Healthy Conversation Skills as an intervention to support healthy gestational weight gain: experience and perceptions from intervention deliverers and participants

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Abstract

Objective: In a pilot RCT we assessed training a dietitian in “Healthy Conversation Skills” (HCS) to support behavior change. This study describes the acceptability of the intervention from the participant and practitioner perspective.

Methods: Seventy pregnant women participated (intervention=33; control=37). The evaluation included: i)audio-recording sessions to assess use of HCS from the intervention dietitian; ii)semi-structured interview with the intervention dietitian to assess experiences of using HCS; iii)Quality of Prenatal Care Questionnaire and focus groups to assess participants’ views of study experience.

Results: Intervention sessions involved conversations where the dietitian used HCS. The dietitian reflected on the simplicity of learning HCS in training but the challenges of embedding these new skills in practice and highlighted the need to review and reflect on practice as an ongoing process. Intervention participants were more satisfied with the study (p=0.05) and more likely to agree that the dietitian took time to ask about things that were important to them (p=0.04) than control participants.

Conclusion: Use of HCS by practitioners is an acceptable way to support lifestyle changes in pregnancy.

Practice implications: Use of HCS provide opportunities to support behaviour change. Review of and reflecting on practice may facilitate the application of new skills in practice

Key words: pregnant women; registered dietitian; process evaluation; healthy conversation skills; pilot RCT; gestational weight gain

1. Introduction

The amount of weight gained in pregnancy is important for the optimal health and development of the fetus and the health of the mother [1]. Inappropriate amounts of weight gained, both too little and too much, have been associated with increased risk of adverse outcomes for both mother and infant [2-4]. In high-income countries women frequently gain too much weight during pregnancy a recent study of 1541 pregnant women in Alberta, Canada found that 49% of women gained in excess of the 2009 Institute of Medicine (IOM) gestational weight gain (GWG) guidelines [5]. The IOM guidelines specify an optimal range of total, and weekly rate of, GWG according to a women’s pre-pregnancy BMI [1].

Guidance for the implementation of the guidelines has been published previously [6], the guidance provides information for practitioners on recommended GWG and suggests practitioners chart weights during pregnancy and counsel women about healthy choices for diet and physical activity. However the guidance does not provide tangible strategies for how practitioners are to support women to limit or increase their weight accordingly. In Canada women are typically offered a programme of contact with a health care professional (HCP) during pregnancy, appointments are typically every 4 weeks in early pregnancy, every 2 weeks after 30 weeks gestation and every week after 36 weeks gestation, for a normal healthy pregnancy [7]. During these visits HCPs are expected to weigh women and discuss healthy GWG throughout their pregnancy in line with the IOM GWG guidelines which were adopted. Studies have shown that women can recall being weighed, but report that discussions about healthy weight gain rarely take place [8-10] although women have indicated that they would like these discussions with their HCP during pregnancy [10]. However studies with practitioners suggest that the GWG guidelines are mentioned [11] but that lack of time, limited knowledge and low confidence in supporting behaviour change are challenges to having these conversations [12-14].

There is a myriad of information available about diet, physical activity, and other weight-related behaviours, and therefore it is unlikely that increasing knowledge alone, of either HCPs or pregnant women, is sufficient for changing lifestyle behaviour.Healthy Conversation Skills (HCS) is an approach to supporting behaviour change developed by a team of multi-disciplinary researchers, including psychologists and nutritionists, in Southampton, UK [15]. HCPs who are trained in HCS develop four key skills aimed to help practitioners empower participants to make lifestyle changes through having healthy conversations. The four key skills are to: 1) use Open Discovery Questions (ODQs), 2) spend more time listening than giving information 3) reflect on practice, and 4) support SMARTER goal-setting. Further information on the details, development and evaluation of HCS can be found in previous publications [15,16]. ODQs typically begin with ‘how’ or ‘what’, which encourage the participant to reflect on their own world experiences, their personal barriers to change and possible strategies and solutions to making a change. This enables HCPs to better understand their participant’s context. One of the key philosophies of HCS training is that ‘people come to us with solutions’ [15] indicating that the expert in a patient’s life is the patient themselves. The aim is to replace advice and information-giving during HCP consultation time with asking ODQs and therefore is designed not to add to overall appointment time. Such conversations should be based on the participant’s own agenda, thus relevant to participant’s context, making change more likely as a consequence. Previous studies have shown that training staff in HCS make sustained changes their practice in that they spend significantly more of their appointment time using the new skills [16]. Staff trained in HCS also reported feeling more confident about having conversations about diet and exercise following the training [17].

