Secondary School Athletic Trainers' Perceptions of the Influence of Social Determinants of Health and Socioeconomic Status on Clinical Management Decisions

Mayrena Isamar Hernandez, PhD, MPH, ATC*; Elena Catherine Miller†; Kevin M. Biese, PhD, ATC‡; Luis Columna, PhD†; Susan Andreae, MPH, PhD†; Timothy A. McGuine, PhD, ATC§; Traci R. Snedden, PhD, RN, CPNP-PC, CNEII; Lindsey E. Eberman, PhD, LAT, ATC¶; David Robert Bell, PhD, ATC†

*Department of Kinesiology, Sam Houston State University, Huntsville, TX; †Department of Kinesiology, University of Wisconsin-Madison; ‡Kinesiology and Athletic Training, University of Wisconsin-Oshkosh; §Department of Orthopedics and Rehabilitation and IISchool of Nursing, University of Wisconsin-Madison; ¶Neuromechanics, Interventions, and Continuing Education Research (NICER) Laboratory, Indiana State University, Terre Haute

Context: Evidence suggests that lower socioeconomic status (SES) and negative social determinants of health (SDOH) contribute to health care disparities. Due to their accessibility in the high school setting, secondary school athletic trainers (SSATs) may encounter patients who are historically underserved in health care, such as patients with low SES. However, a significant gap in knowledge exists regarding how SDOH and SES may influence SSATs' clinical management decisions.

Objectives: To describe SSATs' perceptions of how patient SDOH and SES influence clinical management decisions and to identify barriers to athletic health care.

Design: Cross-sectional study.

Setting: Online survey.

Participants or Other Participants: National Athletic Trainers' Association SSATs (6.7% response rate).

Main Outcome Measure(s): Secondary school athletic trainers were asked about their perceptions of patient SDOH and SES (content validity index = 0.83 for relevancy). The levels of relevance and agreement were answered on a 4-point Likert

scale. Data were summarized using means and SDs, frequencies and proportions (%), and median scores.

Results: A total of 380 SSATs participated (mean years of experience = 14.9 ± 11.7 years). When providing care, most (71.3%) SSATs believed their patients' health or health care access to be the most relevant of the 5 SDOH, whereas the other 4 SDOH were less than 60% relevant. Most SSATs agreed or strongly agreed that patient SES affected both referral (67.4%) and the reliance on conservative treatment before referral (71.2%). Secondary school athletic trainers identified patient or guardian compliance (70.2%) and type of health insurance (61.5%) as barriers to providing care to patients with low SES.

Conclusions: Secondary school athletic trainers perceived health or health care access as the most relevant social determinant when providing care to patients with low SES. When SSATs further considered the SES of patients, they identified all SDOH as barriers that they were ill equipped to navigate as they delivered care and engaged in patient referral.

Key Words: health disparities, professional development

Key Points

- Secondary school athletic trainers perceived health and health care access as the most relevant social determinant of health when providing care to patients with low socioeconomic status.
- Most secondary school athletic trainers did not feel their athletic training education programs prepared them to identify, provide care to, or make care comprehensible to patients with low socioeconomic status.
- Secondary school athletic trainers perceived that many barriers were relevant to all 5 social determinants of health when providing care to patients with low socioeconomic status.

S econdary school athletic trainers (SSATs) play a critical role in providing medical services that affect the health and well-being of the secondary school community.^{1,2} Fifteen million adolescents attended secondary school and 7.6 million secondary school students participated in interscholastic

sports in the 2021–2022 school year.³ With nearly half of the secondary school student population in the United States being involved in sports, SSATs are uniquely positioned to serve an integral role in the health care of their student-athletes. Due to this unique position, SSATs interact with many

youth sport community stakeholders, such as parents, doctors, coaches, administration, and other allied health care providers.²

