

A REVIEW OF THE IMPACT OF GREENSPACE ON FEMALE REPRODUCTIVE HEALTH OUTCOMES THROUGHOUT THE LIFESPAN

Miss Valerie Cai¹, Ms Alice Cornwell², Dr Laura Currin Salter^{1,3}
1. GKT School of Medical Education, King's College London, London, United Kingdom
2. Royal Horticultural Society, United Kingdom
3. Queen Elizabeth Hospital, Lewisham and Greenwich NHS Trust, London, United Kingdom



INTRODUCTION

A growing body of research has focused on the relationship between greenspace and health outcomes. Transdisciplinary discussions on the link between greenspace and improved health has highlighted three functions: ability of greenspace to reduce harm (ie. reduction in pollution exposure); restoring capacities (ie. physiological stress capacity); and building capacities (ie. facilitating social activity).¹

Studies have shown that exposure to greenspace has a significant positive impact on physical and mental well-being.² A subset of this research has focused on the impact of greenspace on female reproductive health outcomes, which includes perinatal health, fertility, and menopause. Understanding the effects of greenspace on female reproductive health outcomes is critical to inform urban planning and design strategies that can help promote the health and well-being of women across communities.

OBJECTIVE

A literature review investigating greenspace and female reproductive health outcomes. There emphasis on proposed biological mechanisms, as well as potential confounding variables.

DESIGN

Inclusion criteria were English language peer-reviewed works from diverse fields (e.g. urban planning, environmental research, sociology, biomedical sciences). Systematic reviews were included.

METHOD

Multidisciplinary literature databases were searched; truncated 8 December 2022. Keywords included: reproductive health + greenspace + women. Reference lists were hand-searched for additional resources. 25 included articles were appraised for their relevance and findings critically reviewed and thematically categorized.

RESULTS

Men and women use green environments differently, and this may result in gender-based health implications. Reviewed literature largely focused on the perinatal period and fertility. Multiple studies demonstrated a **positive association between greenspace and increased birthweight of term deliveries and decreased risk of small for gestational age infants**.³ Proximity to greenspace also provided **improvements in mental health** in the perinatal period.⁴ The relationship between greenspace and rate of preterm birth was inconsistent, with some studies reporting a small decrease in risk while others failed to replicate this.

In later reproductive life, greenspace exposure was associated with **increased ovarian reserve (measured by AMH), older age of menopause and a healthier diurnal cortisol**.⁵ It is hypothesized that access to greenspace lowers cortisol levels, resulting in higher 17 β -estradiol.⁶ Alternative hypothesis suggests that exposure to particulate matter <2.5 μ m induces ovarian injury and early menopause via the production of reactive oxygen species or systemic inflammatory response.⁷ Vegetation protects against this by removing particulate matter from the environment.

CONCLUSIONS

There is consistent evidence for an **association between greenspace exposure and improved outcomes in women's reproductive health**. Several studies reported that the **greatest positive effect** of greenspace were found in women of **lower socioeconomic groups** - making this an interesting way to address established health inequalities in obstetric and gynaecological outcomes. Significant methodological weaknesses were present in many of the studies, including observational design and failure to account for variables known to influence health outcomes. Plausible physiological mechanisms are presented, including influences on the hypothalamic-pituitary-adrenal axis and the expression of endogenous hormones. These which could form the basis of future research.

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