Can the interconnection between public health and social work help address current and future population health challenges? A public health viewpoint

Gloria Macassa[1,2]

Abstract

The debate over the function and role of public health in all societies (high, middle, and low-income) still continues today. Public health needs to interact with the social and translational sciences to achieve the best possible scientific evidence and practice aimed at development of effective policies for individual and population health practices. As a field, public health is most suited for development of transdisciplinary education, research and practice—improving population health would entail embedding with a variety of other disciplines including social work. Public health and social work in many ways share the same beginnings as well as their role in advocacy for social and health equity. For this reason, the transdisciplinary profession of public health social work is well placed to develop and build the inter-professional and cross-sectoral collaboration that is needed to address the many health challenges of the 21st century, based on theories, knowledge and interventions from both public health and social work. Furthermore, the profession can help in attempting to close the health inequalities gap, address social isolation, family violence and homelessness, advance long and productive lives, create social responses to the changing environment, reduce economic inequality, harness technology for social good, and work toward the achievement of justice and equality of opportunity.

Introduction

Public health is defined as the art and science of preventing disease, prolonging life and promoting health through the organized efforts of society.[1,2] This definition marks an evolution from the definition proposed by Winslow in 1920, which saw public health as—"the science and art of preventing disease, prolonging life, and promoting physical health and efficiency through organized community efforts for sanitation of the environment, the control of community infections, the education of the individual in principles of hygiene; the organization of medical and nursing services for early diagnosis, and preventive treatment of disease; and the development of social machinery which will ensure to every individual in the community a standard of living adequate for the maintenance of health."[3]

Almost 70 years later, in 1988, the Institute of Medicine (IOM) defined public health as an "organized effort to address the public interest in health by applying scientific and technical knowledge to prevent disease and promote health."[4]

Public health history has been one of searching for effective means to secure health and wellbeing through prevention of disease. Throughout the history of epidemics and infectious diseases, disease prevention was stimulated by new developments and innovation, often before the causation was scientifically stablished.[5]

[1]Department of Public Health and Sports Science, Faculty of Occupational and Health Sciences, University of Gävle, Gävle, Sweden
[2]EPI Unit–Instituto de Saúde Pública, Universidade do Porto, Porto, Portugal

Corresponding author:
Gloria Macassa, Department of Public Health and Sports Science, Faculty of Occupational and Health Sciences, University of Gävle, Kungsbacksvägen 47, Gävle 80176, Sweden.
Email: Gloria.macassa@hig.se

In its core task, public health prevention of disease revolved around identifying disease, assessing and measuring its occurrence and framing effective interventions. Some authors state that public health evolved through trial and error with expanding scientific medical knowledge, which at times was controversial.[5]

The debate over the function and role of public health in all societies (high, middle and low-income) still continues today. Public health needs to interact with social and translational sciences to achieve the best possible scientific evidence and practice aimed at development of effective policies for individual and population health practices. Currently different societies continue to face infectious diseases, malnutrition, unfolding epidemics of non-communicable diseases (e.g. cancers, cardiovascular disease),[6] mental illnesses,[7] trauma, and interpersonal violence,[8] as well as modern pandemics (e.g. severe acute respiratory syndrome (SARS) COVID-19),[9] opioid epidemics[10] and, in addition, drug-resistant microorganisms that require innovative interventions to prevent their consequences for the human population. Moreover, there are other emerging threats such as climate change which may have devastating consequences for all societies.[11,12] The hypothesis has been advanced that the evolution of public health is a continuing process because pathogens change, and so do the environmental context and the host as well as the economic social and environmental conditions in which people live.[5,13] Traditionally, public health dealt with health issues. However, "the new public health" has to address the health of both individuals and population groups and also the root causes for health or ill health (e.g. poverty, disadvantage, and social, environmental and economic issues) in the contexts where people live, grow, work, and age.[14] Hence, today a public health professional working with individual, community and population groups needs to acquire the knowledge and skills necessary to measure and interpret the factors that relate to disease and health, both in the individual and in population groups.[14]

