Title: Nursing and the barriers to sustainable healthcare: an international review of the literature

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Abstract

Objectives: global warming poses a serious threat to human health yet healthcare organisations and staff have been relatively slow to engage with sustainable healthcare practises. This review of the literature seeks to frame what is already known about nurses and their views on global warming and sustainable healthcare. **Design:** eleven primary research papers were sources from a search of five mainstream databases. These papers were subject to a basic thematic analysis. **Results:** six themes were identified: Sustainability; Endemic Blindness to Global Issues; Environmental Numbness; Social Norms; Priority Assigned to Sustainability, and; Psychology of Responsibility and Blame. **Conclusion:** from the literature reviewed it is clear there are a number of social, cultural and psychological barriers which have led to widespread inaction. This article recommends further research to understand the psychological barriers in more depth as this is a poorly understood area.

Introduction

According to Watts et al (2015) the potential ramifications of global warming to human health could be catastrophic, with up to 250 000 additional deaths associated with global warming between 2030 and 2050. Tackling global warming is now a priority for the 9 billion inhabitants of earth. Despite the development of the 17 United Nations Sustainable Development Goals (UN, 2015), and, the COP21 Paris Agreement (European Commission, 2016), which was the first ever legally binding climate deal agreed by 195 countries, action on climate change remains slow. The Intergovernmental Panel on Climate Change (2014) warn that without extreme mitigation there will be irreversible effects on humans and ecosystems, therefore it is necessary for all governments, organisations and individuals to recognise the need for collective action.

Due to scale of healthcare within the United Kingdom (UK) it is unsurprising that the National Health Service (NHS) has an annual production of 22.8 million tonnes of carbon dioxide, emissions are attributed to activities such as procurement, building energy use and travel (Sustainable Development Unit, 2015). The NHS contributes significantly to overall UK emissions and is paradoxically contributing to ill health. Within global healthcare, the nursing workforce account for a significant subset of the population, and it is recognised that the 314 966 nurses in practice in 2015 (NHS Confederation, 2016) are in a strong position to influence sustainable practice. Despite the size of the nursing population there is little empirical research exploring nurses perceptions of global warming, therefore, this paper seeks to summarise existing literature to frame nurses (and other front-line healthcare professionals) perceptions of global warming.

Design

The search process began with mind-mapping a number of key words and sequences, various combinations were tested within Google and also within a randomly selected database (British Nursing Index). This exploration of key words, truncation and Boolean operators was practised to ensure that the final key words and their sequence was appropriate and produced maximum results. Three sequences were selected: Nurs* AND climate change OR global warming; Nurs* AND sustainab*; Environmental Sustainability AND Health.

Five databases were selected for this literature review: Cumulative Nursing and Allied Health Library (CINAHL); British Nursing Index (BNI); Applied Social Sciences Index and Abstracts (ASSIA) and Medline. Most search sequences initially returned a high volume of results, therefore filters such as 'title only'

and 'peer reviewed articles' were applied. Once filters were applied, a manual search of titles was performed, this exercise was extremely useful and allowed the inclusion and exclusion criteria to be applied (Table 1). Reasons for exclusion were as follows: lack of relevance; duplicates; alternative use of the word 'climate'; sustainability pertaining to survival of new initiatives / service development. It quickly became apparent that there was a lack of primary research exclusively examining nurses, therefore the inclusion criteria was expanded to studies that included nurses and other health professionals.

Table 1: Inclusion and Exclusion Criteria

Inclusion	Exclusion
Primary Research (quantitative, qualitative and mixed method research) Theoretical Research (concept analyses and systematic reviews) English language Peer reviewed, journal articles Non-nursing professionals	Narratives / commentaries Non-English language Non-peer reviewed / unpublished Research evaluating services / initiatives All papers that refer to a 'climate of change'

During the initial scanning of the titles phase 31 papers were referred to the next stage, which involved reading the abstracts. At this stage it became apparent that a lot of the papers were not research (papers included: professional practice papers; articles; special features; continuing professional development; and editorials) and 19 were excluded on this basis. These articles did however prove a useful insight and were set aside for supplementary use. This resulted in 12 articles selected for inclusion within this literature review: four qualitative; three quantitative; one mixed method; three concept analyses; and one systematic review.

