

Theory-Informed Clinical Practice: How Physical Therapists Can Use Fundamental Interventions to Address Social Determinants of Health

Dana McCarty, PT, DPT^{1,*}, Meghan Shanahan, PhD, MPH²

¹Division of Physical Therapy, School of Medicine, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, USA

²Department of Maternal and Child Health, Gillings School of Global Public Health, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, USA.

*Address all correspondence to Dr McCarty at: dana_mccarty@med.unc.edu

Abstract

The American Physical Therapy Association's Vision Statement for the profession is guided by principles of innovation, access, equity, and advocacy, and calls on physical therapists to stretch their influence beyond the walls of the clinic and the individuals they treat. Access and equity are problems that span multiple health care professions and entities; yet, addressing social determinants of health is a paradigm shift that clinicians need continued support to achieve. This article has 2 objectives: (1) to define the Fundamental Cause Theory and the Socioecological Model within the context of physical therapy in order to promote best clinical practice, and (2) to apply the concept of "fundamental interventions" in clinical practice to mitigate the negative impact of downstream effects of social determinants of health across levels of the Socioecological Model—individual, interpersonal, institutional, community, and societal. This theoretical lens provides the conceptual framework necessary for physical therapists to think creatively about ways to change their practice in their own contexts to impact the life of individual patients and transform the movement health of society.

Impact. As health care providers, physical therapists have a responsibility to make every effort to meet the needs of their patients and optimize movement health in society; yet significant structural and systemic barriers often prevent patients from reaching their fullest potential. Clinicians can no longer subscribe to a narrow scope of practice focused on individual attainment of therapy goals. This Perspective discusses Fundamental Cause Theory and the Socioecological Model theoretical frameworks that can help physical therapists develop, test, and implement functional interventions to address the needs of society as a whole.

Keywords: American Physical Therapy Association, Policies, Standards, Measurement, Basic Theory, Science, Positions, Public Health, Social Responsibility

Introduction

Since 2013, the American Physical Therapy Association's (APTA's) Vision Statement for the profession has been, "transforming society by optimizing movement to improve the human experience."¹ This vision, guided by principles of innovation, access, equity, and advocacy, calls on physical therapists to stretch their influence beyond the walls of the clinic and the individuals they treat. More specifically, the APTA's guiding principle for "Access/Equity" calls on physical therapists to "recognize health inequities and disparities and work to ameliorate them through innovative models of service delivery, advocacy, attention to the influence of the social determinants of health on the consumer, [and] collaboration with community entities to expand the benefit provided by physical therapy."¹ In the APTA's 2020 Lynda D. Woodruff lecture, Greg Hicks, PT, PhD, FAPTA stated that the physical therapy profession is "a relatively homogenous group of professionals who exist in a health care system with significant issues related to unequal access and health care disparities based on race, ethnicity, socioeconomic status, and geographic location [that] to date . . . has done very little to address this public health concern."²

Social determinants of health (SDOH) are the societal conditions where people grow up, live, and work and include specific factors such as race and ethnicity, early childhood development, sexual orientation, education, income, food security, housing, transportation, and access to health care.³ Using the International Classification of Functioning, Disability, and Health (ICF)⁴ model, SDOH are often the contextual factors—both personal and environmental—that dynamically interact with the patient's health condition to influence meaningful activity and participation.⁴ Although access and equity are problems that span multiple health care professions and entities, addressing SDOH in physical therapist practice is a paradigm shift that clinicians need continued support to achieve.^{5–8} Although the barriers for implementing this kind of practice may be due to a wide range of factors, including limited knowledge of SDOH on the part of the clinician or limited resources on the part of the institution, there remains a gap between optimal comprehensive care and current standard practice.^{2,9,10}

Whereas the historical focus of physical therapist evaluation and treatment has been to individualize plans of care based on the particular needs of each patient,⁸ this professional vision requires what Reich and colleagues termed "structural competency,"¹¹ or the capability of clinicians to address social determinants of their patients' health. Structural competency cannot simply be attained by the therapist's individual commitment to develop it; but requires administrative and institutional support by way of educational interventions, referral networks, and resource provision. Ultimately, the clinician's ability to recognize and respond to SDOH to effectively increase access and equity for their patients will continue to be hampered under the current model of care delivery with structural and societal mechanisms presently in place (ie, lack of universal health care coverage and limited patient resources including transportation). True change towards a new vision of physical therapist care requires a paradigm shift where teams of clinicians and administrators work together to deconstruct and reconstruct how we deliver optimal care.

The first step in the process of transforming patient care delivery is to reimagine what best clinical practice looks

like in physical therapy. Systems-based theory offers a structural framework for this paradigm shift from focusing on solely individual-level patient considerations to incorporating interpersonal-, institutional-, community-, and societal-level considerations into treatment plans. This theoretical lens can shift the perspective of clinicians and their organizations from tailoring interventions towards the individual patient to facilitate meaningful action and change across all levels of patient care, in alignment with the APTA's guiding principles.