The goals of the 2030 Agenda for Sustainable Development[15,16] require that public health education, research and practice move from multidisciplinary to transdisciplinary to address current and future challenges to the health of individuals and populations. In recent years, there have been calls for public health to move from a multidisciplinary/interdisciplinary approach to a transdisciplinary approach to better address the challenges faced by societies, and thus improve health. According to Stokols et al. multidisciplinary fields are defined as branches of study and human endeavor that add and combine knowledge, ideas or methods from two or more disciplines.[17] Furthermore, in contrast to interdisciplinary fields, multidisciplinary fields are characterized by the integration of different perspectives, concepts and theories, and methods from two or more disciplines.[17] By contrast, transdisciplinarity integrates different approaches, theories and methods, resulting in potential creation of new conceptual frameworks, hypotheses and research strategies.[18–21] These are necessary for effective policy making in a situation of multiple challenging problems affecting individual and population health and wellbeing.[22]

Public health is one of the best fields of choice for the development of transdisciplinary education, research and practice given that improving population health entails embedding with a variety of disciplines including medicine (and its professional domains), health services and epidemiology, economics, psychology, sociology, political science, legal science,[17,23–27] sports science,[28] humanities, religion,[29] marketing,[30] criminology,[31] and social work.[32]

Furthermore, a transdisciplinary approach to public health is an effective means to effective problem solving[25] as well as an important means to have a workforce geared up to make a greater impact on the health of the public across any society.[24]

This viewpoint attempts to discuss, from a public health perspective, the interconnection between public health and social work. It will also discuss the opportunities and challenges faced by the public health social work (PHSW) profession in addressing the most pressing societal problems affecting the health and social wellbeing of current and future generations.

The interconnection between public health and social work

In recent years, some have argued[32] for the importance of the interconnection between public health and social work, especially amid the emergence of the PHSW profession. Like public health, social work has evolved from roots in the philanthropic movement of the 19th century in industrialized countries (e.g. France, England, and Germany).[33,34] In those times, the elite were concerned with the misery of the working classes, which was considered a source of suffering. Most importantly, however, it was considered as potential trigger for political revolts by the workers.

According to Gavin and Cox[33], industrialization, which was important for societal development, also created social issues such as mass immigration and urbanization that were linked to poverty, disease, illiteracy, starvation, and mental health challenges. Furthermore, as the new economic and social transition[34] occurred after the 1970s, the rapid transformation of societies resulted in social work expanding, and now dealing also with issues such as inequality, isolation, violence and substance abuse, among others.[34]

According to Ruth and Marshall,[32] in the United States, "social work is a core health profession with origins deeply connected to the development of contemporary public health." Others have argued that public health and social work evolved in the early 20th century with an

overlapping commitment to health and social wellbeing; in the late 20th century the two fields had to collaborate in matters regarding responses to epidemics (e.g. influenza, venereal diseases) and maternal and child health.[35]

Public health and social work share some features which can complement each other, especially prevention and intervention.[32] According to the Ottawa Charter for Health Promotion, health promotion (a core function of public health practice) is the process of enabling people to increase their control over, and improve, their health. To reach a state of complete physical, mental and social wellbeing, an individual or group must be able to identify and realize aspirations, satisfy needs, and change the environment or cope with challenges presented by the environment.[36] On the other hand, social workers are expected to help promote health by advocating for the development of employment opportunities that will improve the social and economic position of all segments of the society and therefore their access to health and preventive services.[37]

