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Social Support and Loneliness Among Black and Hispanic Senior Women Experiencing Food Insecurity

The Nurse as Primary, Secondary, and Tertiary Intervention

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KEYWORDS

- Vulnerable populations
- COVID-19
- Food insecurity
- Loneliness
- Perceived social support
- Neuman systems model
- Nursing intervention
- Stress

KEY POINTS

- When compared with White senior women, Black and Hispanic senior women are more likely to have low or moderately low levels of social support, and to experience food insecurity, which may be exacerbated by loneliness.
- Food insecurity has been linked to negative health outcomes, both directly and indirectly as the result of stress.
- Through the lens of The Neuman Systems Model, nurses are in a position to act as sources of primary, secondary, and tertiary prevention to support the wellness of Black and Hispanic senior women who are food insecure.

INTRODUCTION

The impact of social determinants of health (SDOH) on vulnerable populations, especially during the COVID-19 pandemic, is understudied. Additional research in this area is needed. However, while research is being carried out, interventions to improve health outcomes for vulnerable populations can be considered. The aim of this article

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is to provide a theoretic framework for nurses to identify pathways for nursing interventions to minimizing the influence of food insecurity, perceived social support, and loneliness on stress and client health. The intervention pathways are delineated through the lens of The Neuman Systems Model. The vulnerable population of interest is Black and Hispanic senior women because, when compared with White senior women, Black and Hispanic senior women are more likely to have low or moderately low levels of social support and to experience food insecurity, which may be exacerbated by loneliness.

**Background**

**Poverty**
Historically in the United States, poverty rates among Blacks and Hispanics have been higher than poverty rates for Whites. Since the onset of the COVID-19 pandemic in February of 2020, overall poverty rates in the US have increased from 15.3% to 16.7%; without federal stimulus payouts afforded by the CARES Act, the increase would have been greater at 18.0%. When compared with Whites (0.08%), Blacks (1.4%) and Hispanics (2.1%) experienced the greatest increases in poverty rates during the pandemic. Considering these inequities, it is no surprise that compared with White (30.7%) women over the age of 65, Black (50.2%) and Hispanic (48.7%) women in that same age group are more likely to live 200% below poverty. Supplemental poverty measure data showed even higher rates and greater disparity, with 41.4% of White women over the age of 65 living 200% below poverty compared with 64.1% of Black women and 67.4% of Hispanic women in the same age group.

**Food Insecurity**
Because household income is linked to food insecurity—it is not surprising that Blacks and Hispanics are more likely to be food insecure when compared with Whites, and that Black and Hispanic women are more likely to be food insecure when compared with men. Specifically, Blacks (11.5%, 7.6%) and Hispanics (10.7%, 4.9%) are more likely to have low and very low food security, respectively, when compared with Whites (4.6%, 3.3%). Women are also more likely to have low (19.1%) or very low (9.6%) food security when compared with men (9.5%, 5.9%, respectively).

Similar conditions exist for Black women. In 2017, 79.4% of non-Hispanic White women but only 9.0% of non-Hispanic Black women were food secure. Additionally, non-Hispanic Black women were more likely to be food insecure (22.8%) than to be food secure (9.0%). Furthermore, Black (15.1%) and Hispanic (14.8%) seniors age 60 and older are more likely to be food insecure when compared with White (6.2%) seniors in the same age group.

**Loneliness and Social Support**
For women, food insecurity has been linked with social support and the social capital those supports provide. Most of the women who are food insecure have low (59.1%) or moderate (31.0%) levels of social support. Marital status, participation in a government assistance program, household income (ie, poverty), education, employment, and loneliness are additional factors of food insecurity. During the COVID-19 pandemic, seniors have reported experiencing increased loneliness.
RATIONALE

Loneliness has been linked to negative health outcomes, including depression for those who developed closer relationships within their social networks during the pandemic. Food insecurity has been linked generally to overall poorer self-reported health as well as to prediabetes, diabetes, high blood pressure, congestive heart failure, heart attack, asthma, obesity, and nonalcoholic fatty liver disease.

Comorbidities may negatively mediate the influence of food insecurity on health outcomes. Comorbidities include cardiovascular disease, cancer, chronic fatigue syndrome, musculoskeletal injury, and depression, and health-related behaviors include smoking, substance abuse, and poor disturbed eating habits.

Enrollment in a nutrition assistance program may mediate the influence of low food security on overall physical health outcomes. Additionally, social support—potentially in the form of nursing prevention interventions—can reduce the influence of comorbidities and health-related behaviors and thus act as a barrier against the adverse effects of stress on patient health.