This article has 2 objectives: (1) to define the Fundamental Cause Theory (FCT) and the Socioecological Model (SEM) within the context of physical therapy in order to promote best practice, and (2) to apply the concept of Reich's "fundamental interventions"¹¹ in clinical practice in order to mitigate the negative impact of the downstream effects of SDOHs at the 5 levels of the SEM—individual, interpersonal, institutional, community, and societal.

FCT: Accessible Resources Lead to Better Health

Developed by Link and Phelan,^{12–14} the basic principle of FCT is that individuals with higher socioeconomic status (SES) and the communities in which they belong have access to a "superior collection of flexible resources"¹³ that allow them to avoid disease risks and recover from the consequences of disease. FCT suggests that across time, this increased access to resources results in better health in higher SES individuals. Therefore, "inequalities in health and mortality will persist as long as resource inequalities do."¹³ Despite decades of social advances (eg, clean water, sanitation systems) and medical advances (eg, vaccines, intervention options), disparate health outcomes and SES remain strongly associated.¹⁵ Among developed nations, this association is especially pronounced in the United States, where nearly 28 million people do not have access to health insurance.¹⁶ FCT emphasizes the importance of establishing structural competency in clinical care by making SDOH more visible.

Some models estimate that social, economic, and environmental factors and the behavioral patterns that they cause can account for 80% or more of health outcomes, with medical care accounting for only 20%.^{7,17} The impact on health outcomes is even greater when patients are influenced by multiple social, economic, or environmental factors. For example, a 2018 study by Goodman et al¹⁸ found that Black patients who received a total hip arthroplasty had worse baseline and 2-year follow-up function and pain scores than White patients with the same condition and procedure. Lower functional scores were even more pronounced for Black patients with Medicaid coverage.¹⁸ This particular example is important in our current moment, because the terms "race" and "racism" are often used interchangeably and are viewed differently across populations. Chandra Ford et al define *race* "not as the physical attributes of individuals, but as proxies signaling risk for exposure to treatment that differs on the basis of one's assigned race," whereas *racism* refers to "a system of structuring opportunity and assigning value based on the social interpretation of how one looks (which is what [people] call 'race')." The results of the Goodman et al study, therefore, clearly demonstrate how the social construct of race places marginalized populations at risk, and how this risk is elevated in context of low SES (ie, Medicaid coverage).

Implications of resource inequality have been on full display during the COVID-19 pandemic. As of January 2021, hospitalization rates for COVID-19 were 4 times higher in non-White and Hispanic groups than in non-Hispanic White people, and Black people have died at 1.6 times the rate of White people.²⁰ Recommended practices to prevent infection and reduce viral transmission including working from home, social distancing, and self-quarantine²⁰ are only feasible to those with flexible work settings, private transportation, and ample outdoor and living spaces—generally individuals of higher SES. Lower wage jobs, many of which are deemed “essential,” require face-to-face interaction and/or close contact; consequently increasing risk of exposure to the virus.²⁰

Fundamental Interventions and the SEM

Physical therapists are often faced with addressing patient access and equity issues as they develop their treatment plans. For example, physical therapists must consider lack of patient insurance when prescribing needed medical equipment or when responding to a patient’s request for fewer visits because of costs incurred by multiple co-pays.²¹ We also see the consequences of inadequate resources when our patients lack transportation to appointments or adequate social support to ensure safe mobilization at home. These contextual factors, categorized by the ICF model to be personal or environmental, should be addressed by the physical therapist, when possible, to optimize the patient experience.

In response to the issues that the FCT brings to light, Reich and colleagues propose that clinicians should employ fundamental interventions, defined as, “interventions that address the array of social issues involved in the fundamental causes of disease.”¹¹ When physical therapists address the ICF’s contextual factors that impact their patients’ progress, they are employing “fundamental interventions.” Fundamental interventions can be implemented to address basic or complex needs at a variety of levels—from the needs of the individual to the greater needs of society. The SEM presents 5 levels of influence that can impact health: individual, interpersonal, institutional, community, and societal.²² The ICF model, FCT, and SEM can all be used to better understand the dynamic interrelatedness of the health condition (Fig. 1). Contextual factors, whether personal or environmental, influence patients on all levels of the SEM, and functional interventions, derived from FCT, can be employed at all 5 of these levels. Therefore, whereas physical therapist interventions are often functionally employed at the level of the individual patient, it is important to understand that the patient, and consequently their outcome, is influenced by their interpersonal relationships, the institutions where they seek care, the communities in which they live, and societal privileges or constraints that they experience.

The following sections will explore clinical examples that would benefit from fundamental interventions at all 5 levels of the SEM (Fig. 2). Topics addressed here are not exhaustive, but are instead offered to the reader to provide examples of application of the FCT in physical therapist clinical practice.