Recently our group completed a pilot RCT to evaluate the efficacy of training a Registered Dietitian (RD) in HCS to support health behaviour changes intended to achieve guideline-concordant GWG in pregnant women attending services in Edmonton, Canada. The outcome evaluation of this project formed the basis of a Masters thesis [18]. This paper focuses on the process of the intervention, specifically the feasibility, fidelity and acceptability of this intervention from the perspectives of both the RD trained in HCS and the participants taking part in the study. Specifically we compared:  
1) Experiences and perceptions of using HCS between the intervention and control RDs   
2) Perceptions of support received from the RDs by intervention and control women, as well as the acceptability of the intervention.

2. Methods

2.1 Setting, study design and participants

A flow diagram of the study overview is shown in Figure 1. The study was conducted between July 2015 and July 2016. Study visits and phone calls were carried out by the intervention and control RDs in the Clinical Research Unit at the University of Alberta, Edmonton. The study was a randomised controlled trial, of the impact of HCS support from an RD on the diet, physical activity levels and GWG in pregnant women [ClinicalTrials.gov ID: NCT02711644]. The outcome evaluation describing the impact on women’s GWG and other health behaviours will be described elsewhere.

Study participants were women between 8-20 weeks gestation. Women were recruited by advertisements in leaflets and on posters, face-to-face recruitment at mother and baby groups and targeted advertising on Facebook; further details on the recruitment methods have been published [19]. Women were eligible if they had a singleton pregnancy, were over 19 year of age, could read and speak English, had access to a telephone and the internet and were willing to provide their Alberta Healthcare Number. Women who smoked, had any diabetes (type 1, 2 or gestational), an incompetent cervix, complete/total placenta previa, hypo- or hyper- thyroidism, a present eating disorder, gestational hypertension, concurrent enrollment in another lifestyle program or receiving care from a Midwife or RD were excluded from the study. Women were stratified by pre-pregnancy body mass index (BMI) and block randomized to either the intervention or control group. Participants were blinded to group assignment; it was not possible to blind intervention deliverers or research staff to allocation, however. Ethics was obtained from the Human Research Ethics Board-Health Panel at the University of Alberta (ethics approval number Pro00054360).

2.1.1 Intervention delivery

An RD was trained in HCS. The training has been published in detail previously [15,16]. Briefly training consisted of two half-day training sessions where trainees reflect on their current practices and beliefs about behaviour change, and practise the skills to plan and enact their own behaviour change. The RD trained in HCS led the face-to-face visits (n=2) and phone calls (n=3) with the participants in the intervention group (Figure 1). During face-to-face visits the intervention RD led the participant through the questionnaires and weighed and measured her as well as incorporating HCS throughout the interaction. The intervention RD also used HCS during the phone calls with the participants. All interactions between the intervention RD and the participants were used to create opportunities to have conversations about health behaviours by using ODQs, allow the participants to speak more than the dietitian and explore the participant’s context to allow them to reflect on their own barriers to health behaviour changes to support SMARTER goal-setting. Any goals that were set were reviewed at subsequent sessions or phone calls.

A second RD who was not trained in HCS led the visits and phone calls with the participants in the control group. The control RD adhered to a standard protocol during sessions where she administered the questionnaires, weighed and measured the participant, and responded to questions asked by the participant. She initiated conversations if an issue around safety was indicated through answers on the questionnaire. During the phone calls the control dietitian confirmed the time and date of the next appointment and responded to any questions from the participant.

