

**Preconception health in the workplace: An opportunity to support equitable access to
education**

Briony Hill*, Melissa Savaglio, Claire Blewitt, Kiran Ahuja, Pragya Kandel, Seonad Madden,
Andrew P Hills, and Helen Skouteris

*Corresponding author: Dr Briony Hill, PhD, Deputy Head, Health and Social Care Unit and
National Health and Medical Research Council Early Career Fellow, Health and Social Care
Unit, School of Public Health and Preventive Medicine, Monash University, 553 St Kilda Rd,
Melbourne 3004, Australia; e: briony.hill@monash.edu; ph: +61421012283

Ms. Melissa Savaglio, MPsyCh(Clin), Health and Social Care Unit, School of Public Health and
Preventive Medicine, Monash University, Australia; e: melissa.savaglio@monash.edu

Dr Claire Blewitt, PhD, Health and Social Care Unit, School of Public Health and Preventive
Medicine, Monash University, Australia; e: claire.blewitt@monash.edu

Dr Kiran Ahuja, PhD, School of Health Sciences, University of Tasmania, Australia; e:
kiran.ahuja@utas.edu.au

Ms. Pragya Kandel, MA, Health and Social Care Unit, School of Public Health and Preventive
Medicine, Monash University, Australia; e: pragya.kandel1@monash.edu

Ms. Seonad Madden, GradDip (Health Science), School of Health Sciences, University of Tasmania, Australia; e: seonad.madden@utas.edu.au

Professor Andrew P Hills, PhD, School of Health Sciences, University of Tasmania, Australia; e: andrew.hills@utas.edu.au

Professor Helen Skouteris, PhD, Health and Social Care Unit, School of Public Health and Preventive Medicine, Monash University, Australia; e: helen.skouteris@monash.edu

Abstract

Preconception health is a key determinant of pregnancy and offspring outcomes but challenges reaching people during preconception are frequently cited by health professionals. This paper highlights the workplace as an important setting for promoting equitable access to preconception health-related information and education to support optimal wellbeing before pregnancy. Workplaces can support equitable access to education and knowledge for preconception health: (1) due to the high engagement of reproductive aged women in the workforce; and (2) by reaching vulnerable or high-risk population groups who may otherwise face barriers to accessing preconception health information. Literature that explicitly investigates workplace delivery of preconception health promotion programs is scarce. However, workplace health promotion more broadly is associated with improved corporate competitiveness, productivity, and strengthened employee-employer relationships. Workplace health promotion activities may also address social determinants of health and improve employee wellbeing outcomes. The opportunity for workplaces to benefit from an increase in the bottom line makes workplace health promotion programs more attractive, but organizational support and stakeholder engagement are needed to facilitate the design and delivery of successful workplace preconception health education programs. Such programs have the potential to facilitate health gains for women and their families.

Keywords

Preconception health, education, knowledge, workplace, women's health

Despite the fact that preconception health has the potential to lead to better pregnancy and longer-term outcomes for mothers and their offspring,[1] preconception is not typically considered as a distinct life phase.[2,3] With low engagement by women in preconception healthcare, reaching women prior to conception to promote their health and wellbeing before and at the time of conception (often before awareness of pregnancy), has been a challenge for researchers and clinicians. Hence, other settings that afford the opportunity for preconception public health are needed. This paper highlights the workplace as a key setting to engage and target preconception women.

There has been a steady increase of workplace health promotion programs since the release of WHO's Global Plan of Action on Workers' Health (2008-2017) framework to link occupational health and public health.[4] There is now considerable research highlighting the positive impact of workplace health promotion programs, showing they improve employees' health and fitness and reduce absenteeism, presenteeism, insurance costs, compensation claims and increase productivity.[5-7] Importantly, workplace health behavior education also has the potential to improve employee wellbeing outcomes. For example, workplace health education on smoking behavior has been shown to be associated with improvements in health information-seeking behavior.[8] The overall aim of this paper is to demonstrate how and why the workplace can be instrumental in promoting equitable access to education to support optimal preconception health and identify gaps for future research.