Secondary school ATs' unique position within the school means they encounter patients with a plethora of backgrounds, which often requires the SSATs to navigate a variety of factors that can act as barriers to upholding the standard of care. These include their patients' social determinants of health (SDOH) and socioeconomic status (SES).⁴ Social determinants of health are "conditions in the environment where people are born, grow, live, work, play, worship, and age."5(p1542) They are conditions or circumstances that are shaped by families and communities and by the distribution of money, power, and resources at the global, national, and local levels. Inequities in these determinants among groups of people shape how society is organized, creating hierarchies.⁶ These hierarchies are based on factors such as income, gender, and race, which ultimately affect health and can lead to the health disparities in the United States.⁷ Secondary school ATs often encounter their patients daily for weeks, months, or even years. This often enables SSATs to glean specific insights into a patient's life that may not be available to other health care providers. In some cases, this may include the patient feeling comfortable enough to share information about his or her family's economic stability, neighborhood and physical environments, education level, access to food, and community and social context, such as support.^{8,9} However, no evidence to date has shown how SSATs perceive their patients' SDOH and SES and how those perceptions can affect clinical decisions for patients with low SES. Furthermore, how ATs' education prepared them to provide athletic health care to patients with negative SDOH and low SES is unknown.

Socioeconomic status is defined as the social standing or class of an individual or group and is often measured as a combination of income, education, and occupation.¹⁰ Socioeconomic status can also encompass a wide range of associated factors such as insurance status, free or reduced-price lunch status, food insecurity, immigration status, and health literacy, which are important determinants of physical, psychological, and social developments and of inequalities in health-related quality of life.^{10,11} Low SES negatively affects the timing of care and clinical outcomes after musculoskeletal injuries.¹² For example, anterior cruciate ligament reconstruction surgery in patients with low SES was delayed by 84 days versus patients with high SES.¹³ This puts the former at risk for further health care disparities, such as postoperative complications, decreased range of motion postoperatively, and more retears of the anterior cruciate ligament and other structures.¹³ Similar delays are seen with treatment of acute knee injuries in adolescents: the odds of obtaining an appointment using private insurance were approximately 57 times higher than for those with Medicaid.¹² Additionally, clinicians have perceived several barriers to providing care to patients with low SES, including greater levels of morbidity, more psychosocial problems, lower health literacy, less compliance with treatment, and not being able to afford certain medication or specialty referrals.^{5,14,15} These delays in their patients' health care access and similar barriers are potentially witnessed and perceived by SSATs as they provide administrative assistance through the referral process.

Though SSATs may be dealing with similar problems, as outlined in research on physicians' care of patients with low SES, a significant gap in knowledge exists regarding how a patient's SES status influences SSATs' clinical management decisions. Therefore, the purpose of our study was to determine SSATs' perceptions of how patient SDOH and SES influenced clinical management decisions and to identify perceived barriers to athletic health care. We theorized that SSATs would perceive and encounter similar barriers to physicians when providing care to patients with low SES. A secondary purpose of this study was to investigate SSATs' educational preparation for identifying and managing patients with low SES. These factors are important because knowing SSATs' perceptions of the role of low SES on clinical management decisions and its barriers can offer insight into the source of the current quality disparities and inform amelioration efforts by highlighting specific challenges to providing high-quality care for their student-athletes with low SES. We hypothesized that most SSATs would not feel prepared by their athletic training programs (ATPs) to make clinical management decisions based on their patients' SDOH and SES.

METHODS

Research Design

The investigation was approved by the Institutional Review Board of The University of Wisconsin – Madison. The overall design was a cross-sectional online survey via Qualtrics. This descriptive survey was the first attempt to objectively ascertain SSATs' perceptions of SDOH and SES and their perceptions of clinical management decisions in their patients with low SES. This survey contained 36 questions and took approximately 15 minutes to complete. It was distributed to SSATs in the United States by the National Athletic Trainers' Association (NATA) Research Survey Service. The only inclusion criterion was that the participant be a practicing SSAT at the time of survey completion. The survey remained open for 6 weeks, with reminder emails sent every 2 weeks.