2.2 Procedures

2.2.1 RDs experiences and perceptions of using HCS

*2.2.1.1 Audio-recordings of visits*

Audio-recordings of study visits completed to assess the use of HCS by the intervention RD and compare this to the interactions between the RD and participants in the control group. A total of 16 conversations (8 intervention and 8 control) between October 2015 and April 2016 were audio-recorded (one approximately every 3 weeks). Of the eight recorded visits in each arm four were baseline visits and four were second visits. The recordings were transcribed verbatim and names changed for anonymity. The intervention RD used participant’s responses to the questionnaires about health, diet and exercise to create opportunities to use HCS with participants. All conversations which were beyond the standard questionnaires were assessed for evidence of use of ODQs, the balance of speaking versus listening and supporting SMARTER goal-setting [16]. The control RD was instructed to follow the standard questionnaire and to only have conversations beyond the questionnaire if the participant asked questions or if an issue around safety arose. Where such conversations took place, these were transcribed and examined for differences in the conversation approach used by the intervention and control RD. Assessment of the transcripts were done independently by two researchers (MJ and WTL) and any discrepancies discussed.

*2.2.1.2.Semi-structured interview*

Following the end of the study, the intervention RD was interviewed by MJ. The purpose of the interview was to explore her perceptions of challenges and facilitators to using HCS. The interview followed a question route (see supplement 1a) but additional questions were included as necessary by the facilitator in order to pursue conversations as they arose. The interview was audio-recorded and transcribed verbatim and thematic analysis conducted.

2.2.2 Perception of support and study acceptability by participants

*2.2.2.1 Quality of Prenatal Care Questionnaire (QPCQ)*

The ‘Quality of Prenatal Care Questionnaire’ (QPCQ) [20] was used to identify any differences in the perceived support received from interactions with the RD between the intervention and control participants. The original QPCQ consists of 46 items within 6 subscales and has been validated to assess perceptions of the quality of prenatal care received by women for use up to 6 weeks postpartum. For this study 13 items from the scale were selected that were appropriate to assess participant’s perceived support received from their study RD. Items were adapted to refer to ‘study RD’ rather than ‘prenatal care provider’. The QPCQ was included as part of the questionnaires carried out at one month postpartum. An extra item was included by the study team to assess whether women found the follow-up phone call useful. Women were asked to respond to questions on a 5 point Likert scale from ‘strongly disagree’ to ‘strongly agree’. The Cronbach’s alpha for the 14-item scale used in this study was 0.92 indicating good internal validity.

*2.2.2.2 Focus groups*

Focus groups were carried out following the end of the study to further examine participant reflections on their study experiences. On completion of the study, participants were invited to attend a focus group and separate focus groups were held for control and intervention participants. The discussions were led by a facilitator (MJ) and supported by an observer (DM). Discussions were guided by a semi-structured discussion guide (see supplement 1b).

2.3 Analysis

The transcripts of the intervention and control group audio-recorded sessions were read and conversations that took place between the RD and participant that were not part of the standard questionnaire were assessed against the HCS competencies. The number of ODQs used by the RD was counted and compared to the other responses she gave such as ‘giving advice or making suggestions’ and ‘asking closed questions’. To assess the balance of time spent speaking, the proportion of words used by the RD and the participant in each session were counted and summarized. Finally, the supporting of SMARTER goal-setting was assessed by examining whether the RD used ODQs to prompt goal formation and to ensure that goals were ‘specific’, ‘measureable’, ‘action-orientated’, ‘realistic’, ‘timed’, ‘evaluated’ and ‘reviewed’.

The focus group discussions and the interview were audio-recorded and transcribed verbatim and a thematic analysis of the data undertaken [21].Transcripts were read and re-read and the data were arranged into initial themes using inductive coding and a coding frame was developed. Themes were constantly reviewed and refined as the coding of data progressed, until a final coding frame was agreed upon. Two researchers (MJ and WTL) double-coded the transcripts to reduce bias in interpretation and discrepancies were discussed and final themes decided upon.

Responses to questions on the QPCQ were coded from 1 ‘strongly disagree’ to 5 ‘strongly agree’ and each of the 14 items were analyzed separately. The mean score for each item in the intervention versus the control group was compared in a non-paired t-test. Quantitative analyses were performed in Stata version 14.0 [22].

3. Results

A total of 78 women were recruited to the study and allocated to intervention (n=40) or control (n=38) group. Of these, 35 intervention and 35 control participants completed a baseline visit. Details of the numbers at each visit are shown in Figure 1. A total of 23 participants in the intervention group and 27 in the control group completed the study providing an overall retention rate of 71%. The main reasons for drop-out were developing a condition which excluded them from the study (e.g. gestational diabetes), or changing prenatal care provider.