For the public health profession, the core work involves preventing problems from happening or recurring, through implementation of various strategies (e.g. putting educational programs into effect, recommending policies, providing services, conducting research). This is in contrast to the clinical and nursing professions, which focus on the treatment of individuals once they have become sick or injured.[38] Public health is linked to the notion of population health as concerned with the patterns of health and illness in *groups* of people, rather than in individuals. For instance, Kindig[39] define population health as an approach that is focused on interrelated conditions and factors that influence the health of populations over the life course, and that identifies systematic variations in their patterns of occurrence, and applies the resulting knowledge to develop and implement policies and actions to improve the health and wellbeing of those populations. In addition, population health emphasizes the structures, attitudes and behaviors that influence health, as well as ways to reduce health inequities between populations. These potential causes of health inequities are known as the "social determinants of health" which are defined by the World Health Organization (WHO) as "the conditions in which people are born, grow, live, work and age," which are "shaped by the distribution of money, power and resources."[14]

In public health, there are four levels of prevention: (1) *primordial prevention*, which "consists of actions to modify population health determinants and inhibit the establishment of factors (environmental, economic, social, behavioral) known to increase the future risk of disease"[40,41]; (2) *primary prevention*, which aims to prevent disease or injury before it ever occurs. This is achieved by preventing exposures to hazards that can cause disease or injury, altering unhealthy or unsafe behaviors that can lead to disease or injury, and increasing resistance to disease or injury should exposure occur; (3) *secondary prevention*,

which aims to reduce the impact of disease or an injury that has already occurred. This is achieved through detecting and treating disease or injury as soon as possible to stop or slow its progress, encouraging personal strategies to prevent re-injury or recurrence, and implementing programs to return people to their original health and function so as to prevent long-term problems; and (4) *tertiary prevention*, which aims to soften the impact of an ongoing illness or injury that has lasting effects.[40] This work is accomplished through helping people to manage long-term, often complex health problems and injuries (e.g. chronic diseases, permanent impairments) in order to improve their ability to function, their quality of life and their life expectancy as much as possible.[40] In addition, public health is involved in intervention strategies that are known as actions (e.g. surveillance, disease and health event investigation, outreach, screening, case finding, etc.) which health professionals perform on behalf of individuals, families and systems to improve or protect the health status.[42]

From a practice perspective, public health intervention needs to consider all levels: (1) individual/family-focused population-based practice, which includes changes in knowledge, attitudes, beliefs, practices, and behaviors of individuals and families. This practice level is aimed to individuals alone or individuals as part of a family or group—as members of a population group at risk; (2) community-focused population-based practice, which aims to achieve changes in community norms, awareness, attitudes, behaviors and practices. This practice level is aimed at entire populations within the community or occasionally toward target groups within those populations[42]; and (3) systems-focused, population-based practice whose aim is to change organizations, power structures, laws and policies. At this level, the focus is not directly on individuals and communities but, rather, on the systems that impact health (and the determinants of health). Implementing change across a system often has an impact on population health in a more effective and lasting way than requiring change from every individual in a community.[42]

Regarding social work, from its inception the discipline has espoused the philosophy of prevention. Despite this, in many contexts this has not put into practice.[37,43,44] For instance, Ruth et al.[45] found that out of 3745 articles from nine social work-related journals, only 336 (9%) were coded as articles on prevention.

Instead of focusing on prevention, social workers prioritize interventions, as core part of their practice, specifically at micro, mezzo or macro level. At the micro level of intervention, social workers help individuals solve problems in their lives such as problems related to "difficulties with partners, children, other family members, or neighbors."[46] Furthermore, at the mezzo level, social workers concentrate on interventions linked to communities rather than to individuals; as well as other arenas such as workplace environments and client services such as health care and social security benefits.[46]

At the macro level, social workers focus on the economic, historical, socio-political and environmental influences on the human condition by assessing how these factors can be the root causes of problems for individuals (but can also lead to opportunities).[46] In addition, unifying the two disciplines education and practice are the social determinants of health, defined previously.[14] Rooted in work from scholars like Rose[47], Syme[48], and Wilkinson and Marmot,[49] the social determinants perspective articulates that some groups are at greater risk of poor health outcomes, largely due to their socio-economic position. In addition, it addresses social inequality within a population, which (regardless of a nation's level of material wealth or quality of health care) can lead to poor health outcomes.[50]