The four qualitative papers included within the literature review were critically assessed using the Critical Appraisal Skills Programme: Qualitative Checklist (CASP, 2013). The checklist is designed to assist researchers to make sense of evidence and to select the most credible qualitative studies which is an essential stage of any systematic review (Aveyard, 2010). A scoring system was implemented to ensure a transparent approach to quality and rigour. As a result of the critical appraisal process one article was excluded due to lack of methodological detail. Of the 11 articles selected, each was read initially to check content and suitability, each article was then re-read to allow themes to emerge. These were colour coded and the prevalence of themes within each paper can be seen in Table 2.

Table 2: Prevalence of Themes in Articles Reviewed

	Themes

		What does sustainability mean?	Endemic Blindness to Global issues	Environmental numbness leading to inaction	The power of social norms	Priority of sustainability for front line staff: home versus work	Individual and social barriers / Psychology of Responsibility and Blame
Anaker, A. Elf, M. (2014)	CONCEPT ANALYSIS	X		X	X		
Anaker, A. Nilsson, M. Holmner, A. Elf, M.(2015)	QUALITATIVE	X	X	X	X	X	X
Charlesworth, K. (2012)	MIXED METHOD		X	X	X	X	
Dunphy, J. (2013)	QUALITATIVE	X	X		X	X	X
Dunphy, J. (2014)	QUALITATIVE		X	X		X	
Grootjans, S. Newman, S. (2013)	CONCEPT ANALYSIS	X	X				
McMillan, K. (2014)	CONCEPT ANALYSIS	X	X			X	
Nichols, A. Richardson, J. (2009)	SYSTEMATIC REVIEW					X	X
Polivka, R. Chaudry, V. Mac Crawford, J. (2012)	QUANTITATIVE		X	X	X		X
Richardson, J. Grose, J. O'Connor, A. Bradbury, M. Kelsey, J. Dorman, M. (2015)	QUANTITATIVE		X			X	
Richardson, J. (2016)	QUANTITATIVE	X			X	X	

Results

The literature review identified 6 key themes: 1) Historically, the word sustainability was associated with money and service longevity, although an emerging focus on ecology is documented within nursing literature, despite this there is confusion as linguistic camouflage hides the true meaning (Anåker and Elf, 2014). 2) There was a strong sense of disconnect between local actions and global consequences with many healthcare professionals demonstrating a moral disengagement to the effects of AGW on developing countries (Grootjans and Newman, 2013). 3) Many physiological barriers to action were identified, including cognitive dissonance, denial, fatalism and bystander effect (Dunphy, 2014). 4) Social identity and social norms revealed a strong correlation between the desire to be socially accepted and the widespread silence on the topic, with fear of being ostracised or entering a politically emotive topic cited as a major barrier to engagement (Polivka, Chaudry, Mac Crawford, 2012). 5) The level of priority assigned by healthcare staff to sustainable healthcare was suggestive that due to the emotional demands of the job, staff perceived that they had little emotional resilience left for environmental issues (Dunphy, 2013). 6) Individual and social barriers were associated with an externalisation of blame, with lack of leadership, inaction of others and self-exoneration all cited as reasons for a lack of engagement (Anåker, Nilsson, Holmner and Elf, 2015).

'Sustainability'

When examining definitions of sustainability Anåker and Elf (2014) identify two socially acceptable usages, the first pertains to something to survive over long periods, and the second pertains to

something that survives over a period of time while promoting ecological resilience. These definitions set forth a traditional view of the term and then latterly a more modern interpretation with a fundamentally different focus. The modern definition of the word 'sustainability' is favoured within this review due to the ecological consideration. Despite the modern definition, Dunphy (2013) suggests that 'sustainability' is ill defined within healthcare and McMillan (2013) recognises the ambiguity and lack of clarity may stifle the ability of nurses to engage with sustainable healthcare.

