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Philosophical and Ethical Perspectives on Cardiovascular Disease Risk in Low-wage Workers

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ABSTRACT One of the overriding goals of Healthy People 2010 is to reduce the health disparities observed among Americans. Because workers in small businesses tend to have little or no access to health screening or preventive health education programs, they may be unaware of their unique risk factors and are thus more at risk of cardiovascular disease (CVD). Furthermore, occupational health nurses are more likely to be available in health programs to employees in large rather than small businesses. The purpose of this paper is to illustrate how nursing values and philosophy might influence public health nurses' thinking about nursing science and ethical issues relating to the risk of CVD among low-wage workers. The following questions will guide the exploration of health disparities among low-wage workers: (a) What are the health disparities observed among low-wage workers with CVD risk? (b) What are the philosophical and ethical perspectives on the issues presented? (c) Based on these findings, how should limited resources be allocated? and (d) How does this affect nursing? These approaches will provide the foundation for developing a culturally sensitive ethical and philosophical perspective to prevent CVD and promote cardiovascular health among low-wage workers.

Key words: cardiovascular disease, ethics, health disparities, occupational health, philosophical perspective.

Health Disparities Among Workers with Cardiovascular Disease (CVD) Risk

One of the overriding goals of Healthy People 2010 is to reduce the health disparities observed among Americans (U.S. Department of Health and Human Services [USDHHS], 2000). A number of objectives in Healthy People 2010 document a continuing need for health promotion and disease prevention programs among businesses, especially programs related to physical activity and nutrition. Based on surveys conducted by the American Heart Association, businesses having 100 or fewer employees are much less likely to provide such programs (Williams, Mason, & Wold, 2001). Worse, the percentage of small businesses with preventive health programs has decreased in the decade since Healthy People 2000 was published (USDHHS, 2000).

CVD has been identified as the number one killer among American workers (American Heart Association, 2007; Reviere, Schneider, & Woolbright, 1995). Various researchers have investigated the links between CVD and occupational factors, including specific chemical hazards and nonspecific job stressors such as work overload, shift work, and sedentary behavior, as well as poor nutrition habits (Gomel, Oldenburg, Simpson, & Owen, 1993). These occupational factors have a large effect on low-wage working groups, particularly those in manufacturing, those who provide services in private households, and workers in small businesses having 100 or fewer employees. Workers in these occupations may be more likely to be exposed to high stress and unhealthy environments as well as tending to have unhealthy

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lifestyles. For example, manufacturing workers in small businesses may use toxic chemicals such as methylene chloride, which may also increase the risk of heart attack. They are also more frequently exposed to irregular shift work and heavy workloads. In addition, workers in these occupations tend to have high rates of cigarette smoking and exposure to carbon monoxide, both associated with an increased risk of heart attacks (Williams et al., 2001).

The majority of risk factors associated with CVD, such as smoking, elevated blood pressure, high serum cholesterol levels, lack of exercise, obesity, stress, and a diet high in fat and sodium and low in calcium and potassium, are not only linked to low socioeconomic status but are either preventable or modifiable through lifestyle changes (Groeneveld & Proper, 2008). Although risk factors regarding CVD have been identified, mortality due to CVD among workers in smaller businesses is still high. Possible reasons for this are (a) that individuals with low socioeconomic status may have employers who provide little health insurance coverage for their employees, (b) such employers usually offer no preventive health programs, or (c) smaller businesses tend to have a high turnover rate of employees (USDHHS, 2000). Because they tend to have little or no access to health screening or preventive health education programs, workers in small businesses may be unaware of their risk factors and are thus at a higher risk of CVD. Occupational health nurses who could provide health promotion programs are more likely to be available to employees in large rather than small businesses.

How might a philosophy of nursing science be framed in such a way that it could help reduce the health inequalities observed among low-wage workers in smaller businesses? The purpose of this paper is to illustrate how nursing values and philosophy might influence public health nurses' thinking about nursing science and ethical care issues relating to the risk of CVD among low-wage workers. The following questions will guide the exploration of health disparities among low-wage workers: (a) What are the philosophical and ethical perspectives on the issues presented? (b) Based on these findings, how should limited resources be allocated? and (c) How does this affect nursing?