Public health professionals are expected to promote health across diverse settings with an equity lens in mind to ensure that disadvantaged groups are targeted; but importantly there is work to level up the social gradient in health so that middle groups experience health that is closer to both the top and bottom groups.[51]

Social workers can help to measure the problem, evaluate action, expand the knowledge base, develop a workforce that is trained in the social determinants of health, and raise public awareness about how these influence social and health outcomes.[14] Hence, social workers are expected to have a thorough understanding of the interplay between and impact of the social determinants on people's physical and mental health. For instance, a person's environment is and always has been the framework from which social workers have explored these determinants in practice. Usually, through an ecological perspective, social workers are able to explore the impact of inequity on health and wellbeing, and identify opportunities and policy changes that are needed to improve health.[52,53]

Public health and social work also share a life course approach which analyzes people's lives within structural, social, and cultural contexts.[54–58] In public health (through social epidemiology), the life course approach investigates the long-term effects of physical and social exposures during gestation, adolescence, young adulthood and later adult life on health and disease risk in later life.[54–56] On the other hand, in social work, life course is defined as a "sequence of events that the individual enacts over time."[57] And in particular, the approach focuses on the connection between individuals and the historical social and economic context in which these individuals live.[57,58]

The public health social work profession as a bridge between public health and social work professions: Opportunities, challenges and practical implications

The public health work social work (PHSW) profession is considered the perfect bridge between the professions of public health and social work.[32,35] A sub-discipline of social work, PHSW uses a multifaceted wide-lens approach to address major social and health issues, promote health equity and mitigate health problems.[32,35,58,59] For instance, in the context of the United States, PHSW has been linked with reduction of infant and maternal mortality, disaster response, and acquired immune deficiency syndrome (AIDS) epidemic responses.[35,59,60]

Public health social work is the perfect connection to the inter-professional and cross-sectoral collaboration needed to address the complex health challenges of the 21st century"[35,60,61] because "it builds upon the synthesis and integration of theories, knowledge, frameworks, and interventions"[60,61] from the fields of public health and social work.

Furthermore, PHSW is seen a profession that attempts to investigate social factors as root causes of poor health (determinants of health) and use epidemiologically informed clinical and community-level preventive interventions and community advocacy and activism to bring about structural change.[32,35] Hence, PHSW embraces health promotion and universal and targeted preventive approaches that aim at collective efforts for a much healthier society. Such approaches make PHSW a profession that adheres to the ideals of health and wellbeing as a right of all individuals in any society.[32,35] Moreover, PHSW presents a unique opportunity for social work professionals to get more involved in health promotion and prevention rather than relying heavily on intervention strategies.[37] For instance, it is argued that social workers rely on one-to-one engagement with potential clients taking into account that the individual's care can be affected by other relations (e.g. family, workplace, community peers).[62,63]

However, the establishment of the PHSW profession still faces challenges across different contexts. For instance, in the United States, scholars argue that, despite clear evidence of past and potential synergies between the fields, social work's foothold in public health is not yet fully established.[32] This might also be true for Europe, because social work is mostly integrated with health care in the so called "integrated models" of care.[64–67] These models have grown exponentially due to challenges related to the rising numbers of sectors of population with complex needs (e.g. multi-morbidity).[64–67]

Embracing the bridge between public health and social work will have several practical implications. Firstly, PHSW has a potential to enrich transdisciplinary education, research and practice given that educators, researchers and practitioners in public health and social work understand each other. According to Kaplan, the lack of causal understanding within multidisciplinary fields can give a perception of conceptual looseness that can inhibit the integration of knowledge from different fields.[68]

