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Letter

Recommendations for promoting healthier lifestyles in postpartum women after gestational diabetes

We read with interest the study by Dennison *et al.* [1] which provided a qualitative synthesis on the facilitators and barriers to lifestyle changes from the perspective of women with recent gestational diabetes (GDM). We would like to provide some additional insights from our own work. Early intervention for diabetes prevention after GDM is important, but lifestyle intervention during the postpartum period can be challenging. Many of the barriers to a healthy lifestyle identified in this paper were also reported previously by young women and postpartum women in the general population [2,3]. These may be common experiences related to life stage and not unique to GDM, which could explain the high risk of weight gain in women between the ages of 18 and mid-30s [4]. Postpartum women or women with young children have additional barriers such as fatigue and the demands of an infant or young child.

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Considering the unique barriers in postpartum women, the development of interventions targeting this group requires careful consideration. Interventions need to be feasible, acceptable and fundable for this group and the health professionals, services and systems delivering them. Randomized controlled trial evidence shows that lifestyle intervention within the US diabetes prevention programme for women after GDM is efficacious [5]. We now need to progress the efficacy evidence into broader effectiveness by focusing on the 'how'. To address this, Dennison *et al.* [1] proposed 20 recommendations mapped against behaviour change techniques (BCT) based on the perceived needs of the women. Consideration of end-users' perspectives is critical in implementation research – we would like to commend the authors' effort in doing so. We offer perspectives gained from our systematic review and meta-analysis on effective elements of lifestyle intervention in postpartum women (33 studies, 4960 women), as a triangulation process to add value to the findings of Dennison and colleagues.

In our meta-analysis on intervention characteristics using the Template for Intervention Description and Replication (TIDieR) framework, we found that interventions delivered by health professionals were more effective than those delivered by non-health professionals [6], providing further support for Recommendation 19. Both suggest there is a need to establish models of care within the health system to facilitate goal setting, provide instructions on diet and exercise, and monitoring by health professionals for women after GDM.

Our meta-analysis did not find a significant effect on other intervention characteristics such as format of delivery, intensity or duration [6]. This aligns with Dennison *et al.* who described mixed responses on these characteristics [1]. The Consolidated Framework for Implementation Research (CFIR) [7] describes interventions as having core components and adaptable periphery. Core components are the 'active ingredients', which may be consistent findings across studies identified in systematic reviews and meta-analyses. The adaptable periphery, by contrast, depends on contextual needs that differ from one setting to another. Both Dennison *et al.* and our findings suggest that the format of delivery is part of the adaptable periphery, to be developed according to the needs of the provider and user within the local context and health system. A combination of efficacious core components and effective periphery is essential to maintain fidelity and efficacy, optimize engagement, feasibility and cost-effectiveness for scale-up. Co-production with stakeholders, including clinicians, service providers and consumers, could integrate the core components with adaptable periphery to develop an effective intervention.

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Dennison *et al.* had low confidence for Recommendation 13's evidence related to advising women on diabetes risk. We previously reported that women after GDM with higher baseline risk perception were more likely to be engaged in a diabetes prevention programme [8]. Higher engagement was also associated with greater intervention weight loss [8]. However, we are unclear if risk perception can be modified independent of absolute health risks, and if a modified risk perception will improve intervention outcomes.

Previous quantitative systematic reviews in other populations are consistent with Recommendations 16–20. They too identified that BCTs relating to self-regulation skills such as goal-setting and self-monitoring were significantly associated with behaviour change [9,10]. Recommendations 3–6 on practical social support were also previously found to be a significant BCT in diabetes care [10]. Our systematic review on the quantitative analysis of BCTs (currently under review) will be able to confirm if they were also significantly associated with diet and physical activity change in postpartum women.

In conclusion, diabetes prevention programmes for postpartum women with previous GDM should include practical support and instructions on how to exercise or have a healthy meal. These should be delivered by healthcare professionals within a model of care that allows for individualized goals and ongoing monitoring. To assist the convergence of these reductionist findings with systems thinking, these active ingredients need to be further developed into fit-for-purpose interventions based on a thorough understanding of the context and system, facilitated through co-production with the end-users.

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