Individual Level

To achieve patients’ treatment goals, the discipline of physical therapy requires commitment to an individual’s diagnosis,

prognosis, and development of the plan of care. The clinician’s careful attention to the patient’s concerns, needs, and apprehensions during the subjective history interview is a critical step to establishing a trusting relationship and rapport.²³ Yet, without considering SDOH, we miss the full picture of the individual’s story and capacity for rehabilitation. In clinical practice, the first fundamental intervention must be to recognize and measure SDOH and their potential impact on our patients.

Assessment of SDOH should be included in all patients’ subjective history^{7,8} and subsequently inform the physical therapist’s approach to the objective components of the examination and plan of care. Questions related to measures of the SDOH should be embedded in the physical therapist’s subjective history and documentation. A list of publicly available social health screening tools has been developed by and can be accessed from the Social Interventions Research and Evaluation Network (SIREN).²⁴

Clinical Example

The physical therapist’s knowledge of a patient’s limited income and their desire to return to a physically demanding occupation should inform the therapist’s approach to rehabilitation and potentially difficult conversations about alternative occupations that meet the patient’s needs and prognostic function. Facilitating a vocational rehabilitation consult is an example of a fundamental intervention that assists the patient to transition back into a financially stable occupation that aligns with the patient’s functional and potential strengths. Another important fundamental intervention begins with examining the patient’s referral source. If the physical therapist referral was received from the emergency department, it would be prudent for the physical therapist to inquire with the patient further about onset of symptoms, because access to care may have been chronically delayed if the patient does not have an established primary care provider due to lack of insurance coverage. The physical therapist can provide a fundamental intervention by referring the patient to a primary care provider who works with patients who are uninsured or underinsured in their community.

Interpersonal Level

Health behaviors such as lack of physical activity and smoking are closely tied to poor prognosis in a multitude of musculoskeletal, cardiovascular, and neuromuscular conditions.^{25,26} These behaviors and choices are strongly tied to interpersonal relationships and established social norms, many of them strongly tied to SES, race, and cultural influences.^{25,26} For example, higher rates of smoking in individuals of lower SES have been attributed to reduced social support for quitting, low motivation to quit, and reduced self-efficacy in this population.²⁵ Non-White populations in the United States, especially Black and Native Americans, have endured a long history of discrimination and maltreatment from the medical community, which has contributed to a validated sense of mistrust and skepticism of medical providers.²⁷ Even today, disparate provider diagnostic testing and treatment options for chronic pain^{28,29} and many other conditions^{30–32} exist between White and Black patients. Therefore, interpersonal factors around SDOH may contribute to the patient’s ability to trust medical providers and adhere to a particular therapeutic intervention.

