

Implementation of Educational Opportunities for Social Determinants of Health in Health Professions Education: A Scoping Review

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Objective: Health professions programs have recently increased their efforts to educate health care professionals about the social determinants of health (SDH); however, there seems to be a disconnect between graduate medical education and its applicability to other peer health professions. The current scoping review aims to map the literature that explores the implementation of educational opportunities focused on SDH in health professions education programs.

Data Sources: PubMed, CINAHL, ERIC, Education Source, and the Health Policy Reference Center were searched to identify relevant articles.

Study Selection: To be included in our review, articles had to have been published in the last 5 years and describe how material related to SDH was implemented into a graduate health professions education program. Outcomes were analyzed by thematic categories by type of curricular delivery (didactic, clinical education, service-learning experience, or reflection), timing of the implementation in the program, methods of implementation, and assessment after implementation.

Data Extraction: Our search identified 2006 articles that were reviewed by study authors; 36 were included in our full-text review. Information extracted included the study design, type of graduate education, aims of the studies, description of technique, timing of implementation, type of curricular delivery, and outcomes.

Data Synthesis: The majority (23, 63.9%) of studies used an observational design and used 2 or more (27, 75.0%) types of curricular delivery presented to medical students. Didactic (19, 52.8%) and small-group discussion (14, 38.9%) methods were used most often. Assessments were mostly student reflections or self-report items. Overall, students reported increased knowledge and satisfaction with activities.

Conclusions: Results of our scoping review indicated that various education opportunities related to SDH exist in graduate health professions education but are likely insufficient. More studies are necessary to investigate the purposeful implementation of SDH and the best methods to assess student knowledge of SDH. Future research should also investigate how to objectively assess student learning of SDH.

Key Words: Social factors, educational interventions, assessment, graduate education

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KEY POINTS

- Graduate health professions education programs are currently teaching students about the social determinants of health in a variety of ways. Delivery methods include small- and large-group discussions, community-based learning, individual and group assignments, didactic lectures and activities, service-learning opportunities, interprofessional education opportunities, simulations, and clinical education activities.
- Assessment of students' knowledge of social determinants of health is primarily conducted through student reflections and participation in group discussions; techniques for obtaining objective measures of student knowledge on this topic are limited.
- There is limited information regarding the delivery of educational opportunities related to social determinants of health specific to athletic training programs. This scoping review serves as a call to athletic training educators to disseminate information about the educational opportunities used within their professional programs.

INTRODUCTION

The social determinants of health (SDH) are factors and conditions that impact the health and well-being of patients and communities more than the health care provided. The World Health Organization defines SDH as “the conditions in which people are born, grow, work, live, and age and the wider set of forces and systems shaping the conditions of daily life,” and Healthy People 2030 summarized the 5 key areas of SDH as (1) health care access and quality, (2) education access and quality, (3) social and community context, (4) economic stability, and (5) neighborhood and built environment.^{1,2} These nonmedical factors influence health and well-being, are experienced at all levels of society (global, national, and local), and typically arise because of disparities of wealth or resources.³ Therefore, many organizations have created an internal task force to address the negative influence of SDH on individuals and communities.^{4–6} Medical, dental, nursing, and other health science professional education programs also require SDH-related instruction to prepare students to address these factors in their future practice.^{7–11}

Recently, efforts have increased to educate health care professionals about SDH. Some programs and institutions have used a single lecture or a guest speaker to deliver SDH content to learners. Some have curated clinical education and service-learning projects over time to improve student knowledge and application of SDH.^{9–11} Programs implementing SDH educational opportunities as part of their didactic and clinical experiences have reported that student perceptions about SDH changed and their knowledge improved.^{10,12} However, few studies highlight the need to incorporate SDH content throughout programs or suggest that this content should not be delivered in a single effort.^{12,13} Although curricular content standards have evolved to include SDH, in some fields, such as athletic training, the

standards are new, and little guidance is provided for incorporating this important topic into educational programming.

In 2020, the Commission on Accreditation of Athletic Training Education added a curricular content standard that mandates that professional athletic training programs ensure students can “identify health care delivery strategies that account for health literacy and a variety of SDH.”¹⁴ This patient-centered care approach is promising, and, although others have suggested how to incorporate it into their health care programs, little has been published regarding the implementation of SDH material in athletic training programs. Understanding how other health care professions are implementing SDH into their curricula could serve as a guide for athletic training educators. Therefore, in the current scoping review, we aimed to map the literature that explores the implementation of educational opportunities focused on SDH in health professions education programs.

METHODS

The current scoping review was conducted according to the *JBIManual for Evidence Synthesis* and followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews for reporting results.^{15,16} The review was also conducted using an a priori protocol.¹⁷

Research Question

Our study question for the scoping review was centered on the educational opportunities related to SDH that are being implemented in health professions education programs, including the details of their implementation process.