This ambiguity has led to a number of concept analyses, each seeking to define sustainability within nursing. Grootjans and Newman (2012) offered a framework for sustainable nursing knowledge including: ecology of health, thinking globally, and health promotion, encouraging nurses to act locally and think globally. McMillan's (2013) concept analysis followed, however due to the complexity of sustainability she was unable to clarify the concept. Anåker and Elf (2014:387) to date have the most coherent definition and suggest that:

"*The concept of sustainability in nursing can be defined from a core of knowledge in which ecology, global and holistic comprise the foundation. The use of the concept of sustainability includes environmental considerations at all levels. The implementation of sustainability will contribute to a development that maintains an environment that does not harm current and future generation's opportunities for good health*".

Whatever terminology used there is a call for shared language across the sector and beyond (Dunphy, 2013). The language chosen must safeguard the balance between economic and ecological sustainability, and recognise the position of nurses to influence change.

Endemic Blindness to 'global' issues

The nurse of the future is one who can make links between local actions and global consequences, proactively contributing to sustainable healthcare (Goodman, 2011). Therefore, the challenge presented to health professionals is to develop global thinking at all levels (Kirk, 2002). Nurses have fought for social justice, however paradoxically, despite this deep and meaningful interest in the welfare of the patient there is little consideration for people beyond the immediate care context (Grootjans and Newman, 2012). Grootjans and Newman (2012) describe an 'endemic blindness' to global issues which is not associated with lack of care, but with a poor appreciation of the 'interconnectedness of our planet' and how local actions impact upon global issues.

Anåker et al (2015) found Swedish nurses understood local environmental issues and made conscious decisions to prioritise the environment closest to their patient, for example; maintaining comfort, safety and hygiene. Consideration of global warming from a global perspective was not seen as important within care and emphasis was placed upon environmental issues within the ward and hospital (Anåker et al, 2015). Kirk (2002) describes this egocentric focus, suggesting that nursing models have focussed on the immediate environment neglecting global thinking. Despite an awareness of the importance of thinking globally senior nurse academics felt the immediate care should come first, followed by the local care environment, with a global perspective remaining on the periphery of nursing (Kirk, 2002).

In contrast nurses in the United States (US) are more likely to consider global warming as a global issue (Polivka et al, 2012) and Bandura (2007) explores the disconnection between local actions, global warming and the consequences for developing countries. He suggests that through a complex process of 'moral disengagement' individuals are overwhelmed by the comfort of modern living, which

outweighs the remote effects of global warming (Bandura, 2007). He goes on to explain that all the time standards of living maintained, there is little motivation to question the impact of such lifestyles. Polivka et al (2012) found that 19% of Nurses surveyed believed there were no health issues in the US as a result of global warming; it is unclear if this is based on genuine ignorance or literal denial (Cohen, 2001).

In Australia, Dunphy (2014) found healthcare professionals struggled to make connections between local actions and global implications, stemming from feelings such as disconnection and disempowerment. The implications of global warming for many developed countries presents issues so distant and removed in space and time the perception of threat is minimal (Lorenzoni et al, 2007). There is an instinctual drive to focus on immediate issues that pose a threat to the individual, leading to passivity due to an inability to comprehend the abstract threat and an incapability to identify with those experiencing the plight of global warming (Cohen, 2001).

While there are no empirical research studies exploring nurses' perceptions of global warming within the UK, some examine sustainability in the NHS. For example, research by Charlesworth et al (2012) suggests systemic issues within the NHS perpetuate introspection and prevent global thinking. They describe the reactivity of the NHS, responding to issues with short term solutions. Dunphy (2014) suggests current healthcare systems have created target driven cultures disconnected from values and inhibitive of global thinking.