Philosophical Perspectives on Care

While several philosophical perspectives on health disparities have been proposed, no single one has been shown to be appropriate for explaining the health disparities among low-wage workers. Therefore, multiple approaches need to be used. This paper will examine the philosophical perspectives of empiricism, utilitarianism, and communitarianism as well as Kant, Kuhn, and Heideggers' perspectives. Finally, sociology and feminism perspectives on health disparities will be presented to help propose the right approach to address health disparities.

Empiricism

The philosophy of science from which the logical empiricist model emerges is one that treats science as an act of discovery rather than of invention. For example, using an empirical approach, scientists discovered that a specific gene, apolipoprotein E, is associated with an increased risk of developing CVD (Folta et al., 2008). Using an empirical approach, practitioners and researchers can effectively find CVD risk factors among low-wage workers through screening observations.

Observation is often proposed as being a basic element in the development of knowledge in nursing sciences (Rodgers, 2005). In this case, observables (meaning that measurement is possible) of a worker's risk of developing CVD are foundational to helping remedy inequalities.

Specifically, nursing practice and research tends to demonstrate the influence of empiricism. Sensory data, including a variety of visual cues and physiologic measures, necessarily play an important role in nursing practice. Also, nursing research performed in worksites has a history of using observational tools in the collection of data. A question that persists, however, concerns the potential existence of other forms of data that would enable nurses to move beyond what they see and hear. This is important because there are parts of human existence that are not empirical in nature such as dignity, personhood, hope, and grief (Rodgers, 2005). In spite of these concerns, there is no question that the philosophical tradition known as empiricism has had a profound impact on the development of science and research methods.

While observations are useful, a drawback to this approach is that low-wage workers may underreport workplace safety concerns during screenings. This may occur for many reasons, including limited English language skills, fear of retaliation or adverse treatment from management, or lack of legal protec-

tion or threat of loss of employment. Public health nurses who use only the empiricist perspective may not observe or understand the experiences of low-wage workers. Therefore, this perspective might serve to minimize the health disparities encountered by low-wage workers and maintain the middle-class status quo. Clearly, a more ethical approach is needed to address this issue.

Utilitarianism

"Consequentialism" is a label affixed to theories holding that actions are right or wrong according to a balance of their good and bad consequences. The right act under any circumstance is the one that produces the best overall consequence as determined from an impersonal perspective that lends equal weight to the interests of each affected party (Beauchamp & Childress, 2001). An example of this is the theory of utilitarianism. This theory accepts only one basic principle of ethics: the principle of utility. This principle asserts that we ought always to produce the maximal balance of positive over negative value (or the least possible negative value, if only undesirable results can be achieved).

Although utilitarianism shares consequentialism's conviction that human actions should be morally assessed in terms of their ability to produce maximal value, these views disagree concerning which values are most important. Many proponents of utilitarianism maintain that people ought to produce agent-neutral, or intrinsic good—that is, the good every rational person values. According to this view, these goods are valuable in themselves. Consequently, it could be maintained that low-wage workers produce a lot of good for the greater majority. However, utilitarianism disregards health disparities among workers, evenly focusing instead on justice and neglecting the view that low-wage workers have a higher CVD risk than other populations. Thus, utilitarianism evaluates health disparities in terms of the different courses of action open to the majority of workers in addressing health disparity issues. The goal of utilitarianism is to find the single greatest good by balancing the interests of all affected persons.

Utilitarians assign no independent weight to justice, being indifferent to unjust distributions. However, utilitarianism principles that permit the interests of the majority to override the rights of minorities cannot adequately resolve social inequality. In fact, utilitarians insist that value cannot be distributed to aggregate satisfaction. If a group of persons, although already prosperous, could have more value added to their lives than could be added to the lives of indigent groups within the same society, the utilitarian must recommend that the added value go to the more prosperous group. This view seems to imply not only that societies are permitted to neglect the view that low-wage workers have a higher CVD risk than other populations, but that they are morally required to do so. However, this requirement may seem blatantly immoral, permitting apparently immoral actions without giving sufficient reasons for a society to abandon its prevailing views on the issue.

