13), pharmacy curricula (n = 11), dentistry curricula (n = 9) and book chapter (n = 8).

Only 28 articles met the inclusion criteria. The next step was a full examination of the 28 articles that met the inclusion criteria and whose focus was oriented towards the contents of the SDH in graduate medical education. At this point, we removed seven articles as they did not meet the quality assessment criteria.

A total of 21 articles met the inclusion criteria and were included in the review. A hand search through the references of the included articles yielded another four studies; three were deemed eligible for inclusion, and one pilot program was excluded. The final number of articles included in the review was 24.

Figure 1 **to be inserted here**

Summary of the graduate SDH training programs

Of the twenty-four programs included in the current scoping review, twenty-two were from graduate residency programs in the United States of America, one program was from Canada and one program was from a residency program in Kenya. 50% (n = 12) of the articles were based in paediatric graduate curricula, while almost 21% (n = 5) were from internal medicine programs, as indicated in **Table 2**.

Table 2 to be inserted here

Structure and duration of the postgraduate SDH training

As explained in table 3, the duration of the program relating to SDH varied. A total of twelve programs had longitudinal modules, which spanned between one to three years of the postgraduate medical residency [22–33], while five other programs spanned between two to nine months of postgraduate medical residency [34–38]. Seven programs took between two weeks and six weeks [39–43, 43, 44], while the shortest program involved three online simulations, each simulation is 4 hours (one-half day) and completed during a module on advocacy .[45]

Table 3 to be inserted here

The structure of the programs related to SDH varied across a range of thematic areas. A total of five courses had a focus on home visits and different community healthcare interventions [23, 30, 31, 40, 41], while another set of ten programs were in the form of case-based workshops on a variety of topics such as prison healthcare, housing issues locating pharmacies and follow-up of patients after discharge [24–26, 28, 29, 32, 34, 39, 43, 45] Lastly, nine programs focused on health advocacy topics, such as opportunities to integrate SDH at community health clinics, housing, education and legal issues, integration of health disparities to clinical practices and equity, diversity, and inclusion [22, 27, 33–38, 44].

Programs presentation methods

The approach to presenting the graduate SDH training and learning activities varied. All the programs used participatory learning," where the learners are actively participating instead of being passive listeners," as an educational strategy in combination with other teaching modalities. Eleven programs combined participatory learning with community placement and didactic teaching [23–25, 28, 31, 33, 34, 36, 40–42]. Another six programs relied on a participatory approach, with community placement and no formal lectures[27, 35, 36, 43–45]. Three programs integrated didactic teaching and a participatory approach with no community engagement [29, 37, 38]. Another set of four programs included participatory learning only, requiring participant engagement, such as information gathering, group discussions, and activities [22, 26, 32, 39].

Evaluation of the graduate SDH programs

All the reviewed programs (n = 24) had an evaluation component in their curriculum. Eight programs used pre- and post-learning evaluation surveys [24, 25, 29, 30, 32, 35, 38, 43], while eleven programs used only post-learning evaluation surveys [22, 27, 28, 31, 36, 37, 39–41, 44, 45]. Two programs used thematic analysis of participants' written reflections and interviews [26, 34]. One program used both survey and reflection through the course of the program.[23]. Only one program evaluated the participant's and the patient's primary guardians' views [33].

Four programs evaluated the participants' affective learning, including their attitude of awareness, interest, and empathy combined with their level of knowledge regarding the SDH within the local context [29, 31, 42, 44]. Another three programs used affective learning assessment solely [33, 35, 41]. One program adopted comprehensive assessment on the three levels, including participants' attitudes, knowledge and performance [43]. Another program incorporated knowledge and performance as an evaluation tool [38], and one used the candidate's performance as the main evaluation aspect [34]. An additional twelve programs only used the participants' knowledge level as an evaluation indictor [24–28, 30, 32, 37, 39–41, 45].

