Reducing type 2 diabetes mellitus risk in women post gestational diabetes mellitus, through motivational interviewing.

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Introduction

Substantial numbers of women with past gestational diabetes mellitus (GDM) develop type 2 diabetes mellitus (T2DM); in NCAHS 19% of women attending diabetes services with T2DM have had GDM.

Despite awareness of the need to improve lifestyle, a Victorian survey found 43% of women post GDM were not engaged in any diabetes risk reduction behaviour (Swan et al. 2007).

Pilot study question and aim

How can apparent ambivalence by women with recent GDM be changed to ensure motivation towards preventing T2DM by improving ones lifestyle?

The aim: To determine if phone-based lifestyle education followed by motivational interviewing (MI) could be applied successfully in a large rural area and result in a positive lifestyle change for women post GDM.

Method

Figure 1. Methodology: recruitment, questionnaires, and intervention

Ethics Committee approved this randomised control trial. Women diagnosed with GDM attending NCAHS diabetes services were invited to participate in this pilot study.

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Women agreed to participate (n=42).

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Participants were randomly allocated to either control or intervention group.

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Control group (n=21)
Lost to follow-up (n=1). The woman was concerned about the added stress following the birth of twins. This participant withdrew before commencement of the study.

Intervention group (n=21)
Lost to follow-up (n=4), reasons were no motivation (n=2), return to work and child care (n=1), and a subsequent early pregnancy (n=1). Withdrawals pre commencement (n=3), pre follow-up questionnaire (n=1).

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At baseline (6 weeks post natal) the following four validated questionnaires were mailed to all women for completion, they examined physical activity/eating patterns and self-efficacy:

- The Demographic and Short Form Health Status Survey (SF-12)
- The Food Frequency Questionnaire (FFQ)
- The Physical Activity and Self Efficacy Survey (PA & SE), and
- The International Physical Activity Questionnaire (IPAQ).

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Intervention group: After questionnaires were returned, intervention began.

- Aim: To help the women recognise they could make a lifestyle change in a supportive environment.
- Healthy lifestyle and goal setting education material was mailed to the women. Phone-based education and MI proceeded weekly for 5 weeks, then monthly for 5 months, conducted by two credentialed diabetes educators.

MI goals were to explore ambivalence and encourage the women to express their concerns and reasons for wanting to change their lifestyle. Reflective listening was crucial.

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At follow-up (6 months after baseline questionnaires were administered) all women were contacted: the set of four questionnaires were sent out for completion.

Results

SPSS analysis included means, standard deviation, T tests and linear regression. The limited small sample size reduced the power of tests that determine significance level of change in variables.

The following results at follow-up in the intervention group demonstrated:

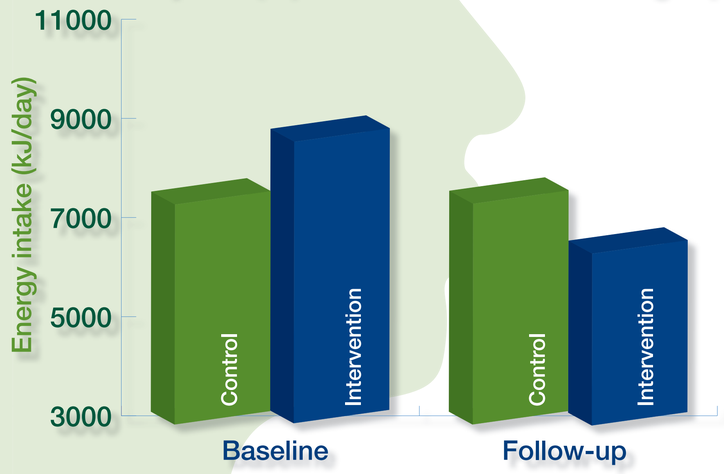
- Phone-based MI was effective and flexible for mothers of newborn babies living in rural locations. Women felt more supported and confident (p=<0.003), and experienced fewer barriers (p=<0.05).
- Intake of dietary nutrients predisposing to pre-diabetes were **reduced** daily by:
  - total energy food intake by 2302 kJ (p=<0.05*), refer to Graph 1.
  - saturated fat intake by 11 g
  - total fat by 23 g, (p=<0.05*)
  - total carbohydrate intake by 63 g, (p=<0.05*)
  - total sodium intake by 752 mg
  - glycaemic load by 18, (p=<0.05*), refer to Graph 2.

*Comparing the intervention group to control group at follow-up using linear regression analysis, p=<0.05. During this period the dietary intake for control group did not improve from baseline.