Secondly, establishing the PHSW profession will imply the need for countries to consider a new public health and

social work curriculum at both bachelor and postgraduate levels to train a new generation of professionals who are equipped with integrated knowledge that will help improve health and social wellbeing of populations, regardless of a country's stage of economic, social and environmental development. Furthermore, these professionals will help societies to achieve health equity and sustainable development goals (SDGs) based on the principle of leaving no one behind. In the United States, there is an expectation that PHSW professionals will have a strategic role in what the American Academy of Social Work and Welfare calls the 12 grand challenges of social work.[32,35,61] These are: health development for all youth; closing the health gap; stopping family violence; advancing long and productive lives; eradicating social isolation; ending homelessness; creating social responses to a changing environment; harnessing technology for social good; promoting smart decarceration; reducing extreme economic inequality; building financial capability for all; and achieving equal opportunity and justice.[69]

Thirdly, public health social workers would be better positioned to address the 2030 Agenda challenge given their knowledge of both public health and social work. For instance, it has been argued that the global Agenda for Sustainable Development provides public health and social workers with a unique opportunity to redefine their roles in people's empowerment, in social, economic, environmental contexts, and in terms of human rights, leading to improved health and wellbeing.[70–72]

Fourthly, because public health and social work share an interest in primary prevention (e.g. prevention of crime and violence), an integrated PHSW profession can through education, research and practice contribute to other disciplines such as criminology.[73–75]

In his seminal paper in 1926, Hopkins[76] stated that the fields of social work and public health were inseparable; and that no artificial boundaries could separate them. He further argued that social work was interwoven into the whole fabric of the public health movement, and that it directly influenced this at every point, particularly in the United States.[76] This can be considered to be true now, 96 years later, as current and future challenges societies face require more than ever that different professions collaborate and integrate their joint knowledge. In addition, as Ruth and Marshall[32] assert, social work and public health have much in common: shared progressive era roots, a joint commitment to social justice, and a long history of collaboration.

Declaration of Conflicting Interests

Funding

Importance for public health

To achieve sustainable population health for current and future generations, public health professionals need to work transdisciplinary to address the most complex societal challenges such as poverty, social exclusion, health inequalities, and family violence. Social work is potentially the best partner for public health practice given that the two fields share the same beginnings as well as the same role in health promotion and advocacy for social and health equity.

References

1. Acheson D. *Public health in England: the report of the committee of inquiry into the future development to the public health function*. 1st ed. London: Stationery Office Books, 1988.

2. World Health Organization. Preamble to the constitution of the World Health Organization as adopted by the international health conference, New York, 19–22 June 1946; signed on 22 July 1946 by the representatives of 61 states (Official records of the World Health Organization, no. 2, p.100) and entered into force on 7 April 1948. Geneva, Switzerland: World Health Organization, 1946.

3. Winslow CEA. The untilled fields of public health. *Science* 1920; 51(1306): 23–33.

4. Institute of Medicine (IOM). *The future of public health*. Washington, DC: National Academic Press, 1920.

5. Tulchinsky TH and Varavikova EA. What is "the new public health"? *Public Health Rev* 2010; 32(1): 25–53.

6. Nugent R, Bertram MY, Jan S, et al. Investing in noncommunicable disease prevention and management to advance the sustainable development goals. *Lancet* 2018; 391: 2029–2035.

7. Rehm J and Shield KD. Global burden of disease and the impact of mental and addictive disorders. *Curr Psychiatry Rep* 2019; 21: 10.

8. Mercy JA, Hills SD, Butchart A, et al. Interpersonal violence: global impact and paths to prevention. In:Mock CN, Nugent R, Kobusingye O, et al. (eds) *Injury prevention and environmental health*. Washington, DC: The International Bank for Reconstruction and Development/The World Bank, 2017, pp.71–96.

9. WHO. Coronavirus disease (Covid-19): situation report. https://experience.arcgis.com/experience/685d0ace521648f8a5beeeee1b9125cd (2020, accessed 17 January 2021).

10. Saloner B, McGinty EE, Beletsky L, et al. A public health strategy for the opioid crisis. *Public Health Rep* 2018; 133(1): 24S–34S.

