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Abstract

Recent research papers and commentaries have articulated the considerable effects that global climate change has had, and will have, on human health. Arguing that nursing must become more centrally involved in mitigation and response efforts, this paper develops a framework for professional consideration and action. Four core components of the framework are common tactics, maximizing specialties, prioritizing places and public scholarship.

Key Words climate change, environment, global warming, public scholarship

Global climate change: a framework for nursing action

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Introduction

No single policy, government, agency, industry or group of people is ever going to reverse global climate change, or even begin to address its considerable effects. Such is the enormity, scope and advanced stage of the emergency, only a concerted effort involving unified political action coupled with diverse responses from many peoples and sectors around the world, has any real hope of succeeding.[1] Given this reality, along with many other professions, international nursing must now ask how it might contribute, and where might individual and collective efforts be best focused. This paper takes the first steps in answering these questions. It starts by highlighting the established pedigree in nursing of understanding and engaging the social, spatial and natural world. Based on a discussion of pressing climate change issues, it then develops a framework for future professional action. Whilst this framework does not provide a comprehensive plan or 'road map' for the future, it does establish some key issues, themes and activities for consideration and action.

Nursing environment

There has been a longstanding concern in nursing research and practice for the profession's environment, broadly defined as the social, physical and biological contexts in which nurses operate and with which they must necessarily engage. At the commencement of the modern practice era, Florence Nightingale's writings commented on environments, ranging from the health impact of poor sanitation and living conditions in urban areas, to the layout, temperature, ventilation of, and interpersonal movements in, patents' rooms.[2] In later years – and particularly from the 1950s to the 1980s – the idea of nursing environment was solidified by the development of conceptual models that defined and explained the profession to trainee nurses.

These variously emphasized person, health and environment as three meta-paradigms that underpin the profession.[3-5] Although far more developed and refined, ideas on practice environments have survived to the present, and extend beyond nursing throughout the health professions. Contemporary practice concepts focused at the micro-scale of settings and facilities include, for example, 'clinical environments', 'therapeutic environments', 'quality of environment' and 'age-friendly environments'. Argued to spatially capture core qualities, these are increasingly regarded as crucial in achieving best practice.[6] Meanwhile, at the macro-scale, in an attempt to meet the needs of populations, professional practice has broadened its spatial horizons and specialized to urban, inner city, rural and remote needs. As health care has expanded both in scope and reach, the idea of 'community' has been expanded and mobilized. Once viewed by as an 'area' that could be neatly divided into administrative units, the community is being re-imagined as the social environment of nursing, possessing a differentiated mosaic of locally distinct vulnerabilities, needs and capacities.[6-7] Most recently, a nursing interest in environment has surfaced as a distinct research perspective. Scholars have started to draw on the discipline of human geography to describe and explain dimensions of nursing contingent of space and place. Here the 'spatial turn' in nursing research has ranged from the investigation of distributive features of patient populations, services and workforce, to nurses place attachments, meanings and identities.[6,8,9]

Despite these varied interests in human environments, the attention in nursing specifically to the world's natural and physical features has been more limited. Towards the end of the 1990s, an occasional and specialist interest developed across community and public health nursing in the impacts of localized pollution.[10-14] At approximately the same time, a small number of theoretical discussions focused on the relationship between nursing an environmentalism.[15-19] Leading this debate, Chinn commented that nurses should enter this public arena and bring about noticeable changes.[16] For her it would be a challenge that requires a broad spectrum of attention, at times moving outside traditional professional roles. Others offered theoretical observations to motivate debate and action. Kleffel, for example, examined nursing's connection to three social paradigms that interact with environment very differently.[18] She argued that historically nursing has adhered to an egocentric paradigm (grounded in the individual and based on the assumption that what is good for the individual is good for society), and to a lesser extend a homocentric paradigm (grounded in society and reflecting the utilitarian ethic of the greatest good for the greatest number). She posited however that that, in the face of globalization and environmental concerns, nursing might shift to the ecocentric paradigm that considers the environment as whole, living, and interconnected.