There is a growing need for nurses to understand the effects of global warming on their local community. Imagery containing far-removed ice-caps and polar bears perpetuates the sense of distance (Bandura, 2007), and bombardment of shocking headlines leads to people evading and switching off to messages (Cohen, 2001). Therefore, contextualising global warming to local settings is imperative so that nurses understand the local impact (Lorenzoni et al 2007). In addition to this, it is of increasing importance that nurses appreciate the impact global warming and consumptive behaviours are having on developing countries. There is also a need to take this knowledge and translate into more sustainable practices, which in light of current pressures on nurses poses a significant challenge.

Environmental Numbness

Individuals disempowered to change can appear indifferent to environmental problems (Dunphy, 2014) which can create a sense of 'environmental numbness'. This is known as implicatory denial whereby there is acceptance of reality but a denial of the impact of that reality (Cohen, 2001). Despite consensus amongst climate experts that global warming is a real threat, there is mainstream inaction and this ability to compartmentalise is a form of Cognitive Dissonance (Festinger, 1962), whereby risk is separated from normal everyday values. Cognitive Dissonance may be particularly relevant to nurses who are caring and compassionate yet participate in work that contributes to global warming, for example, the use of disposable plastic items and incineration of hazardous clinical waste. There are three means to resolving cognitive dissonance: attitude or behaviour change; internal exile (avoiding conscious thoughts); and the distortion of information (drawing upon culturally approved denials). Changing attitude and behaviour is the hardest, leaving internal exile and distortion of the truth as favourable options (Cohen, 2001).

Bandura (2007) discusses 'moral agency' whereby individuals apply a complex series of judgements and self-regulatory systems to the way they behave. Actions are governed by moral standards on a personal and societal level that serve as a guide to inform behaviour. However, Bandura (2007)

describes a series of mechanisms whereby moral standards can be selectively disengaged, for example, the so called 'negative effect of caring' (carbon emissions) is cognitively reconstructed to become righteous and socially acceptable (to deliver an essential health service).

Anåker and Elf (2014:386) found that 'confidence in the future and willingness to change' were key elements to sustainable development, without which nurses have little hope of creating a sustainable profession. Lorenzoni et al (2007) found that a resignation to the irreversibility of global warming was a significant barrier to engagement and may link to passivity and learned helplessness (Moreland et al, 2015). Fatalism and resignation may be associated with the 'bystander effect' where the bystander may either ignore the situation, underestimate their responsibility to act or distort the seriousness of the situation (Latané and Darley, 1969).

Social Norms

Professional identity in nursing is a complex social activity, strongly influenced by group behaviour, sense of belonging and inter-group relationships (Willetts and Clarke 2014). Traditional nursing models have sought to create a systematic approach to nursing, thus strengthening conformity to a professional identity; however, these models can be highly restrictive, creating a practitioner prone to compartmentalised thinking and unwillingness to think about sustainable healthcare. Dominant 'professional paradigms' may stipulate the purpose of a profession inhibiting freedom of thought, moulding professionals to fit a certain group identity (Dunphy, 2014).

To align with professional paradigms nurses may deploy 'emotional convergence', affiliating emotions and strengthen social bonds, ensuring a strong disciplinary identity (Dunphy, 2014). Nurses in the US avoided topics pertaining to global warming due to political controversy (Polivka et al, 2012), and Dunphy (2014) found health professionals avoiding global warming due to fear of ostracism, lack of understanding, experience and authority on the topic. Boswell et al (2004) describe a pandemic nursing apathy towards politics supressing any actions deviating from social norms. Lorenzoni et al (2007) found the UK public perceived 'green living' as undesirable and labels such as 'weird' and 'hippy' were assigned. High profile cases of ostracism include Al Gore the 'o-zone man' and Prince Charles the 'loony eccentric Prince who talks to plants', and results in widespread silence on the subject (Bandura, 2007).