Procedures and Instrumentation

A survey designed to assess ATs' perceptions of SDOH and SES in relation to their clinical management decisions was used (see Supplemental Appendix 1, available online at https:// dx.doi.org/10.4085/1062-6050-0445.22.S1). This instrument was designed by 3 licensed and certified ATs (master's degrees = 2, PhD = 1) with expertise in quantitative health survey research and public health. Nonformalized interviews took place with 6 currently practicing SSATs to advise the primary investigator on survey wording and how satisfactory the survey items were in addressing the research questions. After edits to the survey were implemented, a formal content validity process was conducted. A panel of 6 content-area experts completed the content validity index process as described by Polit et al.¹⁶ The panel consisted of 5 ATs and 1 medical doctor with a specialty in youth sport medicine. The panel had an average of 10 years of licensed clinical experience (range = 5-20years). The highest degrees obtained by the ATs ranged from a master's degree (n = 3) to PhD (n = 2), with 1 AT in pursuit of the PhD. An item content validity index was calculated for each question: the number of raters who ranked an item as *quite* or *highly relevant* was divided by the total number of raters. Content validity indices >0.83were included in the final survey to ensure a high level of relevancy.¹⁶ The instrument was piloted by 5 SSATs using a focus group to make changes to any confusing wording. The final survey was divided into 3 sections: (1) an overview of

the study and consent, (2) demographic information and school or employment, and (3) perceptions of the influence of SDOH and SES in relation to their clinical management decisions. Section 3 consisted of 4-point Likert scales on the level of relevance (not relevant, slightly relevant, somewhat relevant, or very relevant) and agreement (strongly disagree, *disagree*, agree, or strongly agree). The final question on barriers to providing care consisted of a select-all-thatapply response with an option to select *no barriers*. The survey was launched for data collection in July 2021.

Data Analysis

Data were summarized by means and SDs, frequencies and proportions (%), and median scores where appropriate. Most of the results were framed according to the level of relevance (not relevant, slightly relevant, somewhat relevant, or very relevant) and agreement (strongly disagree, disagree, agree, or strongly agree).

RESULTS

All potential participants were SSATs and NATA members who agreed to be contacted by the NATA about involvement in survey-based research. The NATA sent surveys to 7177 SSATs. Of these, 488 SSATs started the survey (6.7% response rate), and 445 SSATs completed part or all of it. Of the 445 SSATs, 1 participant did not agree to proceed with the survey, and 14 ATs indicated they were not currently practicing SSATs. Therefore, a total of 430 participants completed 96% of the survey questions.

A total of 380 SSATs met all qualifications and completed the survey in its entirety (years of experience mean = $14.9 \pm$ 11.7 years; 88% completion rate). Participant and school demographics, including their highest level of education, race or ethnicity, years of certified AT clinical experience, secondary school setting, Title I status of the secondary school, free or reduced-price lunch status of the students at their secondary school, and secondary school locale are provided in Tables 1 and 2.

Table 1. Participant Demographics^a

	No. (%)
Highest education	
Bachelor's	103 (27.1)
Master's	249 (65.5)
Clinical doctorate	9 (2.4)
PhD or EdD	4 (1.1)
Other	15 (3.9)
Race or ethnicity	
American Indian or Alaskan Native	2 (0.5)
Asian	8 (2.1)
Black or African American	12 (3.2)
Hispanic Latino or Spanish origin	21 (5.5)
Native Hawaiian or Pacific Islander	3 (0.8)
White	326 (86)
Some other race or origin	7 (1.8)
Did not disclose	1 (0.3)
Athletic trainer certified, y	
<u>≤</u> 4	100 (26.3)
5–11	94 (24.7)
12–25	97 (25.5)
≥26	89 (23.4)
a Not all participante answered all items	

Not all participants answered all items.