Although such discussions are theoretically and philosophically insightful, practical connections have yet to be established between nursing and climate change.[20] Currently,

Table one: Health concerns related to climate change (adapted from Health Canada, 2005 and Canadian Nursing Association, 2008)

Health Concern	Example of health vulnerability
Temperature-related morbidity and mortality	Cold and heat related illness Respiratory and cardiovascular illness Occupational health risks
Effects of extreme weather	Damage to health infrastructure Mental health stress Occupational health hazards Population displacement
Effects of air pollution	Exposure to pollutants Asthma, heart attacks, strokes, cancers
Effects of water and food contamination	Diarrhea, biological contaminations
Effects of UV exposure	Skin damage and cancer, cataracts
Population vulnerabilities	Seniors, children, chronically ill, homeless, disabled people
Socio-economic impacts	Loss of income, social disruption, reduced quality of life, increasing health care costs

Table two: Four categories of nursing action on climate change (adapted from Lewis and Andrews, 2009)	
Category	Further Explanation
Common Tactics	What nurses can do to influence public behavior and political action
Maximizing Specialties	The need for different nursing specialties to address specific climate issues
Prioritizing Places	The need to recognize differing circumstances and needs around the globe
Public Scholarship	The need to adjust the nature and focus of nursing research

there has been some sporadic interest in climate change from specialist interest groups and localized representative organizations in nursing, often in the form of information websites and internet-based forums for discussion and debate. Otherwise, if one looks hard enough, examples of environmentally-friendly behavior by nurses might be found in many health care organizations, towns and cities. On the whole however, nurses have yet to make distinctive and concerted effort, and agree on what they might do to help.

In the meantime, climate change has become a very serious international issue. The World Health Organization has estimated that climate change has already claimed over 150,000 lives.[21] A wide range of papers, reports and other commentaries have demonstrated how global increases in morbidity and mortality have and will occur due to changes in environmental conditions associated with increasing UV exposure, heat, storms, flooding, air pollution, vector transmission of disease, malnutrition and related social phenomena such as displacement from homes and forced migration (figure one).[20-29] Importantly, this literature tells us that it is the health and wellbeing of vulnerable groups - such as older people, children, those with pre-existing medical conditions, and the world's poorest people - which is most effected.[30-31]

Whilst 'hard science' is well-equipped to prove the existence of climate change and measure its origins, extent, progression, and the impacts of responsive action, disciplines with a humanistic tradition – such as nursing – are best placed to articulate the deep social complexity of its causes, effects and solutions; particularly with a view to taking part in and maximizing the latter. Developing a framework for future professional action,[23] the remainder of this commentary introduces four inter-related categories through which international nursing might respond – (i) common tactics, (ii) maximizing specialties (iii) prioritizing places (iv) public scholarship (figure two).

Common tactics

All four of the above categories involve tactical thinking and action on climate change. However, the specific tactics that might be used by nurses on a frequent basis deserve dedicated attention. Three types of these tactics can be identified (see figure three).

One way in which nurses and other health professionals can influence positive change is by undertaking environmentally-friendly activities. This activity could range from the actions of individuals, to the actions of entire nursing workplaces and workforces.[30,32] By setting a good example, nurses might positively impact on climate change themselves and also encourage other health care workers, patients and the public to act in the same way. Another way that nurses might influence climate change, is by providing professional advice to patients and the public about activities that are healthy and environmentally-friendly, or by highlighting those activities likely to be detrimental to health and the environment.(20,22,30,32] Here, whether adopted by individual nurses or collectively through nursing policy and protocols, emphasis could focus upon the ways in which health and the environment are entangled. A public health nurse, for exam-

Table three: Types of common nursing tactics (adapted from Lewis and Andrews, 2009)	
Tactic	Elaboration
Leading by example	Encouraging similar behavior
Giving Advice	At a practice and sector level
Political Action	From lobbying to direct action

ple, might emphasize how cycling to work simultaneously improves the cardiovascular health of the individual cyclist whilst, when undertaken on a collective level, results in a reduction in carbon emissions potentially leading to a wider range of health benefits for the population as a whole.[23] Equally, they might explain how consuming less animal produce is beneficial to cardiovascular health whilst, at an industry level it potentially reduces methane and carbon emissions in the production and transportation of such food.[23] More generally, at a macro-level, attention needs to be paid to communication and marketing and how the nursing sector as a whole might relay these kinds of messages to specific target audiences.[33]

Although the above approaches are laudable, over reliance on them contains a fatal flaw. Some argue that behavior modification (acting in an environmentally friendly way) is more effective at making society feel that it is making a significant contribution to combating climate change than actually effecting concrete change.[23] As a result, irrespective of what individuals and groups might do by their own accord, there is a need for governments to reduce carbon discharge directly through policy change and regulation. At the same time, they also need to facilitate a significant shift towards renewable energy to replace excessive consumption of oil, coal, and natural gas.[23] With this in mind, a third tactic involves nurses and other health professionals working collectively to encourage policy change across institutional, national and international levels.[20,22] Involvement here starts with positions clearly within the formal political process (such as lobbying, joining pressure groups, becoming involved in local politics). Alternatively, where participation in formal political process is deemed to have failed, nurses might otherwise consider more radical activism (such as demonstrations and boycotts).[23] Nurses have always enjoyed recognition by officialdom and have held the attention, support and respect of citizens, that makes them well placed to intervene in these ways. They possess power inside and outside the political process and, although it might not always seem the case, exercise more influence than many other sectors or groups. As scholars have discussed - often from a Foucaultian perspective - nurses are far from passive in the face of institutional power and might be key agents for resistance and change through multiple means.[34-35]