Communitarianism: Community-based theory

In contrast to utilitarianism, communitarian theories view everything that is fundamental to ethics as deriving from communal values, the common good, social goals, traditional practices, and the cooperative virtues (Beauchamp & Childress, 2001). Given this perspective, how might communitarians approach the health disparities of low-wage workers? According to Beauchamp and Childress, the communitarian's first inquiry would not be to find out which rights are at stake, but which communal values and relationships are involved. Much of what one ought to do in communication theories is determined by the social roles assigned to or acquired by a worker as a member of the community. Consequently, understanding a particular feature of a low-wage worker's trait scheme, in this case his/her CVD risk, requires an understanding of the community's history, sense of cooperative work, and conception of social welfare.

Communitarian responses will support health equality that expresses communal values as well as actions that have a positive impact on a community. The worker's commitment to family and community welfare is notable. From the communitarian's perspective, workers embody cooperative virtues rather than liberal individualism. In this case, the question to be asked is "What is most conducive to a good society?" not "Is it harmful, or does it violate one's autonomy?"(Beauchamp & Childress, 2001). Even though such views show similarities to utilitarian perspectives, communitarians typically reject principles of utility that are remote from actual communal actions for reducing health disparities.

Kantonian—categorical imperatives

Kant states the categorical imperative as follows: I ought never to act except in such a way that I can also will that my maxim become a universal law. According to Kant (1965), a person has autonomy of will if, and only if, the person knowingly acts in accordance with universally valid moral principles that pass the requirements of the categorical imperative.

Thus, for Kant, understanding health disparities among low-wage workers is based on autonomy and an individual's worth. Kant challenges utilitarian theories while attempting to develop Kantian themes of reason, autonomy, equality, and opposition to utilitarianism. For example, Kant argues that vital moral considerations such as individual rights and a just distribution of goods among individuals depend less on social factors, such as individual happiness and majority interests, than on the concepts of individual worth, self-respect, and autonomy. Therefore, Kant provides a rationale for reducing the health disparities of individual low-wage workers.

Kuhn's structure of science

Another perspective on health disparities has been put forth in Kuhn's structure of science. In this philosophy, Kuhn (1996) states that science is both value-free and public knowledge. With the adoption of rules requiring the inclusion of women and minorities in research, the National Institutes of Health has encouraged research, including cardiovascular research, that is value-free (Roosa & Gonzales, 2000). However, in the past two decades, changing philosophical opinions about science have brought about considerable commentary regarding scientific inquiry and outcome. Science is now viewed as a part of society and not value-free. As such, addressing health disparities is a part of the sociopolitical structure and thus open to scrutiny.

Heidegger's hermeneutical understanding

Heideggerian phenomenology generates forms of explanation and prediction that offer understanding and choice rather than manipulation and control. Accordingly, public health nursing requires access to concrete problems and dilemmas associated with health determinants, health disparity, and an understanding of the power of human practices, skills, and relationships that engender hope and promote equity (Benner, 1999).

What health disparities are seen among low-wage workers when compared with more highly paid workers? And what does a person experience after going through hardship and then being thrown into the world as a more vulnerable person? To find answers to such questions, one view considers the notions of "thrownness" and "being-in-the-world," as described by Heidegger (1962) and as applied to low-wage workers. When exploring the experiences of low-wage workers through the lens of "thrownness" and "being-in-the-world," it is difficult to ignore the unique context shaped by their life-world. Their experience, in connection with their CVD risk, family, worksite, and society, cannot be compared with the experiences of others (Leonard, 1999). Within their environment, low-wage workers are beings who, regardless of their will, are forced to enmesh into harmful practices such as shift work, overtime, and dealing with toxic chemicals, all of which result in a higher CVD risk.

Sociology and feminism perspectives

Rational philosophies of particular interest to health disparities are those that use both sociology theory and feminist perspectives. Health disparities are special cases of rationality that apply to situations of social interaction involving authority and power. Although initiated by feminist writers, this ethical perspective has been sharply criticized by some feminists who worry that it attends to women's experiences as caregivers in traditional roles of self-sacrifice, but often neglects feminist insights into problems of oppression and dominance.