Private school	71 (18.7)
Public school	309 (81.3)
Title I school	165 (56.1)
Students eligible for free lunch	3016 (83.7)
Students eligible for reduced-price lunch	601 (1.7)
Locale	
City	87 (24.9)
Suburb	126 (36.1)
Town	54 (15.5)
Rural	82 (23.5)
Did not disclose	31 (8.2)
Total number of schools	380 (100)

Most SSATs believed that their patients' economic stability (n = 256, 64.8%), health and health care access (n = 281, 1)71.3%), and neighborhood and built environment (n = 236, 59.8%) were relevant (somewhat or very relevant) SDOH when providing care (Table 3). However, only 50.6% (n = 200) of SSATs believed their patients' education and 46.6% (n = 183) believed their patients' social and community contexts were relevant when providing care (Table 3).

The majority of SSATs agreed (agreed or strongly agreed) that patient health insurance affected the referral for advanced care (n = 261, 67.4%) and the reliance on conservative treatment or measures before the referral for advanced care (n =275, 71.2%; Table 4). Yet fewer SSATs agreed (agreed or strongly agreed) that their patients' SES affected which doctor they were referred to (n = 188, 48.6%) and how soon a doctor recommended them for surgery (n = 173, 44.9%; Table 4).

Most SSATs disagreed (strongly disagreed or disagreed) that their ATP prepared them on how to identify patients with low SES (n = 275, 71.1%), how to provide care to these patients (n = 229, 59.2%), and how to make care comprehensible to them (n = 236, 61%; Table 5).

The top 3 barriers to providing care to low-SES patients were patient or guardian compliance (n = 297, 70.2%), type of health insurance (n = 260, 61.5%), and home support (n = 10.5%)256, 60.5%; Table 6). Time for the patient (n = 126, 29.8%), a language barrier with the patient or guardian (n = 179, 42.3%), and patient or guardian distrust of health care (n = 188, 44.4%) were identified as the bottom 3 barriers to providing care to patients with low SES.

DISCUSSION

In this study, we focused on SSATs' perceptions of the influence of patient SDOH and SES on athletic health care as well as how their ATP prepared them to encounter patients with various SDOH and SESs. Several findings were particularly notable. First, SSATs identified health and health care as the most relevant social determinant when providing care to patients with low SES. However, all 5 SDOH were cited as part of clinical management decisions for these patients. For example, the health and health care access social determinant consists of health coverage or insurance, provider availability, provider linguistic and cultural competency, and quality of care.¹⁷ Secondary school ATs interact with each of these factors on a daily basis.⁸ This is demonstrated by the scope of practice SSATs supply, including preparticipation eligibility requiring insurance for student-athletes, interacting with the referral process in the continuum of care for their patients, and seeing diverse populations of students in their US secondary

Table 3.	Relevance of Socia	Determinants of Healt	When Providing	g Health Care, No. ((%)	
----------	--------------------	-----------------------	----------------	----------------------	-----	--

Factor	Not Relevant	Slightly Relevant	Somewhat Relevant	Very Relevant
Economic stability	52 (13.2)	87 (22)	139 (35.2)	117 (29.6)
Education	70 (17.7)	125 (31.6)	134 (33.9)	66 (16.7)
Social and community context	98 (24.9)	112 (28.5)	123 (31.3)	60 (15.3)
Health and health care	33 (8.4)	80 (20.3)	126 (32)	155 (39.3)
Neighborhood and built environment	53 (13.4)	106 (26.8)	137 (34.7)	99 (25.1)

schools.^{2,8,18,19} Most SSATs agreed that their patients' SES affected the referral for advanced care and the reliance on conservative treatment or measures. Authors of a previous study determined that the most used services were strapping for affluent SES schools, modalities for average SES schools, and therapeutic exercises for disadvantaged SES schools.¹⁹ These results indicate that the SSAT services in low-SES schools might find alternate or less expensive supplies and equipment due to their school or patients' budget restrictions.

The SSATs perceived delays in health care and their patients' health insurance as barriers they encountered when caring for patients with low SES. Our findings are consistent with those from other allied health professionals, such as physicians and nurses,²⁰ which showed that health care providers were more likely to delay diagnostic testing, prescribe more generic medication, and avoid referral to specialty care for patients with low SES.²¹ However, most of our SSATs (55.2%) disagreed that they witnessed physicians delay surgery for these patients. Theoretically, this may speak to the unique role SSATs may play alongside orthopaedic surgeons who serve as team doctors for their secondary schools; this relationship might mitigate delays in surgery for their patients with low SES.

