



Reframing Nursing's Response to Climate Change: A Planetary Perspective

Haya Abdulrahman Albishi^{1*}, Nourh Yosef Alabdulaziz¹, Kawthar Taher Almajhad¹,
Hawra Taher Almajhad¹, Mohammed Salman Almajhad¹, Amal Hasan Alshwish¹,
Rahma Mohammed Benabd¹, Muslim Hassan Aljaziri¹, Alaa Ali Alnasser¹, Sawsan Ali
Alnasser¹, Hassam Mohammed Alnasser¹, Jehad Hassan Alkhalaf¹, Sukina Ali Alshurit¹,
Hamdan Mohammed Alkhesefi¹, Miad Sadiq Alaithan¹

¹*KSA, Ministry of Health

*Corresponding Author: Haya Abdulrahman Albishi

*KSA, Ministry of Health

Abstract:

The metaparadigm of nursing, global health, and climate change this essay provides a theoretical analysis of the reasons behind the nursing profession's tardiness in addressing the climate change issue. We propose that the early stages of the professionalization of nursing may have had an impact on this delay. We specifically look at the metaparadigm that is widely accepted, the professional mandate for nurses, and the grand theorists' conceptions of the environment and the nurse-environment interaction. We come to the conclusion that these works may have influenced nurses to understand the environment and their relationship with it primarily in terms of the specific patient, which has prevented nurses from being pushed to understand these notions from a wider angle. It is not unexpected that nurses have been slow to respond to climate change and may not have considered it a professional concern because they lack the philosophical and theoretical underpinnings necessary to comprehend the environment in connection to society. Theoretically, nursing education, research, and practice might be grounded in a planetary health viewpoint. By adopting a planetary health viewpoint, nurses may advance their field and help healthcare systems support a future that is climate resilient.

keywords: Climate change, climate resiliency, environment, advanced nursing practice.

Introduction:

As the world's temperature rises, it is becoming increasingly evident that the climate is changing (Intergovernmental Panel on Climate Change [IPCC], 2018; Lynch, 2016; National Aeronautic Space Agency [NASA], 2018). According to NASA (2020), Earth's average temperature in 2019 was 0.98°C higher than that of the 1951–1980 period. The average global temperature increased by 0.9°C in 2017 compared to 1.02°C in 2016, making 2016 the hottest year ever recorded (NASA, 2020). Although there are many possible causes of climate change, there is enough scientific data to conclude that human activity is the primary culprit. To put it simply, burning fossil fuels releases greenhouse gases into the atmosphere, which in turn raises global temperatures (Lynch, 2016; NASA, n.d.(a)). Overuse of carbon is so common and firmly rooted in the idea that scientists believe we are currently living in the Anthropocene period, a time when human activity has a major influence on the global ecosystem (Zalasiewicz et al., 2008). Research on climate change is ongoing, and the findings so far are concerning.

Predictions include more frequent extreme weather events, extended hot weather spells, intense rainfall, floods, and droughts, as well as rising sea levels and ocean acidification (U.S. Global Change Research Program, 2017). Humans will be impacted by the wide-ranging consequences of climate change everywhere on Earth.

Although these facts and projections don't seem to specifically apply to nursing at first, they have significant worldwide nursing consequences. The world's average surface temperature is expected to climb over the 21st century and is likely to surpass 3 degrees Celsius this century, according to the United Nations' (2016) Sustainable Development Goals. [And] the poorest and most

The most vulnerable individuals are being impacted (Goal 13, para. 2). Studies also demonstrate how a changing climate affects human health and well-being, even if climate change can be seen as a social justice and human rights issue (Intergovernmental Panel on Climate Change, 2014; Smith et al., 2014; United Nations, 2016).