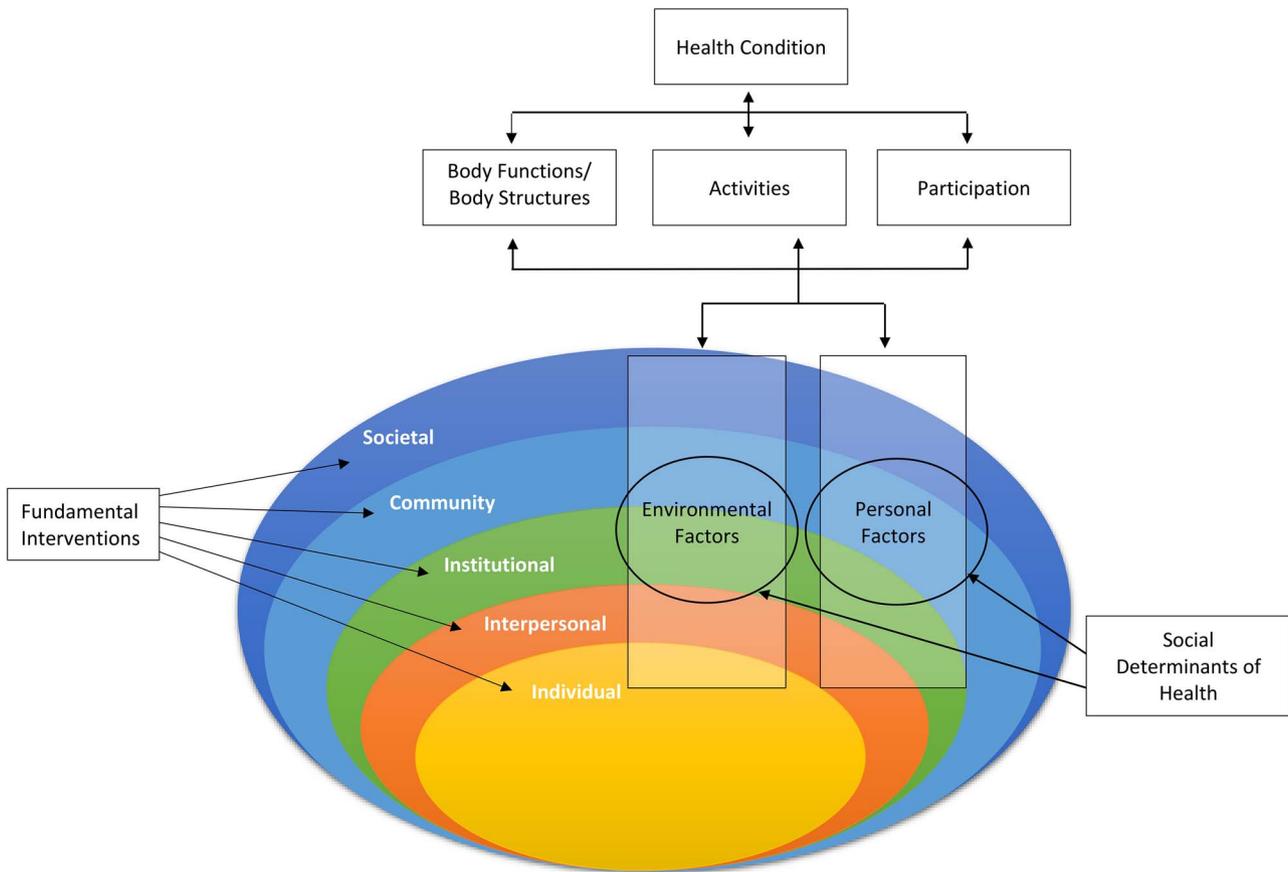


Figure 1. Dynamic interaction between the International Classification of Functioning, Disability, and Health Model, the Socioecological Model, and Social Determinants of Health.

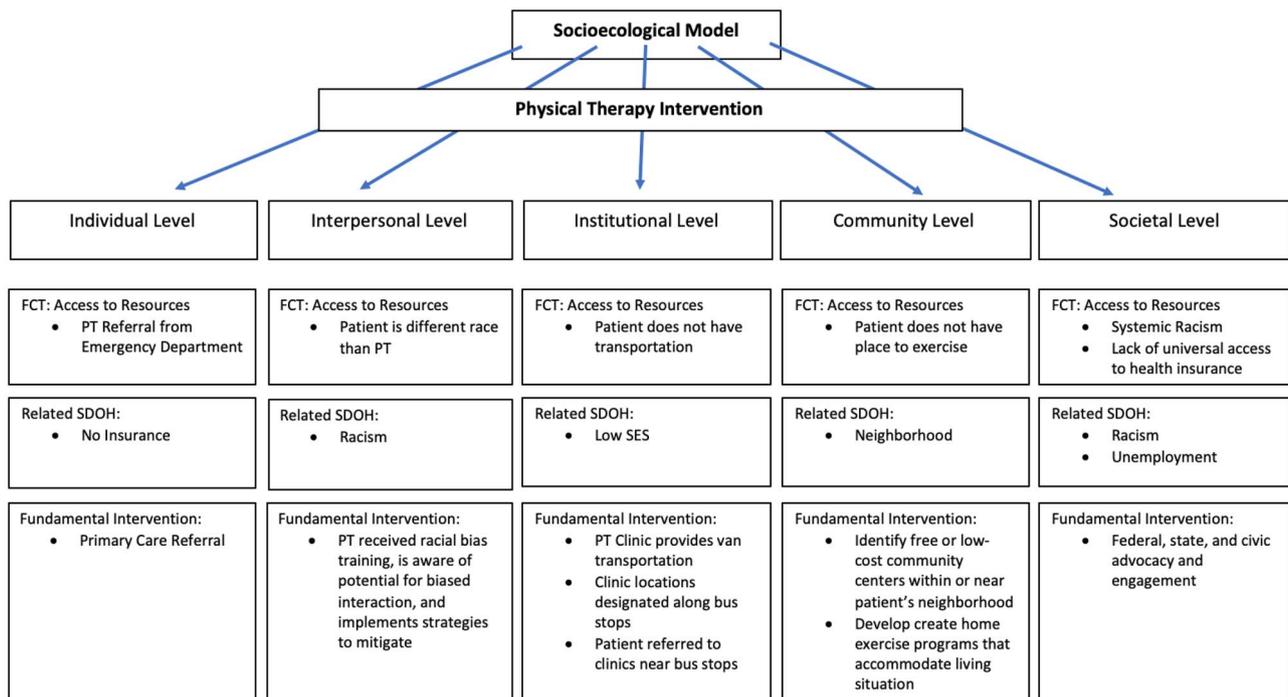


Figure 2. Socioecological Model and Fundamental Cause Theory in physical therapy. FCT = Fundamental Cause Theory; PT = physical therapist; SDOH = Social Determinants of Health; SES = socioeconomic status.

Clinical Example

Physical therapist intervention requires verbal and nonverbal communication, close contact, frequent education, and collaboration between the clinician and patient. These interactions play out in real time over days, weeks, or months of rehabilitation. The physical therapist may choose to address any interpersonal challenges by inviting family members or support individuals to attend therapy sessions. Establishing a rapport with the family allows the therapist to understand patient and family members' goals and ideologies, their understanding of the patient's therapy needs, and potential barriers more deeply to success based on these factors, while reinforcing crucial components of the plan of care.