The specific focus on Black and Hispanic populations is warranted not only because of the greater potential for those populations to be socioeconomically challenged and food insecure but also because Blacks and Hispanics have been found to have higher incidence of stress when compared with Whites. Sources of stress disparity include (a) greater exposure to incidents of discrimination and violence, (b) greater exposure to barriers to occupational advancement, and (c) the cultivation of resources useful for overcoming these sources of stress have been exacerbated with the COVID 19 pandemic.

THE CLIENT SYSTEM

The Neuman systems model is based on the concept of the client system, which can be considered a single client, a group, or multiple groups, and is focused on how those systems interact with their environments in response “to actual or potential environmental stressors, and the use of primary, secondary, and tertiary nursing prevention interventions for retention, attainment, and maintenance of optimal client system wellness.”

Types of environmental stressors vary and can be “intrapersonal, interpersonal, and extrapersonal” and characteristically “physiologic, psychological, sociocultural, developmental, and spiritual.” Examples of stressors include “loss, pain, sensory deprivation, [and] cultural change.”

Levels of Energy

In the client system model, available energy for resisting stressors exists in different capacities and in addition to basic bodily functions such as genetic structure, organ strength and weakness, and body temperature regulation. Those levels of energy within client systems are referred to as lines of resistance, normal lines of defense, and flexible lines of defense. In all cases, a client’s levels of energy are supported by coping mechanisms, cultural and spiritual belief systems, and lifestyle factors.

A client’s normal line of defense refers to the client’s usual state of wellness and is developed and shaped over time through client behaviors. The client’s usual state of wellness, defined as the stable condition of the client system, serves as a baseline for assessing deviations from that condition.

When a client’s normal line of defense is disrupted, the client’s lines of resistance are activated whereby the client’s internal and external resources (both known and
unknown) engage to protect the client against the identified encroaching stressor. The client’s lines of resistance include major biological protection systems such as the immune system’s activation of white blood cells in response to injury or infection. Ideally, the client’s lines of resistance will be sufficient enough to return the client system to a stable condition. The alternative is the depletion of system energy and client death.

A client’s flexible line of defense is their primary protective element against environmental stressors that disrupt the client’s normal line of defense (ie, stable health). The client’s flexible line of defense is dynamic and can fluctuate rapidly. A simplified graphic of the Neuman systems model is presented in Fig. 1.

**Client Perceptions of Health**

In addition to client system reactions to stressors, the ways in which clients perceive their health and the way they cope with stressors influences the strength of their lines of defense and resistance. Essentially, stress is a neutral concept that only gains the capacity for positive or negative influences on health outcomes to the degree that the client perceives the stressor will have positive or negative outcomes and to the extent that the client perceives they are capable of coping with the stressor. The mere exposure to a pandemic is a stressor for the client. Couple this with systemic racism and lack of resources, this potentiates stress affecting lines of defense. The concepts of client perceptions and coping are rooted in Lazarus and Folkman’s theory of stress and coping.

**Stress and Coping**

Unlike traditional, and dichotomous, perspectives of stress that characterize stress as either a stimulus or response, Lazarus and Folkman considered stress a factor related to the characteristics of both the person and the environment for which the person functions. This relationship between stress and the characteristics of both the person and the environment for which the person functions is similar to the way

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**Fig. 1.** Simplified interpretation of the Neuman systems model. *(Note. Adapted from The Neuman Systems Model, by B. Neuman and J. Fawcett, 2011 (5th ed.), p. 13, Pearson.)*
illness cannot be considered solely a function of external influences but a combination of those influences and a person’s behavior and susceptibility to illness. Central and critical components to managing stress are appraisal and coping, whereas the degree to which a person perceives a situation to be stressful (appraisals) and that that person can successfully cope with that stressor is due, in part, to that person’s perceived level of social support. Subsequently, the person’s perceived the stressfulness of a situation and their capacity to cope with the stressful situation influences the person’s ability to adapt to the stressful situation. Finally, a person’s ability to adapt to a stressful situation mediates the influence of stress on a person’s health outcomes. In this way, social support encourages a relationship perspective that can protect people from the negative health outcomes associated with stress. Additionally, from this perspective, people with greater levels of perceived social support will be less likely to experience stress-related health problems because they will be less likely to judge their situations as stressful.