3.1 RDs’ experiences of using HCS  
Seven of the 8 recorded conversations with women in the intervention group included discussion of their diet and physical activity habits, compared with two of the 8 conversations recorded with women in the control group. During those conversations the intervention RD showed evidence of using the HCS. Analysis showed that the conversations between the control RD and participants outside of completing the questionnaire contained only advice and suggestions from the RD. These were in contrast with conversations with the intervention RD which showed evidence of use of ODQs to explore the participant’s barriers and facilitators to managing their weight gain (Table 1). Figure 2 shows the percentage of types of response from the intervention RD offered during the recorded conversations. In the first session only 5% of responses to the participant were ODQs, whereas by the last visit 31% of responses were ODQs and the proportion of responses giving advice/suggestions/empathy reduced from 84% to 44%. Figure 3 shows the proportion of words spoken by RDs and participants in each of the recorded sessions in the intervention group. This shows that in four of the seven conversations the participant spoke more than the intervention RD indicating that the latter listened more than spoke. In the three sessions where the RD spoke more than the participant she spoke fewer than 60% of the words exchanged. This is in contrast with the two control group sessions where there were conversations about diet and physical activity. During these, the RD spoke 63% and 71% of the words respectively. Comparison of Figures 2 and 3 suggests that in the sessions where the RD asked more ODQs the participants spent more of the sessions speaking and that RDs asked more ODQs and listened more as the study progressed. Whilst some participants did set behavioural goals, there was no evidence of the intervention RD supporting them to make these SMARTER. .

3.2 Intervention RD’s perceptions of using HCS   
The interview with the intervention RD explored the facilitators and barriers to using HCS. Facilitators included using the questionnaires as prompts for healthy conversations; how the design of the study, in particular the frequent follow-ups meant that she could continue ‘healthy’ conversations from previous sessions; and how useful the skills were for exploring context with individuals and building relationships. Quotes used to illustrate these findings are shown in Table 3.

In terms of barriers to using HCS, the intervention RD reflected on how the participants came into the sessions with different expectations and some were more receptive than others to having conversations beyond the questionnaire. She felt her role as an RD had changed after HCS training but it was difficult not reverting back to a didactic ‘advice-giving’ practice which is more often the norm in dietetic practice, especially when it meets the expectations of the participant. The second theme under barriers to using HCS was about the challenges of putting new skills into practice. In discussions about this she identified that more practice with the skills before running the study would have been useful, especially in relation to SMARTER goal-setting. One strategy the RD identified was to have reviewed and reflected on the audio-recordings of the sessions throughout the duration of the study so that she could have made ongoing changes to her practice.

3.3 Participants’ perceptions of support received from the RDs  
The results from the QPCQ indicated that there were differences in how supported women felt by study arm. Table 2 shows the differences in mean scores for each of the 15 items between the intervention and control groups. Women in the intervention group agreed more strongly with the following statements: ‘My study RD took time to ask about things that were important to me’ (p=0.05), ‘My study RD was interested in me and how this pregnancy was affecting my life’ (p=0.04), ‘The length of the visits were appropriate’(p=0.03) , ‘I found the follow-up phone call helpful’ (p=0.002) and ‘Participating in the study helped me improve at least one of my lifestyle habits’ (p=0.005).

3.4 Participants’ perceptions of study acceptability

Two focus groups were held with three participants in each, one intervention (IG) and one control (CG). Discussions indicated that women in both groups found the study protocol acceptable and especially liked the fact that there were no face-to-face visits later on in pregnancy. Example quoted from the focus groups are shown in table 4.

4. Discussion and conclusion

4.1 Discussion

This pilot study examined the experiences of training an RD in HCS as a strategy to support women to achieve guideline concordant GWG and to assess the perceptions of support and study acceptability from perspective of the participants. Overall our findings suggested that being trained in HCS resulted in an RD using more ODQs to explore participants’ context and spending more time listening than speaking in sessions. The intervention RD felt that using HCS was useful for building relationships with participants by exploring and understanding their barriers and solutions to issues they had, but that taking new skills from the training room into practice was challenging and needed time, practice and reflection. In turn the results indicated that participants receiving HCS felt more supported by their RD than those who interacted with an RD not trained in HCS.