Nursing's Response to Climate Change: A Delayed Global Perspective:

While the study of nursing's delayed response to climate change is the main goal of this work, it should also be understood in the context of the global delay in responding to the crisis, as most professions were also implicated. Years had gone by since the world community was first informed of climate change and its potential to cause serious problems for all species on Earth, despite the evidence. Canadian scientist Gilbert Plass established a correlation between rising global temperatures and rising carbon emissions in 1959 (Plass, 1959). Plass (1959) also discussed how burning fossil fuels for energy purposes by humans was speeding up this process, referring to it as a "new geological force" (p. 46). Climate

scientists started to agree in the late 1980s that adding carbon to the atmosphere would cause the climate to warm to the point that it would eventually cause serious political, social, and economic issues (Oppenheimer & Anttila-Hughes, 2010). Though the IPCC did not formally declare this consensus until 2001, at least 97% of climate scientists who are currently publishing on the topic concur that human activity is causing and causing climate change (Governor's Office of Planning and Research, n.d.(a), n.d.(b); NASA, n.d.(b)).

Now, focusing on nursing, a groundbreaking study carried out by the only 14 nursing studies relevant to environmental health concerns and nursing practice were published in nursing journals between 1990 and 1994, according to the National Academy of Medicine (formerly known as the Institute of Medicine at the time of publication) (Pope, Snyder, & Mood, 1995). The phrase "environmental health concerns" refers to health issues that have to do with human surroundings, like the home, workplace, or the outdoors. It also covers the detrimental consequences of climate change on health. In the end, the results of this groundbreaking study point to a serious deficiency in nursing research on environmental health and urge more investigation (Pope et al., 1995).

Exploring the Evolution of Nursing: A Global Perspective with Focus on North America

Any investigation of the mission of nursing or the creation of its widely acknowledged metaparadigm requires a broad overview of the evolution of the nursing profession in general. Despite the fact that nurses are found all over the world, an examination of the evolution of the nursing profession generally entails a look at North American nursing development. This presents its own set of problems, and other writers have extensively discussed this subject (McGibbon, Mulaudzi, Didham, Barton, & Sochan, 2014). In light of this, it is necessary to acknowledge both the North American perspective in this paper as well as two other crucial points: first, nursing practices have evolved in various ways throughout the world; and second, healing and caregiving customs have existed in North America for a very long time prior to the creation of modern nursing. Based on ideas like wholeness and balance, Indigenous peoples of the Americas have had and now have their own distinctive approaches to healing (Ryback & Decker-Fitts, 2009). Let the reader to take note: when we talk about "modern nursing," we really mean "modern nursing as it is practiced in North America," and Florence Nightingale is usually connected with this particular style of nursing.

The Evolution of Modern Nursing: From Nightingale to Professional Mandate

Going from the time of Nightingale to the current perception of modern nursing, the journey may appear simple, but it is not. The path to become a profession in modern nursing was a long and arduous one. The nursing profession had to embrace a professional mandate outlining what nursing practice was and how it differed from other professions as part of this journey. Though it was later declared unnecessary, this was a byproduct of the scientific way of thinking at the time and had a significant impact on the path of nursing. Creating a philosophy for society as a whole that addresses every aspect of thought, value, and action that is directly or even indirectly related to their work is part of a professional mandate "[in] its full form" (Hughes, 1984, p. 466). The original definition of nursing's mandate, or its goal, was penned by Virginia Henderson International.

How Historical Nursing Frameworks Can Inform Climate Action

Grand theories have contributed significantly to the professional growth of nursing, even though they might not seem immediately applicable to contemporary practice, much like the metaparadigm. Grand theories were the highest and most abstract theories during a period when theory was thought to be hierarchical in character (Risjord, 2010). The metaparadigm was sought to be described and explained by grand theories.

theoretical viewpoint and present a substitute paradigm that can help nurses acknowledge the climate catastrophe as a nursing concern. We propose that the professional mandate and the widely acknowledged metaparadigm of nursing—two significant theoretical frameworks that direct nursing practice—may have had an impact on this delay (Fawcett, 1984). Despite facing significant criticism and debate from various authors (Allen, 2004, 2014; Bender, 2018; Litchfield & Jónsdóttir, 2008; Morse, 2016; Risjord, 2010; Thorne et al., 1998), Fawcett's (1984) metaparadigm continues to have a noteworthy historical impact on the nursing discipline and consequently, the nursing profession.