Inclusion Criteria

To be included in our scoping review, articles had to have been published in the last 5 years and describe how material related to SDH was implemented in a graduate health professions education program in the United States. Our review focused on studies published in the last 5 years because a previously published study performed a similar review using articles from 10 years ago.¹⁸ As such, we wanted our review to represent only new published studies. Only original research and educational technique articles were included. Further, only studies published in English were included because the research team lacked knowledge of other languages.

Exclusion Criteria

Articles were excluded if the SDH educational opportunities were implemented in a nongraduate health professions program (ie, undergraduate or associate level) in the United States. With the shift to all entry-level master's degree programs in athletic training, we wanted to ensure that the findings of this scoping review were at the appropriate education level. Additionally, articles that described entire courses or curricula were excluded.

Deviation From Original Protocol

Because our study's purpose was to provide ideas and guidance to educators for incorporating SDH into athletic training education programs, we developed a defined protocol before extracting data. However, during our search, some articles included entire courses or curricula on SDH, which deviated from our protocol, so we excluded those articles because their scope was beyond our intended study purpose.

Search Strategy

To identify relevant articles, we searched the PubMed, CINAHL, and Health Policy Reference Center databases. Two education databases, ERIC and Education Source, were also searched. After our initial search strategy was developed and refined, a trained medical librarian (CJG) performed all searches. At first, several iterative pilot searches were conducted, primarily in PubMed, to guide the development of the search strategy and identify relevant and irrelevant search terms. The search strategy was tested by ensuring that all exemplar articles were placed in the search results of at least 1 database. A combination of controlled vocabulary and free-text keywords were used, tailored to each database, to ensure all relevant literature was identified. Controlled vocabulary terms were exploded in PubMed and CINAHL but not in the other databases. Given the scope of the other databases, we had to be more selective with controlled vocabulary terms to avoid irrelevant results. In accordance with Peer Review of Electronic Search Strategies (PRESS) guidelines, the entire search strategy for each database was peer reviewed by another medical librarian. Results of that peer review are available in Supplemental Appendix 1.

Identified articles from our search had to include 1 keyword in each of the following concepts: SDH, health sciences education, and education implementation. The SDH were searched at a broad level, and the 5 key areas of the SDH were intentionally excluded based on a lack of relevant articles during our pilot searches. The 3 main concepts were searched using the AND Boolean operator, and synonyms and related concepts were added using the OR Boolean operator. During the search, we excluded articles with the terms *scoping review* or *systematic review* in the title because our strategy excluded studies related to methods of evidence synthesis. When searching in the CINAHL database, we excluded continuing education units because we considered them inappropriate for inclusion in our scoping review. Searches in all databases were limited to literature published from January 1, 2017, to the search date of September 19, 2022. An updated search was also conducted on March 3, 2023, and included studies published from September 20, 2022, to the new search date. Details on how many results were retrieved from each database, as well as when and why articles were excluded from this study, are available in the PRISMA flow diagram in Supplemental Appendix 2.

Our search strategy also included content from the gray literature, such as dissertations and magazine articles. These sources were included in our search results and screened for inclusion when possible. The websites of various professional and educational organizations in the health sciences were also hand searched by the librarian and included during the screening process. Websites were searched using a combination of built-in search engines and browsing the websites through their navigation menus.

Covidence software (<https://www.covidence.org/>) was used for deduplication; title, abstract, and full-text screening; and data extraction. Our full search strategy, including the free-text keywords used, controlled vocabulary terms used for each database, complete search strings, and list of the websites searched for gray literature, is available in Supplemental Appendix 3.

Extraction of Results

The titles and abstracts of identified articles were independently reviewed by 2 research team members (KJP, BCJ), and a third research team member was used for tiebreakers (ZKW). Two authors also conducted the full-text review of articles (KJP, BCJ), and a third author was used for tiebreakers (ZKW). Data extraction was completed by 2 authors (KJP and ZKW). Key information extracted from each included article was the study design, type of graduate education, aims of the studies, description of technique, timing of implementation, type of curricular delivery, and outcomes.

Charting the Data

To provide a comprehensive report of recent educational opportunities related to the implementation of SDH in health professions programs, extracted data from each reviewed article are summarized in the Table by curricular topic, type of curricular delivery, curricular assessment, and description of the technique. Specifically, we categorized the type of curricular delivery by the following: didactic, clinical education, community-based learning, individual assignment, interprofessional education, service-learning experience, simulation, small-group discussion, or reflection. Timing of the implementation in the program and assessment after SDH implementation were extracted and reported when available. We used the Miller assessment pyramid for the classification of assessments.¹⁹ These data were collected to assess student progress toward competency with the SDH content to further guide the successful implementation of this material into professional athletic training curricula. When applicable, frequency and percentage were used to summarize outcomes.