Charlesworth et al (2012) identify the notion of 'moral offset' as a barrier to action on global warming. Moral offset is the belief that the good associated with their professional lives cancels out their own carbon footprint. Therefore, it could be argued that nurses exercise moral offset towards global warming, which is justified because of the 'good' that is done towards their patients overrides the harm that is done through healthcare (Anåker et al, 2015). Moral offset links to a sense of 'cultural denial' whereby society slips into a collective state of denial (Cohen, 2001).

Priority Assigned to Sustainability

Anåker et al (2015) conducted a qualitative study of nurse's perceptions of climate change and found that within pressurised care settings environmental sensitivity was simply not a priority. Nurses described themselves as being 'reactive' to the patient's needs and primarily focused on saving lives (Anåker et al, 2015). Charlesworth et al (2012) found that despite public health registrars' desire to incorporate sustainability into their day-to-day work there was a lack of engagement. They drew

conclusions much the same as Anåker et al (2015) and Dunphy (2013) citing time, demands of the job and a reactive culture as factors that inhibit engagement.

Due to the emotional and physical effort of caring, nurses often felt that they did not have the time or energy to consider environmental issues (Anåker et al, 2015). This is consistent with 'Attentional Resource Theory' which details the finite human capacity for attention, and the need to assign attention according to priority (Cohen, 2001). Mitchell (2013) suggests the success of any change is based on individuals' willingness and motivation to act as 'change agents', and stressful environments whereby staff are depleted of emotional resilience are not always conducive to change. This is counter argued by Jackson et al (2007) who suggest despite the stresses of contemporary healthcare many nurses choose to remain and thrive within the job. If nurses have already demonstrated an ability to adjust to the hardship and emotional labour of caring then the potential to positively adapt to environmental issues is promising and 'hardiness and resilience' can be learned (Jackson et al, 2007).

A lack of engagement towards environmental sustainability at work is not always reflective of an individual's values at home (Dunphy, 2014). In the Australian study it was apparent that participants took more environmental action at home than within their professional lives, often separating out their opinions/values depending on the setting (Dunphy, 2014). Environmental behaviour was directly linked to the perceived ease of adopting that behaviour, for example, high engagement with minor lifestyle changes at home, but a reluctance towards major investment (time or money) (Dunphy, 2014).

Psychology of Responsibility and Blame

The final theme was around social barriers and the externalisation of responsibility for action on global warming. Dunphy (2013) found that one of the most basic barriers was the lack of visibility of environmental sustainability within Australian healthcare policy. Dunphy's (2013) study participants described the lack of strategic objectives and absence of explicit reference to environmental issues. This is of particular interest when reviewing the current NHS England (2015) 'Vision and Purpose', which does not refer to the preservation of local or global environments and only refers to 'public resources'. The vision goes on to explain that 'public resources' means not only money but 'people, knowledge and skills', which does not capture the importance of environmental resources.

While it is important that organisations have clear corporate plans on global warming, the absence of such plans could be a convenient excuse for nurses. This 'externalisation of responsibility' is present within the general population, and denial of personal responsibility and blaming large organisations and governments was commonplace according to Lorenzoni et al (2007). Milgram (1974) explored the concept of obedience and found that subordinates, for example nurses, will simply obey the authoritative figure such as healthcare management. This self-exoneration occurs when individuals free themselves from any fault and attribute blame to others. McMillan (2013) stresses that the success of sustainability is dependent on stakeholders at all levels working towards shared goals, and if one organisational level disengages then change will not occur (Mitchell, 2013). Lorenzoni et al (2007) suggest that when certain individuals or organisations are disengaged a concept known as the 'free-rider effect' can inhibit the motivation of others. Therefore, within nursing there may be a widespread inaction that is self-perpetuating, the free-rider cycle needs to be broken in order to motivate individuals into action.

Discussion

The literature review identified confusion around the word sustainability, a disconnect between local and global actions and consequences; psychological barriers to action; social barriers to action; individual and collective barriers to action; and a conflict of priorities in care delivery with sustainable healthcare featuring as a low priority.