The change in practice following training in HCS has been reported previously, where staff working in children’s centre’s in the UK were trained in HCS and their interactions with young women compared with those of staff who had not been trained. In observations of staff-parent interactions 1 year post-training, staff in the intervention centres had significantly more interactions that included ODQs and more listening than speaking compared to staff in the control centres [16]. Similarly in a study by Fallowfield et al [23], clinics of oncologists who received communication skills training were compared to clinics of oncologists who had not received training. This showed that the training led to increased use of open-ended questions at 3 months post-intervention, maintained at 12 months post-training, suggesting that training in these communication techniques can lead to sustained changes in practice.

Whilst using HCS did result in the intervention RD asking more ODQ’s overall, there was no evidence that they were used to support SMATER behaviour change goal setting. Despite this, participants in the intervention group felt they had received greater support from their RD than those in the control group. Similar findings have been reported in a US study where HCPs were trained to use a 5-A’s approach with each pregnant patient in their clinic to support healthy GWG [24]. This ethos is similar to HCS in that it encourages HCPs to have supportive conversations with their patients, although the approach of the 5-A’s is not as simple as HCS. The study found most interactions only included two approaches (Assess and Advise), however even where just those two steps were used patients managed their GWG better than those where no steps were used. This suggests that even limited conversations are better than none in terms of patient outcomes.

*Strengths and limitations*

This pilotstudy used a mixture of qualitative and quantitative methods to explore perceptions and experiences of those using HCS as well as of those on the receiving end of healthy conversations. Using a mixture of methods allows a more in-depth assessment and understanding of the process of learning and utilising new skills which goes beyond other studies which tend to collect more routine data regarding the process of an intervention. The size of this pilot study is a limitation, as we only had one dietitian delivering the intervention; having more than one dietitian receiving the training and delivering the intervention would have allowed a better understanding of the experience of applying new skills in practice. In addition the limited number of participants that were recruited for the focus groups greatly limited our ability to compare and contrast women’s views of the study and resulted in an inability to further explore the differences in the perceptions of support received from the study RD’s as indicated by the results of the QPCQ which would have been ideal if more groups could be recruited. Despite the sample size, important insights have been gained to inform future research and maternal care. It was also not possible to blind the dietitian as to which sessions were recorded and this may have led to bias.

4.2 Conclusion

Training an RD in HCS elicited conversations that allowed participants to reflect on their own barriers and solutions to health behaviour change which are more likely to fit within their own context and therefore be more likely to be achievable. However, embedding HCS into practice following the training has its challenges and the intervention RD in our study did not always manage to set behaviour change goals with participants. Despite these challenges, women who interacted with an RD trained in HCS felt more supported, in terms of feeling listened to and being able to make at least one change to their lifestyle habits. Therefore HCS are simple but effective techniques that represent a practical approach for HCP’s to be able to support women to feel able to make diet and lifestyle changes which could act as a strategy for delivering on GWG guidelines and other healthcare policies. Our next step to apply this model in a healthcare setting and determine whether having access to a HCP trained in HCS in routine antenatal care is a feasible and effective approach to support women to have healthier pregnancies in the future.

4.3 Practice Implications

In our study there is evidence that the intervention RD found it challenging to embed the new HCS into practice after just the training course. It was highlighted that in future it would be useful to build in review and reflection sessions following training; specifically listening to recorded sessions and reflecting on use of the skills, and practising the skills more often could enhance personal development and use of the skills. As the study progressed and she had more opportunities to practise the skills, the proportion of ODQs increased and the proportion of speaking versus listening decreased. The benefit of reviewing and reflecting when embedding new skills into practice for the continued development and application of these skills has been documented previously [25]. In addition the taxonomy of behaviour change techniques developed by Michie et al. highlights the importance of practising skills as a crucial element of changing behaviour [26]. As learning to embed new skills into practice is a behavioural change in itself this should have been better integrated into the design of our study. This also has implications for healthcare practice more broadly. If practitioners are trained in new skills and then expected to apply them in their practice then opportunities to review, reflect and practise new skills following training would be an important element for sustained application and the development of these skills. The importance of building in opportunities to practise new skills in the healthcare system was highlighted in a critical review of the importance of Doctors acquiring and practising new communication skills [27]. Furthermore results from the responses to the QPCQ indicated that women in the intervention group agreed more strongly that their RD placed them at the centre of the care and supported them to feel able to make changes to their lifestyle habits. There is a growing body of literature which suggests that a more ‘patient-centered approach’ improves patient satisfaction and leads to better patient outcomes [28-30]. Specifically in Alberta, a recent healthcare policy has been instated which recognises the importance of patient centered care, called the ‘Patient First Strategy’ [31]. Our study suggests that training practitioners in HCS may be an effective strategy to help deliver on this, and other important healthcare policies.