RESULTS

Our initial searches yielded 2006 articles for review, and an additional 3 articles were identified through our gray literature search (Figure). After removal of duplicates, 1508 articles were screened by title and abstract. After exclusion of 1389 articles that fit the exclusion criteria as determined from title/abstract screening, 119 studies underwent full-text screening to assess their eligibility for inclusion. Of those, 83 were considered ineligible, and 36 studies were included in our scoping review.^{7,8,11,20–52}

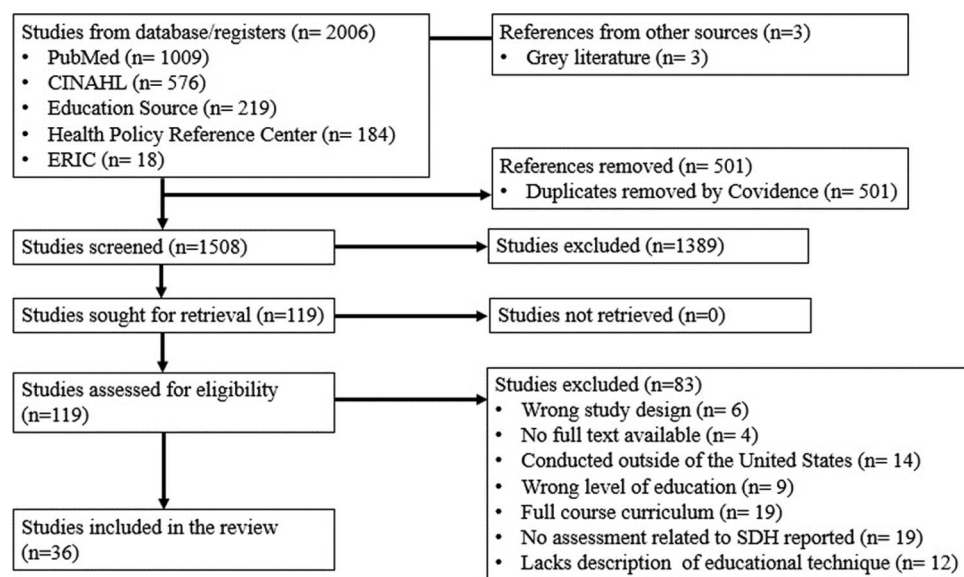
Overview of Reviewed Studies

Details about the studies included in our scoping review are presented in the Table. Of the 36 studies, most (23, 63.9%) used an observational design that included medical students or residents (31, 86.1%). The number of participants in reviewed studies ranged from 5 to 319 participants.

Aims of Reviewed Studies

In the stated aims of the reviewed studies, the educational learning objectives were often identified using the verbs *develop*,

Figure. Flow chart for the current scoping review investigating the implementation of educational opportunities focused on the social determinants of health (SDH) in health professions education.



implement, and *evaluate*. Commonly shared aims of the studies included creating and describing a learning activity, module, course, or curriculum that introduced SDH as a whole concept or as a specific portion of it, such as a social context. Instructional activities were described as methods to discuss and explore with the learners, and the studies often addressed the implementation of the instructional technique using such terms as *feasibility*, *effectiveness*, and *acceptability*. Described evaluation strategies included examining the knowledge, skills, and attitudes of the participants to investigate how well the learners could identify, observe, and document SDH. The perceptions, confidence, and reflective impact of the learners after the instructional technique were also examined.

Curricular Topics

The reviewed studies covered a range of curricular topics (Table). Although many covered SDH broadly, others focused on more specific topics, such as health equity, health disparities and inequities, and cultural competency. Some emphasized the importance of SDH screening and documentation. In the studies that highlighted specific SDH, the determinants most often covered were poverty, neighborhood/built environments, adverse childhood experiences, food access or insecurity, and lesbian, gay, bisexual, transgender, and queer/questioning health.*

Description of Technique and Curricular Delivery

The educational techniques and opportunities of the reviewed studies varied greatly, from interprofessional patient case scenarios to lectures with guest panels to neighborhood tours (Table). Twenty-seven studies used 2 or more types of curricular delivery. Didactic (19, 52.8%) and small-group discussion (14, 38.9%) methods were used most often, but simulation (10, 27.8%) and community-based learning (10, 27.8%) were also common. Didactic sessions ranged from 1 to 3 hours in duration, and the covered topics were varied. Most often, didactic sessions

were paired with small-group discussions, clinical education, or a service-learning project.