Both sociology and feminism perspectives challenge major claims to science based on empirical evidence. The interpretation of empirical data regarding low-wage workers has parallels in philosophical ethics. The origin of the ethic of care predominates in philosophical writing. The themes in these writings include the notion that women often display an ethic of care, whereas men predominantly exhibit an ethic of rights and obligations (Bunting & Campbell, 1990; Gilligan & Wiggins, 1998). Providing care for the most vulnerable members of society is central to reducing health disparities and is often modeled on intimate human relationships such as between parent and child. However, this perspective should be implemented with caution so that it does not become paternalistic, instead showing respect for low-wage workers.

Ethics of Care

While reducing CVD risk and improving health is important for all workers, society must decide how to best distribute its limited resources in reducing health disparities. Each of the perspectives outlined earlier in this paper has ethical implications central to the distribution of health care. Principles can be applied to ensure equal distribution of care, including autonomy, beneficence, nonmaleficence, and social justice (Beauchamp & Childress, 2001). Each of these principles can be applied to communicating the notion that a low-wage worker's CVD risk is related to nutrition and the physical activity to be performed in the worksite. Addressing these issues is the responsibility of public health nursing.

Autonomy

The status and autonomy of low-wage workers are often weak. To show that low-wage workers are autonomous agents requires, at a minimum, the acknowledgment that they have the right to hold views, make choices, and take actions based on personal values and beliefs. Such a requirement involves respectful actions, not merely having a respectful attitude. As an overt ethical reform to paternalism, providing workers with autonomy has exerted a strong moral influence in nursing. By contrast, employers, who dictate the structure of the workplace, often use authority to foster and perpetuate the dependency of their employees, especially low-wage workers, rather than to promote their autonomy.

Kant (1965) argued that respect for autonomy flows from the recognition that all persons have unconditional worth, each having the capacity to determine his or her own destiny. When carrying out research, to violate a low-wage worker's autonomy is to treat that person as a means in accordance with a researcher's goals without demonstrating regard for that worker's own goals. Utilitarianism is more concerned about the autonomy of persons in shaping their lives. Substituted judgment begins with the premise that, by virtue of rights of autonomy and privacy, decisions about health care belong to the nonautonomous low-wage workers. In other words, low-wage workers have a right to improve their CVD risk, even though they may not be able to exercise it. It would be unfair to deprive workers of autonomous rights because they may not have the means to accomplish their goals. In this event, decision makers such as occupational health practitioners or employers should provide opportunities for care if low-wage workers are unable to make autonomous decisions.

Beneficence and nonmaleficence

In treating health disparities, one should concentrate on the standard of care established by law and morality to protect low-wage workers from careless and unreasonable impositions of risk. For nurses, legal and moral standards of care include the proper education of workers with serious CVD risks. Morality requires not only that we treat low-wage workers autonomously and refrain from harming them but also that we contribute to their welfare. The word nonmaleficence is sometimes broadly used to include the prevention of harm and the removal of harmful conditions (Beauchamp & Childress, 2001). However, these practices often require positive acts to benefit workers and therefore are best treated under beneficence.

Positive beneficence requires the provision of benefits. Beneficence has played a central role in some ethical theories. Utilitarianism, for example, is systematically arranged on a principle of beneficence. In part, it is conceived as an aspect of human nature that motivates people to act in the interests of others. This goal is closely associated with the goal of morality itself. Obligations to confer benefits, in this case to prevent and remove CVD risks and harms, as well as the notions of weighing and balancing the possible goods against the costs and possible harms are central to ethics. Proponents of utilitarianism argue that low-wage workers' CVD risk care might be neglected because these risks tend to be small. In order to promote the good of the business, low-wage workers may be overworked even though they have a high CVD risk or other health issues. However, this view has been criticized as being in direct contrast to the moral obligations of public health care providers because it appears to allow the interests of society and community to override the rights and interests of low-wage workers. Public health practitioners should be aware of this moral dilemma when providing care to low-wage workers within a business setting.