Discussion

This work details a scoping review of literature relating to incorporating the SDH in graduate medical training curricula. Notably, of a total of 24 included articles, twenty-two programs were implemented in the US medical schools [23–43, 45], with one program in Canada [44] and only one from a low-and middle-income country (Kenya)[22]. The evaluation of the programs varied on different levels; most programs performed post-learning evaluation only for the participants, and only one program added the patient's perspective on the quality of service provided. The evaluation modules used need more clarity in reporting. The programs with extended training over the years reported a more favorable impact on the knowledge and the participant's skills regarding SDH concepts. Participants favored training programs that blinded academic knowledge with community placement.

Study limitations

The number of published articles demonstrating the implementation of the SDH training program is limited. This limitation is likely a significant under-representation of the innovation and scope of SDH integration into postgraduate curricula and again highlights the need for more high-quality literature assessing the effective incorporation, delivery, and assessment of SDH competencies. The scope of articles available in English primarily limited our study. The study adopted the programs, including SDH teaching as a separate module not included with public health or global health. Although these limitations, our study has several strengths. Our study is the first comprehensive study regarding integrating SDH graduate medical training programs with no geographical limitation. The study displays the training programs' evaluation heterogeneity and the deficiency in following the impact of this training

on patients' health. These findings further support the questions raised by medical education experts. Sharma et al.2018. explained the importance of SDH teaching and the role of educators and training institutions, yet criticized the focus on integration rather than evaluation.

Implication for future research

Our review has identified several future research implications; there needs to be more representation of the published literature about the topic in general and from low-and middle-income countries. The different expression of the SDH training programs by the developed countries' training institutions may be because of the influence of The Accreditation Council for Graduate Medical Education (ACGME). The ACGME approves complete and independent medical education programs in the United States and Canada. The ACGME standards include addressing health equity and enhancing cultural competency through the taught curriculum of the accredited graduate program, which compels medical institutions to integrate SDH into their curricula[46, 47]. This shows the critical influence accrediting bodies have on the content of medical curricula. As the United Nations (UN) stated in 2015, low-and middle-income countries face triple the burden of health issues and, therefore, creating a well-trained healthcare force and robust health system performance will decrease social disparities [48, 49].

Secondly, the pediatrician's training programs took the lead in training healthcare professionals in SDH. Other specialties, such as internal medicine, family medicine, and psychiatry, needed to be more proactive in integrating the SDH into their curriculum. Incorporating SDH concepts for all healthcare training is essential for weaving socially accountable healthcare into the healthcare systems[50]

Thirdly, participants rated the SDH programs with a multi-year longitudinal structure highly. This finding agrees with other studies suggesting that spiral training programs improve trainees' community integration, mentorship, confidence, knowledge in evidence-based medicine, patient-centred care, and reflective practice. [51–54]. Our study found heterogeneity in each program's content, as SDH factors can differ from one geographical location to another. The WHO study states that educators should apply a local context approach to tackle this issue.[55]

Fourthly, All the programs' teaching strategies involved the participants in the teaching process, so-called "participatory learning." The programs integrated academic knowledge with community placement and significantly impacted the comprehension of SDH concepts and their application in real-life situations. These findings correlate with studies emphasizing that combining theoretical learning with community engagement will enhance participants' ability to cultivate an understanding of the core principles of the taught subject.[56–61]

Finally, most programs evaluated the participants' knowledge level and confidence in recognizing SDH-related factors pre and post, or post-program only. The reported evaluation outcomes included improved knowledge, awareness, and trust in dealing with diverse and underserved communities. Only one program interviewed the patients' guardians and evaluated the care received by the trained physician [33]. This

finding defines the gap in programs' evaluation, and the need to identify a global model overlooks the weakness in the currently used [62].

Conclusion

Providing a multi-level structure approach for SDH training programs' methodology, implementation, and evaluation will benefit training bodies and insinuations to integrate SDH concepts better and produce a transparent experience for others to follow.