When SDH opportunities were incorporated into clinical education, they were in the form of SDH documentation or assessment.^{7,11,33,44,50} Students were provided with methods of SDH collection or assessment and then instructed to document their findings. Examples of the methods used by these studies included observation cards; the Income, Housing, Education, Legal Status, Language/Immigration, Personal Safety tool; and the Health Leads Social Needs Screening Toolkit.^{11,33,44}

Simulations involving patient cases or standardized patients were implemented in many of the reviewed studies to provide students with an opportunity to practice their skills. After didactic lectures or community panels, standardized patients, transgender patient cases, budgeting case scenarios, poverty simulations, and virtual simulations were used most often.[†]

Six studies used community-based learning techniques that included a neighborhood/city tour of 1 to 4 hours' duration to educate students about SDH.^{20,25,27,36,38,40} The tours often consisted of stops (eg, grocery stores, clinics, housing units) in low-socioeconomic-status neighborhoods to explore how SDH contribute to health disparities. All tours, including a virtual neighborhood tour, had a reflection or debrief with faculty at the end of the learning activity.³⁸ Other types of community-based learning activities included providing a community cooking demonstration, teaching geographic information system mapping, watching the film *Resilience*, and creating a wellness fair for elementary schools.^{21,32,46}

Curricular Assessment

Overall, the majority of the 36 reviewed studies (34, 94.4%) used formative assessment rather than summative assessment (2, 5.6%) to evaluate student learning at the end of the instructional opportunity. Most studies (34, 94.4%) described identity-

*References 8, 20–22, 25–27, 29, 32, 35, 36, 38, 41, 43, 45, 46, 48, 49, 51.

†References 23, 29, 34, 35, 38, 41, 43, 47–49.

Table. Summary of Articles Included in the Current Scoping Review (N = 36)

| Article | Curricular Topic | Timing of Implementation | Type of Curricular Delivery | Description of Technique |
|---|---|---|---|---|
| Balharra and Irvin, ²⁰ 2021 | SDH; emphasis on built environment | One-time, optional experience | Small-group discussion, Community-based learning | Students participated in a tour of murals in the city that represented SDH. Observation and discussion of the murals were conducted using visual thinking strategies and the "third things" concept to make meaning of what was seen. Duration of the tour was approximately 2 hours. |
| Boggs et al., ²¹ 2023 | Health equity; built environment | One time, 1 course | Community-based learning, individual assignment | Students used geographic information system mapping to virtually identify hot spots in the community. They also identified bus lines, grocery stores, day cares, and clinics. Other available data included metrics on SDH and food deserts. |
| Bryant-Moore et al., ²² 2018 | Health disparities; health inequities; SDH (education, neighborhood, built environment) | One time, 1 course | Didactic, service learning | Community organizations partnered with the GOOD Scholars program so students could see how SDH impacts residents' lives. Students then undertook a semester-long service-learning project of their choosing. Readings were provided throughout the semester to enhance their learning and were discussed online asynchronously. Finally, an interactive panel discussion was held with community members. |
| Buitron de la Vega et al., ²³ 2022 | Health equity; SDH; health care delivery systems; team-based care; THRIVE screening tool | Multiple times, 1 course | Didactic, small-group discussion, simulation, interprofessional education | Three 60-minute Zoom conferences, including discussion, role play, and case examples, were followed by 8 immersive virtual reality simulated learning environment sessions. Students simulated using the THRIVE screening tool (included determinants such as homelessness, food and housing insecurity, income/employment, transportation, caregiving, and education). |
| Buys and Somerall, ²⁴ 2018 | SDH screening | Multiple times, throughout multiple semesters | Didactic, clinical education, individual assignment | Students participated in a 3-phase project including a didactic session, literature review individual assignment, discussion board assignment, interview with current preceptor, development and implementation of a screening tool and referral toolkits, and a final assignment of creating a conference poster and a 3–5-page paper. |
| Chang et al., ²⁵ 2017 | Challenges for low-income or minority patients; available resources | One time, 1 course | Community-based learning | This technique involved a 3-hour bus trip around the city followed by a discussion about low-income minority neighborhoods and available resources. Each bus was guided by 3–5 community leaders and 20–25 interns. The total cost for the activity was \$1350. |