Preconception health matters

Preconception health refers to the health of people (women, men, and people identifying as gender diverse) during their reproductive years, irrespective of whether they are planning for pregnancy or not.[9] For women, preconception health is a key determinant of short- and long-term pregnancy, maternal and offspring outcomes. In high-income countries, women living with overweight or obesity make up half of all women entering pregnancy, which substantially increases the risk of excessive gestational weight gain.[10,11] Obesity before pregnancy and excessive weight gain during pregnancy not only increase the risk of adverse maternal (gestational diabetes, gestational hypertension, pre-eclampsia and Caesarean section), and infant outcomes (macrosomia, and pre-term birth) for that pregnancy,[12-15] but also future health including later pregnancies, and their outcomes.[16] This exacerbates the risk of chronic diseases including diabetes, heart disease and certain cancers for the mother at later stages of life. Women who are underweight (3-6% in high-income countries) when they enter pregnancy are at a high risk of pre-term birth and small for gestational age babies.[15] Other factors including pre-pregnancy diabetes and hypertension also contribute to the risk of adverse outcomes.[17-20] Lack of physical activity and poor diet during the preconception period are associated with excess gestational weight gain, gestational diabetes,[21] development of cardiovascular disorders, hypertension,[22] and pre-eclampsia.[23] In addition, evidence suggests that other preconception lifestyle behaviors such as smoking, folic acid supplementation, and alcohol consumption are related to risk of neural tube defects, miscarriage, eclampsia, low birth weight, and preterm birth.[24-29]

In order to engage in preconception healthy lifestyle behaviors and avoid behaviors that are detrimental, women and their clinicians/practitioners need to have knowledge of both the

importance of these behaviors and how to change these behaviors. Knowledge is directly related to our ability to understand and thus perform the necessary thought processes to support behaviors. Hence knowledge (and education to improve knowledge) is a prerequisite to enable behavioral change to support preconception health.[30] Research to date suggests that knowledge of preconception health and health-related behaviors among preconception women is highly variable.[31,32] Perhaps contributing to this, general practitioners do not feel adequately skilled or have the time to deliver preconception care.[33,34] Further, only 13% of Australian primary health care nurses discuss preconception care routinely in practice because of barriers such as lack of time and knowledge.[35] Preconception health education is essential to improve societal knowledge with some general practitioners arguing that preconception health should be a public health issue.[33,34] In 2017, 70% of pregnant women in Australia participated in paid work.[36] Hence, leveraging the workplace to promote preconception health is one solution that offers an opportunity to improve women's health and wellbeing prior to conception.

The workplace as a setting to support delivery of preconception health education to employees

According to the World Bank [37] in 2020, 53% of the workforce in high-income countries were female, aged 15 to 64 years. In Australia,[38] over three quarters of women of reproductive age were in the workforce in 2020, with over 50% working over 35 hours a week.[39] Considering the proportion of women of reproductive age in the workforce and the amount of time spent at work (40-50% of the waking hours), the workplace has been identified as a novel and opportune environment to reach preconception women (and men/individuals who are gender diverse), deliver education and knowledge to employees

(e.g., health promotion programs), and promote employee health and wellbeing. Given that the majority of the population are engaged in the workforce,[37] interventions delivered in the workplace may have significant reach. This is important when considering preconception from a public health perspective, that is, including all people of reproductive age as preconception given the potential for a future pregnancy (whether or not planned). The life course perspective for preconception health is also relevant to workplaces, where the importance of preconception health for all is recognized, regardless of life stage.[40]

Leveraging the workplace for health education also supports the provision of information to key groups that may not normally be exposed to, or engaged in, organized health improvement efforts, for example, those who may not be frequently engaged in a clinical health setting.[41] Workplaces can therefore promote equitable access to health-related information and education, by reaching vulnerable or high-risk population groups, who may otherwise face barriers to accessing such information in other settings. This can include women without access to preconception healthcare, whether via lack of medical facilities (e.g., in rural or remote areas), lack of money to pay for healthcare, or lack of knowledge on the importance of seeking preconception healthcare.

In addition, workplaces have structures, practices and cultures in place that can be used to promote preconception health education. For example, streamlined approaches to communicating with and supporting employees can be leveraged to provide equitable access to health education and support employees to implement newly learned information.[42] Organizational policies can be used to promote preconception health (e.g., allowing use of sick leave for preconception health appointments), which can then be

communicated to all employees to provide implicit education on the importance of preconception health. Workplace cultural factors (e.g., breastfeeding and parent-friendly attitudes, work flexibility, provision of healthy foods at meetings, walking meetings) are known to contribute to employee health, lifestyle factors and psychosocial wellbeing[43,44] and hence can be leveraged for health education and promotion.