11. Maibach EW, Nisbet M, Baldwin P, et al. Reframing climate change as a public health issue: an exploratory study of public reactions. *BMC Public Health* 2010; 10: 299.

12. Rocque RJ, Beaudoin C, Ndjaboue R, et al. Health effects of climate change: an overview of systematic reviews. *BMJ Open* 2021; 11: e046333.

13. Barton H and Grant M. A health map for the local human habitat. *J R Soc Promot Health* 2006; 126(6): 252–253.

14. Commission on Social Determinants of Health. Closing the gap in a generation: health equity through action on the social determinants of health. Commission on Social Determinants of Health Final Report. https://apps.who.int/iris/bitstream/handle/10665/43943/978924 1563703_eng.pdf;jsessionid=36

5271ACE20528885428817 00EEDCA8B?sequence=1 (2008, accessed 20 January 2022).

15. United Nations. Sustainable development goals report, 2019. https://unstats.un.org/sdgs/report/2019/The-Sustainable-Development-Goals-Report-2019.pdf

16. Bhutta ZA, Siddiqi S, Aftab W, et al. What will it take to implement health and health-related sustainable development goals? *BMJ Glob Health* 2020; 5: e002963.

17. Stokols D, Hall KL and Vogel AL. Transdisciplinary public health: core characteristics, definitions, and strategies for success. In: Haire-Joshu D and McBride TD (eds) *Transdisciplinary public health: research, methods, and practice*. San Francisco, CA: Jossey-Bass Publishers, 2013, pp.3–30.

18. Stokols D. Toward a science of transdisciplinary action research. *Am J Community Psychol* 2006; 38(1-2): 79–93.

19. Graybill JK, Dooling S, Shandas V, et al. A rough guide to interdisciplinarity: graduate student perspectives. *Bioscience* 2006; 56(9): 757–763.

20. Mâsse LC, Moser RP, Stokols D, et al. Measuring collaboration and transdisciplinary integration in team science. *Am J Prev Med* 2008; 35(2): S151–S160.

21. Sharma A and Zodpey S. Moving from multidisciplinary to transdisciplinary approach in public health through educational reforms. *South-East Asian Journal of Medical Education* 2017; 11(2): 12–17.

22. Gauffin K and Dunlavy A. Finding common ground: how the development of theory in public health research can bring us together. *Soc Theory Health* 2021; 19: 127–136. 2021.

23. Leviton LC. Integrating psychology and public health: challenges and opportunities. *Am Psychol* 1996; 51(1): 42–51.

24. Taub A. Transdisciplinary approaches to building the capacity of the public health workforce. *Ethn Dis* 2003; 13(2): S45–S47.

25. Lawlor EF, Kreuter MW, Sebert-Kuhlmann AK, et al. Methodological innovations in public health education: transdisciplinary problem solving. *Am J Public Health* 2015; 105(1): S99–S103.

26. Kivits J, Ricci L and Minary L. Interdisciplinary research in public health: the 'why' and the 'how'. *Epidemiol Community Health* 2019; 73: 1061–1062.

27. Naik Y, Abbs I, Elwell-Sutton T, et al. Using economic development to improve health and reduce inequalities. *The Health Foundation*, 1-48, 2020. https://doi.org/10.37829/HF-2020-HL07

28. Johnson S, Vuillemin A, Geidne S, et al. Measuring health promotion in sports club settings: a modified Delphi study. *Health Educ Behav* 2020; 47(1): 78–90.

29. Milstein G, Palitsky R and Cuevas A. The religion variable in community health promotion and illness prevention. *J Prev Interv Community* 2020; 48: 1–6.

30. Grier S and Bryant CA. Social marketing in public health. *Annu Rev Public Health* 2005; 26: 319–339.

31. Caruso G. *Public health and safety: the social determinants of health and criminal behavior*. London: ResearchLinks Books, 2017.