| Cooper et al., ²⁶ 2018 | SDH; LGBT health; health disparities | One time, 1 course | Didactic | Students engaged in a 1-hour interactive lecture on SDH from an LGBT perspective relative to race, socioeconomic status, gender, and intersectionality. |
| Cross et al., ²⁷ 2022 | Community service work; SDH (access to transportation, exercise, community resources) | One time, 1 course | Community-based learning | Students completed a 60–90-minute community tour to examine and discuss a community's exercise options, food markets, health care clinics, housing units, pathways, and neighborhood safety. The tour ended at a local restaurant for additional discussion with leaders and neighborhood residents. |
| Duffy et al., ²⁸ 2017 | Interprofessional collaboration; SDH (lifestyle choices, social environment) | One time, 1 course | Interprofessional education | Interprofessional teams of students were assigned to care for a simulated patient who had personal and family circumstances that contributed to their acute and chronic comorbidities. Each group was instructed to create a plan of care and submit a reflection paper at the end of 6 weeks. |
| Falusi et al., ²⁹ 2022 | TEACH curriculum (child poverty, poverty screening tools, racial/ethnic disparities in poverty, public transportation, eviction crisis) | Multiple times, 1 course | Didactic, small-group discussion, simulation, community-based learning | Instructors developed a course curriculum that included a didactic learning module, a simulation experience of a family living in poverty, a community-based learning experience, and a trip to a local museum exhibit focused on the eviction crisis. These community activities included visiting the Department of Human Services site to observe intake interviews of those applying for government aid. |
| Fish et al., ³⁰ 2022 | SDH screenings | One time, 1 course | Didactic, clinical education | Instructors aimed to reform the curriculum using a design-thinking workshop involving student and faculty stakeholders. Didactics included lectures on structural barriers, minoritized and socially oppressed patients, and structural racism; patient panel discussions; and scenario-based questions on exams. |
| Freiburger et al., ¹¹ 2020 | SDH | One time, 1 course | Didactic, small-group discussion, clinical education, individual assignment | The 3-part educational technique included a 90-minute didactic session with an introductory lecture on SDH followed by group discussion, an observational activity collecting SDH observations at clinical sites, and a reflection session. |
| Hager et al., ³¹ 2019 | SDH; opioid use | One time, 1 course | Small-group discussion, interprofessional education | This interprofessional activity allowed students to work through a patient case designed to focus on SDH and misuse of opioids. The session allowed for 30 minutes of discussion of the case in their groups and then a report of findings during a 60-minute debrief. The activity included a 3-hour training session, 2-hour community cooking demo, and 1-hour debrief. |
| Hashimi et al., ³² 2020 | SDH; motivational interviewing; disease-based nutrition science; food insecurity | One time, 1 course | Community-based learning | This development workshop focused on using documentation, social need screening, and proper referrals. The workshop used the Health Leads Social Needs Screen Toolkit (10 items), and students' screening outcomes were evaluated to recommend service-learning opportunities. |
| Herrera et al., ³³ 2022 | Electronic health records; screening for social needs; patient referral for needs | One time, 1 course | Didactic, service learning | This service-learning project involved an application-based program. Students were trained on social barrier screening and resources specific to 3 common surgical cases, postoperative care, and teach-back method. They then spent 8 hours per month in a hospital educating patients on their postoperative care for 3 months per year. Students also participated in monthly didactic sessions to improve practical skills. |
| Janevay et al., ³² 2020 | Social barriers to health | Multiple times, 1 course | Didactic, service learning | Health care scenarios, based on actual clinical encounters, were developed by nursing faculty and social service providers, and they included health conditions, such as HIV/AIDS, teen pregnancy, drug abuse, and hypertension. Case studies were recreated in a simulated learning environment. Participants were challenged to role-play a day in the life of families with low resources working to meet the complex needs associated with the identified health conditions. The simulation took about 6 hours to complete. |
| Killion et al., ³⁵ 2022 | Poverty | One time, 1 course | Simulation, interprofessional education | |

