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A Systematic Review using the Socio-ecological Model for Physical Activity interventions aiming to prevent Type 2 Diabetes after Gestational Diabetes.

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Gestational Diabetes Mellitus (GDM) is a common pregnancy complication that increases subsequent risk of Type II diabetes Mellitus (T2DM). Lifestyle changes, including increased physical activity, can reduce T2DM onset, even after GDM. However, a wide range of barriers exist which are not always addressed in interventions aiming to increase physical activity after GDM. A socio-ecological approach highlights the need to include these multi-level factors when trying to change behaviour. Therefore, the aim of the review was to investigate the extent that interventions to prevent T2DM after GDM have integrated a socio-ecological approach, and the impact on physical activity outcomes. A computer-based systematic literature search was conducted in 5 databases: MEDLINE (via EBSCO), Cochrane Library, Web of Science (via Clarivate analytics), CINAHL Complete (via EBSCO), and Scopus. Studies had to be conducted in women who experienced GDM in the past 5 years and target physical activity in some way. All study types were included. Published protocol papers were also included and grouped with results papers. An adapted socio-ecological model was used as an *a priori* framework to classify intervention components. Physical activity results were categorised as “U” if no outcomes were available, “N” if there were no changes in physical activity, “Y” if physical activity outcomes increased, and “Y*” if these were significant. Forty-two studies met the inclusion criteria (comprising 35 different interventions). There was no distinct pattern between study type and methodological quality, with eight studies “limited”, thirty-three “adequate” and one “good” quality. The greater the number of levels of the socio-ecological model included, the more “Y*” and “Y” physical activity results seen. Mixed physical activity outcomes were observed across components

used at the intrapersonal level, the first level of the socio-ecological model, with components across other, wider levels showing greater variation and more definitive patterns. Physical activity outcomes are likely constrained by intervention components used across wider levels of the socio-ecological model, rather than just intrapersonal level components. Specifically, intervention components within the interpersonal and organisational levels, like childcare provision, including group-based sessions and offering remote delivery, were identified as important intervention components, more often present in interventions seeing physical activity increases. Future interventions targeting physical activity in women after GDM should therefore aim to include these components in their intervention design.