

Social Determinants of Health in Pharmacy Practice

*Omar Thanoon Dawood*¹, Mohammed Ibrahim Aladul²*

¹ College of Pharmacy, Ninevah University, Mosul, Iraq.

² College of Pharmacy, University of Mosul, Mosul, Iraq.

ABSTRACT

This narrative review explores the role of pharmacy practice in addressing social determinants of health and its potential to mitigate major public health issues in Iraq. It focuses on the key concepts of social determinants of health, their impact on public health, and their implications for the community. The paper defines social determinants of health, examines the connection between these determinants and pharmacy practice, and highlights the role of pharmacists in addressing these determinants. Social determinants of health, such as agriculture and food production, employment, education, and housing, can significantly influence the health status of individuals and communities. By understanding these factors, healthcare practitioners can shift their focus toward prevention rather than solely relying on medication, particularly for those in low-income situations. This approach can reduce the overall need for medications. The review proposes a framework for integrating pharmacy practice into public health strategies, emphasizing how social determinants of health shape this integration. Additionally, it suggests that pharmacists can contribute to improving public health by fostering preventive care within the community.

Keywords: Pharmacy practice, public health, social determinants

INTRODUCTION

Social determinants of health are impacts on health related to the conditions in which individuals are born, grow up, live, and work. They are designed to identify ways to create social and physical environments that promote good health for all [1]. The World Health Organization (WHO) defines social determinants of health as “the circumstances in which people are born, grow up, work and age, as well as the systems put in place to deal with illness” [2]. For example, poor health or lack of education can lead to loss of employment opportunities, which in turn constrains income. Reduced income limits access to healthcare and nutritious food, increasing hardship. Hardship causes stress, which can lead to

unhealthy coping mechanisms such as substance abuse and overeating of unhealthy food [3]. There are many types of social determinants of health that will be discussed, including housing, agriculture and food production, education, and employment status. Housing is related to housing instability, a term describing the continuum from homelessness [4]. Some individuals may not be homeless but live in unstable conditions such as exposure to allergens or pests, poor sanitation, and substandard housing structures. Additionally, severe rent burden also contributes to housing instability, while homelessness leads to poor health, with affected individuals being more likely to experience infectious diseases and chronic conditions such as cardiovascular disease and chronic pulmonary disease [5]. Therefore, homeless or unstably housed individuals are likely to be hospitalized more frequently and require more attention and care than patients with stable living arrangements [6].

***Corresponding author: Thanoon Dawood**

omar.thanoon@uoninevah.edu.iq

Received: 10/02/2024 Accepted: 18/05/2024.

DOI: <https://doi.org/10.35516/jjps.v17i3.2364>

Agriculture and food production also play an important role in health. A good agricultural system is essential for the well-being and health of individuals, as the production of staple foods such as grains and vegetables is crucial for growth, energy, and maintaining good health. However, studies show that low-income and underserved populations often consume junk food and face limitations in accessing healthy food, such as fresh fruits and vegetables [7, 8]. Additionally, health can also impact agriculture, as people's health status influences the production of agricultural products. In agricultural communities, poor health decreases work performance and reduces income and productivity, which can eventually lead to further health issues. Therefore, interactions between agriculture and health provide opportunities for both sectors to collaborate in finding solutions to their respective problems [9]. Health and education are closely linked, with better education contributing to the development of healthier children over their lifetime. School-Based Health Centers (SBHCs), established by The Community Preventive Services Taskforce, are an initiative aimed at improving health and education among children from less fortunate families [10]. SBHCs enhance access to healthcare by providing convenient locations and services where students typically spend their time [11], and by helping to care for children who might otherwise miss school due to health issues [12]. Furthermore, SBHCs are uniquely positioned to integrate prevention into their clinical care, effectively addressing a full range of health determinants. They also serve as resources for group and classroom health education, school-wide screenings and prevention programs, and support other school staff in creating a positive school climate [13].

Lastly, a crucial factor in shaping people's social position is employment and working conditions. The Employment Conditions Knowledge Network (EMCONET) has developed models and measures to clarify how different types of jobs, conditions of underemployment, and the threat of unemployment affect

social position and health outcomes.