Table. Continued

| Article | Curricular Topic | Timing of Implementation | Type of Curricular Delivery | Description of Technique |
|---|--|-------------------------------------|---|--|
| Lane et al., ³⁶ 2019 | Neighborhood trauma; violence | Multiple times, 1 course | Didactic, community-based learning | Students were required to read articles before attending two 3-hour sessions that were 1 week apart. The first session consisted of presentations of community members and their experiences with violence in their neighborhoods. The second session was a bus tour of high-violence areas. |
| Lazow et al., ³⁷ 2018 | SDH; poverty; patient advocacy | One time, 1 course | Small-group discussion, simulation, community-based learning | A virtual neighborhood tour was developed for residents to explore an impoverished neighborhood through a phone or tablet. The virtual tour was completed in groups over 2 hours with a 1-hour debriefing session. |
| Lazow et al., ³⁸ 2019 | SDH screening; available resources; advocacy; empathy for underserved patients | One time, 1 course | Simulation, clinical education | Residents completed a virtual pediatric primary care center tour and 3 simulated patient cases as part of an advocacy rotation, where residents learned to screen for and address SDH. Cases, which were video recorded encounters under 3 minutes' duration with time-point, open-ended questions, were created using Vizia. |
| Lesselroth et al., ³⁹ 2021 | Person-centered care (using design-thinking to identify unmet patient needs) | One time, 1 course | Didactic, interprofessional education, small-group discussion, large-group discussion | A virtual student workshop was implemented and included a lecture and interactive activity on identity, privilege, and social and structural determinants of health and an introduction to design-thinking methods for building empathy with patients, diagnosing user experience concerns, and engaging in person-centered problem-solving. |
| Lewis et al., ⁷ 2019 | Documentation of SDH | Throughout all clinical experiences | Clinical education | A learning tool and mechanism for ensuring standard instruction was created for this teaching technique. Students were instructed to voluntarily include proprietary SDH diagnosis and procedure codes in their patient case documentation. Students would log diagnoses in this system during year 1 of the project. |
| Lichtenstein et al., ⁴⁰ 2018 | Health disparities; SDH | One time, 1 course | Small-group discussion, community-based learning | A 4-hour community-based bus tour was implemented with collaborations between the residency program and a local hospital. Stops were made at locations that showed how SDH contributes to health disparities. One stop was made at a community-based primary care center so that students could learn about the resources available. |
| Maguire et al., ⁴¹ 2017 | Cultural competency; health equity; poverty | One time, 1 course | Simulation, group assignment | The Missouri Community Action Network poverty simulation kit was used to implement a poverty simulation for medical interns. Residents worked as an interdisciplinary team to complete tasks as part of a low-income family. Duration of the activity was approximately 2 hours. |
| Marsh et al., ⁴² 2019 | SDH; patient advocacy | One time, 1 course | Didactic, small-group discussion | A 45–60-minute lecture was implemented during students' pediatric clerkship. The small-group lecture was related to SDH and advocacy with a discussion. |
| Morrison et al., ⁴³ 2021 | SDH (food insecurity, housing insecurity, access to health care, adverse childhood experiences) | One time, 1 course | Small-group discussion, simulation | Four standardized patient cases (about 20 minutes each) depicted some SDH negatively influencing a pediatric patient. Residents were instructed to address relevant SDH that were presented. There were opportunities for near-peer feedback, coaching, debriefing, role modeling, and teaching during the 90-minute sessions. |
| Patel et al., ⁴⁴ 2018 | Legal status; immigration; language barriers; personal safety history-taking tool (HELLP); SDH (income, housing, education) | Clinicals | Didactic, clinical education | A 3-hour educational module was implemented related to the curricular topics, and students were given a brief handout on local community resources. Finally, students were provided with a laminated reference card with the HELLP tool to use during patient encounters. |
| Schmidt et al., ⁴⁵ 2017 | Disparities in access to healthy food, water, shelter, medical care | Multiple times, 1 course | Didactic, small-group discussion, large-group discussion | This experiential module consisted of an introduction workshop with group discussion and PowerPoint presentations. After the workshop each week, participants would use a half day to work on assignments, such as documenting high-risk patients in an EMR, advocating for patients, engaging in small-group discussions, writing a summary of the experience, and attending a 45-minute reflective postcourse workshop. |
| Scott et al., ⁴⁶ 2022 | Adverse childhood experiences | One time, 1 course | Didactic, community-based learning | Students watched the film <i>Resilience</i> and then discussed the film in class. They were then tasked with creating a wellness fair for 4 local elementary schools. |
| Sisler et al., ⁴⁷ 2019 | Social needs of underserved and vulnerable adolescents | One time, 1 course | Simulation | Students participated in simulated patient encounters over 2 years with standardized patients acting as vulnerable adolescents. The experience was designed to encourage nurse practitioners to go beyond the clinical encounter checklist and reconceptualize patient-family unmet social needs through authentic interactions and conversations with local adolescent populations living in underserved urban settings. |
| Song et al., ⁸ 2018 | Access to care; food insecurity; environment; human trafficking; immigrant health and language barriers; LGBT health; race/ethnicity; women's health | One time, 1 course | Small-group discussion | As part of their first-year orientation, medical students engaged in small groups to work through and discuss 6 cases, each centered on one of the curricular topics. This toolkit was created to introduce the fundamentals of social disparities. |
| Stumbar et al., ⁴⁸ 2018 | Health needs of the LGBTQ+ community; LGBTQ+ health disparities | One time, 1 course | Didactic, simulation, interprofessional education, large-group discussion | A 2-hour lecture designed to give students a foundation of understanding about the specific needs of the LGBTQ+ community. This was followed by a panel discussion with community members about experiences related to their sex, sexual orientation, or gender identity. After the lecture, students practice their skills interprofessionally by participating in a transgender standardized patient case. Students also participated in a 3-hour workshop on taking sexual history; they were taught the Centers for Disease Control and Prevention's "5 P's" model of taking a sexual history. |
| Traba et al., ⁴⁹ 2021 | SDH; health equity; poverty; adverse childhood experiences; implicit bias | One time, 1 course | Didactic, small-group discussion | Students received refresher information on the SDH and then completed an interactive budgeting exercise (about 1.5–2 hours) to embody the challenges faced by a single parent living in poverty. After the case scenario, students worked in breakout groups, discussed the activity as a group, and then debriefed as a large group. |

Table. Continued

| Article | Curricular Topic | Timing of Implementation | Type of Curricular Delivery | Description of Technique |
|--|---|--------------------------|---|---|
| Vila et al., ³⁴ 2021 | SDH; professional identity formation | Multiple times, 1 course | Didactic, small-group discussion, simulation, virtual escape room | Each virtual clerkship session was held on weekdays over 2 weeks for a total of 10 instruction days. The clerkship was a combination of asynchronous and synchronous learning with cases, a virtual escape room, and a virtual simulation. |
| Williams et al., ⁵⁰ 2019 | Biomedical and psychiatric conditions; behavioral health; SDH (living environment, social support) | One time, 1 course | Clinical education | During a 1-month rotation, students received instruction on an approach to history taking involving 6 domains (biomedical and psychiatric conditions, behavioral health, living environment/resources, social support, and functional status). |
| Wong et al., ⁵¹ 2022 | Food insecurity, LGBTQ+ health, poverty, child abuse, women's health, human trafficking, incarceration) | Multiple times, 1 course | Didactic, small-group discussion, service learning | Volunteer medical students were connected to community organizations for their assignments, spending 1 session of 3 h/mo at their sites. Students also participated in education and reflection activities, such as lectures, workshops, and advocacy opportunities throughout the year that would expose them to other SDH that they may not have had at their site. At the end of the year, students had the chance to present their experiences at a service-learning symposium. |