Because education is such a critical component of the physical therapist plan of care, the therapist should assess the patient's health literacy, or their capacity to make sense of the health education they receive and adapt accordingly in order to support the interpersonal relationship between themselves and the patient. In a study examining ways to improve patient self-management of osteoarthritis symptoms, Sperber and colleagues found that non-White individuals with osteoarthritis and low health literacy showed the greatest pain reduction when participating in a comprehensive support intervention that incorporated multiple modes of education and follow-up as compared to those who received usual care.³³

Institutional Level

Therapeutic services are delivered based on the structures of the institutions or organizations in which they belong. The investment of multiple stakeholders with varying perspectives on cost, quality, and value of services makes changing these structures quite difficult.³⁴ As we have experienced with a mandated shift from fee-for-service to value-based health care during the implementation of the Affordable Care Act,³⁴ it is the responsibility of our hospitals, clinics, and care centers to demonstrate institutional commitments to implementing policies in ways that alleviate health disparities within their local contexts. To do this, institutions, while balancing operational costs and quality health care, must employ fundamental interventions to address access and equity imbalances.

Clinical Example

As discussed previously, measures of SDOH are essential to comprehensive physical therapist evaluation and treatment; yet physical therapists must be supported in this endeavor by the administration of their institutional settings. In some cases, this may involve restructuring the electronic medical record system and updating patient intake forms and outcome measures available to staff. Magnusson et al suggest that exploring more holistic measures of health will equip clinicians and their managers to identify structural variances and disparate outcomes based on SDOH within their own clinical setting, potentially leading to policy and procedural changes at the institutional level.⁸

Furthermore, administrators can more effectively address the SDOH through supporting interprofessional collaboration in clinical practice. Interprofessional collaborative practice has long been supported as the optimal way of improving patient outcomes, and therefore presents a unique opportunity to incorporate various perspectives, expertise, and backgrounds into addressing SDOH at the institutional level.³⁵ More specifically, administrators can work to unite the

various disciplines within their clinical setting through fostering an environment conducive to reflection, discussion, and growth. Cahn suggests that health professional administrators should move beyond implementing "cultural competence" and Diversity, Equity, and Inclusion trainings using curricula that only superficially address structural challenges with the objective to increase awareness.³⁵ Instead, administrators should seek out curricula for their staff that analyze the historical events, societal norms, and privileges that are perpetuated in our current institutions.³⁵ Introducing and maintaining these opportunities for reflection and discussion among and between disciplines contributes to an environment of inclusion.

Like many other health care professions, the physical therapist workforce does not reflect the diversity of the population it serves. Currently, Hispanic and non-Hispanic Black people account for less than 10% of practicing physical therapists,³⁶ but make up nearly 25% of the US population.³⁷ Recognizing that White clinicians provide the majority of physical therapist interventions, these therapists must take responsibility for acknowledging, understanding, and learning to mitigate any personal biases.³⁸ Institutions can take steps towards creating an inclusive environment prioritizing the employment and training of people of color.

Finally, although economic constraints related to insurance reimbursement are a real and fundamental issue for institutions, especially in privately owned clinical settings, concierge or cash-based physical therapy services stand to further perpetuate the disparity gap. These institutions further reduce the overall number of clinicians who take various forms of insurance and limit access to individuals who have the means to pay at the time of service.³⁹ Therefore, institutions must be equipped with clear evaluation and treatment guidelines for uninsured and underinsured populations that maintain the financial bottom line. For example, due to the complex and ever-changing rules related to Medicaid and Medicare reimbursement, clinicians often do not have the time or resources to understand the limits of their patient's insurance. Therefore, leadership can alleviate this clinician burden by advocating for adequate administrative support and providing regular reimbursement-related updates to their staff to optimize billing efficiency. The APTA has developed helpful resources such as *Debunking Medicare Myths (and Regulating Your Expectations)*⁴⁰ that are available to members.

Community Level

The communities and physical environments in which we live directly affect health.⁸ Low SES neighborhoods experience worse outcomes including all-cause mortality,⁴¹ cardiovascular health,^{41,42} stress levels,⁴³ reliance on safety-net providers,⁴⁴ substance use,⁴⁵ self-perceived health status,⁴⁶ and risky health behaviors.⁴⁷ Physical therapists must consider the patient's home structure, access to safe outdoor spaces, and community resources both when executing the plan of care and when preparing the patient for therapy discharge. Yet, the clinician's ability to truly understand the context of their patients may prove difficult if they have never experienced or worked in these communities.