Employment and working conditions are crucial factors in shaping people's social position and can significantly affect workers' health [14]. In addition, limited job availability or poor job quality may diminish or negate any positive effects of employment. To improve employment outcomes, it is important for service providers to consider the interaction between a client's physical health and their employment status, and to assess their physical functioning. However, further research is necessary to better understand this interaction [15].

Impact of social determinants on health inequality

Health inequality refers to the differences in health levels or the distribution of health determinants between different groups within the population [16]. Housing is one of the social determinants contributing to health inequality. This is primarily due to variations in housing quality, housing costs, and the role of housing in social life. Many people do not live in homes that are comfortable, warm, and affordable. Today, housing costs are exceedingly high and often unaffordable for the poor [2]. Consequently, some individuals are forced into homelessness or live in places not intended for human habitation. As a result, they are vulnerable to morbidity and mortality due to exposure to extreme temperatures. Even those who can afford housing costs still face challenges in maintaining their health and well-being. Their mental health is often affected by stress and anxiety related to housing payments. Some are also compelled to live in low-quality housing with poor conditions, which can be detrimental to their health [17]. In contrast, individuals with better socioeconomic status can afford high housing costs without experiencing financial strain or worrying about housing payments [18]. This clearly demonstrates that housing contributes to health inequality between the poor and the wealthy.

Agriculture and food production systems also contribute to gaps in health status. Generally, food supply impacts health inequality through macro, long-term effects on domestic and global food prices. Environmental Factors

such as climate change, soil conditions, and depletion of water and fossil fuels cause long-term reductions in agricultural supply and substantial price impacts. This results in inadequate food supply for people [7, 8]. Additionally, policies that do not ban the use of antibiotics in animal husbandry or harmful chemicals in pesticides, as well as the prevalence of processed foods high in saturated fats, trans fats, free sugars, and salt, contribute to unsafe food conditions [19]. Many young individuals prefer consuming processed foods, which are unhealthy and may lead to obesity or other diseases. Consequently, there is a gap in health status between younger and older people.

Furthermore, health inequality is also influenced by differences in education levels. Individuals with higher education levels generally have better health knowledge compared to those with lower education levels. This knowledge enables them to live healthier lives through practices such as maintaining better hygiene and having a balanced diet [20]. Moreover, highly educated individuals are more likely to secure higher-paying jobs, which allows them to afford healthier food and supplements that are often more expensive. Therefore, it is evident that education also contributes to health inequality [2].

Furthermore, employment also contributes to health inequality. Developed countries tend to have more standard forms of employment, whereas developing countries often have a higher prevalence of informal and unhealthy employment types, such as hazardous child labor and forced sex work. These conditions can adversely affect the health of workers, making them more susceptible to diseases. For example, sex workers are at higher risk of sexually transmitted diseases, including AIDS [21]. People in developed countries typically earn more money, which allows them to better maintain their health and afford treatments when they become ill, compared to those in developing countries. In developed nations, fewer people are employed in the agricultural sector, while in poorer countries, a large proportion of workers are involved in agriculture, often earning only a meager income.

Workers in the agricultural sector experience very different health consequences and potential health interventions compared to those working in the service and industrial sectors [22]. The level of development of health systems is influenced by the health benefits provided by employers. In low-income countries, employers in informal and insecure forms of employment often do not provide health services to their employees, unlike employers in developed countries [21].

Connection between social determinant of health and pharmacy practice

The connection between social determinants of health and pharmacy practice was evaluated based on the role of pharmacists in public health and preventive care. Globally, over the past decades, the roles of pharmacists have undergone significant changes, resulting in a more diverse and highly relevant profession [23]. The original focus of pharmacy practice has shifted from merely compounding and supplying medicine to providing services, information, and ultimately administering patient care [24]. This evolution in the pharmacy profession has become known as pharmaceutical care. To embrace this new responsibility successfully, pharmacists need to develop different skills, attitudes, and behavioral understandings [45]. Adopting these criteria will enable pharmacists to optimize their roles in healthcare provision [25]. Pharmaceutical public health is a relatively new field for pharmacists, and currently, only a portion of community pharmacies globally are practicing population health and preventive care [26]. Healthcare practitioners, especially pharmacists, can reach out to patients and encourage lifestyle changes that promote better health. For patients with chronic diseases, practitioners can offer guidance in managing their illnesses in ways that fit their dynamic lives and reduce potential severity. A significant reduction in the nation's health burden could occur if the pharmacy profession contributes more to the public health sector, such as disease prevention and promotion of self-management and aftercare [27]. Additionally, non-health-

related curricula also play a vital role in seeking initiatives to improve healthcare systems [28]