Secondary school ATs also selected patient or guardian compliance and home support as additional barriers to providing care to patients with low SES. This barrier could have several interpretations, as patient or guardian compliance and home support may refer to individual family dynamics. For instance, some siblings may be in charge of caring for a younger sibling, thereby hindering their ability to attend rehabilitation sessions.⁴ Prioritizing support for other family members; navigating family dynamics of separation, divorce, or blended families; or experiencing illness and death in the family that affects patients' home support can all be misinterpreted as patient noncompliance.²² Furthermore, patient noncompliance has been linked with a lack of income for resources related to a patient's health care plan as well as an unsafe neighborhood environment and negative physical environment.²³ Our findings align with those of earlier researchers, who observed that people with a lower household income were more likely to be perceived as noncompliant.²⁴ A parent or guardian with low SES might have work conflicts that interfere with the management of injuries an SSAT may want to provide for his or her child. Although SSATs identified the health and health care access social determinant as most relevant, they acknowledged that other areas also affected their care.

Fewer than half of the SSATs we surveyed characterized language or limited English proficiency as major barriers to providing care to patients with low SES. Patients or guardians with limited English proficiency experienced disparities related to the quality and safety of medical care.²⁵ The SSATs in our study may have ranked language barriers lower than other barriers due to being in the secondary school setting. Secondary schools can provide many resources for students and families with limited English proficiency, such as translators, but these services might not be readily available after school hours, when an SSAT would be providing care at sporting events.²⁶ Similarly, SSATs described a lack of formal training when trying to communicate and provide care to nonnative English speakers and having to become more resourceful to overcome this barrier.²⁷ Time for the patient may have been ranked low due to SSATs' ability to interact with all studentathletes, regardless of their SES. Furthermore, health literacy, their patient's or guardian's education level, and distrust of the health care system were perceived as barriers in providing care to patients with low SES. These outcomes align with barriers faced by other health care professionals when supplying care to their patients with low SES.²⁸ Previous investigators demonstrated that patient compliance was tied to offering reassurance to patients, allowing them to ask questions, showing and explaining results, avoiding language and behaviors that were judgmental, and asking patients what they wanted when discussing treatment goals and preferences.²⁹ These factors may not have ranked higher due to SSATs' primary interactions with student-athletes. Secondary school ATs may be accustomed to a lower health literacy and education level in their young patients. Distrust of the health care system may not be as prevalent in a young population that has not yet had to navigate the health care system on their own.

Understanding their patients' SDOH and SES can help SSATs provide better care and better target their patient outreach and engagement efforts by identifying patients who need more community support and social services to overcome barriers to health care.³⁰ Failing to understand patients' SDOH and SES and lacking awareness of their importance in health care interactions can result in a diminished ability to supply culturally proficient and comprehensive patientcentered care and promote patient health and well-being.⁸

Table 4. Patient's Socioeconomic Status Effect on Health and Health Care, No. (%)

Factor	Strongly Disagree	Disagree	Agree	Strongly Agree
Referral for advanced care	46 (11.9)	80 (20.7)	178 (46)	83 (21.4)
Which doctor to refer	61 (15.8)	138 (35.7)	140 (36.2)	48 (12.4)
Reliance on conservative treatment or measures before referral for advanced care	30 (7.8)	81 (21)	192 (49.7)	83 (21.5)
How soon a doctor recommends patient for surgery	45 (11.7)	168 (43.5)	145 (37.6)	28 (7.3)

Table 5. Athletic Training Program Preparation, No. (%)

Aspect	Strongly Disagree	Disagree	Agree	Strongly Agree
How to identify patients with low SES	72 (18.6)	203 (52.5)	94 (24.3)	18 (4.7)
How to provide care to patients with low SES	60 (15.5)	169 (43.7)	137 (35.4)	21 (5.4)
How to make care comprehensible to patients with low SES	65 (16.8)	171 (44.2)	126 (32.6)	25 (6.5)

Abbreviation: SES, socioeconomic status.