Clinical Examples

Therapists who practice in small clinics can become familiar with community-based programs and develop partnerships

with local entities. Those in larger regional therapy centers can establish referral networks of smaller clinics in surrounding areas that have specific knowledge about low- or no-cost resources in the communities they serve; however, establishing a robust community referral network can seem overwhelming to clinicians operating within the daily constraints of productivity requirements and employee responsibilities—especially for clinics serving multiple cities or regions. Clinics often lack organized referral systems, and in the absence of such systems, place the burden on the patient to seek out additional support upon therapy discharge.⁴⁸ With administrative support, clinicians can build a centralized list of referral and community-based programs to help their patients maintain their goals upon discharge.⁴⁸

Communities may also be challenged by geography and limited technological resources. Huber et al define a physical therapist desert as “a community with decreased access based on the lack of outpatient therapy services within the community.”⁴⁹ Proximity of the physical therapy clinic is of particular importance because physical therapist treatment frequencies are usually much higher (eg, 1–3 times/wk over 12 weeks) than primary care provider visit frequencies (eg, as needed, biannually).⁵⁰ Use of virtual physical therapist visits has increased significantly during the COVID-19 pandemic—by as much as 1000% in some countries⁵¹—and if continued, holds true promise for improving access to physical therapy in rural and/or underfunded communities. With this technological growth potential, clinics should also recognize the barriers technology presents when their patients have limited technology and connectivity options. Use of teletriage methods to determine virtual visit appropriateness, offering flexibility in virtual platform options, and hosting outreach visits in public community centers⁵² are fundamental interventions that seek to narrow the gap in patient care visit inequities related to geography and transportation.

Societal Level

As health care providers, we are responsible for understanding the systemic structures, legislation, and historical and current policies that enhance or limit access to quality medical care.⁵³ As previously discussed, physical therapists must move beyond a tertiary, individualistic rehabilitation approach⁸ to develop “structural competency”¹¹ in order to recognize SDOH and provide treatments that better align with the APTA’s guiding principle of access/equity. Through measuring SDOH to inform fundamental interventions, physical therapists have the opportunity to reflect on individual-, group-, and societal-level actions that perpetuate structural racism, classism, and other forms of discrimination. Structurally competent physical therapists will more deeply understand the implications of societal structures and policies that negatively impact vulnerable populations and their response to therapy.

Clinical Examples

Involvement in the physical therapy discipline’s professional organization is one of the most effective ways to contribute to change on the societal level. APTA membership supports advocacy efforts on the national and state levels and provides physical therapists with a platform to voice concerns and access resources. Currently, the APTA is advocating at the federal level to prevent Medicaid cuts and expand physical therapist telehealth services.⁵⁴ Physical therapists can support

this work of promoting and protecting the profession by educating policymakers at their state and local levels. The APTA suggests getting involved in advocacy efforts by hosting a legislator in clinics or facilities, volunteering for local political campaigns, and attending local town halls.⁵⁵ Clinicians are encouraged to seek Diversity, Equity, and Inclusion training efforts to build structural competence, thereby shifting the focus from individual interactions between the physical therapist and patient to the governmental policies, domestic circumstances, and environmental influences outside of the clinic that impact health.³⁵ A recent blogpost entitled “Founder Letter: 10 Actions You Can Take Now to Support Diversity in Your PT Practice” on WebPT (<https://www.webpt.com/>)⁵⁶ and the APTA 2020 Lynda D. Woodruff lecture² both outline additional practical suggestions for the individual therapist, administrators, and professional organization’s commitments to advance Diversity, Equity, and Inclusion efforts in clinical practice.

Conclusion

As health care providers, physical therapists have a responsibility to make every effort to meet the needs of their patients and optimize movement health in society; yet there are significant structural and systemic barriers that often prevent patients from reaching their fullest potential. With this awareness, clinicians can no longer subscribe to a narrow scope of practice focused on individual attainment of therapy goals. Instead, by using theoretical frameworks, physical therapists can develop, test, and implement functional interventions to address the comprehensive needs of the patient. Accepting this charge requires the collaborative commitments of clinicians, administrators, community members, and policymakers. The physical therapy profession can use the FCT to develop fundamental interventions to improve their patients’ access and equity so they may ultimately achieve successful rehabilitation at every level of the SEM—not only impacting the life of individual patients, but truly transforming movement health in society.

Author Contributions

Concept/idea/research design: D. McCarty, M. Shanahan

Writing: D. McCarty

Consultation (including review of manuscript before submitting): M. Shanahan

Funding

There are no funders to report for this work.

Disclosures

The authors completed the ICMJE Form for Disclosure of Potential Conflicts of Interest and reported no conflicts of interest.

References

1. American Physical Therapy Association. *Vision statement for the physical therapy profession*. 2019. Accessed July 21, 2020. <https://www.apta.org/apta-and-you/leadership-and-governance/policies/vision-statement-for-the-physical-therapy-profession>