Primary, Secondary, and Tertiary Roles of the Nurse

Because the Neuman systems model can be applied to a variety of populations and conditions, it is uniquely adaptable to a range of health care concerns in nursing and can be used to delineate the primary, secondary, and tertiary roles of the nurse within the client system. Primary preventions are those that occur before a client encounters and reacts to a stressor. Nursing actions that can function as primary preventions are associated with general nursing knowledge used to identify and assess potential client stressors and implement interventions to mitigate or alleviate those stressors. Additionally, primary preventions may be focused on increasing a client’s flexible lines of defense.

Secondary preventions are those that occur after a client encounters and reacts to a stressor. Nursing actions that can function as secondary preventions are associated with symptomology related to client reactions to stressors. Actions in this category of prevention include prioritizing interventions and implementing interventions focused on reducing the negative effects of clients’ reactions to stressors. Interventions of this nature might include early screening and detection, and treatment of symptoms.

Tertiary preventions are those that occur after a client has reacted to a stressor and received treatment. Nursing actions that can function as tertiary preventions are those that help clients adjust and adapt to changing health conditions and move clients closer to system stability. Interventions of this nature might include education meant to prevent future susceptibility to a particular stressor.

CONCEPTUAL APPLICATION OF THE NEUMAN SYSTEM MODEL

In this article, the Neuman systems model is used to consider food insecurity as a source of stress for the client system, in this case, the Black or Hispanic female senior patient who is food insecure. Perceived social support and loneliness are considered factors of food insecurity. The nurse is conceptualized as a source of primary, secondary, and tertiary interventions. A graphic representation of the relationships among the theoretic concepts presented to this point and the associated covariates and mediating factors is presented in Fig. 2.

The holistic perspective of the Neuman systems model makes it not only “timeless [but] expansive in being adaptable to all client care situations,” but also because the client system is dynamic, nurses may effectually help transform those systems to promote better health outcomes for clients. Using the Neuman systems model to examine the relationships between perceived social support, loneliness, and food insecurity
provides an effective means not only for considering the patient as a complex system but for understanding how the environment influences that system and the varied ways in which nurses can serve as sources of support for patient wellness.

As initiators of preventions in the food insecure client senior minority model, nurses may direct clients to sources of emotional and instrumental support and companionship. They also may function to help clients improve their perceptions about their experiences with food insecurity and to better adapt to outcomes of the food insecurity they are experiencing, including stress. Additionally, nurses may help promote client engagement in positive health-related behaviors while also addressing comorbidities that may be having additional negative influences on the client system. In these ways, nurses have the capacity to contribute to improved client wellness, in this case, specifically Black and Hispanic senior women who are food insecure.

**APPLICATION IN PRACTICE**

A list of suggested primary, secondary, and tertiary preventions and their conceptualized applications in practice as they relate to perceived social support, loneliness, and food insecurity is presented in Table 1. These suggestions are not all inclusive, and nurses are encouraged to generate other potential means of prevention. Nurses conduct health assessments and obtain data related to the psycho-social-cultural being which allows one to examine potential risks for allostatic load and burden of diseases. Early detection is key and providing a toolkit for vulnerable populations in particular to have during unplanned circumstances such as pandemics and or natural disasters may be key elements in attaining good health outcomes.

Fig. 2. Application of the Neuman systems model: Food insecurity as a stressor on the client system.
| Model Component | Application in Practice |
|-----------------|-------------------------|
| **Primary prevention** | |
| Identify and assess potential client stressors | - Identify food insecurity as a potential stressor to the client system  
- Assess the degree to which food insecurity has the potential to negatively affect the client system  
- Identify social support and loneliness as potential influences on client's perceived severity of food insecurity  
- Assess the degree to which social support and loneliness are potential influences on client's perceived severity of food insecurity |
| Implement interventions to mitigate or alleviate those stressors | - Generation of food assistance program database and educational materials for clients  
- Generation of emotional and instrumental support program database and educational materials for clients  
- Generation of companionship program database and educational materials for clients |
| Increase client's line of flexible defense | - Through primary preventions focused on decreasing experiences of food insecurity  
- Through primary preventions focused on decreasing experiences of low emotional and instrumental support  
- Through primary preventions focused on decreasing experiences of loneliness  
- Client perception that the nurse is a source of social support |
| **Secondary prevention** | |
| Prioritize interventions and implement interventions focused on reducing the negative effects of clients' reactions to stressors | - Formal screening for food insecurity  
- Informal screening for lack of social support and signs of loneliness  
- Referral to support services: food, emotional support, instrumental support, and companionship programs  
- Encourage client use of support services  
- Encourage support seeking behavior  
- Encourage engagement in positive health-related behaviors  
- Support behaviors to minimize or eliminate comorbidities |
| **Tertiary prevention** | |
| - Promote client adjustment and adaptation to changing health conditions | Encourage positive thought patterns |

