

Design of a Digital Gestational Diabetes Prevention Programme



WOD
Watch Out Diabetes



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Background

Diabetes prevention is critical for women with gestational diabetes mellitus (GDM), which affects 5–10% of pregnancies. GDM is one of the strongest risk factors for the development of type 2 diabetes: up to 7 in 10 women diagnosed with gestational diabetes develop type 2 diabetes within 5 years of the birth². However, women do not receive sufficient support.

Aim

Our aim was to develop a digital education and monitoring programme to assist in the prevention of GDM and post-partum complications.

Discussion

It is well accepted that women in the post-partum period will unlikely have sufficient time to attend face-to-face consultations and leading scientific bodies have encouraged the development of digital prevention programmes. However, to date, there is no clinically proven digital diabetes prevention programme for women with GDM and further clinical trials among diverse populations are needed.

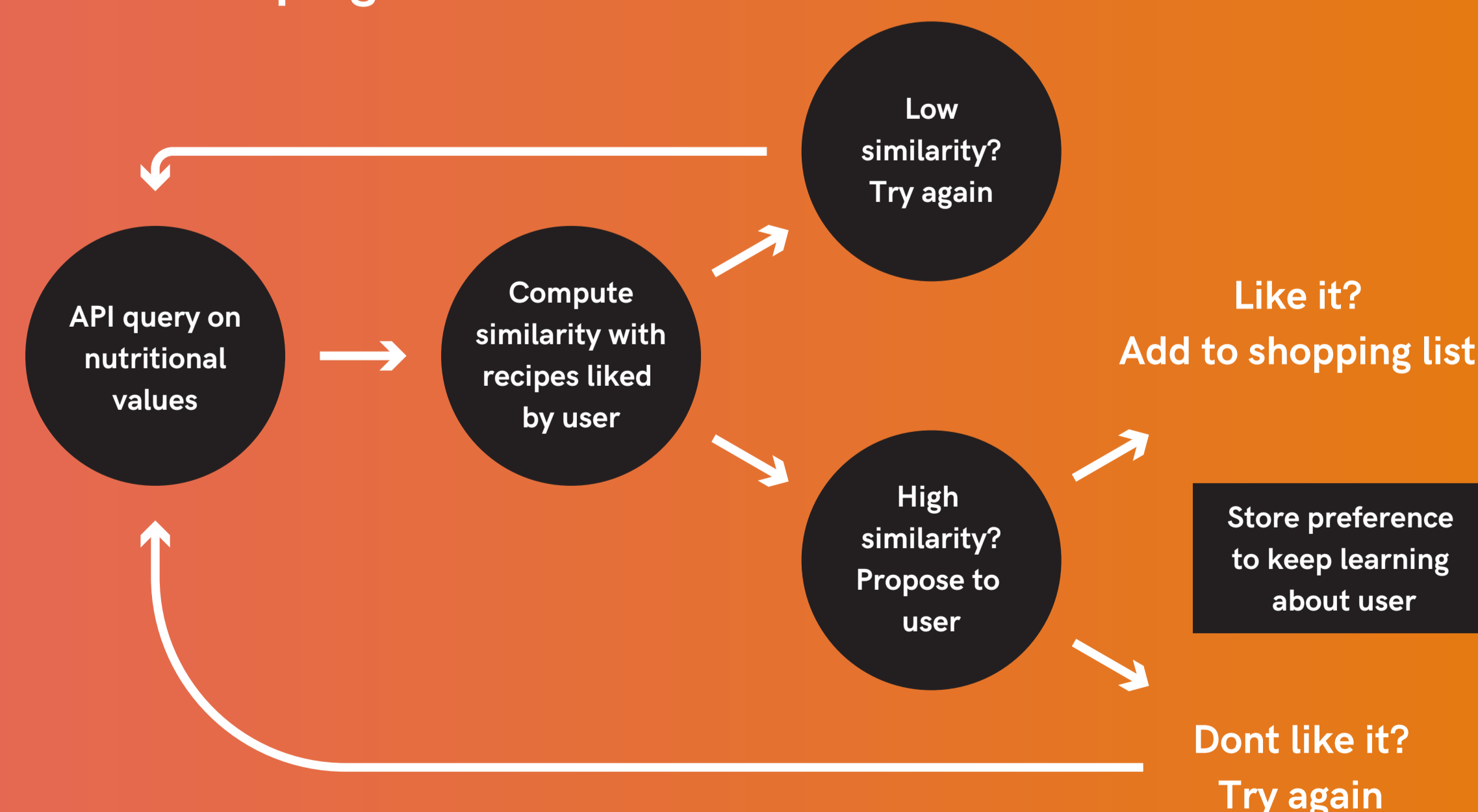
Methods & Results

Desmond-qualified dieticians developed an educational programme on a balanced diet and weight management. The course consists of ten core lessons on nutritional topics including fad diets and mindful eating. A team of four post-PhD data scientists from the S2DS, largest European data-science school developed an intelligent algorithm that uses machine learning principles to provide recipes and food shopping lists for women based on their recommended dietary intake and food preferences. The digital programme also includes a daily monitoring system of sleep, activity, vital health and the menstrual calendar as these are closely related hormonal disturbances. In addition, tailored peer-to-peer support groups were designed to facilitate behavioural change.

A) The framework of a recipe generator



B) Simplified algorithm of the learning of the recipe generator



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References:

- 1 - Watch Out Diabetes, London, UK
- 2 - Bao W, Tobias DK, Bowers K, et al. Physical activity and sedentary behaviors associated with risk of progression from gestational diabetes mellitus to type 2 diabetes mellitu prospective cohort study. JAMA Intern Med 2014;174.