Benefits of preconception health education delivered in the workplace

Research increasingly recognizes the intersection between the health of a business, its employees, and the wider community.[45-47] The maternal and child health implications that arise from suboptimal preconception health may increase burden on health systems and amplify productivity costs for employers.[46,48] Organizations often facilitate access to health services and insurance, with a vested interest in advocating for the health of female employees.[45] As such, there has been substantial growth in workplace initiatives that seek to improve general health and wellbeing, decrease health care and productivity-related costs, and strengthen corporate competitiveness.[49] In 2018, 82% of large organizations and 53% of small employers offered a health or wellbeing program in the United States, representing an \$8 billion industry.[50] There is, however, an absence of literature that explicitly explores workplace outcomes related to an organization's focus on preconception health and knowledge.[48]

Workplace programs tend to address modifiable risk factors, such as nutrition, physical activity, stress, and smoking cessation[51-54] to alleviate healthcare costs and promote efficiency.[50] Investment in employee wellbeing and health promotion has been associated with improved corporate competitiveness and productivity,[47] strengthened employee-

employer relationships,[55] and may address social determinants of health such as income, job control and autonomy.[56]

While the majority of research has focused on understanding the benefits of improving knowledge and health on individual-level outcomes, evidence for organization-level outcomes is emerging and causal evidence of programs' effects on economic and workplace outcomes such as absenteeism, work performance and job tenure has been limited.[50,57]

For example, in a recent randomized clinical trial of a multicomponent workplace health program involving over 8,000 employees, participants who took part in the intervention reported greater improvements in health behavior compared to control group employees, however there were no differences between groups in levels of health care spending and utilization, and employment outcomes after 18 months. Given the program focused on behavior change, it is possible that improvement in workplace outcomes may follow.[50]

Other research suggests specific benefits for the employer, including a reduction of absenteeism and improved productivity and work performance.[58] Hence, there is a clear need to better understand the relations between individual-level health and knowledge outcomes and organization-level benefits such as productivity and employee wellbeing.

Nevertheless, previous reviews have established that workplace health promotion interventions are likely to be cost-effective for employees and employers.[59] Hence, improving employee health and wellbeing may result in benefits for employers with a bottom line of financial gains. Societal implications include an increase in quality-adjusted life years, a reduction in costs to treat or prevent overweight and obesity, reduction in risk of non-communicable preventable diseases (e.g., coronary heart disease), and reduced

burden on health systems,[59] which demonstrate the economic value of workplace interventions at the level of public health.

Existing efforts to support equitable access to education to promote preconception health in workplaces

Despite the benefits of improving preconception knowledge and health for women and their workplaces, the literature regarding existing efforts to provide preconception education in the workplace setting is scant. A 2019 systematic review that aimed to evaluate health promotion strategies or interventions delivered in the workplace to improve the health and/or wellbeing of women during preconception, found no eligible studies.[48] More recently, in a qualitative study exploring Australian women's perspectives of workplace healthy lifestyle determinants and preconception health needs, women identified the necessity of greater workplace education and support for preconception healthy lifestyle behaviors.[2] To facilitate equitable workplace access to education and knowledge for preconception health, women discussed the need for: a consolidated and strategic focus on workplace wellbeing (i.e., embedded in workplace culture); explicit policies or action plans around employee wellbeing; equity of access to healthy lifestyle opportunities according to individual capacity (such as physical, psychological or social ability); and a more supportive physical and social workplace environment, including healthy food availability.[2] These qualitative findings have informed the design and development of a workplace wellbeing intervention to improve the physical and psychosocial wellbeing of working women across the reproductive years.[45] The outcomes of this intervention are not yet available.

In the absence of preconception-related literature, the provision of education in the workplace to promote healthy lifestyle behaviors among employees has shown promise. Previous systematic reviews have found that workplace lifestyle interventions and health promotion programs are feasible to implement and are associated with improvements in weight, nutrition, and physical activity outcomes for various types of employees, including male and female healthcare workers, university staff, construction workers, and administrative workers.[41,44]

There is also increasing evidence supporting the use of online resources to successfully deliver health education to employees (e.g., electronic health interventions, online portals, apps, etc.), with employees reporting an increase in health-related knowledge, changes in healthy lifestyle behaviors, high rates of acceptability and satisfaction, and overall positive attitudes to online learning approaches.[60-62] This acceptability of eHealth delivery in the workplace aligns with the general trends in digital healthcare education and delivery.[63] This is particularly relevant within the context of COVID-19 and work-from-home policies, as employees can have remote access to their workplace's health promotion information as needed.