(continued on next page)
RECOMMENDATIONS

Some of the preventions suggested in Table 1, in particular those that require identification and assessment, necessitate the observation and/or measure of social support, loneliness, and food insecurity. Nurses are urged to consider the various definitions of these terms as they plan potential interventions. A list is provided in Table 2, although this list is not inclusive. Because of the conceptual complexity of social support and food insecurity, those terms are discussed in more detail.

Social Support

Over the last 4 decades, researchers and theorists have proposed various definitions of social support in response to their explorations of its connection to psychological and physical manifestations of health. Lack of agreement on the definition is due to its multidimensionality in the way it operates, whereas support can be (a) both given and received, (b) considered from the perspectives of both availability and use, and (c) considered from the perspective of the origin of the support. However, social support also can be informal or formal and emotional or instrumental. Social support also can be considered with respect to clinical utility and health outcomes, whereas social support can be a direct influence on health outcomes or a
buffering agent such that social support lessens the negative outcomes associated with stressful events.\textsuperscript{53}

**Food Insecurity**

The United States Department of Agriculture (USDA) typically refers to food security, which they define as “access by all people at all times to enough food for an active, healthy life\textsuperscript{9}(p2). Murillo and colleagues\textsuperscript{8} referred to that USDA definition for food security when they defined its opposite, food insecurity. As shown in Table 2, Wright and colleagues\textsuperscript{22} and Nagarajan and colleagues\textsuperscript{49} defined food insecurity using similar language. However, unlike Murillo and colleagues who included reasons for the lack of access to or availability of healthy foods in their definition of food insecurity, neither

| Table 2 | Definition of terms |
|---------|---------------------|
| **Variable** | **Definition** |
| Social support | |
| NIH Toolbox\textsuperscript{42}(p28) | Social relationships that are “available to provide aid in times of need or when problems arise” |
| Shumaker & Brownell\textsuperscript{43}(p11) | “An exchange of resources between at least 2 individuals perceived by the provider or the recipient to be intended to enhance the well-being of the recipient” |
| Cohen\textsuperscript{44}(p676) | “A social network’s provision of psychological and material resources intended to benefit an individual’s ability to cope with stress” (p. 676) |
| Feeney & Collins\textsuperscript{45}(p1) | “Deep and meaningful close relationships” |
| Loneliness | |
| NIH Toolbox\textsuperscript{42}(p28) | “Perceptions that one is alone, lonely or socially isolated from others” |
| De Jong Gierveld & Van Tilburg\textsuperscript{46} | The feeling of missing an intimate relationship (emotional loneliness) or missing a wider social network (social loneliness) |
| Food Insecurity | |
| Operational | |
| Johnson et al.\textsuperscript{47}(p1257) | Food insecurity measured by the 4 domains of the Four Domain Food Insecurity Scale: “shortage of food (quantitative), unsuitability of food and diet (qualitative), preoccupation or uncertainty in access to enough food (psychological), and alienation or lack of control over their food situation (social)” |
| Conceptual | |
| Anderson\textsuperscript{48}(1560) | “Food insecurity exists whenever the availability of nutritionally adequate and safe foods or the ability to acquire acceptable foods in socially acceptable ways is limited or uncertain” |
| Murillo et al.\textsuperscript{4}(p428) | “Lack of access or availability to healthy foods due to scarce resources or money” |
| Nagarajan et al.\textsuperscript{49} | Lack of availability of healthy foods |
| Wright et al.\textsuperscript{22}(p130) | “Limited access to a sufficient quantity of affordable, nutritious food” |
Wright nor Nagarajan and colleagues do so. The USDA also does not reference reasons for having access to enough food in its definition of food security. The most comprehensive definition of food insecurity includes quantitative, qualitative, psychological, and social factors associated with food insecurity. Because it is broad in scope, that definition is suggested for use in future research.

**SUMMARY**

A disciplinary focus in the nursing field is social justice; as nurses, we are morally obligated to act in ways that promote immediate social change in the form of improved patient care and outcomes. Nurses are in an ideal position to examine SDOH and to implement strategies to rectify health inequities among vulnerable groups such as the aging population. Additionally, nurse educators are well-situated to raise awareness of the importance of nurses to act in this capacity. Such efforts are encouraged and could help the United States move closer to the 2030 goal of eradicating food insecurity championed by the Food and Agriculture Organization of the United Nations and colleagues and reducing the incidence of health inequities among Black and Hispanic senior women.