Rethinking the Foundations of the Nursing Metaparadigm:

Any investigation of the mission of nursing or the creation of its widely acknowledged metaparadigm requires a broad overview of the evolution of the nursing profession in general. Despite the fact that nurses are found all over the world, an examination of the evolution of the nursing profession generally entails a look at North American nursing development. This presents its own set of problems, and other writers have extensively discussed this subject (McGibbon, Mulaudzi, Didham, Barton, & Sochan, 2014). In light of this, it is necessary to acknowledge both the North American perspective in this paper as well as two other crucial points: first, nursing practices have evolved in various ways throughout the world; and second, healing and caregiving customs have existed in North America for a very long time prior to the creation of modern nursing. Based on ideas like wholeness and balance, Indigenous peoples of the Americas have had and now have their own distinctive approaches to healing (Ryback & Decker-Fitts, 2009). Let the reader to take note: when we talk about "modern nursing," we really mean "modern nursing as it is practiced in North America," and Florence Nightingale is usually connected with this particular style of nursing.

It later served as the foundation for nursing's metaparadigm, with the promotion of the individual's health at its center (Fawcett, 1984).

Understanding Environment Through the Lens of the Past:

Grand theories have contributed significantly to the professional growth of nursing, even though they might not seem immediately applicable to contemporary practice, much like the metaparadigm. Grand theories were the highest and most abstract theories during a period when theory was thought to be hierarchical in character (Risjord, 2010). The metaparadigm was sought to be described and explained by grand theories.

notions as a means of defining nursing more precisely, "articulating a normative standard for its practice," and defining its bounds (both independently and in connection to one another) (Risjord, 2010; Thorne et al., 1998, p. 1257). Grand ideas have left a lasting legacy in the field and have had a significant influence on modern practice, despite their apparent lack of relevance. Because of the importance of their contributions.

Why Local Environmental Conceptions Fall Short in a Changing Climate?

When an individual's immediate surroundings or circumstances define their environment, this is known as local conceptualization (Nightingale, 2004; Orem, 1987, 1990; Thorne et al., 1998). According to Thorne et al. (1998), the environment is natural, inflexible, and immobile. The only way for someone with such a strict perspective on their surroundings to cope is to modify himself and find new ways to survive instead of trying to alter their surroundings (Thorne et al., 1998). This perspective, which places so much focus on the individual and their capacity for adaptation, is unable to take into consideration the more widespread effects of societal, social, political, or economic issues (Thorne et al., 1998).

The local conception of the environment is inadequate when it comes to climate change for a number of reasons. First, the local conception perpetuates harm because it encourages a disengaged attitude in people who embrace it. As we know, Earth is made up of numerous fragile ecological systems that are negatively influenced by human activities (IPCC, 2018). The idea that people must modify their lifestyles to fit into a warming planet—or, in this example, that nurses must modify their nursing practices to support individuals living in a warming world—is a key element of the response to climate change. Although adaptation is a crucial idea in nursing and a vital strategy for responding to climate change, its applicability is restricted when considered in isolation from mitigation, or the removal of elements that contribute to climate change. Nursing professionals will see their involvement in climate action and advocacy as merely reactionary if a local conception of the environment only encourages an adaptation viewpoint.

Modify their professional approach to the environment they are currently working in. This conceptualization does not take into account the significance of reducing the effects of climate change, nor does it encourage nurses to regard the environment as something they can influence or as something their practice can affect (in a positive or bad manner).

A unified understanding of the surroundings

A person and their environment are inextricably linked, according to unified conceptualization (Gottlieb & Rowat, 1987; McGill University, 2016; Rogers, 1992; Thorne et al., 1998; Watson, 1997). According to this theory, a person's experiences and viewpoints are reflective of their surroundings and the world at large, which implies that the environment is dynamic and adapts to the person's perceptions (Thorne et al., 1998). According to Thorne et al. (1998), this perspective places an excessive amount of emphasis on individual experiences, which is problematic because individual experiences can be separated from social or political realities. If one's impressions of the environment are the only things that define it, then issues like climate change become very hard to understand. It would be impossible for a person to distinguish between gradual climatic changes (longer term atmospheric patterns) and everyday weather (short-term variations in atmosphere one experiences, such as daily temperature fluctuations) (NASA, 2005). It's important to distinguish between the two because, while short-term weather variations may affect an individual's morning attire decisions, long-term climate changes are melting glaciers, warming our oceans, and increasingly endangering human security (Adger et al., 2014; NASA, n.d.(a)).