32. Ruth BJ and Marshall JW. A history of social work in public health. *Am J Public Health* 2017; 107: S236–S242.

33. Garvin C and Cox F. A history of community organization since the civil war with special reference to oppressed communities. In: Rothman JJE and Tropman J (eds) *Strategies of community intervention*. Itasca, MN: Peacock, 2001, pp.65–100.

34. Friedman TL. *The world is flat: a brief history of the twenty-first century*. New York, NY: Farrar, Straus and Giroux, 2005.

35. Ruth BJ, Sisco S and Marshall JW. Public health social work. In: Franklin C (ed.) *Encyclopedia of social work*. Oxford University Press, 2016.

36. WHO. The Ottawa Charter for Health Promotion, http://www.who.int/healthpromotion/conferences/previous/ottawa/en/ (1986, accessed 15 January 2022).

37. Ross AM and de Saxe Zerden L. Prevention, health promotion, and social work: aligning health and human service systems through a workforce for health. *Am J Public Health* 2020; 110(2): S186–S190.

38. Krishnan A, Kapoor SK and Pandav CS. Clinical medicine and public health: rivals or partners? *Natl Med J India* 2014; 27(2): 99–101.

39. Kindig DA. Understanding population health terminology. *Milbank Q* 2007; 85(1): 139–161.

40. Outwater AH, Leshabari SC and Nolte E. Disease prevention: an overview. In: Quah SR and Cockerham WC (eds) *The international encyclopedia of public health*. Oxford: Academic Press, 2017, pp.338–349, 2nd ed. Vol. 2.

41. World Health Organization. Health promotion and disease prevention through population-based interventions, including action to address social determinants and health inequity, http://www.emro.who.int/pdf/about-who/public-health-functions/health-promotion-disease-prevention.pdf?ua=1 (2019, accessed 21 January 2022).

42. Keller LO, Strohschein S, Lia-Hoagberg B, et al. Population-based public health interventions: practice-based and evidence-supported. Part I. *Public Health Nurs* 2004; 21(5): 453–468.

43. Roskin M. Integration of primary prevention into social work practice. *Soc Work* 1980; 25(3): 192–196.

44. McCave EL and Rishel CW. Prevention as an explicit part of the social work profession: a systematic investigation. *Adv Soc Work* 2010; 12(2): 226–240.

45. Ruth BJ, Velásquez EE, Marshall JW, et al. Shaping the future of prevention in social work: an analysis of the professional literature from 2000 through 2010. *Soc Work* 2015; 60(2): 126–134.

46. Forte and James A. *Human behavior and the social environment: models, metaphors, and maps for applying theoretical perspectives to practice*. Belmont, CA: Thomson Brooks/Cole, 2007.

47. Rose G. Sick individuals and sick populations. *Internet J Epidemiol* 1985; 14(1): 32–38.

48. Syme SL. Historical perspective: the social determinants of disease – some roots of the movement. *Epidemiol Perspect Innov* 2005; 2: 2.

49. Wilkinson R and Marmot M. *Social determinants of health: the solid facts*. Geneva: World Health Organization, 2003.

50. Wilkinson RG and Pickett KE. Income inequality and population health: a review and explanation of the evidence. *Soc Sci Med* 2006; 62(7): 1768–1784.

51. McIntyre S. *Equally well: report of the ministerial task force on health inequalities – Volume 2: briefing paper on health inequalities.* Edinburgh: The Scottish Government, 2007. https://www.gov.scot/publications/equally-well-report-ministerial-task-force-health-inequalities/ (accessed 27 January 2022).

52. Craig SL, Bejan R and Muskat B. Making the invisible visible: are health social workers addressing the social determinants of health? *Soc Work Health Care* 2013; 52(4): 311–331.

53. Rine CM. Social determinants of health: Grand challenges in social work's future. *Health Soc Work* 2016; 41(3): 143–145.

54. Kuh D, Ben-Shlomo Y, Lynch J, et al. Life course epidemiology. *J Epidemiol Community Health* 2003; 57(10): 778–783.

55. Jones NL, Gilman SE, Cheng TL, et al. Life course approaches to the causes of health disparities. *Am J Public Health* 2019; 109: S48–S55.