Social justice

Justice is considered to be fair, equitable, and appropriate treatment in light of what is due or owed to persons. Social justice means that some workers are at a high risk of CVD, while others are shielded from

risk. Millions of workers living under similar circumstances—but with very different psychological profiles and cultural backgrounds—can expect to meet similar fates. Their illness may be thought of as a result of structural inequities, with neither nature nor pure individual will being at fault (Farmer, 2010). Social justice is concerned with "human well-being," not only health, but core dimensions of well-being such as personal security, reasoning, and respect.

The constellation of inequalities can systematically magnify and reinforce the initial condition of low-wage worker's cardiovascular health, creating ripple effects that attack various aspects of health. Their poor educational attainment, lack of knowledge, and lack of respect, for example, can impact core forms of reasoning and health status. The result is a mixture of interactive effects that require urgent attention from the point of view of social justice. The term "distributive justice" refers to fair, equitable, and appropriate distribution in a society as determined by justified norms that structure the terms of social cooperation (Beauchamp & Childress, 2001). However, problems of distributive justice arise under conditions of scarcity and competition, including the scarcity of health care and health promotion programs in businesses.

Resource Allocation

Escalating health care costs and downsizing of many businesses have contributed to the reduction or the elimination of insurance coverage for many workers. Low-wage workers in small businesses represent a disproportionately large group of the uninsured or underinsured (Hall, Collins, & Glied, 1999). These low-wage employees usually have health, social, environmental, and CVD risk factors that can have an impact not only their productivity but on their length of life (Aldana, Jacobson, Harris, & Kelley, 1994; Alexander, 1988; Boden & Cabral, 1995; Chrousos & Gold, 1992; Fowler & Risner, 1994).

In rationing scarce resources, it is morally imperative to consider source utility to reduce health disparities. Differences in workers' need and in their prospects for successful work are both relevant considerations. If the resource is not reusable, as it is in CVD cases, protection is critical. Selection procedures should be designed to save as many lives as possible through the available resources. "Health care utility," which is grounded in utilitarianism, points to the effective and efficient use of scarce health care resources (Beauchamp & Childress, 2001).

As applied to the situation of scarcity, utilitarianism is pretty obvious and simple: The greater the number helped, the greater the benefit. Universal law, another philosophical principle, sometimes does not work. How does one know, then, which principles should be given priority? It is commonly said that utilitarianism and analytic techniques fail to take into account problems of justice because they focus on the net balance of benefits over costs, without considering the distribution of those benefits and costs. For example, the cost/benefit analysis of a training program might show that costs outweigh the benefits, whereas social justice might demand that special benefits be extended to low-wage workers. Furthermore, allocation of scarce resources to underserved groups is still beneficial to society as a whole because workers may be more productive and give back more to society.

Implications for Knowledge Development in Nursing

Nurses recognize their field as both an "art" and a "science" (Rodgers, 1991; Rogers, 1988; Smith, 1997; Watson, 1994). Such a characterization accomplishes several things. First, it provides a way of describing the knowledge that underlies nursing practice. It accounts for many important aspects of nursing that do not fit within the commonly held model of science. Finally, as with any characterization, it promotes cohesion within the discipline of nursing since they share this perception in describing their work. The concept of nursing science in CVD care of low-wage workers, in contrast to the concept of nursing art in health disparities, may be a relatively ignored area.

The usage of "nursing science" has grown out of a period in our history in which the nature of nursing was discussed by academic leaders concerned with the preparation of the nurse scientist. In this respect, science, the body of knowledge about the universe and its manifestations, was distinguished from research (Gortner, 1980). Both science and humanism could be accommodated in nursing without the loss of purpose and meaning noted in the literature. What well may be foundational in humanistic philosophy, that is, a concern for person and meaning, can remain as philosophy; it need not be translated into scientific strategies and used to the exclusion of other options. Further, the practice of science and the

scientific method, the search for explanations, regularities, and predictions about the human state should not be viewed as being incompatible with professional virtues and ethical principles (Gortner, 1999).