One should acknowledge, however, that when undertaking political action, pitfalls exist along the way. For example, one specific counter public relations tactic mentioned in articles published in medical journals in early 2008 involved a 'Trojan Horse' approach whereby climate change issues are piggybacked into the limelight on the back of other current events.[36-37] Along these lines, the Beijing Olympics was specifically mentioned by as a possible vehicle to bring environmental issues to the fore. As time progressed however, during the summer of 2008, the Beijing Olympics increasingly became known as "the genocide Olympics" because of Chinas' support for Sudan in Darfur … the unfortunate alliance between them, consecrated in oil. The international press and others initiated this labeling and it was very difficult for anyone to insert climate change into the identity mix. Eventually political unrest in Tibet, and the Chinese government's responses to it, grabbed the remainder of the headlines and essentially killed off the climate change Olympic connection. Once the games commenced, the achievements of the athletes rightfully took centre stage and filled the headlines. This one example demonstrates how any group – including nurses - must choose their targets and tactics carefully. In addition to practical concerns, ethical issues very quickly arise whenever actively promoting a strong viewpoint.

Underpinning nurses' participation in all three tactics outlined above are the perceived 'natural' and 'caring' fea-

Table four – The different focuses of nursing specialties

Type of Specialty	Examples
Sector focused	primary health care, community nursing, public health nursing
Client focused	gerontology, pediatrics, mental health care
Body focused	palliative care, oncology, cardiology, general surgery, intensive care etc
Jobs and roles	nurse practitioners, clinical nurse specialists, advanced practice nurses, managers, educators
Specialist empirical and theoretical interests	technology, policy creation, bio-ethics, medical devises and engineering, risk, ethics, knowledge translation

tures of the profession, and the personal connections and communications nurses have – above and beyond doctors – to individuals and their wellbeing. This makes them well placed to act as advocates and formulate strong arguments on health and the environment. One must however be wary not to overemphasize this and support paternal stereotypes. Yet, when mixed with solid professional arguments and research, the caring aspect of nursing can be important.

Maximizing specialties

The substantial and potentially calamitous problem of global climate change demands unified attention not only from health sectors and professions as wholes,[38] but also from all their internal specialties and fields. Each may tailor its responses to make a unique contribution through its core services.[23] The resulting range of activity creates opportunities for greater momentum and traction in combating climate change. In nursing, five types of specialty or sub-field can be identified (figure four).

Nursing's response to climate change must first reflect its specialization in, and contribution, to specific sectors of overall health systems. Whether these be primary health care, community health, public health, or others, nursing locates differently in each, has different interpersonal interactions, power bases and can hence do different things. One could imagine, for example, school nurses educating children and youth on environment and health. Second, nursing has established specialist interests in specific client and demographic groups (whether this be through gerontology, pediatrics or others), and possesses knowledge about their and their families specialist needs and circumstances. This expertise should be used to ensure that the circumstances of different groups are addressed and information is dispersed most widely. A third division in nursing is based on distinct health conditions and types of medicine (for example palliative care, oncology, cardiology, general surgery, intensive care). Here valuable connections can be made by nurses between climate, certain conditions, their prevention and treatment. Fourth, nursing is an incredibly diverse job category both in terms of breadth and levels of seniority. Whilst a clinical nurse specialist might educate ward staff on environmentally-friendly practice, a manager might adjust unit-level spending to address a particular environmental issue. A chief administrator/director, on the other hand, might lead institutional scale environment initiatives and also be involved at the level of local government and planning. In addition to the conventional categories described above, many other group identities and cohesions exist in nursing around specific empirical or theoretical interests. These, for example are as diverse as 'technology', 'policy', 'bio-ethics', 'medical devises', 'risk', 'knowledge translation', and are assisted by specific literatures, meetings and organizations. Again, great potential lies within each to tailor responses to climate change. Finally, climate change needs to be integrated into the education and training, both of health professionals themselves, and their subsequent educating of target communities.[39]

In sum, nursing must closely link with other professions and sectors to maximize national and international mitigation and response efforts on climate change.[38] Nursing however is far from a single uniform profession. The profession's response to climate change must be as diverse as the sector itself, and come from all quarters.

