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Fitness bands and Facebook™: can we reduce incident diabetes in high risk postnatal women?

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Background

- Gestational diabetes (GD) occurs in over 4% of UK pregnancies and prevalence is increasing[1]. Women with GD are over 7 times more likely to develop diabetes mellitus (T2DM) with an average reduced life expectancy of 10 years compared to women with a normo-glycaemic pregnancy[2,3].

- Antenatally, NICE guidance is generally well adhered to[4]. Primary care postnatal care however, is unsatisfactory - the annual follow up for GD in primary care 20% per year and 50% of women do not receive a glucose test at all within a 5 year period[5].

- NICE recommends new mothers with prior GD should be offered lifestyle advice[1]. The majority of behaviour change interventions (BCIs) in this area have been resource-intensive interventions which have not be tailored to the needs of this group of women, nor amenable to the primary care setting[6,7]. Technology could help to support more accessible and available care.

- The experiences and views of this patient group have been explored in order to inform the development of a novel, complex mHealth intervention.

Methods

- Face-to-face semi-structured interviews with N = 20 females previously diagnosed with GD attending routine 6 wk postnatal oral glucose tolerance test (OGTT) at a South Yorkshire Teaching Hospital.

- Iterative, self-conscious, thematic analysis of transcribed data using independent verification of themes guided by the COM-B model of behaviour change[8].

- Evidence of Capacity, Opportunity, Motivation for behaviour change explored.

Findings: Ages range 21 to 44 years (mean=33, SD=6), 15 White, 5 Asian.. IDACI (Income Deprivation Affecting Children Index) scores, calculated from postcodes, indicated our sample was more deprived than the English average of 0.18 (range 0.01 - 0.39). All participants were currently in a relationship. The average age of leaving full time education was 20 years (16-26, SD=2.9). Four of the women had GD in a previous pregnancy and 15 had a family history of T2DM. Two reported being smokers. The average BMI was 30.8 (range 18-48, SD=9.2).

The analysis matrix initially contained 4 major themes: 1) Impact of GD diagnosis, 2) Diabetes knowledge, 3) Facilitators and barriers to reducing the risk of T2DM, 4) Use of technology. A number of subthemes emerged: psychological, personal health, baby's health, and practical consequences of GD diagnosis; knowledge of GD itself, knowledge of T2DM, and knowledge of the link between them; facilitators and barriers to diet, exercise, weight loss, breastfeeding, and health professional influence; use of technology and barriers and facilitators to use.

In addition to these these the role of women in managing their health is being explored: some are passive and calm with regarding to health information, whilst others are very proactive and anxious. All women understood that a healthy diet and exercise would control their GD and reduce the risk of T2DM. Most of the women achieved behaviour change during their pregnancy, motivated predominantly to ensure their babies safety. Few women continued the behaviour change after the baby was born, with a focus shifting externally to the baby rather than on their own health.

Many reported using fitness apps, trackers, or online health forums. Barriers to the use of technology included cost, lack of access to their phone at work, internet 'trolling', the belief such technology could increase health anxiety, feeling that phones are a barrier to social interaction, and not wishing to encourage their children to over-use mobile devices. Facilitators to the use of technology included their speed and ease of use (for example scanning barcodes to calculate calorie and sugar content), enabling social interaction and support, tailored feedback and reminders, increased ease of goal setting, and motivational enhancement. Participants felt there was potential for technology to enhance the support available in primary care to women diagnosed with GD (e.g. through step counter apps, online forums, follow up emails and texts) but felt this needed to be used in conjunction with face to face contact with healthcare professionals and other women diagnosed with GD.

The next steps are to identify the COM-B variables and evaluate them with reference to the behaviour change wheel to develop our intervention.

Practice implications: Importantly, the woman have shown a history of behaviour change, although this was motivated by a need to protect their baby. The study has identified weak spots in the current care pathway (e.g. confusion around the annual HbA1c), and highlighted the need for more support to be provided to women following their discharge from secondary care. While many participants were enthusiastic about the use of technology in a PC based intervention, the data also suggests we need to be cautious in our expectations regarding what we can realistically achieve at this busy time in new mothers lives, and to be aware that such interventions must also contain some degree of face to face contact. We plan to continue our work by ascertaing the views of primary health care professionals before going on to test the feasibility of a low intensity, mobile tech enabled, primary care initiated, self-managed behaviour change intervention aimed at reducing the risk of progression from GD to T2DM.

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