"Nursing art" illustrates well the concept of equity, respect for persons, and caring (Royal College of Nursing, 1987). Equality and autonomy have indeed been limited in worksites within which nursing has historically functioned because proficiency at caring is somehow related to subordinate status (Rodgers, 2005). In furthering the field of nursing, studying the lack of discretionary health care for certain people is of particular importance. Nursing has recognized health issues, such as health disparities for vulnerable populations, including low-wage workers, to be a priority. Nursing has accepted the role of being an advocate for vulnerable populations in making decisions for implementation of care.

Conclusion

Although little existing philosophy of science has focused on nursing, it is a constantly evolving field, seeking to shed light on the ways in which all acquired knowledge should be utilized for inquiry in all fields of practice (Rodgers, 2005). From the philosophical perspectives described here, the study of philosophy can be viewed as immensely helpful because, in the study of knowledge and science, what is important is how such knowledge is used.

The understanding of health disparities among low-wage workers is based on autonomy and an individual's worth. Vital moral considerations such as autonomy and individual's worth depend on social factors. Therefore, ethical perspectives provide the rationale for reducing the health disparities of individual low-wage workers. However, health disparities are not experienced by individuals, but by groups. Structural inequality or social justice is a key to understanding the phenomena of health disparities. The public health sector, including public health nurses, has a role and responsibility to lead intervention, resource assessment, and distribution of services targeting low-wage workers.

The development of a philosophical framework is required for studying vulnerable populations such as low-wage workers. For this reason, nurses should be advocates to help develop prevention programs and distribute health care for low-wage workers to provide CVD risk care. Based on the principle of ethics, such decision making should be a priority of nurses. However, ethics involves more than just considering duties arising from our obligations to others. A sense of moral obligation is dependent on the broader and more fundamental sense of what is thought to be good (Taylor, 1985).

Overall, considerations of autonomy, beneficence, and nonmaleficence themselves are not enough to ensure that the care of low-wage workers will render them able to fend for themselves. The ethics of care requires a vision of one's basic relatedness to others as well as notions of a distributive justice in relation to the structural inequality. Social justice will also be required to ensure that those who cannot demand their rights will have their needs met and will be protected and nurtured. This approach prepares public health nurses to incorporate social justice into the provision of holistic care and personal empowerment to low-wage workers with a CVD risk.

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References

Aldana, S. G., Jacobson, B. H., Harris, C. J., & Kelley, P. L. (1994). Mobile worksite health promotion programs can reduce selected employee health risks. *Journal of Occupational Medicine*, *35*(9), 922–928.

Alexander, J. (1988). The ideological construction of risk: An analysis of corporate health promotion programs in the 1980s. *Social Science and Medicine*, *26*(5), 559–567.

American Heart Association. (2007). *Heart disease and stroke statistics, 2006 update*. Dallas, TX: Author.

Beauchamp, T. L., & Childress, J. F. (2001). *Principles of biomedical ethics*. New York, NY: Oxford University Press.

Benner, P. (1999). Quality of life: A phenomenological perspective on explanation, prediction, and understanding in nursing science. In E. C. Polifroni, & M. Welch (Eds.), *Perspectives on philosophy of science in nursing* (pp. 315–326). Philadelphia, PA: Lippincott.

Boden, L. L., & Cabral, H. (1995). Company characteristics and workplace medical testing.

American Journal of Public Health, *85*(8), 1070–1075.

Bunting, S., & Campbell, J. C. (1990). Feminism and nursing: Historical perspectives. *Advances Nursing Sciences*, *12*(4), 11–24.

Chrousos, G. P., & Gold, P. W. (1992). The concept of stress and stress system disorders. *Journal of the American Medical Association*, *267*(9), 1244–1252.

Farmer, P. (2010). *Partner to the poor*. Berkley, CA: The University of California Press.

Folta, S. C., Goldberg, J. P., Lichtenstein, A. H., Seguin, R., Reed, P. N., & Nelson, M. R. (2008). Factors related to cardiovascular disease risk reduction in midlife and older women: A qualitative study. *Preventing Chronic Disease*, *5*(1), 1–9. Retrieved October 26, 2010 from http://www.cdc.gov/pcd/issues/2008/jan/06_0156.htm

Fowler, B. A., & Risner, P. B. (1994). A health promotion program evaluation in a minority industry. *The ABNF Journal*, *5*(3), 72–76.

