



Upstream Perspective on Maternal–Child Environmental Health: Implications for Midwifery Practice

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Abstract

Maternal and child health outcomes are shaped by complex environmental, social, and policy-level determinants that extend far beyond individual clinical care. The upstream perspective emphasizes prevention through action on these structural and environmental factors. This paper explores the upstream determinants of maternal and child environmental health—including air pollution, water sanitation, occupational hazards, and climate change—and highlights the crucial role of midwives in promoting environmental justice and health equity. Integrating environmental health principles into midwifery practice is vital for advancing sustainable and holistic care for women and children.

Keywords: Maternal Health; Child Health; Environmental Determinants; Midwifery Practice; Upstream Approach; Sustainability

Introduction

Maternal and child health (MCH) represents a critical global priority, with environmental exposures contributing significantly to morbidity and mortality. Traditionally, healthcare responses have targeted downstream interventions—treating illness or modifying individual behaviors after exposure has occurred. However, the **upstream approach** shifts attention to the *root causes* of ill health embedded in the physical, social, and policy environments.

An *upstream perspective* considers how social inequities, environmental degradation, and policy decisions determine the health of mothers and children even before conception. For midwives—who often serve as the first point of contact in communities—this approach aligns closely with the holistic philosophy of midwifery care, which recognizes the interplay between body, environment, and society.

Environmental Determinants of Maternal–Child Health

Air Pollution

Air pollution is a major contributor to adverse pregnancy outcomes, including preterm birth, low birth weight, and stillbirth. Fine particulate matter (PM_{2.5}) can cross the placental barrier, affecting fetal growth and development. Research across Asia and Africa indicates that urban mothers exposed to traffic-related air pollution experience significantly higher risks of neonatal complications [3].

Midwifery role: Midwives can educate families about reducing indoor pollution, promote clean cooking fuels, and advocate for community-level air quality improvements.

Water, Sanitation, and Hygiene (WASH)

Poor sanitation and unsafe drinking water contribute to infections, anemia, and malnutrition among pregnant women and children. Access to clean water and hygiene facilities remains limited in many rural and urban poor settings, amplifying the risk of perinatal infections and neonatal sepsis.

Midwifery role: Midwives can support hygiene education, advocate for improved water access, and integrate WASH promotion into antenatal and postnatal care programs.

Chemical and Occupational Exposures

Women of reproductive age working in agriculture or industry are often exposed to pesticides, solvents, and heavy metals, which are linked with miscarriage, congenital anomalies, and neurodevelopmental disorders [2]. Occupational safety measures are often lacking in low-resource

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settings.

Midwifery role: Midwives can screen for occupational exposures, counsel on protective practices, and collaborate with occupational health professionals to safeguard maternal health.

Built Environment and Housing

The physical environment—including housing quality, ventilation, and access to green spaces—affects maternal mental health and infant well-being. Overcrowded and poorly ventilated housing increases the risk of respiratory disease, while lack of green spaces limits opportunities for stress reduction and physical activity.

Midwifery role: Community midwives can advocate for safe housing and engage with local authorities on environmental health initiatives.

Climate Change

Climate-related hazards such as heatwaves, floods, and food insecurity disproportionately impact pregnant women and children. The World Health Organization (2022) warns that climate change exacerbates maternal undernutrition and increases vector-borne diseases [4].

Midwifery role: Midwives should integrate climate resilience strategies—such as heat education, emergency preparedness, and nutrition guidance—into routine care.

Upstream Interventions and Policy Dimensions

Upstream action requires addressing systemic determinants of health—legislation, policy, and environmental governance. Policies that ensure clean air, safe water, waste management, and occupational safety are essential. Midwives can participate in policy dialogues, contribute to research on environmental exposures, and collaborate with multidisciplinary teams to influence public health decisions. The *International Confederation of Midwives (ICM)* advocates for midwives to engage in **environmental stewardship**, promoting sustainable practices in healthcare settings. Incorporating sustainability principles—such as waste reduction, green energy use, and environmental education—within maternity care aligns with global sustainability goals (SDG 3 and SDG 13).

Nursing and Midwifery Implications

1. Education: Integrate environmental health into midwifery curricula to build competency in identifying environmental risks.

2. Clinical Practice: Include environmental exposure screening in antenatal and postnatal assessments.

3. Advocacy: Engage with local and national policymakers to address upstream determinants of maternal and child health.

4. Research: Encourage community-based research exploring the links between environmental exposures and reproductive outcomes.

5. Collaboration: Work with environmental scientists, public health officials, and NGOs to develop sustainable maternal-child health interventions.

Conclusion

Adopting an upstream perspective on maternal-child environmental health expands the midwife's role from caregiver to advocate, educator, and environmental steward. Addressing the root causes of environmental risks—rather than only treating outcomes—can dramatically improve the health trajectory of mothers and their children. Midwives, through their trusted community presence and holistic practice, are ideally positioned to lead this change toward healthier environments and generations.

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