Even if personal experiences have a vital role in nursing

When taking into account the issue of climate change, it is unacceptable to limit the environment to the unified conceptualization. When nurses take on this environmental perspective, their understanding of the climate catastrophe is confined to their own experiences and those of those they deal with. If a nurse is interacting directly with communities, this is not a problem. who have made it through a climate emergency, which includes extreme weather disasters including droughts, wildfires, hurricanes, and unseasonal floods. This does, however, present a dilemma for nurses who are not immediately affected by such tragedies; does this imply that they do not exist if they are unaware of the effects of climate change? Furthermore, the social, political, and economic factors may once again be disregarded if just subjective experiences are taken into account. Unfortunately, regardless of our individual experiences, the climate is changing. In the end, putting this matter in the subjective and private realm places more of the burden of climate action and advocacy on individual nurses than it does on the profession.

A Model for Understanding Environment and Human Health

The Roy adaptation model is the only work examined that is exempt from this criticism (Roy, 2009). Sister Roy achieves a balance between the local and global conceptions of the environment; the environment and the person relying on it are distinct, the environment is dynamic, and both are changing (Roy, 2009). It is also reassuring that she has explicitly addressed environmental degradation, indicating that she has thought about societal issues and how they affect human health and adaptation. But most grand theories give nurses such narrow conceptions of the environment, that society at large has not been compelled to take societal issues like climate change into account as part of the nursing domain.

Nurse-Environment Relationship Conceptualizations

The relationship between a nurse and their surroundings, or the nurse's responsibility to manage the environment to promote and enable good health, is developed to differing degrees of depth in the major great theorists' publications. Theorists agree that there is a direct correlation between the environment and an individual's health. In general, the goal of the nurse is to function as a change agent in the environment, though specifics regarding this are frequently ambiguous. Nightingale is the theorist who best describes the practical duty of the nurse in maintaining a healthy environment out of all of the others. Nightingale offers a well-defined relationship between the nurse, the patient, health, and the physical environment—a healing environment is eventually correlated with a healthy physical environment—albeit within a local conceptualization. Few thinkers, aside from Nightingale, go so far as to see the nurse as a change agent whose role is to influence the surroundings in an unclear way. The patient's unique health and preferences appear to be the nurse's constant compass, despite the lack of direction. Since the focus of these publications is on promoting individual health rather than the health of society as a whole, they appear to provide a narrow conception of the nurse-environment link.

Summary:

We explained in this paper why the nursing profession has been slow to address the climate change issue. We propose that the professional mission of nursing, the widely recognized metaparadigm, and the grand theorists' conceptions of environment and the nurse-environment link all had an impact on this delay. Philosophically speaking, these books have steered nurses toward an understanding of the environment and related issues from the standpoint of how they affect the individual while ignoring related societal concerns. Rather, we are in favor of embracing a planetary health viewpoint. Nursing has advanced significantly in recent years, despite the fact that the field may have responded slowly to the problem of climate change. We believe that this development will only be accelerated by the adoption of a planetary health viewpoint.

References:

1. adaptation, and vulnerability. Part A: Global and sectoral aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (pp. 755–791), Cambridge, UK & New York, NY: Cambridge University Press
2. Adlong, W., & Dietsch, E. (2015). Environmental education and the health professions: Framing climate change as a health issue. *Environmental Education Research*, 21(5), 687–709. <https://doi.org/10.1080/13504622.2014.930727>
3. Allen, D. (2004). Re-reading nursing and re-writing practice: Towards an empirically based reformulation of the nursing mandate. *Nursing Inquiry*, 11(4), 271–283. <https://doi.org/10.1016/j.socscimed.2014.08.036>
4. Allen, D. (2014). Re-conceptualising holism in the contemporary nursing mandate: From individual to organisational relationships. *Social Science & Medicine*, 119, 131–138. <https://doi.org/10.1016/j.socscimed.2014.08.036>
5. Álvarez-Nieto, C., Richardson, J., Parra-Anguita, G., Linares-Abad, M., Huss, N., Grande-Gascón, M. L., ... López-Medina, I. M. (2018). Developing digital educational materials for nursing and sustainability: The results of an observational study. *Nurse Education Today*, 60, 139–146. <https://doi.org/10.1016/j.nedt.2017.10.008>
6. American Nurses Association. (2015). Code of ethics for nurses: With interpretive statements. Retrieved from <https://www.nursingworld.org/coe-view-only>
7. Barnes, G., Fisher, B., Postma, J., Harnish, K., Butterfield, P., & Hill, W. (2010). Incorporating environmental health into nursing practice: A case study on indoor air quality. *Pediatric Nursing*, 36(1), 33–39. <https://doi.org/10.4236/health.2013.59194>
8. Bender, M. (2018). Re-conceptualizing the nursing metaparadigm: Articulating the philosophical ontology of the nursing discipline that orients inquiry and practice. *Nursing Inquiry*, 25(3), <https://doi.org/10.1046/j1365-2548.1998.00623.x>
9. Canadian Nurses Association. (2017). Code of Ethics for Registered Nurses. Retrieved from <https://cna-aic.ca/~media/cna/page-content/pdf-en/code-of-ethics-2017-edition-secure-interactive.pdf?la=en>
10. Donnelly, G. F. (2020). Climate change and health: A call to action. *Holistic Nursing Practice*, 34(1), 1. <https://doi.org/10.1097/HNP.0000000000000364>
11. Fawcett, J. (1984). The metaparadigm of nursing: Present status and future refinements. *Image: The Journal of Nursing Scholarship*, 16(3), 84–89. <https://doi.org/10.1111/j.1547-5069.1984.tb01393.x>
12. Goodman, B. (2013). Role of the nurse in addressing the health effects of climate change. *Nursing Standard*, 27(35), 49–56. <https://doi.org/10.7748/ns2013.05.27.35.49.e7374>
13. Gottlieb, L., & Rowat, K. (1987). The McGill Model of Nursing: A practice-derived model. *Advances in Nursing Science*, 9(4), 51–61. <https://doi.org/10.1097/00012272-198707000-00008>

