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Introduction

The United Nations (UN) Climate Change Conference, commonly referred to as COP28, is being convened in November 2023 in the United Arab Emirates (UAE). Although this is the 28th, it is the first time that health impacts will be directly represented. The World Health Organization (WHO) will host a pavilion on-site and five key priorities will be presented. These are: Health impacts of climate change; Health benefits of climate mitigation; Climate resilient low-carbon health systems; Adaptation for health; and Action for health, relief, recovery, and peace.

COP28 acknowledges the reality that climate change is the biggest global threat to public health and humanity [1]. The hottest temperatures on record were recorded this year [2], and eight of the previous ten years have been the hottest on record [1, 2]. Consequently, we have seen alarming melting of Antarctic ice sheets [2, 3], as well as devastating floods and extreme weather events [3, 4]. Many predictions and modelling scenarios from climate scientists from decades ago are being realised [5]. Climate change affects health directly due to extreme weather events and air pollution, and indirectly due to food and water insecurity, intensifying the spread of disease, health inequality and triggering community displacement [6]. But we believe that midwives should also focus on climate change, a link which has been underexplored.

Background

Birth rights are human rights, i.e. every woman has the right to a safe birth attended by a skilled birth attendant. However, these rights are under threat throughout the world, exacerbated by armed conflicts and the effects of climate change, displacement of communities and consequent lack of healthcare. For example, a Sudanese woman explained her experience of childbirth to the BBC world news:

> *I delivered it on the road. There were no midwives and no-one to support me. Everyone was thinking of themselves. Everyone was running to save their lives…. the baby got out, I wrapped it up. I didn't think of anything else. I continued walking to Adré [7].*

Women and children are amongst the most vulnerable to the effects of climate change [8-10]. Exposure to high temperatures in pregnancy is linked to adverse birth outcomes such as miscarriage [11], congenital birth defects [12], low birth weight, stillbirth, and preterm birth [13, 14]. There is also evidence of extreme temperatures affecting behaviours and mental health, although the mechanisms are less understood [15]. Some possible mechanisms for these outcomes include dehydration, reduced placental blood flow, and inflammatory responses [16]. People living in vulnerable situations are becoming increasingly exposed, with children in their first year of life experiencing 600 million additional person-days of heatwaves from 2012–2021 [17]. Additionally, other predicted climate change related phenomena, such as food and water insecurity [18, 19], a rise and movement in infectious diseases [15], and conflicts and related displacement of communities [20], will also contribute to the increase in poor maternal and neonatal outcomes. People in low-income countries are particularly at risk due to poverty, poor sanitation, and poor-quality housing, in addition to high rates of infectious diseases, malnutrition and non-communicable diseases, often in the context of weak health systems [20].

In this context, it is necessary to have clear strategies for how healthcare providers can respond to extreme heat, rainfall, or drought [20, 21]. Pregnant women have greater challenges with thermoregulation [15] so ways to help reduce exposure to heat or smoke are vital [16]. Other considerations surrounding family planning methods are necessary; for example, condoms are subject to damage in extreme heat, so understanding how to adapt procedures to limit damage and subsequent poor birth control is important. However, while it is clear there is a need to strengthen health systems response to these shifts, some authors feel that, unlike the previous Millenium Development Goals, the 17 SDGs do not directly consider the impact of climate change and heat waves on pregnant women, the fetus, and neonate [21]. They suggest that there is a lack of evidence in relation to specific public health and clinical strategies required to improve public health and reduce heat-related risks to mothers and babies [13]. We call for more research to understand these links.

Midwives and Climate Change

There have been urgent calls for investment in midwives to contribute to the realisation of the United Nations (UN) Sustainable Development Goals (SDGs) [20]. The ongoing role of

midwives at a national and international level can make a measurable difference in addressing urgent issues such as the climate crisis through enhancing research capacity and the creation of trans- and multidisciplinary teams that can define problems and appropriately designed studies — suggestions which have been emphasised by midwifery leaders [20]. In a global workforce crisis, and as a response to climate change, investing in more midwives to provide this leadership is essential [20, 22].

Health is challenging to achieve in the context of war, violence or forced mass displacement (SDG 16), when the main focus moves from maintaining health to survival [20]. Midwives can contribute to achieving the SDGs by restructuring their work so that they utilise the full scope of their practice and skills. This would empower them in the field of environmental health, climate change mitigation, adaption and beyond so that they can respond at an individual and collective level [6]. From a strategic point of view, midwives must be involved in planning for public health emergencies which are likely to increase due to increased temperatures, extreme weather, spread of disease, food insecurity, supply chain demands and displacement of communities.