Most of the SSATs in our study indicated they did not feel prepared by their ATP to identify or provide care for their patients with low SES. This finding was consistent with results from other settings, such as family physicians and allied health professionals not feeling prepared to support patients after completing their educational programs.²⁰ The Commission on Accreditation of Athletic Training Education recently updated its 2020 Standards for Accreditation of Professional Athletic Training Programs to include SDOH.⁸ These changes will aid future generations of SSATs in understanding the effects of SDOH on patients and thus positively influence patient health outcomes. Future researchers should assess if these standards taught didactically and clinically translate to better perceived preparedness in providing athletic health care to patients with low SES.

LIMITATIONS AND FUTURE RESEARCH

Our cross-sectional design allowed us to better comprehend SSATs' perceptions of providing care to patient populations with low SES. Despite the advantages of the cross-sectional design, we did not specifically ask participants the level of education at which their athletic training degrees were obtained; therefore, we cannot generalize these findings to a certain level of ATP. Future investigators should see if these outcomes are consistent with the current master's level ATP graduates. Though the survey was emailed through the NATA Research Survey Service to 7177 SSATs, only 6.7% responded. Hence, selection bias toward SSATs who were interested in patients? SDOH and SESs may have played a role. This response rate was similar to that of many studies during COVID-19, when "survey fatigue" was a likely factor; however, the various years of experience, private versus public school secondary school setting, and participant demographics matched those of the general NATA SSAT population.³¹ Such a low response rate is not abnormal for survey studies in athletic training.^{32,33} Future authors should consider a qualitative study to further investigate why SSATs perceived health and health care access as the most relevant social determinant and how SSATs can mitigate low-SES barriers when providing health care and using the referral

 Table 6. Barriers in Providing Care to Low–Socioeconomic

 Status Patients, No. (%)

Factor	No	Yes
Time for patient	297 (70.2)	126 (29.8)
Type of health insurance	163 (38.5)	260 (61.5)
Language barrier with patient or guardian	244 (57.7)	179 (42.3)
Resources for patient or guardian	230 (54.4)	193 (45.6)
Patient or guardian education	232 (54.8)	191 (45.2)
Patient or guardian compliance	126 (29.8)	297 (70.2)
Patient or guardian distrust of health care	235 (55.6)	188 (44.4)
Delay in health care	186 (44)	237 (56)
Home support	167 (39.5)	256 (60.5)
No barriers	409 (97.4)	11 (2.6)

process for advanced care. Qualitative research would also allow for an evaluation of ATPs to determine what has and has not been helpful to clinicians in the secondary school setting when providing care to patients with low SES.

CONCLUSIONS

Secondary school ATs perceived health and health care access as the most relevant social determinant when supplying care to patients with low SES. However, when SSATs further considered the SES of their patients, they identified all SDOH as barriers for their patients with low SESs. Secondary school ATs did not feel prepared to support their patients when negative consequences of their SDOH and SES occurred. Many other health professionals have also indicated not feeling prepared by their health professional programs to navigate barriers related to SDOH and support their patients. Secondary school ATs are in a unique position to navigate many if not all SDOH in their daily practice and improve the health of their adolescent patients. An emphasis on SDOH during professional education in the classroom, clinical education, simulations, and interprofessional development can increase awareness and help identify patients' SDOH. Future investigators should emphasize how to seamlessly incorporate SDOH into ATPs as well as create resources to support SSATs in navigating the challenges related to providing care to patients with low SES.

ACKNOWLEDGMENTS

We thank the members of our research team and the NATA for their support of this study. We are also incredibly grateful to the SSATs who participated in this study.