Gilligan, C., & Wiggins, G. (1998). The origins of morality in early childhood relationships. In J. Kagan, & S. Lamm (Eds.), *The emergence of morality in young children* (pp. 35–50). Chicago, IL: University of Chicago Press.

Godfrey-Smith, P. (2003). *Theory and reality: An introduction to the philosophy of science*. Chicago, IL: University of Chicago Press.

Gomel, M., Oldenburg, B., Simpson, J. M., & Owen, N. (1993). Worksite cardiovascular risk reduction: A randomized trial of health risk assessment, education, counseling, and incentives. *American Journal of Public Health*, *83*(9), 1231–1238.

Gortner, S. R. (1980). Nursing science in transition. *Nursing Research*, *29*(3), 180–183.

Gortner, S. R. (1999). Nursing values and science: Toward a science philosophy. In E. C. Polifroni, & M. Welch (Eds.), *Perspectives on philosophy of science in nursing* (pp. 25–33). Philadelphia, PA: Lippincott.

Groeneveld, I. F., & Proper, K. I. (2008). Design of an RCT evaluating the cost-effectiveness of a lifestyle intervention for male construction workers at risk for cardiovascular disease: The health under construction study. *BMC Public Health*, *8*(1), doi: 10.1186/1471-2458-8-1.

Hall, A. G., Collins, K. S., & Glied, S. (1999). *Employer-sponsor health insurance: Implications for minority workers*. New York, NY: Commonwealth Fund.

Heidegger, M. (1962). *Being and time* (J. Macquarrie & E. Robinson, Trans.). New York, NY: Harper & Row.

Kant, I. (1965). *Critique of pure reason* (N. K. Smith, Trans.). New York, NY: St. Martin's Press (Original work published 1781).

Khun, T. S. (1996). *The structure of scientific revolutions* (3rd ed.). Chicago, IL: The University of Chicago Press.

Leonard, V. W. (1999). A Heideggerian phenomenologic perspective on the concept of the person. In E. C. Polifroni, & M. Welch (Eds.), *Perspectives on philosophy of science in nursing* (pp. 315–326). Philadelphia, PA: Lippincott.

Reviere, R., Schneider, S., & Woolbright, K. (1995). Associations between disease and occupation: Hypotheses generated from the national mortality follow back survey. *American Journal of Industrial Medicine*, *27*, 195–295.

Rodgers, B. L. (1991). Deconstructing the dogma in nursing knowledge and practice. *Image: Journal of Nursing Scholarship*, *23*, 177–181.

Rodgers, B. L. (2005). *Developing nursing knowledge: philosophical traditions and influences*. New York, NY: Lippincott, Williams & Wilkins.

Rogers, M. E. (1988). Nursing science and art: A prospective. *Nursing Science Quarterly*, *1*(3), 99–102.

Roosa, M. W., & Gonzales, N. A. (2000). Minority issues in prevention: Introduction to the special issue. *American Journal of Community Psychology*, *28*(2), 145–148.

Royal College of Nursing. (1987). *In pursuit of excellence: A position statement on nursing*. London, U.K.: Author.

Smith, K. (1997). Let's put the art back into the science of nursing. *Nursing Times*, *93*(48), 21.

Taylor, C. (1985). *Human agency and language: Philosophical papers* (*Vol. 1*). Cambridge, U.K.: Cambridge University Press.

U.S. Department of Health and Human Services [USDHHS]. (2000). *Healthy People 2010 goals*. Retrieved from http://www.healthypeople.gov/document/html/uih/uih_2.htm#goals

Watson, J. (1994). *Applying the art and science of human caring: Introduction*. New York, NY: National League for Nursing Press.

Williams, A., Mason, A., & Wold, J. (2001). Cultural sensitivity and day care workers. Examination of a worksite based cardiovascular disease prevention project. *AAOHN Journal*, *49*(1), 35–43.