Health-system pharmacist's role towards the social determinants of health

The health status of individuals and communities can be affected by many interrelated factors known as social determinants of health, such as food production, employment, education, and housing [29]. By understanding each social determinant of health, effective and suitable initiatives can be taken to address community health problems. This involves first identifying the problems and then categorizing them according to the different social determinants of health, so that specific initiatives can be designed to address the issues associated with each category. Housing is one such social determinant, and health conditions like respiratory diseases due to poor housing should be classified under this category [30]. Different types of housing have varying structures, which result in different indoor environments and housing conditions, ultimately leading to diverse respiratory outcomes [31, 32]. Therefore, pharmacists should also be involved in supporting individuals suffering from chronic diseases, including behavioral health problems, through supportive housing initiatives. Previous studies have demonstrated that such interventions reduced hospitalizations, emergency visits, and long-term care utilization; in some cases, these interventions also reduced overall costs and improved health outcomes [33, 34]. Another study showed that pharmacists addressed social obstacles related to the cost of basic necessities, including housing concerns and food assistance, as well as issues with transportation [35]. Employment status is another critical social determinant of health. Unemployed individuals face many health challenges, including stress-related conditions that increase the risk of chronic diseases such as cardiovascular disease. Some may also develop mental health issues, such as depression and anxiety. This is because unemployment will result in the loss of stable source of income and causes financial stringency. Some

unemployed workers who have a family to support or who are burdened with significant debt experience greater stress-related conditions [36]. Therefore, information on stress-related diseases, such as cardiovascular diseases, should be widely disseminated by pharmacists so that patients are aware of the symptoms and can seek early treatment or learn stress management techniques to prevent such conditions. This information can be spread through social media to reach a larger audience [37]. A study by Levit et al. (2022) conducted pharmacist-led social determinants of health interventions during the COVID-19 pandemic, which supported 21.4% of patients with community resources, including affordable and accessible grocery stores and medicines, and offered assistance in finding new employment [38].

Education is another crucial social determinant of health. Adequate knowledge on maintaining health, such as having a balanced diet and practicing good hygiene, is essential [39]. Educational interventions by pharmacists have been effective in improving patients' knowledge and awareness about medicine use and disease management, particularly when combined with successful patient counseling [40]. Previous studies have also shown the impact of pharmacists' interventions on patient education during the COVID-19 pandemic, including awareness about exercise, COVID testing, and vaccines [38, 46].

Lastly, food production is also a social determinant of health, and issues related to health conditions caused by pesticide use in food production should be classified under this category [41]. Health conditions associated with pesticide exposure include birth defects, hearing loss, cancer, and infertility, as well as acute symptoms such as weakness, vomiting, seizures, breathing difficulties, loss of appetite, and nosebleeds, among others. Additionally, highly processed foods, which are high in saturated fats, sugar, and sodium, increase the risk of obesity and other chronic diseases [42]. Therefore, initiatives to improve access to healthy food, such as food pharmacies, clinics, and hospitals that dispense healthy food, as well as doctor-

prescribed food covered by the healthcare system, are important to reduce healthcare costs [43]. Table 1 presents

the impact of pharmacists' interventions on social determinants of health

Table 1: The impact of pharmacists' intervention on social determinants of health

Author	Aim	Findings
Foster et al. 2022 ³⁵	Implementation and evaluation of social determinants of health	- 33% of unsafe housing conditions - Social obstacles related to the cost of basic requirements like housing concerns and food assistance, as well as issues with transportation
Livet et al. 2021 ³⁸	Pharmacist-led social determinants of health interventions during COVID pandemic.	- Patient education (71.4%) including exercising, COVID testing, spread, and vaccine. - Community resources (21.4%) including grocery stores, medicines that are affordable and accessible, and offered resources to assist patients in finding new employment. - Care coordination (7.14%) involves transferring the patient to a different pharmacy that provides drug delivery services.
Foster et al. 2023 ⁴⁴	The feasibility of a community pharmacy on the screening and referral program on health-related social need.	- Out of the 86 pharmacists who completed screening on social need, 24.4% of them carried out an intervention and made a referral. - The intervention on social need was identified, 31% on neighborhood and built environment, and 30% on economic stability issues which were the most prominent social determinants of health domains.