Prioritizing places

Climate-related health problems exist and impact differently around the globe. The health issues facing the United States for example, are different from those facing Europe, which again are different to those facing Asia-Pacific. These are critical geographical contexts which determine the nature of the professional response.[23,31,40] Although it is understandable that nurses will naturally focus the majority of their environmental efforts in their own countries, there is still a need to recognize that environmental change will be most aggressively felt in Southern Africa.[23] Greater elaboration on the complexity of the situation on this continent shows how one health problem roles into another.

Climate change in the future will intensify drought in Africa, reducing agricultural productivity there and causing famine. In addition to the direct health impacts of this on morbidity and mortality, a lack of food will exacerbate pre-existing health problems. For example, HIV/AIDS research tells us that that successful antiretroviral treatment depends on the consumption of nutritious food.[41] People in these areas will therefore face even greater challenges and threats to their health. Moreover, health agencies could end up spending ever great proportions of their resources on food, decreasing their ability to address other health issues.[23] Ironically, in both Europe and the United States, good cropland is being turned into corn and soy for the production of biofuels to reduce the discharge of carbon. However land taken out of food production further damages the prospects for sufficient food for vulnerable populations in Africa.[23]

Another crisis facing Africa is that of environmental refugees following drought and famine. There lies the potential for the movement of millions of people, particularly out of Southern Africa northwards.[22] The health of these people will undoubtedly suffer further during their migration, and increase

the incidence of disease. In the regions to which they move, their presence will increase pressure on already inadequate and under-funded health systems.[23] Migration however, is not exclusively a human activity. Patterns have already been identified of malaria-bearing mosquitoes moving to regions previously uninfected.[22,27] Given such dire situations, nurses based in the developed world need to recognize that although domestic considerations are a priority, the world contains places of unequal need that must be assisted through international responsibility and outreach.

More generally, beyond Africa, place needs to be recognized as a fundamental and important consideration. Issues arise for example as to how climate change impacts health differently in different neighborhoods, cities, towns, rural localities, natural regions and politically defined areas. A far greater geographical awareness must drive place-specific professional responses.[40,42]

Public scholarship

Nursing requires a dedicated field of research to support its environmental activity. In this endeavor, two issues come to the fore. The first regards scope of methods and perspectives. It is widely acknowledged that nurses need to base their decision- making on the best available published evidence. Just as this is true for familiar clinical decisions and contexts, the same holds for decisions made in response to climate change.[23] As mentioned above, whilst hard science can mount compelling arguments to prove the reality of climate change and how it might impact on health, one must also remember that beyond the scientific measurement and explanation of such phenomenon, climate change has deep social complexity; meaning that it has social causes, effects and solutions.[43-44] Mirroring this social complexity, social science must play a far more central role in evidence and debate.[23]

The second issue regards the politics of research. Some social scientists have recently argued that their disciplines have become 'theory obsessed', ever more obscured from everyday life in the creation of specialized knowledge, and have thus allowed a gap to grow between inquiry and the big issues of the day.[45-47] Moreover, scholars also agree the quest for increasing depth and complexity of analysis has been paralleled by the emergence of an academic performance culture whereby the university has become a company with private sector management styles, and academics have become obsessed with and/or required to engage with corporate processes and procedures.[45] This leaves little time for building activities and interests that would be perceived to lie 'outside' the formally assessed features of an academic job. As Burawoy comments:

> "the original passion for social justice, economic equality, human rights sustainable development, political freedom or simply a better world, that drew us to sociology is channeled into the pursuit of academic credentials. Progress becomes a battery of disciplinary techniques, standardized courses, validated reading lists, bureaucratic rankings, intensive examinations, literature reviews, tailored dissertations, refereed publications, the all-mighty CV, the job search, the tenure file" (p260).[45]

In the face of these developments, scholars argued for 'public sociology' and 'public geography', that involve not only the study of important world issues, but see social scientists as activists working with community groups, non-governmental organizations, and public sector workers, to foster more dialogue and mutual education.[45-47] Researchers might join with political action (outlined above under tactics) or otherwise make their research more accessible to a wider audience. This might involve, for example, occasional changes to a simple and open writing style, the publication of research in a wider-range of venues including the internet and other popular media forms, and public talks, debates and dialogues. Although we acknowledge that nursing might not have lost touch with public issues in the same way as some social sciences might have, we argue that it might learn from the public social science debate. In the face of climate change, it is time for nursing research to take a stand, to make and popularize strong convictions on the subject.

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