14. Governor's Office of Planning and Research. (n.d. (a)). The scientific consensus. Retrieved from <http://www.opr.ca.gov/facts/scientific-consensus.html#fn-8>
15. Governor's Office of Planning and Research. (n.d. (b)). List of worldwide scientific organizations. Retrieved from <http://www.opr.ca.gov/factslist-of-scientific-organizations.html>
16. Griggs, C., Fernandez, A., & Callanan, M. (2017). Nursing and the barriers to sustainable health care: A literature review. *British Journal of Nursing*, 26(22), 1230–1237. <https://doi.org/10.12968/bjon.2017.26.22.1230>
17. Health Care Without Harm & Arup. (2019). Health care's climate footprint: How the health sector contributes. Retrieved from <https://noharm-us-canada.org/ClimateFootprintReport>
18. Horton, R., Beaglehole, R., Bonita, R., Raeburn, J., McKee, M., & Wall, S. (2014). From public to planetary health: A manifesto. *The Lancet*, 383(9920), 847. [https://doi.org/10.1016/S0140-6736\(14\)60409-8](https://doi.org/10.1016/S0140-6736(14)60409-8)
19. Huffling, K., & Schenk, E. (2014). Environmental sustainability in the
20. intensive care unit: Challenges and solutions. *Critical Care Nursing Quarterly*, 37(3), 235–250. <https://doi.org/10.1097/CNQ.0000000000000028>
21. Hughes, E. C. (1984). *The sociological eye*. Chicago, IL: Aldine-Atherton.
22. Intergovernmental Panel on Climate Change (IPCC). (2014). Climate change 2014: Synthesis report. Contributions of Working Groups I, II, and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. In Core Writing Team, R. K. Pachauri &
23. L. A. Mayer (Eds.), *Intergovernmental Panel on Climate Change: Fifth Assessment Report*. Cambridge, UK & New York, NY: Cambridge University Press.
24. Intergovernmental Panel on Climate Change [IPCC]. (2018). Special Report: Global Warming of 1.5°C. Summary for Policy Makers. Retrieved from <https://www.ipcc.ch/sr15/chapter/spm/>
25. International Council of Nurses. (2018). Definition of nursing: Long version. Retrieved from <http://www.icn.ch/who-we-are/icn-definition-of-nursing/>
26. Jackman-Murphy, K. P. (2015). Environmental health 101: Incorporating environmental health into the nursing curriculum. *Teaching and Learning in Nursing*, 10, 192–195. <https://doi.org/10.1016/j.teln.2015.05.005>
27. Jackson Allen, P. (2015). Climate change: It's our problem. *Pediatric Nursing*, 41(1), 42–46.
28. King, I. (2007). King's structure, process, and outcome in the 21st century. In C. L. Sieloff, & M. A. Frey (Eds.), *Middle range theory development using King's conceptual system* (pp. 3–11). New York, NY: Springer Publishing Company.
29. Kurth, A. E. (2017). Planetary health and the role of nursing: A call to action. *Journal of Nursing Scholarship*, 49(6), 598–605. <https://doi.org/10.1111/jnu.12343>
30. Leffers, J. M., & Butterfield, P. (2018). Nurses play essential roles in reducing health problems due to climate change. *Nursing Outlook*, 66(2), 210–213. <https://doi.org/10.1016/j.outlook.2018.02.008>
31. Leffers, J. M., McDermott-Levy, R., Nicholas, P. K., & Sweeney, C. F. (2017). Mandate for the nursing profession to address climate change through nursing education. *Journal of Nursing Scholarship*, 49(6), 679–687. <https://doi.org/10.1111/jnu.12331>
32. Leffers, J. M., Smith, C. M., McDermott-Levy, R., Resick, L. K., Hanson, M. J., Jordan, L. C., ... Huffling, K. (2015). Developing curriculum recommendations for environmental health in nursing. *Nurse Educator*, 40(3), 139–143. <https://doi.org/10.1097/NNE.0000000000000133>
33. Lemery, J., Williams, C., & Farmer, P. (2014). Editorial: The great procrastination. *Health and Human Rights Journal*, 16(1), 1–3.
34. Lilienfeld, E., Nicholas, P. K., Breakey, S., & Corless, I. B. (2018). Addressing climate change through a nursing lens within the framework of the United Nations Sustainable Development Goals. *Nursing Outlook*, 66(5), 482–494. <https://doi.org/10.1016/j.outlook.2018.06.010>
35. Lipkin, N. C. (2012). The environmental impact of health care: Implications for infusion nursing. *The Art and Science of Infusion Nursing*, 35(3), 181–185. <https://doi.org/10.1097/NAN.0b013e31824d289f>
36. Litchfield, M. C., & Jónsdóttir, H. (2008). A practice discipline that's here and now. *Advances in Nursing Science*, 31(1), 79–91. <https://doi.org/10.1097/01.ANS.0000311531.58317.46>
37. Lynch, P. (2016). 2016 Climate Trends Continue to Break Records. Retrieved from <https://www.nasa.gov/feature/goddard/2016/climate-trends-continue-to-break-records>
38. McGibbon, E., Mulaudzi, F. M., Didham, P., Barton, S., & Sochan, A. (2014). Toward decolonizing nursing: The colonization of nursing and strategies for increasing the counter-narrative. *Nursing Inquiry*, 21(3), 179–191. <https://doi.org/10.1111/nin.12042>
39. McGill University. (2016). The McGill Model of Nursing. Retrieved from <https://www.mcgill.ca/nursing/about/model>
40. Morse, J. (2016). *Analyzing and conceptualizing the theoretical foundation of nursing*. New York, NY: Springer Publishing Company.
41. National Aeronautics and Space Administration [NASA]. (n.d. (a)). Effects: The effects of climate change. Retrieved from <https://climate.nasa.gov/effects/>
42. National Aeronautics and Space Administration [NASA]. (n.d. (b)). Facts: Scientific consensus: Earth's climate is warming. Retrieved from https://climate.nasa.gov/scientific-consensus*#/