CONCLUSION

This review explored the social determinants of health, emphasizing the connections between these determinants and pharmacy practice to design a framework for addressing health issues. Additionally, it provides ideas for effective initiatives in pharmacy practice to promote health equity. The role of healthcare practitioners should be expanded to actively contribute to public health. Understanding the social determinants of health and social inequality can help pharmacists focus more on prevention rather than solely on medication, especially for those with low-income jobs and disadvantaged individuals, thereby potentially reducing the need for medications. By

identifying characteristics associated with negative health events, pharmacists can intervene and tailor care approaches to prevent such events from occurring or worsening, which could help reduce complications and the overall burden on patients.

Compliance with Ethical Standards

Conflict of interest statement:

The authors declare that they have no conflict of interests.

Funding source:

No fund

Ethical Approval and Informed Consent:

Not applicable

REFERENCES

1. World Health Organization. Closing the gap in a generation: health equity through action on the social determinants of health. 2009.
2. World Health Organization. WHO housing and health guidelines. Geneva: World Health Organization. 2018.
3. World Health Organization. Review of social determinants and the health divide in the WHO European Region: Copenhagen: WHO Regional Office for Europe; 2013.
4. Butcher L. Social Determinants of Health: Stretching Health Care's Job Description. Managed care (Langhorne, Pa). 2018; 27:19-24.
5. Health Research & Educational Trust. Social Determinants of Health Series: Housing and the Role of Hospitals. 2017.
6. Schiff J.W., Pauly B., Schiff R. Needs and analysis of pandemic planning in four canadian cities. *Lessons From H1N1 in Canada*. 2016:163.
7. Powell L.M., Zhao Z., Wang Y. Food prices and fruit and vegetable consumption among young American adults. *Health & place*. 2009; 15:1064-70.
8. Van Den Berg A., Nielsen A., Akhavan N., Pulido C.L., Basu S., Hussaini A., et al. Design and evaluation of a coalition-led obesity initiative to promote healthy eating and physical activity in low-income, ethnically diverse communities: the Go! Austin/Vamos! Austin initiative. *Archives of Public Health*. 2019; 77:25.
9. Hawkes C., & Ruel M. The links between agriculture and health: an intersectoral opportunity to improve the health and livelihoods of the poor. *Bulletin of the World Health organization*. 2006; 84:984-90.
10. Knopf J.A., Finnie R.K., Peng Y., Hahn R.A., Truman B.I., Vernon-Smiley M., et al. School-based health centers to advance health equity: a Community Guide systematic review. *American journal of preventive medicine*. 2016; 51:114-26.
11. uszczak L., Melinkovich P., Kaplan D. Use of health and mental health services by adolescents across multiple delivery sites. *Journal of Adolescent Health*. 2003; 32:108-18.
12. Walker S.C., Kerns S.E., Lyon A.R., Bruns E.J., Cosgrove T. Impact of school-based health center use on academic outcomes. *Journal of Adolescent Health*. 2010; 46:251-7.
13. Clayton K., Blumberg F., Auld D.P. The relationship between motivation, learning strategies and choice of environment whether traditional or including an online component. *British Journal of Educational Technology*. 2010; 41:349-64.
14. Benach J., Muntaner C., Santana V., Chairs F. Employment conditions and health inequalities. Final report to the WHO Commission on Social Determinants of Health (CSDH) Employment Conditions Knowledge Network (EMCONET) Geneva: WHO. 2007.
15. Hergenrather K.C., Zeglin R.J., McGuire-Kuletz M., Rhodes S.D. Employment as a social determinant of health: a systematic review of longitudinal studies exploring the relationship between employment status and physical health. *Rehabilitation Research, Policy, and Education*. 2015; 29:2-26.
16. World Health Organization. 10 facts on health inequities and their causes. Im Internet: http://www.who.int/features/factfiles/health_inequities/en. 2011.
17. Gibson M., Petticrew M., Bambra C., Sowden A.J., Wright K.E., Whitehead M. Housing and health inequalities: a synthesis of systematic reviews of interventions aimed at different pathways linking housing and health. *Health & place*. 2011; 17:175-84.
18. Bertaud A. Order without design: How markets shape cities: Mit Press; 2018.
19. World Health Organization. Health 2020: Agriculture and health through food safety and nutrition. Regional Office for Europe Copenhagen. 2015.