2. American Physical Therapy Association. *Woodruff lecture offers paths to improve diversity*. 2020. Accessed September 5, 2020. <https://www.apta.org/news/2020/07/10/woodruff-lecture-recap>
3. Frier A, Barnett F, Devine S. The relationship between social determinants of health, and rehabilitation of neurological conditions: a systematic literature review. *Disabil Rehabil*. 2017;39:941–948.
4. Jette AM. The utility of and need for improving the ICF. *Phys Ther*. 2018;98:629–630.
5. Edwards I, Delany CM, Townsend AF, Swisher LL. New perspectives on the theory of justice: implications for physical therapy ethics and clinical practice. *Phys Ther*. 2011;91:1642–1652.
6. Sheldon MR. Policy-making theory as an analytical framework in policy analysis: implications for research design and professional advocacy. *Phys Ther*. 2016;96:101–110.
7. Rethorn ZD, Cook C, Reneker JC. Social determinants of health: if you aren't measuring them, you aren't seeing the big picture. *J Orthop Sports Phys Ther*. 2019;49:872–874.
8. Magnusson DM, Eisenhart M, Gorman I, Kennedy VK, Davenport TE. Adopting population health frameworks in physical therapist practice, research, and education: the urgency of now. *Phys Ther*. 2019;99:1039–1047.
9. Zogg CK, Scott JW, Metcalfe D, et al. Association of Medicaid expansion with access to rehabilitative care in adult trauma patients. *JAMA Surg*. 2019;154:402–411.
10. Adini B. Ethnic inequality within the elderly population in utilizing healthcare services. *Isr J Health Policy Res*. 2019;8:39.
11. Reich AD, Hansen HB, Link BG. Fundamental interventions: how clinicians can address the fundamental causes of disease. *J Bioeth Inq*. 2016;13:185–192.
12. Link BG, Phelan JC. McKeown and the idea that social conditions are fundamental causes of disease. *Am J Public Health*. 2002;92:730–732.
13. Phelan JC, Link BG, Tehranifar P. Social conditions as fundamental causes of health inequalities: theory, evidence, and policy implications. *J Health Soc Behav*. 2010;51:S28–S40.
14. Phelan SM, Puhl RM, Burke SE, et al. The mixed impact of medical school on medical students' implicit and explicit weight bias. *Med Educ*. 2015;49:983–992.
15. Hero JO, Zaslavsky AM, Blendon RJ. The United States leads other nations in differences by income in perceptions of health and health care. *Health Aff (Millwood)*. 2017;36:1032–1040.
16. United States Census Bureau. *Health insurance coverage in the United States 2018*. 2019. Accessed September 5, 2020. <https://www.census.gov/library/publications/2019/demo/p60-267.html>
17. Hood CM, Gennuso KP, Swain GR, Catlin BB. County health rankings: relationships between determinant factors and health outcomes. *Am J Prev Med*. 2016;50:129–135.
18. Goodman SM, Mehta B, Zhang M, et al. Disparities in total hip arthroplasty outcomes: census tract data show interactions between race and community deprivation. *J Am Acad Orthop Surg*. 2018;26:e457–e464.
19. Ford CL, Griffith DM, Bruce MA, Gilbert KL. *Racism: Science & Tools for the Public Health Professional*. Washington, DC, USA: APHA Press; 2019.
20. Centers for Disease Control and Prevention. *COVID-19 in racial and ethnic minority groups. Coronavirus disease 2019 (COVID-19)*. Published June 25, 2020. Accessed July 20, 2020. <https://www.cdc.gov/coronavirus/2019-ncov/community/health-equity/race-ethnicity.html>
21. Posnett J, Dixit S, Oppenheimer B, Kili S, Mehin N. Patient preference and willingness to pay for knee osteoarthritis treatments. *Patient Prefer Adherence*. 2015;9:733–744.
22. Alio AP, Richman AR, Clayton HB, Jeffers DF, Wathington DJ, Salihu HM. An ecological approach to understanding black-white disparities in perinatal mortality. *Matern Child Health J*. 2010;14:557–566.
23. Diener I, Kargela M, Louw A. Listening is therapy: patient interviewing from a pain science perspective. *Physiother Theory Pract*. 2016;32:356–367.
24. Social Interventions Research and Evaluation Network. Screening tool comparison table. Accessed July 24, 2020. <https://sirenetwo rk.ucsf.edu/tools-resources/resources/screening-tools-comparison>
25. Hiscock R, Bauld L, Amos A, Fidler JA, Munafo M. Socioeconomic status and smoking: a review. *Ann N Y Acad Sci*. 2012;1248:107–123.
26. Shultz WM, Kelli HM, Lisko JC. Socioeconomic status and cardiovascular outcomes: challenges and interventions. *Circulation*. 2018;20:2166–2178.
27. Cuevas AG, O'Brien K. Racial centrality may be linked to mistrust in healthcare institutions for African Americans. *J Health Psychol*. 2019;24:2022–2030.
28. Burgess DJ, Crowley-Matoka M, Phelan S, et al. Patient race and physicians' decisions to prescribe opioids for chronic low back pain. *Soc Sci Med*. 2008;67:1852–1860.
29. Aroke EN, Jackson P, Overstreet DS, et al. Race, social status, and depressive symptoms: a moderated mediation analysis of chronic low back pain interference and severity. *Clin J Pain*. 2020;36:658–666.
30. Maina IW, Belton TD, Ginzberg S, Singh A, Johnson TJ. A decade of studying implicit racial/ethnic bias in healthcare providers using the implicit association test. *Soc Sci Med*. 2018;199:219–229.
31. Blair IV, Havranek EP, Price DW, et al. Assessment of biases against Latinos and African Americans among primary care providers and community members. *Am J Public Health*. 2013;103:92–98.
32. Cooper LA, Roter DL, Carson KA, et al. The associations of clinicians' implicit attitudes about race with medical visit communication and patient ratings of interpersonal care. *Am J Public Health*. 2012;102:979–987.
33. Sperber NR, Bosworth HB, Coffman CJ, et al. Differences in osteoarthritis self-management support intervention outcomes according to race and health literacy. *Health Educ Res*. 2013;28:502–511.
34. Jewell DV, Moore JD, Goldstein MS. Delivering the physical therapy value proposition: a call to action. *Phys Ther*. 2013;93:104–114.
35. Cahn PS. How interprofessional collaborative practice can help dismantle systemic racism. *J Interprof Care*. 2020;34:431–434.
36. Data USA. *Physical therapists*. Accessed June 9, 2020. <https://datausa.io/profile/soc/physical-therapists>
37. United States Census Bureau. *QuickFacts: United States*. Accessed September 5, 2020. <https://www.census.gov/quickfacts/fact/table/US/PST045219>
38. Hall JM, Fields B. Continuing the conversation in nursing on race and racism. *Nurs Outlook*. 2013;61:164–173.
39. Shrank WH. Primary care practice transformation and the rise of consumerism. *J Gen Intern Med*. 2017;32:387–391.
40. APTA. *Busting Medicare part B myths (and regulating your expectations) part 3*. American Physical Therapy Association. 2020. Accessed September 5, 2020. <https://www.apta.org/article/2020/02/25/busting-medicare-myths-episode-3>
41. Bethea T, Palmer J, Rosenberg L, Cozier Y. Neighborhood socioeconomic status in relations to all-cause, cancer, and cardiovascular mortality in the black women's health study. *Ethn Dis*. 2016;26:157–163.
42. Foraker RE, Bush C, Greiner MA, et al. Distribution of cardiovascular health by individual- and neighborhood-level socioeconomic status. *Glob Heart*. 2019;14:241–250.
43. Algren MH, Ekholm O, Nielsen L, Ersbøll AK, Bak CK, Andersen PT. Associations between perceived stress, socioeconomic status, and health-risk behaviour in deprived neighbourhoods in Denmark: a cross-sectional study. *BMC Public Health*. 2018;18:250.
44. Hussein M, Diez Roux AV, Field RI. Neighborhood socioeconomic status and primary health care: usual points of access and temporal trends in a major US urban area. *J Urban Health*. 2016;93:1027–1045.
45. Karriker-Jaffe KJ. Neighborhood socioeconomic status and substance use by U.S. adults. *Drug Alcohol Depend*. 2013;133:212–221.