REFERENCES

- Shanley E, Thigpen CA, Chapman CG, Thorpe J, Gilliland RG, Sease WF. Athletic trainers' effect on population health: improving access to and quality of care. *J Athl Train*. 2019;54(2):124–132. doi:10.4085/ 1062-6050-219-17
- Pandya NK. Disparities in youth sports and barriers to participation. *Curr Rev Musculoskelet Med.* 2021;14(6):441–446. doi:10.1007/s12178-021-09716-5
- 2018–19 High school athletics participation survey. National Federation of State High School Associations. Accessed March 3, 2020. https:// www.nfhs.org/media/1020412/2018-19 participation survey.pdf
- 4. Wilkinson RG, Marmot M, eds. *Social Determinants of Health: The Solid Facts.* 2nd ed. World Health Organization; 2003.
- DiPietro Mager N, Smith Moore T. Healthy People 2030: roadmap for public health for the next decade. *Am J Pharm Educ.* 2020;84(11):8462. doi:10.5688/ajpe8462
- Viner RM, Ozer EM, Denny S, et al. Adolescence and the social determinants of health. *Lancet*. 2012;379(9826):1641–1652. doi:10. 1016/S0140-6736(12)60149-4

- Sharma M, Pinto AD, Kumagai AK. Teaching the social determinants of health: a path to equity or a road to nowhere? *Acad Med*. 2018;93(1):25–30. doi:10.1097/acm.00000000001689
- Picha KJ, Welch Bacon CE, Normore C, Snyder Valier AR. Social determinants of health: considerations for athletic health care. J Athl Train. 2022;57(6):521–531. doi:10.4085/1062-6050-0010.21
- Picha KJ, Welch Bacon CE, Bay C, Lewis J, Snyder Valier AR. Athletic trainers' familiarity, comfort, knowledge, and recognition of social determinants of health. *J Athl Train*. Published online February 24, 2023. doi:10.4085/1062-6050-0337.22
- Measuring socioeconomic status and subjective social status. American Psychological Association. Accessed October 4, 2023. https:// www.apa.org/pi/ses/resources/class/measuring-status
- Willems S, De Maesschalck S, Deveugele M, Derese A, De Maeseneer J. Socio-economic status of the patient and doctor-patient communication: does it make a difference? *Patient Educ Couns.* 2005;56(2):139–146. doi:10.1016/j.pec.2004.02.011
- Pierce TR, Mehlman CT, Tamai J, Skaggs DL. Access to care for the adolescent anterior cruciate ligament patient with Medicaid versus private insurance. *J Pediatr Orthop*. 2012;32(3):245–248. doi:10.1097/ BPO.0b013e31824abf20
- Patel AR, Sarkisova N, Smith R, Gupta K, VandenBerg CD. Socioeconomic status impacts outcomes following pediatric anterior cruciate ligament reconstruction. *Medicine (Baltimore)*. 2019;98(17): e15361. doi:10.1097/MD.000000000015361
- Carrillo JE, Green AR, Betancourt JR. Cross-cultural primary care: a patient-based approach. *Ann Intern Med.* 1999;130(10):829–834. doi:10. 7326/0003-4819-130-10-199905180-00017
- Bernheim SM, Ross JS, Krumholz HM, Bradley EH. Influence of patients' socioeconomic status on clinical management decisions: a qualitative study. *Ann Fam Med.* 2008;6(1):53–59. doi:10.1370/afm.749
- Polit DF, Beck CT, Owen SV. Is the CVI an acceptable indicator of content validity? Appraisal and recommendations. *Res Nurs Health*. 2007;30(4):459–467. doi:10.1002/nur.20199
- 17. Social Determinants of Health. World Health Organization; 2008.
- Hoffman MA, Johnson ST, Norcross MF. The intersection of athletic training and public health. J Athl Train. 2019;54(2):121. doi:10.4085/ 1062-6050-54-02
- Robison HJ, Simon JE, Nelson EJ, Morris SN, Wasserman EB, Docherty CL. Secondary school socioeconomic status and athletic training practice characteristics. *J Athl Train*. 2022;57(4):418–424. doi:10.4085/1062-6050-0726.20
- 20. Naz A, Rosenberg E, Andersson N, Labonté R, Andermann A; CLEAR Collaboration. Health workers who ask about social determinants of health are more likely to report helping patients: mixedmethods study. *Can Fam Physician*. 2016;62(11):e684–e693.
- Arpey NC, Gaglioti AH, Rosenbaum ME. How socioeconomic status affects patient perceptions of health care: a qualitative study. *J Prim Care Community Health.* 2017;8(3):169–175. doi:10.1177/2150131917697439
- 22. Freiburger R, Picha KJ, Welch Bacon CE, Snyder Valier AR. Educational technique: incorporating social determinants of health into

athletic training education. *Athl Train Educ J.* 2020;15(4):321–330. doi:10.4085/1947-380x-79-19