20. Bago d'Uva T., Van Doorslaer E., Lindeboom M., O'Donnell O. Does reporting heterogeneity bias the measurement of health disparities? *Health economics*. 2008; 17:351-75.
21. Benach J., & Muntaner C. Precarious employment and health: developing a research agenda. *Journal of Epidemiology & Community Health*. 2007; 61:276-7.
22. Hawkes C., & Ruel M.T. Understanding the links between agriculture and health: International Food Policy Research Institute Washington, DC; 2006.
23. Al-Rusasi A. Patient-Centeredness in Pharmaceutical Care. *Jordan Journal of Pharmaceutical Sciences*. 2023 Jul. 16(2):451.
24. Lai E., Trac L., Lovett A. Expanding the pharmacist's role in public health. *Univers J Public Health*. 2013; 1:79-85.
25. Mathialagan A., Nagalinggam P., Mathialagan S., Kirby B.P. Relationship between performance barriers and pharmacist competency towards the implementation of an expanded public health pharmacy role. *International Journal of Pharmacy Practice*. 2015; 23:320-6.
26. Kim I-S., Park M., Park M-Y., Yoo H., Choi J. Factors affecting the perception of importance and practice of patient safety management among hospital employees in Korea. *Asian nursing research*. 2013; 7:26-32.
27. Benjamin G.C. Ensuring population health: an important role for pharmacy. *American journal of pharmaceutical education*. 2016; 80.
28. Artiga S., Hinton E. Beyond health care: the role of social determinants in promoting health and health equity. *Health*. 2019; 20:1-13.
29. Blas E., Kurup A.S. Equity, social determinants and public health programmes: World Health Organization; 2010.
30. Wang J., Huang B., Zhang T., Wong H., Huang Y. Impact of housing and community conditions on multidimensional health among middle-and low-income groups in Hong Kong. *International journal of environmental research and public health*. 2018; 15:1132.
31. Breyse P., Farr N., Galke W., Lanphear B., Morley R., Bergofsky L. The relationship between housing and health: children at risk. *Environmental health perspectives*. 2004; 112:1583-8.
32. EPA U. Child-Specific Exposure Factors Handbook (Interim Report). 2002.
33. Tsega M., Lewis C., McCarthy D., Shah T., Coutts K. Review of Evidence for Health-Related Social Needs Interventions. July 2019. *The Commonwealth Fund*. p. <https://www.commonwealthfund.org/sites/default/files/2019-07/ROI-EVIDENCE-REVIEW-FINALVERSION.pdf>.
34. Bradley E., Coyle C., Ndumele C., Rogran E., Canavan M., Curry L., et al. Leveraging the social determinants of health: What works. New Haven, CT: Yale Global Health Leadership Institute. 2015; https://www.commonwealthfund.org/sites/default/files/documents/media_files_2015_international_symposium_att_g2_leveraging_the_social_determinants_of_health.pdf.
35. Foster A.A., Daly C.J., Logan T., Logan J.R., Jarvis H., Croce J., et al. Implementation and evaluation of social determinants of health practice models within community pharmacy. *Journal of the American Pharmacists Association*. 2022; 62:1407-16.
36. Marmot M., Allen J., Bell R., Bloomer E., Goldblatt P. WHO European review of social determinants of health and the health divide. *The lancet*. 2012; 380:1011-29.
37. Awad A., Al-Nafisi H. Public knowledge of cardiovascular disease and its risk factors in Kuwait: a cross-sectional survey. *BMC public health*. 2014; 14:1131.
38. Livet M., Levitt J.M., Lee A., Easter J. The pharmacist as a public health resource: expanding telepharmacy services to address social determinants of health during the COVID-19 pandemic. *Exploratory Research in Clinical and Social Pharmacy*. 2021; 2:100032.
39. Mirowsky J. *Education, Social Status, and Health: Routledge*. 2017.