46. Merkin SS, Ardit-Babchuk H, Shohat T. Neighborhood socioeconomic status and self-rated health in Israel: the Israel national health interview survey. *Int J Public Health*. 2015;60:651–658.
47. Lutfi K, Trepka MJ, Fennie KP, Ibanez G, Gladwin H. Racial residential segregation and risky sexual behavior among non-Hispanic blacks, 2006–2010. *Soc Sci Med*. 2015;140:95–103.
48. Fishleder S, Petrescu-Prahova M, Harris JR, et al. Bridging the gap after physical therapy: clinical-community linkages with older adult physical activity programs. *Innov Aging*. 2018;2:igy006.
49. Huber GM, Bitzer G, Corazzi C, et al. Access to physical therapy in a medically underserved, urban community. *J Health Care Poor Underserved*. 2019;30:768–788.
50. McCallum CA. Access to physical therapy services among medically underserved adults: a mixed-method study. *Phys Ther*. 2010;90:735–747.
51. Webster P. Virtual health care in the era of COVID-19. *Lancet*. 2020;395:1180–1181.
52. Centers for Disease Control and Prevention. *Using telehealth to expand access to essential health services during the COVID-19 pandemic*. 2020. Accessed September 5, 2020. <https://www.cdc.gov/coronavirus/2019-ncov/hcp/telehealth.html>
53. Larsen DS. Advocacy: why now? *J Neurol Phys Ther*. 2013;37:94–95.
54. American Physical Therapy Association. *Advocacy*. Accessed September 5, 2020. <https://www.apta.org/advocacy>
55. Sims J. *Why member advocacy is crucial: reflections from the federal advocacy forum*. American Physical Therapy Association. 2018. Accessed July 27, 2020. <https://www.apta.org/article/2018/05/08/why-member-advocacy-is-crucial-reflections-from-the-federal-advocacy-forum>
56. Jannenga H. *10 actions you can take now to support diversity in your PT practice*. WebPT. 2020. Accessed September 5, 2020. <https://www.webpt.com/blog/post/founder-letter-10-actions-you-can-take-now-to-support-diversity-in-your-pt-practice/>