In addition to improving patient outcomes, reduction of cost negative health-related outcomes of food insecurity could be reduced. According to Berkowitz and colleagues, median annual state- and county-level health care costs are $687,041,000 and $4,433,000, respectively. For food insecure adults, additional health care costs amount to $1834 annually. At the national level, those numbers are even more astounding at $77.5 billion and $1,863, respectively. Saved monies could be reallocated for additional interventions to further reduce the incidence of health inequities among Black and Hispanic senior women.

The timing of this article correlates with the updated recommendations put forth in *The Essentials: Core Competencies for Professional Nursing Education* which include SDOH as one of the 8 featured concepts for professional nursing education programs. The 8 concepts are intertwined among 10 domains of competence; together, they represent what the American Association of Colleges of Nursing describes as a new model for nursing education that is competency based, structured for application across levels of education, and adaptable to accommodate a future change in the field of nursing.

The inclusion of SDOH as an essential concept of learning for nurses underscores the important role nurses can serve in addressing SDOH and health inequities that contribute to inequity in health outcomes. Through health and needs assessments, health promotion, patient education, and improved access to care, nurses may have a direct impact on the health care of community members from vulnerable populations. In this article, we argued that these very actions be taken by nurses acting as primary, secondary, and tertiary interventions to improve health outcomes for Black and Hispanic senior women experiencing food insecurity.

**CLINICS CARE POINTS**

- Screening for SDOH during the patient intake process can be expedited using
  - The Hunger Vital Sign screening tool (2 items),
  - The Three-item Loneliness Scale, and
  - The Social Support Questionnaire (SSQ3; three-item short form).
- Referral to food support programs is associated with decreased
Loneliness,\textsuperscript{62} Medication nonadherence,\textsuperscript{63} Admissions to nursing homes,\textsuperscript{64} and Overall health care costs.\textsuperscript{65}

DISCLOSURE

The authors have nothing to disclose.

REFERENCES

1. Neuman B. The Neuman systems model in research and practice. Nurs Sci Q 1996;9(2):67–70. https://doi.org/10.1177/089431849600900207.
2. Chaudry A, Wimer C, Macartney S, et al. Poverty in the United States: 50-year trends and safety net impacts. Office of human services policy, office of the assistant secretary for planning and evaluation. U.S. Department of Health and Human Services; 2016. https://aspe.hhs.gov/system/files/pdf/154286/50YearTrends.pdf.
3. Semega J, Kollar M, Shrider EA, et al. Income and Poverty in the United States: 2019 (report No. P60-270). U. S. Department of Commerce, U. S. Census Bureau; 2020. https://www.census.gov/content/dam/Census/library/publications/2020/demo/p60-270.pdf.
4. Parolin Z, Curran M, Matsudaira J, et al. Monthly poverty rates in the United States during the COVID-19 pandemic. Center on Poverty and Social Policy; 2020. https://www.povertycenter.columbia.edu/s/COVID-Projecting-Poverty-Monthly-CPSP-2020.pdf.
5. Cubanski J, Koma W, Damico A, et al. How many seniors Live in poverty? Kaiser Family Foundation; 2020. http://files.kff.org/attachment/Issue-Brief-How-Many-Seniors-Live-in-Poverty.
6. Lee AM, Scharf RJ, Filipp SL, et al. Food insecurity is associated with prediabetes risk among U.S. adolescents, NHANES 2003–2014. Metab Syndr Relat Disord 2019;17(7):347–54. https://doi.org/10.1089/met.2019.0006.
7. Ziliak JP, Gundersen C. The health consequences of senior hunger in the United States: evidence from the 1999-2014 NHANES. Feeding America and the National Foundation to End Senior Hunger; 2017. https://www.feedingamerica.org/sites/default/files/research/senior-hunger-research/senior-health-consequences-2014.pdf.
8. Murillo R, Reesor LM, Scott CW, et al. Food insecurity and pre-diabetes in adults: race/ethnic and sex differences. Am J Health Behav 2017;41(4):428–36. https://doi.org/10.5993/AJHB.41.4.7.
9. Coleman-Jensen A, Rabbitt MP, Gregory CA, et al. Household food Security in the United States in 2019 (economic research report No. 275). United States Department of Agriculture; 2020. https://www.ers.usda.gov/webdocs/publications/99282/err-275.pdf?v=3572.4.
10. Ashe KM, Lapane KL. Food insecurity and obesity: exploring the role of social support. J Women’s Health 2018;27(5):651–8. https://doi.org/10.1089/jwh.2017.6454.
11. Ziliak JP, Gundersen C. The state of senior hunger in America in 2018. Feeding America; 2020. Available at: https://www.feedingamerica.org/sites/default/files/2020-05/2020-The%20State%20of%20Senior%20Hunger%20in%202018.pdf.
12. Leedy AM, Whittle HJ, Shieh J, et al. Exploring the role of social capital in managing food insecurity among older women in the United States. Soc Sci Med 2020;265:1–8. https://doi.org/10.1016/j.socscimed.2020.113492.