40. Guanghui L., Dawood O.T., Hassali M.A. Development of educational intervention on the responsible use of medicines in public. *Journal of Public Health*. 2023;1-7.
41. Gerage J.M., Meira A.P.G., da Silva M.V. Food and nutrition security: pesticide residues in food. *Nutrire*. 2017; 42:3.
42. Poti J.M., Mendez M.A., Ng S.W., Popkin B.M. Is the degree of food processing and convenience linked with the nutritional quality of foods purchased by US households? *The American Journal of Clinical Nutrition*. 2015; 101:1251-62.
43. White N.D. Produce prescriptions, food pharmacies, and the potential effect on food choice. *American journal of lifestyle medicine*. 2020; 14:366-8.
44. Foster A.A., Daly C.J., Leong R., Stoll J., Butler M., Jacobs D.M. Integrating community health workers within a pharmacy to address health-related social needs. *Journal of the American Pharmacists Association*. 2023; 63:799-806. e3.
45. Hjazeen R. Community Pharmacists' Perspectives toward Continuing Professional Development: A Qualitative Study. *Jordan Journal of Pharmaceutical Sciences*. 2023 Jul 24;16(2):449-.
46. Jarab A.S., Al-Qerem W., Mukattash T.L., Alqudah S.G., Abu-Zaytoun L., Al-Azayzih A., Khmour M. Public Perception of Pharmacist's Role during COVID-19 Outbreak in Jordan. *Jordan Journal of Pharmaceutical Sciences*. 2022 Sep. 15(3):365-77.

العوامل الاجتماعية المحددة للصحة في ممارسة الصيدلة

عمر نون داؤد^{1*}، محمد ابراهيم العدول²

¹ كلية الصيدلة، جامعة نينوى، الموصل، العراق.

² كلية الصيدلة، جامعة الموصل، الموصل، العراق.

ملخص

تقدم هذه المراجعة السردية نظرة على دور ممارسة الصيدلة في العوامل الاجتماعية المحددة للصحة من خلال تقديم التدخلات اللازمة لتقليل المشاكل الصحية العامة الرئيسية في العراق. حيث تركز المراجعة على المفهوم الرئيسي للعوامل الاجتماعية المحددة للصحة، وتأثيرها على الصحة العامة، والروابط والتداعيات في المجتمع. ان هذا البحث يصف جوانب العوامل الاجتماعية المحددة للصحة، والارتباط بين العوامل الاجتماعية المحددة للصحة وممارسة الصيدلة، مع تسليط الضوء على دور الصيدلي تجاه هذه العوامل. ومع ذلك، يمكن أن يتأثر الوضع الصحي للأفراد والمجتمعات بالعديد من العوامل المترابطة التي تسمى العوامل الاجتماعية المحددة للصحة، مثل الزراعة وإنتاج الغذاء، التوظيف، التعليم، والإسكان. إن فهم تأثير العوامل الاجتماعية المحددة للصحة يساعد العاملين في مجال الرعاية الصحية على التركيز بشكل أكبر على الوقاية بدلاً من العلاج، خاصة لأولئك الذين يعملون في وظائف منخفضة الدخل والأشخاص العاطلين عن العمل، وبالتالي تقليل الحاجة إلى الأدوية. تقترح هذه المراجعة إطاراً لمساهمة ممارسة الصيدلة في الصحة العامة التي تتحدد من خلال العوامل الاجتماعية المحددة للصحة. بالإضافة إلى ذلك، يمكن للصيادلة المساعدة في تحسين الصحة العامة من خلال إنشاء رعاية وقائية في المجتمع.

الكلمات الدالة: ممارسة الصيدلة، الصحة العامة، العوامل الاجتماعية المحددة.

* المؤلف المراسل: عمر نون داؤد

omar.thanoon@uoninevah.edu.iq

تاريخ استلام البحث 2024/02/10 وتاريخ قبوله للنشر 2024/05/18.