Declarations

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Authors’ contributions

The author(s) read and approved the final manuscript. all authors conceived the manuscript, NN performed the search and analysis and wrote the first draft of the manuscript. SN and PO supported the manuscript's interpretation and analysis and contributes to the writing and editing. DO contributed to the screening, second review, and data analysis. MEA supervised the research, including its conception, and contributed to revising the manuscript.

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Availability of data and materials

Datasets used and analysed during the study are available from the corresponding author upon reasonable request.

Ethics approval and consent to participate

No ethical approval was required since no primary data were collected. No database registration of the protocol as there is no health outcome identified through the study.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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Tables

Table (1): Search strategy for the databases regarding the SDH postgraduate training.

Ovid MEDLINE(R) ALL <1946 to March 10, 2023>

Table (1): Search strategy for the databases regarding the SDH postgraduate training.

1	Social determinants of health.mp. or exp *"Social Determinants of Health"/	13808
2	exp *General Practitioners/ or registrar.mp. or exp *Medical Staff, Hospital/	27288
3	Residency.mp. or exp *"Internship and Residency"/	74897
4	2 or 3	100551
5	"Clinical competency".mp. or exp *Clinical Competence/	50511
6	Curriculum.mp. or exp *Curriculum/	117182
7	exp *education, professional/ or exp *clinical clerkship/ or education, continuing/ or exp *education, dental/ or exp *education, graduate/ or exp *education, medical/ or exp *education, medical, continuing/ or exp *education, medical, graduate/	247393
8	5 or 6 or 7	333122
9	training.mp.	569120
10	8 or 9	812932
11	1 and 4	167
12	10 and 11	114

PubMed (covered till March 2023)

1. "Social Determinants of Health"[Mesh]
2. "Social Determinants of Health"[Title/Abstract] OR SDH[Title/Abstract]
3. #1 and #2
4. Residency [Text Word] OR Training [Text Word]
5. #3 and #4
6. curriculum [Text Word] OR curricula [Text Word] OR teaching [Text Word]
7. #5 and #6
8. ((("Social Determinants of Health"[Mesh]) and ("Social Determinants of Health" [Title/Abstract] OR SDH[Title/Abstract])) and (Residency[Text Word] OR Training[Text Word])) and (curriculum[Text Word] OR curricula[Text Word] OR teaching[Text Word])

Scoups: (covered till March 2023)

(TITLE-ABS-KEY (*"Social determinants of health"* OR *SDH*) AND
KEY (*training* OR *learning* OR *teaching* OR *"medical education"* OR *"medical training"*) AND
KEY (*specialist* OR *registrar* OR *residency*) OR
KEY (*curriculum* OR *curricula*)) AND (EXCLUDE (PUBYEAR , *2008*) OR
EXCLUDE (PUBYEAR , *2007*) OR EXCLUDE (PUBYEAR , *2006*) OR EXCLUDE (PUBYEAR , *2005*)

ERIC: (covered till March 2023)

(("Social determinants of health" or SDH) AND (Curriculum* OR teaching* OR learning* OR competency*) OR ("Clinical Competency" OR "medical education") AND (specialist OR registrar OR residency OR internship OR fellowship))

Entered date: 2010 - 2023

Table (2): Number of articles in each post-graduate specialty program

S/No	Post-graduate specialty program	Number of articles
1	Paediatrics	12
2	Internal medicine	5
3	Family medicine	3
4	Family medicine and Internal medicine	1
5	Family medicine and psychiatric medicine	1
6	Family medicine, emergency medicine and internal medicine	1
7	Obstetrics and gynaecology	1
	Total	24

Table 3 is available in Supplementary Files section.

