

Abstract

# Health App Use May Motivate the Maintenance of Physical Activity during Pregnancy <sup>†</sup>

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**Abstract:** Background and objectives: A health-promoting lifestyle during pregnancy is beneficial for both the mother and the child, but an increase in physical activity, eating a healthy diet and achieving the recommended weight gain require high motivation. Health apps may serve as efficient tools for supporting a health-promoting lifestyle during pregnancy. Although the market for health apps is thriving, the scientific validity of these apps has rarely been studied. The objective of this study was to characterise health app use among pregnant women and to investigate whether the frequency of health app use leads to a change in gestational weight, diet quality and physical activity. Methods: Pregnant women were recruited through social media announcements. Participants were asked to record their lifestyle habits in a health app from early pregnancy to delivery. Online questionnaires were used to assess their diet quality and physical activity with validated indices and self-reported weight in early (<28 gestational weeks) and late (34–36 gestational weeks) pregnancy. Physical activity was categorised into light (<5 MET h/wk), moderate (5–30 MET h/wk) and high physical activity (>30 MET h/wk). Results: Altogether, 1038 participants were enrolled in the study. Of them, 37% (386/1038) used the app at least once, whilst 63% did not use the app. The median (IQR) duration of app use was 4.7 (1.1–15.6) weeks and the median (IQR) number of recordings was 59 (19–294). App users were categorised as frequent (use  $\geq$  4.7 weeks, 19%) and occasional app users (<4.7 weeks, 19%). No differences were seen between the groups with regard to their change in weight or diet quality score. The proportion of women with a moderate or high activity level decreased in all groups, but this was less in frequent (OR 0.61, 95% CI 0.40–0.94,  $p = 0.025$ ) and occasional app users (OR 0.55, 95% CI 0.32–0.97,  $p = 0.04$ ) compared to non-users (time  $\times$  group interaction,  $p = 0.036$ ). Discussion: The results demonstrate extensive variations in app use, but the benefits of app use may arise from the maintenance of physical activity. This intervention into the typically observed decrease in physical activity over the course of pregnancy may lower the risk of pregnancy complications, including gestational diabetes.

**Keywords:** gestation; smartphone; health app; gestational weight; diet quality; physical activity



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**Informed Consent Statement:** Informed consent was obtained from all subjects involved in the study.

**Data Availability Statement:** The data presented in this study are available upon reasonable request from the last author (K.L.). The data are not publicly available as they contain information that could compromise the privacy of the research participants.

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