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[31] Alberta Health Services. Patient First Strategy. 2015. Available from URL: <https://www.albertahealthservices.ca/info/Page11981.aspx> [accessed 20th December 2017]**Table 1** Example conversations from the recorded study visits.

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| --- | --- |
| **Example control visit conversation** | **Example intervention visit conversation** |
| RD “Do you have any questions you’d like to ask?”  *W “Do you have any suggestions or recipes for higher calorie dense snacks to prepare now for later for during labor and breastfeeding?”*  RD “I don’t really have any recipes, energy dense snacks would be like cheese and crackers and yeah if your smoothies have Greek yoghurt in that’s going to be pretty good or even Greek yoghurt on its own with fruit on top if you don’t want to bother getting the blender out, that’s an option. Like a peanut butter banana tortilla wrap could be quick and easy”  *W “I always have the appetite for something like a granola bar but I know that granola bars are like super high in sugar. Some of the nature valley ones are ok and like the peanut butter one is less than 10 grams”*  RD “Yeah you’re right most of the granola bars are pretty high in sugar – I wouldn’t recommend them as an everyday thing but definitely if you’ve got your baby and you’re trying to get to the immunization appointments or whatever and you’re on the run there’s nothing wrong with grabbing one. Yeah but peanut butter is pretty quick and easy - or any kind of nut butter or like chopped up veggies dipped into store-bought hummus is pretty easy – you can even like, when my sister first had a baby she liked to make homemade pizzas on like just on pitta bread – she’d just buy pitta bread and had tomato sauce going in the fridge all the time and some pre-grated cheese and she found that was an easy thing that she enjoyed”  *W “Ok great”* | RD “How do you rate your overall health now?”\*  *W “Fair”*  RD “**What** do you think could move you up to good [on the scale]?”  *W “Eating better and getting more exercise”*  RD “Are there changes you’d like to make in terms of healthy eating?”  *W “Yes get more vegetables and well balanced meals not just like meat and carbs”*  RD “**How** do you think you can get more vegetables?”  *W “I’ll try to like if I do a small green salad before I eat my dinner then that might help, or add more vegetables to sauces and things like that*….*before I’d have salad for lunch and munch on vegetables and hummus for snacks but I’m not sure if it’s the time of year too cos it’s cold and I don’t feel like cold food, I’m not sure what’s wrong”.*  RD “Yeah **your idea** of mixing more vegetables into sauces is great” |

\*This question was part of the standard questionnaire and was used to create an opportunity to have a ‘healthy conversation’

**Table 2** Mean scores for each item on the adapted ‘Quality of Prenatal Care Questionnaire’ by intervention and control group.