- Bharmal N, Derose KP, Felician M, Weden MM. Understanding the upstream social determinants of health. RAND Corporation. Published May 2015. Accessed October 5, 2023. https://www.rand.org/ content/dam/rand/pubs/working_papers/WR1000/WR1096/RAND_ WR1096.pdf
- 24. Lee H, Park JH, Floyd JS, Park S, Kim HC. Combined effect of income and medication adherence on mortality in newly treated hypertension: nationwide study of 16 million person-years. J Am Heart Assoc. 2019;8(16):e013148. doi:10.1161/JAHA.119.013148
- Steinberg EM, Valenzuela-Araujo D, Zickafoose JS, Kieffer E, DeCamp LR. The "battle" of managing language barriers in health care. *Clin Pediatr (Phila)*. 2016;55(14):1318–1327. doi:10.1177/0009922816629760
- Nathenson RA, Saloner B, Richards MR, Rhodes KV. Spanish-speaking immigrants' access to safety net providers and translation services across traditional and emerging US destinations. *Milbank Q.* 2016; 94(4):768–799. doi:10.1111/1468-0009.12231
- Stanton BM, Rivera MJ, Winkelmann ZK, Eberman LE. Support systems and patient care delivery for nonnative English-speaking patients: a study of secondary school athletic trainers. *J Athl Train*. 2022;57(2):148–157. doi:10.4085/1062-6050-0181.21
- Andermann A; CLEAR Collaboration. Taking action on the social determinants of health in clinical practice: a framework for health professionals. *CMAJ*. 2016;188(17–18):E474–E483. doi:10.1503/ cmaj.160177
- Dang BN, Westbrook RA, Njue SM, Giordano TP. Building trust and rapport early in the new doctor-patient relationship: a longitudinal qualitative study. *BMC Med Educ.* 2017;17(1):32. doi:10.1186/s12909-017-0868-5
- Williams DR, Costa MV, Odunlami AO, Mohammed SA. Moving upstream: how interventions that address the social determinants of health can improve health and reduce disparities. *J Public Health Manag Pract.* 2008;14(Suppl):S8–S17. doi:10.1097/01.PHH.0000338382.36695.42
- Babiarz AM, Edler Nye JR, Neil ER, Eberman LE. Athletic trainers' selection behaviors related to multi-session continuing education conferences. *Athl Train Educ J.* 2021;16(1):59–70. doi:10.4085/1947-380x-19-083
- Winkelmann ZK, Games KE, Rivera MJ, Neil ER, Eberman LE. Athletic trainers' knowledge and practice application of public health topics. *Athl Train Educ J.* 2020;15(4):308–320. doi:10.4085/1947-380x-19-047
- Connell SA, Winkelmann ZK, Games KE. Athletic trainers' exposure to telemedicine influences perspectives and intention to use. *Athl Train Sports Health Care*. 2021;13(4):e193–e201. doi:10.3928/19425864-20200915-03

SUPPLEMENTAL MATERIAL

Supplemental Appendix 1. National Athletic Trainers' Association Secondary School Athletic Trainers Survey

Found at DOI: https://dx.doi.org/10.4085/1062-6050-0445.22.S1

Address correspondence to Mayrena Isamar Hernandez, PhD, MPH, ATC, Department of Kinesiology, Sam Houston State University, 1900 Ave I, Suite 107, Box 2176, Huntsville, TX 77341-2176. Address email to mih012@shsu.edu.