Figures

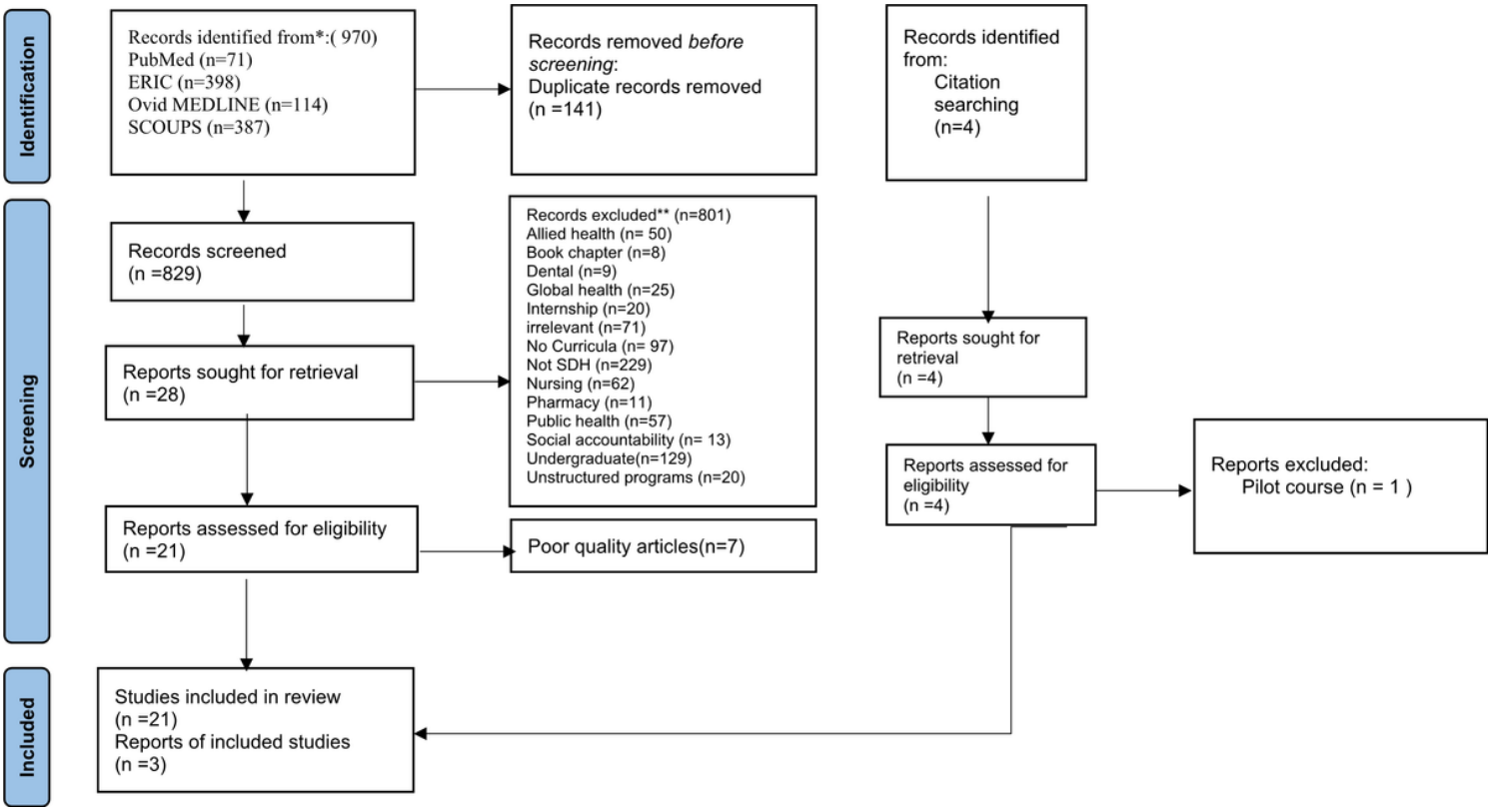

Figure 1

PRISMA 2020 flow diagram for new systematic reviews which included searches of databases, registers, and other sources.

*Consider, if feasible to do so, reporting the number of records identified from each database or register searched (rather than the total number across all databases/registers).

**If automation tools were used, indicate how many records were excluded by a human and how many were excluded by automation tools.

From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71. For more information, visit: (38)

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- Table3.docx