Abbreviations: EMR, electronic medical record; GOOD, Growing Our Own in the Delta; IHELLP, Income, Housing, Education, Legal Status, Literacy, Personal Safety; LGBTQ+ health, lesbian, gay, bisexual, transgender, queer/questioning, and others; SDH, social determinants of health; TEACH, Trainee Education in Advocacy and Community Health; THRIVE, a framework for understanding how structural drivers, such as racism, play out at the community level in terms of the social-cultural, physical/built, and economic/educational environments.

based assessment methods, such as reflections, personal and professional identity, attitude assessments, and ethical value assessments. Twenty-two (61.1%) studies used only identity-based assessment. The other 12 used identity-based assessment with another form of assessment, such as knowledge (5, 13.9%), action (2, 5.6%), performance (4, 11.1%), or knowledge and performance (1, 2.8%). The 2 studies that did not use identity-based assessment used performance-based (1, 2.8%) or action-based (1, 2.8%) assessment only.

Outcomes

Outcomes varied widely among the reviewed studies because of different assessment methods. Of the 3 primary types of outcomes measured in the 36 reviewed studies, over half (23, 63.9%) involved student self-reported increases in confidence, knowledge, or skills related to SDH. Fifteen studies (41.7%) included an outcome assessing student satisfaction of the learning experience or some aspect of curricular quality improvement.

Student Self-Reported Knowledge, Confidence, or Skills.

The reviewed studies used a variety of methods to objectively examine outcomes related to knowledge, confidence, or skills. Self-reported outcomes in the 36 reviewed studies included perceptions of knowledge or awareness of SDH (14, 38.9%) and confidence (2, 5.6%), comfort (2, 5.6%), and familiarity (1, 2.8%) with SDH. Five studies used student documentation of patient encounters to identify increases in the frequency of documentation or mention of SDH.^{7,11,19,38,44} Two studies reported an increase in student scores on assessments that used factual, knowledge-based questions, which suggested increased knowledge.^{39,41} Several studies used student-reported outcomes related to clinical skills or abilities; some skills were related to communicating or knowing each individual's role within an interprofessional care team (2, 5.6%), recognizing when SDH were influencing a patient's health (4, 11.1%), addressing a patient's needs in relation to SDH (4, 11.1%), or referring a patient to another professional when appropriate (2, 5.6%).^{11,23,26,29,36,44}

Student Satisfaction With the Experience. Students were largely satisfied with the SDH learning experience. In the 15 studies that evaluated student satisfaction, all interventions were regarded positively by students, and they reported that experiences met the learning objectives, increased their awareness or knowledge of the subject, and motivated them to engage in better clinical practices. In one study, students specifically recommended that the learning intervention be provided to future cohorts.³¹ In another, they indicated that they wished they had received this instruction earlier in their program.²⁶

DISCUSSION

In the current scoping review, we explored the implementation of educational opportunities focused on SDH in health professions education programs. With the Commission on Accreditation of Athletic Training Education adding SDH to the 2020 standards, it is important to assist athletic training educators with how to implement this complex concept into their programs. Yet there is limited research in this area in athletic training, directing us to search for similar health care professions literature. Thirty-six studies were included in our review, and results indicated that various SDH opportunities currently exist in these programs. Overall, the educational opportunities reported in the reviewed studies successfully increased students' perceived knowledge or

awareness of the potential impact of SDH on patients. Students also self-reported satisfaction with the activities. By reviewing the current literature regarding the implementation of SDH educational opportunities in graduate health professions education programs, the results of our scoping review may provide athletic training educators with guidance for incorporating SDH into their programs. Ideally, we hope that the diverse methods of SDH integration presented in these studies will encourage and aid the integration of SDH into athletic training education.