In recognition of midwives and other healthcare professionals being included in the agenda for COP28, we urge further study on necessary changes to their work (*mitigation* strategies) and adjusting to changing conditions due to climate change to reduce risk and promote resilience (*adaptation* strategies). This builds on commitments made at COP26, where 50 countries committed to developing healthcare systems that were climate-resilient (adaptive) or low- or net-zero-carbon (mitigative) [17]. However, as well as these adaptive strategies, the carbon footprint from healthcare organisations needs addressing to help mitigate.

Emissions from the healthcare sector have been growing in recent years, with a greater than 5% increase from 2018–2019; they are now above 5% of total global greenhouse gas emissions [17]. Consistent with the ethical duty of professionals to avoid harm to health, climate change mitigation strategies involve the reduction of greenhouse gas emissions and, in the context of midwives, may include reducing waste, materials and energy. Adaptation strategies in healthcare involve increasing resilience and decreasing vulnerability to encroaching climate impacts and may include changes in procedures, locations, and timing to try to lessen the threats that slow- and fast-onset climate changes present. Therefore,

midwives can make a difference at an individual level, by making small changes in day-to-day care — with an awareness of the need to reduce, reuse, recycle and reduce energy use.

Enhancing midwifery knowledge around high emitting practises will help to promote mitigation and adaptation strategies. For example, it is helpful for midwives, when advocating for breastfeeding, to explain that formula-feeding both generates more greenhouse gases, even in contexts where its production is facilitated by alternative energy sources like biogas [23]. More broadly, we know that the social model of care can be more climate-friendly than the biomedical model [24]. Using the social model, childbirth is viewed as a normal physiological and social event in life, contrary to risky perceptions via biomedical models which require high tech solutions [25]. Social models of care focus on the interdependence of everyday life and health such as the impact of the environment and health inequalities generally [25]. This model is complex and multi-dimensional and does not provide immediate solutions but encourages exploration at an individual level [25]. Overall, when birth is out of hospital, it requires less resources and may be more climate friendly. Thus, advocating and enacting midwifery may be considered key mitigation strategies.

The health benefits of commitment to climate action are well-evidenced. As one of the largest sources of greenhouse gas emissions, health services must be a part of the solution [26]. At the COP26 conference, 50 countries including Argentina, Fiji, Malawi, Spain, Ireland, the United Arab Emirates, the United Kingdom, and the United States of America committed to low carbon health systems [6, 26]. Of these, 14 set a deadline to net zero carbon emissions by 2050 [6]. The underpinning principle is that health systems must be resilient to the multiple impacts of climate change: emergencies, pandemics, extreme weather, and the warming planet, as well as increase in non-communicable diseases related to air pollution. Strengthening the health workforce is a key part of this response. Reducing carbon emissions and advocating for a just transition (meaning all communities, workers and social groups are brought along) is a priority. This need was echoed at COP26, when more than 45 million health professionals, representing two-thirds of the world's health workforce, signed a letter urging governments to take stronger action, noting that hospitals, clinics, and communities around the world are already responding to health harms caused by climate change [6].

Not only do midwives need to consider how practices contribute to ongoing and future climate change, we also need more research to understand how to respond to extant climate change and investigate the climate change knowledge, views and attitudes of midwives. In other words, we need to understand how healthcare professionals, in particular midwives, can adapt to a changing climate. While the effects of climate change vary from place to place [27], they generally involve more heat events and fewer cold events and more extremes of precipitation, with a common slogan that 'wet places get wetter and dry places get drier' although there is uncertainty about whether that will hold 'especially in subtropical regions'[27]).

Conclusion

Our planet is at a tipping point, on the brink of irreversible losses. Investment in and strengthening the scope of midwifery is vital to ensure future provision of evidence-based care of vulnerable populations in the anticipation of public health emergencies due to natural disasters and displacement due to climate change. Midwives can make critical contributions working together as equal partners as climate change is raised on the agenda at the upcoming COP28 meeting. We believe midwives have a professional and ethical duty to engage in climate action. We advocate for strengthening midwifery as a key component to address climate change and global public health and call on our readers to consider how the SDGs may be advanced for the survival of the planet.

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