13. Burris M, Kihlstrom L, Serrano Arce K, et al. Food insecurity, loneliness, and social support among older adults. J Hunger Environ Nutr 2021;16(1):29–44. https://doi.org/10.1080/19320248.2019.1595253.

14. Hunt BR, Benjamins MR, Khan S, et al. Predictors of food insecurity in selected Chicago community areas. J Nutr Educ Behav 2018;51(3):287–99. https://doi.org/10.1016/j.jneb.2018.08.005.

15. Tarasuk V, Fafard St-Germain A-A, Mitchell A. Geographic and sociodemographic predictors of household food insecurity in Canada, 2011–12. BMC Public Health 2019;19(1):1–12. https://doi.org/10.1186/s12889-018-6344-2.

16. Reeves A, Loopstra R, Tarasuk V. Wage-setting policies, employment, and food insecurity: a multilevel analysis of 492 078 people in 139 countries. Am J Public Health 2021;111(4):718–25. https://doi.org/10.2105/AJPH.2020.306096.

17. Kotwal A, Holt-Lunstad J, Newmark RL, et al. Social isolation and loneliness among San Francisco Bay Area older adults during the COVID-19 shelter-in-place orders. J Am Geriatr Soc 2020;69(1):20–9. https://doi.org/10.1111/jgs.16865.

18. Krendl AC, Perry BL. The impact of sheltering in place during the COVID-19 pandemic on older adults’ social and mental well-being. J Gerontol B Psychol Sci 2020;76(2):e53–8. https://doi.org/10.1093/geronb/gbaa110.

19. Pak T-Y, Kim G. Food stamps, food insecurity, and health outcomes among elderly Americans. Prev Med 2020;130:1–7. https://doi.org/10.1016/j.jpmed.2019.105871.

20. Lee AM, Scharf RJ, DeBoer MD. Food insecurity is associated with prediabetes and dietary differences in U. S. adults aged 20-39. Prev Med 2018;116:180–5. https://doi.org/10.1016/j.jpmed.2018.09.012.

21. Walker RJ, Grusnik J, Garacci E, et al. Trends in food insecurity in the USA for individuals with prediabetes, undiagnosed diabetes, and diagnosed diabetes. J Gen Intern Med 2018;34(1):33–5. https://doi.org/10.1007/s11606-018-4651-z.

22. Wright L, Stallings-Smith S, Arikawa AY. Associations between food insecurity and prediabetes in a representative sample of U.S. adults (NHANES 2005-2014). Diabetes Res Clin Pract 2019;148:130–6. https://doi.org/10.1016/j.diabres.2018.11.017.

23. Tarr K, Weber M, Holben D. Food insecurity and Type 2 diabetes risk of adults with school children [Abstract]. J Acad Nutr Diet 2018;118(9, suppl. 1):A-74. https://doi.org/10.1016/j.jand.2018.06.048.

24. Kaiser ML, Cafer A. Understanding high incidence of severe obesity and very low food security in food pantry clients: Implications for social work. Soc Work Public Health 2018;33(2):125–39. https://doi.org/10.1080/19371918.2017.1415181.

25. Golovaty I, Tien PC, Price CJ, et al. Food insecurity may be an independent risk factor associated with nonalcoholic fatty liver disease among low-income adults in the United States. J Nutr 2019;150(1):91–8. https://doi.org/10.1093/jn/nxz212.

26. Palakshappa D, Speiser JL, Rosenthal GE, et al. Food insecurity is associated with an increased prevalence of comorbid medical conditions in obese adults: NHANES 2007–2014. J Gen Intern Med 2019;34:1486–93. https://doi.org/10.1007/s11606-019-05081-9.