56. Hanson M and Aagaard-Hansen J. Developmental origins of health and disease: towards a combined bio-social life-course perspective. *Acta Paediatr* 2021; 110: 2306–2309.

57. Hutchison ED. The life course perspective: a promising approach for bridging the micro and macro worlds for social workers. *Fam Soc J Contemp Soc Serv* 2005; 86: 143–152.

58. Hutchison ED. An update on the relevance of the life course perspective for social work. *Fam Soc J Contemp Soc Serv* 2019; 100(4): 351–366.

59. Combs-Orme T (ed.). Infant mortality and social work: legacy of success. Social Work Publications and Other Works, 1988. https://trace.tennessee.edu/utk_socipubs/23 (accessed 28 January 2022).

60. Ruth BJ, Wachman MK, Marbach AV, et al. Advancing Leadership in public health social work education (ALPS) initiative, Boston university school of social work. Advancing Leadership in Public Health Social Work Education: MSW/MPH Toolkit, 2019. http://ciswh.org/project/bu-alps (accessed 28 December 2021).

61. Ruth BJ, Marshall JW, Wachman M, et al. More than a great idea: findings from the profiles in public health social work study. *Soc Work Public Health* 2020; 35(5): 235–247.

62. Austin MJ, Coombs M and Barr B. Community-centered clinical practice: is the integration of micro and macro social work practice possible? *J Community Pract* 2005; 13(4): 9–30.

63. Miley KK and DuBois B. *Social work: an empowering profession.* 6th ed. Boston, MA: Allyn and Bacon, 2010.

64. Dates M, Lennox-Chhugani N, Pereira HS, et al. *Health system performance assessment – integrated care assessment (20157303 HSPA).* Brussels: European Commission, 2018.

65. Czypionka T, Kraus M, Reiss M, et al. The patient at the centre: evidence from 17 European integrated care programmes for persons with complex needs. *BMC Health Serv Res* 2020; 20: 1102.

66. Stoop A, de Bruin SR, Wistow G, et al. Exploring improvement plans of fourteen European integrated care sites for older people with complex needs. *Health Policy* 2019; 123: 1135–1154.

67. Nummela O, Juujärvi S and Sinervo T. Competence needs of integrated care in the transition of health care and social services in Finland. *Int J Care Coord* 2019; 22(1): 36–45.

68. Kaplan GA. What's wrong with social epidemiology, and how can we make it better? *Epidemiol Rev* 2004; 26: 124–135.

69. Cederbaum JA, Ross AM, Ruth BJ, et al. Public health social work as a unifying framework for social work's grand challenges. *Soc Work* 2019; 64: 9–18.

70. Buse K and Hawkes S. Health in the sustainable development goals: ready for a paradigm shift? *Global Health* 2015; 11: 13.

71. Jayasooria D. Sustainable development goals and social work: opportunities and challenges for social work practice in Malaysia. *J Hum Rights Soc Work* 2016; 1: 19–29.

72. Nutbeam D, Corbin JH and Lin V. The continuing evolution of health promotion. *Health Promot Int* 2021; 36(1): i1–i3.

73. Welsh BC, Braga AA and Sullivan CJ. Serious youth violence and innovative prevention: on the emerging link between public health and criminology. *Justice Q* 2014; 31(3): 500–523.

74. Berlinger EN. *Youth incarceration: restorative justice and social work practice.* Masters Thesis, Smith College, MA, Northampton, 2014. https://scholarworks.smith.edu/theses/758 (accessed 27 December 2021).

75. Jamir Singh PS and Azman A. Dealing with juvenile delinquency: integrated social work approach. *Asian Social Work Journal* 2020; 5(2): 32–43.

76. Hopkins HL. *The place of social work in public health.* Cleveland, OH: National Conference of Social Work, 1926.