The 36 identified and reviewed articles included in the current scoping review highlighted how SDH can be integrated into graduate-level health professions education. Our results, including the large number of articles reviewed, are similar to those of Doobay-Persaud et al.¹⁸ In that 2019 scoping review, the authors investigated teaching of SDH in undergraduate medical education.¹⁸ They reported that community engagement or clinical-based learning was used most often to teach SDH, and, as in the current study, assessment of student outcomes lacked objective measures.¹⁸ In our scoping review, we included studies from a larger number of health care professions, and the majority of studies used more than one form of curricular delivery for SDH opportunities. We found that didactic and small-group discussions were used most often. These findings support previous suggestions that SDH should be incorporated into the curriculum through multiple methods.^{10,53} In one study, Martinez et al outlined tips for incorporating SDH into undergraduate medical programs, including defining key terms, guiding students in self-reflection, using application exercises, and offering service-learning opportunities.⁵³ Many of the studies included in our review used these methods; however, most of the educational opportunities were limited to a single opportunity during a single course, which may be inadequate to prepare health care providers to address SDH in practice.

When designing educational opportunities for teaching SDH, several strategies should be considered for successful integration, such as adequate preparation, timing of the educational opportunities, and required resources.^{54,55} A strategy for avoiding negative consequences, such as unwanted bias, should also be developed before implementing these educational opportunities.⁵⁶ For instance, several studies in our review emphasized socioeconomic status in their SDH activity even though it is just one of many determinants that can affect a patient's health and care plan.^{25,29,35,38,41} By focusing on a single determinant, those authors may have introduced bias to their study. Ideally, SDH content should be taught in a way that increases student awareness of nonphysical factors that affect patient care without creating implicit bias.⁵⁷ Similarly, educators should use caution when developing teaching content for SDH to avoid adding their biases into presented materials or activities.⁵⁸ For example, using neighborhood tours or placing students at underserved clinical sites to illustrate low socioeconomic status or unsafe neighborhoods may be detrimental to students who live in or near these specific areas or identify with the demographics, as it could reduce people to their identities by using the instructional design to highlight negative SDH experiences to others. Further, low socioeconomic status should not be the sole SDH that educators teach. Instead, students should be taught the complexity and interconnectedness of all SDH. Therefore, we recommend educators be mindful of the tax that could be placed on others or a community when asked to share their story of negative SDH experiences for educational purposes.

In the current scoping review, assessment of student learning was rarely included as an outcome in the reviewed studies. Although our results suggested students had positive perceptions of their learning experiences and increased their knowledge of SDH, reported assessments were most often self-reflective and not objective or performance based. Similar gaps have been noted in other studies.^{18,59} Until better assessment strategies are implemented, it is difficult to evaluate students' actual knowledge of SDH. However, Mangold et al suggested guidelines for determining what SDH content should be assessed, how to evaluate it, and who should assess it.⁵⁹ Although that study focused on improving physician and physician assistant knowledge of SDH, their experts ranked standardized patient encounters as the top method for assessing student knowledge of SDH.⁵⁹ To assess student skills related to SDH, they ranked standardized patient encounters, direct observation during clinical experiences, and skill-based assessments as the top methods to be used.⁵⁹ Although additional studies are needed, these rankings may serve as a starting point to assist athletic training educators with formulating SDH assessments that are appropriate for the profession.

Several limitations should be considered when interpreting our results. The current scoping review included only articles written in English and published within the past 5 years. Our results were also limited by the information and level of detail reported in the 36 reviewed studies. Therefore, the limitations of those studies should also be considered. For example, most studies did not provide demographic data about the participating students, so results cannot be generalized to every graduate health profession student and program. Further, the time to develop the SDH educational opportunities, allocation of faculty, and costs associated with each educational opportunity were not provided in the majority of studies, which limited our ability to report these finer details in our review. Similarly, information about the assessment of the educational opportunities in the reviewed studies lacked detail and, ultimately, limited our ability to assess student knowledge. Therefore, the extent to which these educational opportunities improved student knowledge of SDH remains unknown. Future research should investigate how to evaluate student outcomes objectively.

EDUCATIONAL IMPLICATIONS AND RECOMMENDATIONS

Social determinants of health content and activities should be strategically planned and interwoven into professional athletic training curricula. This scoping review details the breadth of educational opportunities that have been implemented successfully in various graduate health professions programs. Before implementation, educators should consider several aspects of curricular delivery related to SDH, including reducing bias, implementation logistics, and objective assessment of student knowledge. To further the research conducted in this topic area for the athletic training profession, educators should consider disseminating SDH educational opportunities that they currently use in their programs.

BOTTOM LINE

Social determinants of health educational opportunities are provided to graduate health profession students in a variety of ways and, in many instances, throughout their programs. Athletic training educators should consider implementing some of the successful opportunities presented in this review

and develop objective assessment measures to capture changes in students' knowledge.

CONCLUSIONS

Despite the increased need to educate future health care providers about SDH, there are no concrete guidelines on how to do so for many health professions, especially athletic training. The results of our scoping review identified the most recent educational opportunities for implementing SDH into graduate health education programs and highlighted gaps in the literature related to the assessment and measured outcomes of these opportunities. Therefore, all health professions educators should continue efforts to share and disseminate educational opportunities related to SDH to improve student outcomes and the care of future patients. Additional studies should also be conducted to investigate the best methods for assessing student learning and knowledge of SDH.

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