43. National Aeronautics and Space Administration [NASA]. (2005). NASA – What's the difference between weather and climate? Retrieved from https://www.nasa.gov/mission_pages/noaa-n/climate/climate_weather.html
44. National Aeronautics and Space Administration [NASA]. (2018). Long-term warming trend continued in 2017: NASA, NOAA. Retrieved from <https://climate.nasa.gov/news/2671/long-term-warming-trend>
45. -continued-in-2017-nasa-noaa/National Aeronautics and Space Administration [NASA]. (2020). Global climate change: Vital signs of the planet. Retrieved from <http://climate.nasa.gov/vital-signs/global-temperature>
46. Neal-Boylan, L., Breakey, S., & Nicholas, P. K. (2019). Integrating climate change topics into nursing curricula. *Educational Innovations*, 58(6), 364–368. <https://doi.org/10.3928/01484834-20190521-09>
47. Nicholas, P. K., & Breakey, S. (2019). The economics of climate change and the intersection with conflict, violence, and migration: Implications for the nursing profession. *Nursing Economic\$,* 37(1), 23–34 <https://www.nursingconomics.net>.
48. Nightingale, F. (2004). Notes on nursing: What it is, and what it is not. Available from <http://www.gutenberg.net/1/2/4/3/12439/> (Original work published in 1860)
49. Oppenheimer, M., & Anttila-Hughes, J. K. (2010). The science of climate change. *The Future of Children*, 26(1), 11–30.
50. Orem, D. E. (1987). Self-care and health promotion: Understanding self-care. In K. M. Renpenning, & S. G. Taylor (Eds.), (2003), *Self-Care theory in nursing: Selected papers of Dorothea Orem* (pp. 212–222). New York, NY: Springer Publishing Company.
51. Orem, D. E. (1990). A nursing practice theory in three parts, 1956–1989. In M. E. Parker (Ed.), *Nursing theories in practice* (pp. 47–60). New York, NY: Jones and Bartlett Learning.
52. Pope, A. M., Snyder, M. A., & Mood, L. H. (1995). *Nursing, health, and the environment*. Washington, DC: Institute of Medicine, National Academy Press.
53. Risjord, M. (2010). *Nursing knowledge: Science, practice, and philosophy*. West Sussex, UK: Wiley-Blackwell.
54. Ritchie, H. (2019). Who has contributed most to global CO2 emissions?
55. Retrieved from <https://ourworldindata.org/contributed-most-global-co2>
56. Rogers, M. E. (1992). Nursing science and the space age. *Nursing Science Quarterly*, 5(1), 27–34. <https://doi.org/10.1177/089431849200500108>
57. Roy, C. (2009). *Roy Adaptation Model*, (3rd ed.). Upper Saddle River, NJ: Pearson Education Inc.
58. Ryback, C., & Decker-Fitts, A. (2009). Theory and practice: Understanding Native American healing practice. *Counselling Psychology Quarterly*, 22(3), 333–342. <https://doi.org/10.1080/09515070903270900>
59. Sattler, B., & Davis, A. (2007). Nurses' role in children's environmental health protection. *Pediatric Nursing*, 43(4), 329–340.
60. Sayre, L., Rhazi, N., Carpenter, H., & Hughes, N. L. (2010). Climate change and human health: The role of nurses in confronting the issue. *Nursing Administration Quarterly*, 34(4), 334–342. <https://doi.org/10.1097/NAQ.0b013e3181f60df9>
61. Smith, K. R., Woodward, A., Campbell-Lendrum, D., Chadee, D. D., Honda, Y., Liu, Q., & Sauerborn, R. (2014). Human health: Impacts, adaptation, and co-benefits. In C. B. Field, V. R. Barros, D. J. Dokken,