Preliminary research has also explored the key barriers to the delivery and adoption of health promotion interventions in the workplace, which include a lack of managerial support, commitment and leadership, perceived lack of time, other competing priorities, interruptions to workflow, and inflexible organizational culture.[2,64] The existing evidence consistently suggests that workplaces must have top-down organizational-level commitment to facilitate equitable delivery of health education to employees.[2,64,65]

Indeed, strong organizational leadership and consistent support from managers, including management structures, leadership approaches, and organizational policies that support and prioritize employee health, are crucial to the effective implementation and uptake of health information in the work setting.[65] This systemic approach to workplace health promotion may be imperative to consider when designing interventions to promote preconception health.

Research and implementation gaps

The field of preconception health promotion and education in the workplace is nascent. Consequently, there are significant research gaps and implementation challenges that must be explored. There have been challenges to the notion of targeting preconception as a distinct life stage in the workplace, because women across the reproductive years are readily engaged in this setting.[2] It has therefore been argued that the wellbeing needs of women can be combined across the preconception and pregnancy periods in the workplace.[2] Furthermore, when asked about women's work-related preconception (or pregnancy) needs, the discussion almost invariably turns to postpartum and parenting demands, highlighting the importance of these as part of reproductive age working women's experiences. This is an important consideration for future research in this area. The current limited focus on preconception may also be a by-product of the desire for women to keep their pregnancy intentions and early pregnancy months a secret. Yet, excluding preconception from the conversation may inadvertently prevent women from experiencing potential health protection measures such as those relating to teratogen exposure at or around the time of conception.[66] Hence, the preconception period must not be ignored, whether by intentional focus on pregnancy planning or by approaching

preconception from a public health perspective that spruiks preconception health as an issue for all.[9,40]

While we have explicated that workplaces are an opportunity to educate for preconception health, working women more readily report social and physical opportunity (i.e., the physical, cultural and social factors that provide opportunities to engage in health behaviors), rather than a desire for knowledge, as relevant in the workplace.[2] In a recent qualitative study exploring the workplace-related barriers and enablers to healthy lifestyle behaviors and wellbeing in preconception and pregnancy, knowledge and education did not feature as a specific need reported by women themselves. Rather, it could be used as a motivator to authorize women to improve their healthy lifestyle behaviors before pregnancy.[2] Notably, this study was conducted in a university workplace setting, therefore, it is important that the utility of knowledge and education to promote preconception health is explored in other workplaces that may not be comprised of a highly educated workforce. Nevertheless, there have been calls for education and support for preconception healthy lifestyle behaviors.[45] This education should sit within a multi-pronged approach that also includes equity of access to opportunities that vary according to individual capacity; top down (organizational level) support and coordination of healthy lifestyle initiatives in the workplace; and other factors pertinent to the workplace such as discrimination, parenting supports, workplace culture, and policies. These factors are important considerations in the design of workplace education programs due to the significant impact of workplace policies and regulatory factors on employee health and wellbeing.[45]

When designing workplace education programs, stakeholder engagement is important because it makes it possible to move from intervention design and evaluation to implementation, supporting sustainability and facilitating employee buy-in.[45] Given no interventions currently exist that specifically focus on improving knowledge of preconception health in the workplace, there is an opportunity to ensure stakeholder engagement is included from the outset.

It should also be noted that while this paper has primarily focused on preconception health education for women, the notion of preconception is important for all individuals who have the capacity to contribute to a pregnancy.[40] Hence, future research should not ignore the preconception education and health needs of men, partners and individuals who are gender diverse. We are not aware of any literature focused on these populations.

Conclusion

The workplace provides a unique opportunity to improve preconception health education with significant potential benefits. These include reaching a majority of women (and others) of reproductive age, especially those not otherwise engaged with the healthcare system, and leveraging existing workplace structures and processes for education delivery.

Workplaces may experience benefits including fiscal gains, corporate competitiveness, and improved employee absenteeism and presenteeism rates. Despite this, almost no literature has explored the benefits and opportunities for preconception health education in the workplace. Future research should investigate how to integrate preconception health education into workplaces, taking into consideration the unique needs of different workplaces. A focus on stakeholder engagement to ensure employer and employee buy-in is

essential. Well-designed preconception health education programs, and continuation to support pregnancy and the postpartum transition to parenthood, integrated into workplaces have the potential to significantly advance the health and wellbeing of women and their families.

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Conflict of Interest

The authors declare no conflicts of interest.

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