27. American Psychological Association. Stress and health disparities. Contexts, mechanisms, and interventions among racial/ethnic minority and socioeconomic
status populations. American Psychological Association; 2021. https://www.apa.org/pi/health-disparities/resources/stress-report.pdf.

28. Schnall PL, Dobson M, Landsbergs P. Globalization, work, and cardiovascular disease. Int J Health Serv 2016;46(4):656–92.

29. Johansen C, Sørensen IK, Høeg BL, et al. Stress and cancer. In: Cooper CL, Quick JC, editors. The Handbook of Stress and health. A Guide to Research and practice. Blackwell; 2017. p. 125–34.

30. Grinde B. Stress and chronic fatigue syndrome. In: Cooper CL, Quick JC, editors. The Handbook of Stress and health. A Guide to Research and practice. Blackwell; 2017. p. 135–46.

31. Hartzell MM, Dodd CDT, Gatchel RJ. Stress and musculoskeletal injury. In: Cooper CL, Quick JC, editors. The handbook of stress and health. A guide to research and practice. Blackwell; 2017. p. 201–22.

32. Lerner D, Adler DA, Rogers WH, et al. The double burden of work stress and depression: a workplace intervention. In: Cooper CL, Quick JC, editors. The handbook of stress and health. A guide to research and practice. Blackwell; 2017. p. 147–67.

33. Bennett DA. Stress and eating disturb behavior. In: Cooper CL, Quick JC, editors. The handbook of stress and health. A guide to research and practice. Blackwell; 2017. p. 186–209.

34. McLain AC, Xiao RS, Gao X, et al. Food insecurity and odds of high allostatic load in Puerto Rican adults: the role of participation in the Supplemental Nutrition Assistance Program during 5 years of follow-up. Psychosom Med 2018;80(8):733–41. https://doi.org/10.1097/PSY.0000000000000628.

35. Lazarus RS, Folkman S. Stress, coping, and appraisal. Springer; 1984.

36. Sternthal MJ, Slopen N, Williams DR. Racial disparities in health. Du Bois Rev 2011;8:95–113. https://doi.org/10.1017/S1742058X11000087.

37. Browning CR, Calder CA, Ford JL, et al. Understanding racial differences in exposure to violent areas: integrating survey, smartphone, and administrative data resources. Ann Am Acad Pol Soc Sci 2017;669(1):41–62. https://doi.org/10.1177/0002716216678167.

38. Lewis TT, Cogburn CD, Williams DR. Self-reported experiences of discrimination and health: Scientific advances, ongoing controversies, and emerging issues. Annu Rev Clin Psychol 2015;11:407–40. https://doi.org/10.1146/annurev-clinpsy-032814-112728.

39. Neuman B, Fawcett J. The neuman systems model. 5th ed. Pearson; 2011.

40. Lackey B, Cohen S. Social support theory and selecting measures of social support. In: Cohen S, Gordon LU, Gottlieb BH, editors. Social support measurement and interventions: a guide for health and social scientists. 2000. p. 29–52. Oxford.

41. Newman B, Reed KS. A Neuman systems model perspective on nursing in 2050. Nurs Sci Qt 2007;20(2):111–3. https://doi.org/10.1177/0894318407299847.

42. NIH Toolbox. NIH Toolbox. Scoring and Interpretation Guide for the iPad. 2016. Available at: https://nihtoolbox.my.salesforce.com/sfc/p/2E00000004yR3/Ckb_AKw1oFUC56tgfc6dxcGDYaYbu8rsmBSFOX2Ec4g. Accessed January 30, 2021.

43. Shumaker SA, Brownell A. Toward a theory of social support: closing conceptual gaps. J Soc Issues 1984;40(4):11–36. https://doi.org/10.1111/j.1540-4560.1984.tb01105.x.

44. Cohen S. Social relationships and health. Am Psychol 2004;59(8):676–84. https://doi.org/10.1037/0003-066X.59.8.676.
45. Feeney BC, Collins NL. New look at social support: a theoretical perspective on thriving through relationships. Pers Soc Psychol Rev 2015;19(2):113–47. https://doi.org/10.1177/1088868314544222.

46. de Jong Gierveld J, van Tilburg T. The De Jong Gierveld short scales for emotional and social loneliness: tested on data from 7 countries in the UN generations and gender surveys. Eur J Ageing 2010;7(2):121–30. https://doi.org/10.1007/s10433-010-0144-6.