A limitation of this study is the lack of specific nursing research. This literature review has included research involving other healthcare disciplines and those views may not be representative of the nursing profession. In addition, many studies were conducted outside of the UK and there is recognition that cultural and organisational differences may not be reflective of UK healthcare setting. Therefore, further research is needed to understand the perceptions of nurses within the UK.

According Muñoz (2012) nurses have a special contribution to make to mitigation of AGW as the largest group of healthcare staff, consuming vast amounts of resources and producing a vast amount of waste. Fitzpatrick (2010) recognises the significant impact that nurses could have over healthcare associated AGW through influencing organisational development, procurement choices and responsible management of resources. Polivka et al., (2012) suggest that a sense of professional responsibility towards AGW can be achieved through nurse education and also through continuing education for qualified staff. Richardson et al., (2016) and Goodman (2011) have successfully placed environmental sustainability on the undergraduate nursing curriculum agenda but the education of qualified staff has received less attention and is a key research priority according to Richardson et al., (2015). In order for any future education for qualified nurses to be effective it is imperative to understand what nurses think about healthcare associated AGW and environmental sustainability. Without such knowledge, educational initiatives and subsequent service changes may be futile as they fail to frame the subject appropriately.

Anåker and Elf (2014) identify the lack of literature available on sustainability within nursing and while Anåker et al., (2015) offer a comprehensive qualitative exploration of nurses' perceptions of climate and environmental issues it is limited to Sweden and it is important to consider cultural differences and the application to a UK setting. From the literature reviewed it is clear that there are a number of reasons cited as to why nurses do not engage in environmentally sustainable behaviour, the most obvious physical barriers being time and lack of perceived level of priority within busy clinical areas. It is unlikely that these physical barriers will change significantly given the ever increasing UK population and the respective budget. Therefore, it is important to understand the perceptual barriers in more depth as this is an aspect that may be changed. The literature revealed a series of irrational or maladaptive strategies that may be used to cope with the cognitive dissonance created by AGW such as denial, personal exemption and social exemption. These psychological mechanisms or 'mental manoeuvres' can be seen as tactics to reduce the dissonance and create a state of cognitive consonance, and the outcome is widespread inaction towards healthcare associated AGW.

One possible contribution to this widespread inaction is the lack of strategic direction and to date the support for nurses to become more sustainable has been sporadic. The World Health Organisation (WHO, 2017) have an extensive website making cogent links between the carbon footprint of healthcare and the impact on human health. The National Institute for Health and Care Excellence (NICE, 2017) have health protection guidance on topics such as air pollution and extreme weather, all of which include guidance for health professionals. In addition, the UK Health Alliance on Climate Change (2016), consisting of 15 professional bodies including the Royal College of Nursing and the British Medical Association, produced a report identifying six key steps to tackling climate change, one of which was around the role of health professionals to take local action. The presence of all of these

organisations in practice, in the real world, is questionable, and these actions may have little value if there is no active promotion of the information or a campaign to raise awareness. Until such a time when there is a national campaign, that is visible in practice, nurses must face this issue with minimal support.

Conclusion

From the literature reviewed there are a number of barriers to engagement with global warming and environmental sustainability. There appears to be widespread inaction that is disproportionate to the size and potential influence that the nurses could have on environmental sustainability. There is a lack of global thinking and a lack of appreciation for the interconnectedness of local actions and global consequences. There is disconnect between the values exhibited at home and at work, with situational constraints such as time, energy and resources preventing nurses from being ambassadors for environmentally sustainable healthcare. There are established social norms and professional paradigms that are blocking the adoption of new ways of thinking and working. Despite the overwhelming evidence of global warming and potent messages urging mitigation there is little acknowledgement of the importance of this topic within the field of nursing. Further research is essential to appreciate the challenges, barriers and practicalities of creating a more sustainable healthcare.

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