|  |  |  |  |
| --- | --- | --- | --- |
| Statement | Intervention group score (mean (SD)) | Control group score (mean (SD)) | P value |
| I felt having access to a Registered Dietitian complimented the care I received from my family doctor, OB/GYN well | 3.8 (1) | 3.3 (0.76) | 0.37 |
| My study Registered Dietitian respected my knowledge and experience | 4.3 (0.86) | 4.0 (0.62) | 0.25 |
| I feel I received adequate information about my diet during pregnancy | 3.8 (1) | 3.7 (0.8) | 0.55 |
| **My study Registered Dietitian was interested in me and how this pregnancy was affecting my life** | **4.1 (0.92)** | **3.6 (0.76)** | **0.05** |
| My study Registered Dietitian was available when I had questions or concerns | 4.1 (0.93) | 3.7 (0.63) | 0.08 |
| My study Registered Dietitian gave helpful answers to my questions | 4.2 (0.88) | 3.9 (0.70) | 0.21 |
| I felt at ease with my study Registered Dietitian | 4.5 (0.93) | 4.2 (0.66) | 0.35 |
| My study Registered Dietitian took time to listen | 4.4 (0.92) | 4.2 (0.69) | 0.36 |
| **My study Registered Dietitian took time to ask about things that were important to me** | **4.3 (0.99)** | **3.7 (0.9)** | **0.04** |
| **The length of the visits were appropriate** | **4.3 (0.48)** | **4.0 (0.68)** | **0.03** |
| **I found the follow-up phone calls helpful** | **4.0 (0.69)** | **3.4 (0.58)** | **0.002** |
| Participating in this study increased my awareness of healthy lifestyles in pregnancy | 3.9 (0.79) | 3.7 (0.54) | 0.43 |
| **Participating in this study helped me to improve at least one of my lifestyle habits** | **4.0 (0.69)** | **3.5 (0.65)** | **0.005** |
| Participating in this study was beneficial for me | 3.9 (0.76) | 3.7 (0.51) | 0.06 |

Difference in mean score assessed using a non-paired t-test. Figures in bold indicate a statistically significant difference.

**Table 3** Quotes from the semi-structured interview with the intervention RD about her experience of using the Healthy Conversation Skills (HCS) in practice.

|  |  |
| --- | --- |
| Theme | Example quote |
| Building relationships | *“I feel like HCS allowed me to better focus on exactly what the participant wanted to talk about….and explore their world. I felt like I could ask a couple of extra questions, open-ended questions, and see what the women had to say and I needed to listen. So often healthcare providers say we don’t have enough time, but I feel like if we use HCS we can talk about exactly what that patient wants to talk about, in a short period of time”.* |
| Barriers - New practice | “*Another barrier, it was difficult sometimes, after being taught HCS, when I could see a change someone could make but they didn’t see it, but now I don’t want to tell someone how to live their life or what to change. So me as a healthcare provider is sitting there thinking ‘I can see somewhere you could make a change in their life’. For example, a woman said she had her nails done fancy every week but also she said she couldn’t afford gym membership… but now it’s not my role to change that’* |
| Barriers – application of new skills | *“Learning the skills in the training is one thing but actually sitting there with a participant is very different, so actually bringing up the conversations, I think I struggled with that in the beginning ….and I would definitely try to prompt them to set behaviour change goals. I think reflecting on the skills and listening back to the audio-recordings and thinking about how I could make changes throughout the study would have been very useful”* |

**Table 4** Example quotes from the focus groups with intervention and control participants

|  |
| --- |
| Example quotes from the focus group |
| *“I agree, it was very easy to come to the meetings it was very easy to schedule the phone calls, the computer stuff you could do on your own time so it was pretty easy to work it in…but thank goodness the study doesn’t bother you in the end. It was just in the middle and the beginning [of pregnancy] so that was good”* - (Intervention Group)  *“…I felt like the follow up via email and phone was kind of understanding that as you got more pregnant you might not want to come and do it in person – the structure was pretty well set up”* - (Control Group) |

**Figure 1**: Study flow chart

78 women recruited

N=38

Intervention group

Randomisation

N=37

N=33

Baseline face-to face visit  
16±4 weeks gestation

N=31

N=27

Phone call 1  
27±1 weeks gestation

N=24

N=25

Second face-to-face visit  
29±1 weeks gestation

N=20\*

N=20\*

Phone call 2  
35±1 weeks gestation

N=40

Control group

N=27

N=23

Postpartum phone call  
4±1 weeks postpartum

Figure legend: In total 20 (26%) participants did not complete the study. Of those, 11 participants met exclusion criteria throughout the study (n=7 got gestational diabetes, n=2 obtained care from a midwife, n=1 developed hypothyroidism and n=1 was placed on bedrest) and 9 participants withdrew from the study voluntarily.  
\*These numbers are lower than those who completed the study as some women could not be contacted in the allotted time from over the phone but this did not result in exclusion from the study.

**Figure 2** Bar graph showing proportions of response types by intervention dietitian

**Figure 3** Proportion of words spoken by the intervention dietitian versus study participant at each recorded session