47. Johnson CM, Ammerman AS, Adair LS, et al. The four domain food insecurity scale (4D-FIS): Development and evaluation of a complementary food insecurity measure. Transl Behav Med 2020;10(6):1255–65. https://doi.org/10.1093/tbm/ibaa125.

48. Anderson SA. Core indicators of nutritional state for difficult-to-sample populations. J Nutr 1990;120(suppl. 11):1555–600. https://doi.org/10.1093/jn/120.suppl_11.1555.

49. Nagarajan S, Khokhar A, Sweetnam Holmes D, et al. Family consumer behaviors, adolescent prediabetes and diabetes in the National Health and Nutrition Examination Survey (2007-2010). J Am Coll Nutr 2017;36(7):520–7. https://doi.org/10.1080/07315724.2017.1327828.

50. Zimet GD, Dahlem NW, Zimet SG, et al. The multidimensional scale of perceived social support. J Pers Assess 1988;52(1):30–41. https://doi.org/10.1207/s15327752jpa5201_2.

51. Tardy CH. Social support measurement. Am J Community Psychol 1985;13(2):187–202. https://doi.org/10.1007/BF00905728.

52. Streeter CL, Franklin C. Defining and measuring social support: Guidelines for social work practitioners. Res Soc Work Pract 1992;2(1):81–98. https://doi.org/10.1177/104973159200200107.

53. Cohen S, Wills TA. Stress, social support, and the buffering hypothesis. Psychol Bull 1985;98(2):310–57. https://doi.org/10.1037/0033-2909.98.2.310.

54. Dillard-Wright J, Shields-Hass V. Nursing with people. Reimagining future for nursing. Adv Nurs Sci 2021. https://doi.org/10.1097/ANS.0000000000000361. Advance online publication:

55. Food and Agriculture Organization of the United Nations, International Fund for Agricultural Development, UNICEF, World Food Programme, & World Health Organization. The state of food security and nutrition in the world. Transforming food systems for affordable healthy diets. food and agriculture organization of the United Nations, international fund for agricultural development, UNICEF. World Food Programme, & World Health Organization; 2020. https://doi.org/10.4060/ca9692en.

56. Berkowitz SA, Basu S, Gundersen C, et al. State-level and county-level estimates of health care costs associated with food insecurity. Prev Chronic Dis 2019;16. https://doi.org/10.5888/pcd16.180549.

57. Berkowitz SA, Basu S, Meigs JB, et al. Food insecurity and health care expenditures in the United States, 2011–2013. Health Ser Res 2018;53(3):1600–20. https://doi.org/10.1111/1475-6773.12730.

58. American Association of Colleges of Nursing. The essentials: Core competencies for professional nursing education. American Association of Colleges of Nursing; 2021. Available at: https://www.aacn nursing.org/Portals/42/AcademicNursing/pdf/Essentials-2021.pdf. Accessed December 14, 2021.

59. Gundersen C, Engelhard EE, Crumbaugh AS, et al. Brief assessment of food insecurity accurately identifies high-risk US adults. Public Health Nutr 2017;20(8):1367–71. https://doi.org/10.1017/S1368980017000180.
60. Hughes ME, Waite L, Hawkley LC, et al. A short scale for measuring loneliness in large surveys: Results from two population-based studies. Res Aging 2004;26(6): 655–72. https://doi.org/10.1177/0164027504268574.

61. Sarason IG, Sarason BR, Shearin EN, et al. A brief measure of social support: Practical and theoretical implications. J Soc Pers Relat 1987;4:497–510. https://doi.org/10.1177/0265407587044007.

62. Thomas KS, Akobundu U, Dosa D. Gerontol B Psychol Sci Soc Sci 2016;71(6): 1049–58. https://doi.org/10.1093/geronb/gbv111.

63. Srinivasan M, Pooler JA. Cost-related medication nonadherence for older adults participating in SNAP, 2013-2015. Am J Public Health 2018;108(2):224–30. https://doi.org/10.2105/AJPH.2017.304176.

64. Szanton SL, Samuel LJ, Cahill R, et al. Food assistance is associated with decreased nursing home admissions for Maryland’s dually eligible older adults. BMC Geriatr 2017;17(1):162. https://doi.org/10.1186/s12877-017-0553-x.

65. Berkowitz SA, Seligman HK, Rigdon J, et al. Supplemental nutrition assistance program (SNAP) participation and health care expenditures among low-income adults. JAMA Intern Med 2017;177(11):1642–9. https://doi.org/10.1001/jamainternmed.2017.4841.