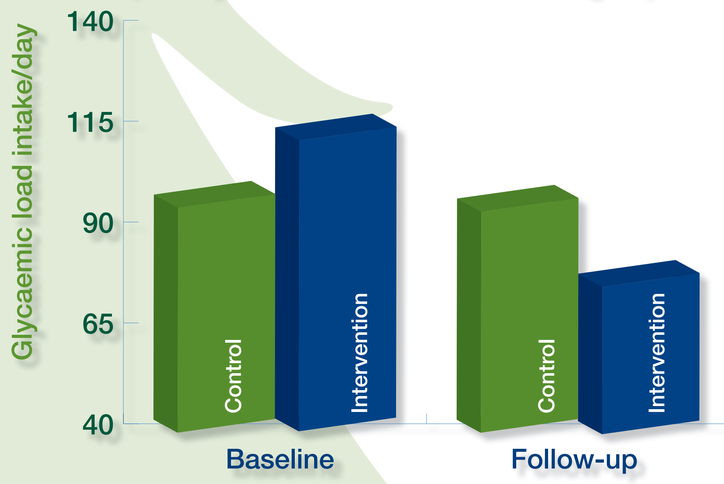
- Physical activity markers **increased** significantly in intervention group women:
  - Physical activity levels by 250 mins/week (p=<0.05*).
  - Metabolic equivalent level by 1052 MET mins/week (p=<0.05*) refer to Graph 3.

  Physical activity and metabolic equivalent scores remained constant in the control group women.
- The intervention group women had a waist circumference decrease of 4 cm, and weight decrease of 1 kg (p=<0.05), refer to Graph 4. For the control group, weight increased 4 kg and waist circumference remained unaltered at 98 cm.

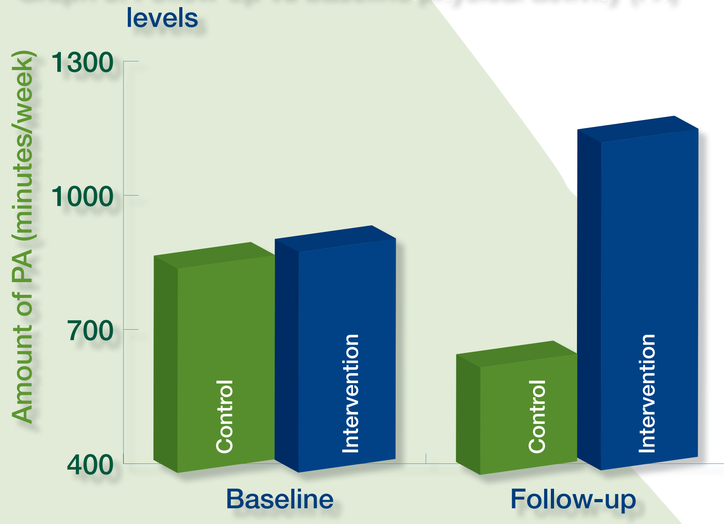
Graph 1: Follow-up vs baseline energy intake per day in kilojoules (kJ) for control and intervention groups



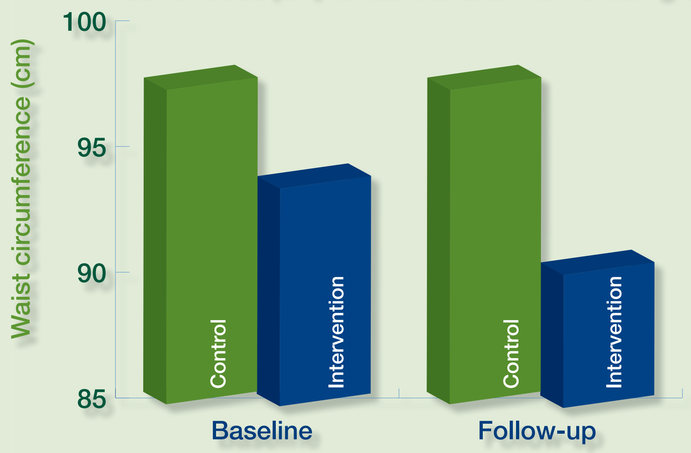
Graph 2: Follow-up vs baseline glycaemic load intake per day for control and intervention groups



Graph 3: Follow-up vs baseline physical activity (PA) levels



Graph 4: Follow-up vs baseline waist circumference in centimetres (cm) for control and intervention groups



Conclusion

- Phone-based MI is suitable to rural women with newborn babies.
- The intervention has been successful in reducing ambivalence of women towards implementing lifestyle change. If sustained, it may reduce pre-diabetes risk.
- The follow-up period is of short duration; a longer study with a larger sample size may demonstrate more sustainable lifestyle change.

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Reference

Swan, W., G. Kilmartin & S.-T. Liaw (2007) Assessment of readiness to prevent type 2 diabetes in a population of rural women with a history of gestational diabetes. *Rural and Remote Health*, 7, 1–10.

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