Factors influencing lifestyle behaviours during and after a gestational diabetes mellitus pregnancy

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Objective: This qualitative study examined the healthy lifestyle behaviours undertaken during and after a pregnancy complicated by gestational diabetes mellitus (GDM) and the factors that influenced the likelihood of undertaking of such behaviours. Methods: Semi-structured telephone interviews were conducted with women who had a pregnancy complicated by GDM in the previous 3–7 years. Interviews were analysed using a theoretical thematic analysis approach. Results: Thirteen women provided interviews as part of this study. Women typically engaged in healthy behaviours in terms of diet, physical activity and glucose monitoring during their GDM pregnancy, but generally these behaviours were not maintained postpartum. Women appear not to be intrinsically motivated to engage in healthy lifestyle behaviours, but rather require the support of an extrinsic motivator such as their unborn child or the support of healthcare professionals. A gap exists between women’s knowledge of their increased long-term diabetes risk and the behaviours which they undertake to reduce this risk in the postpartum period. Conclusion: Women with previous GDM need increased support in the postpartum period to assist them to develop self-management and prioritisation skills to take control of their increased type 2 diabetes mellitus risk.

Keywords: gestational diabetes; lifestyle; behaviours; qualitative; women

Introduction

Gestational diabetes mellitus (GDM) is defined by the American Diabetes Association (ADA) as “diabetes diagnosed in the second or third trimester of pregnancy that is not clearly overt diabetes” (American Diabetes Association, 2015, S13). It is associated both with adverse consequences for maternal and foetal health, including macrosomia, increased risk of caesarean section and increased neonatal unit admission (Catalano et al., 2012; Langer, Yogev, Most, & Xenakis, 2005; Schmidt et al., 2001), and an increased long-term risk for the development of pre-diabetes or type 2 diabetes mellitus (Catalano et al., 2012; Kim, Newton, & Knopp, 2002). GDM prevalence has recently been reported as 2–6% in Europe (Buckley et al., 2012),

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9.3–25.5% internationally (Sacks et al., 2012) and 12.4% in Ireland (O’Sullivan et al., 2011). In the Irish population, 28.4% of women with a history of GDM have been diagnosed with pre-diabetes or diabetes one to five years after the index pregnancy (Crowe et al., 2012). Thus, it is evident that GDM and its resultant long-term consequences have a prominent impact upon the health of those many women affected.

In at-risk individuals, type 2 diabetes mellitus may be delayed or prevented by healthy lifestyle behaviours focusing on weight management through diet and exercise (Bazzano, Serdula, & Liu, 2005; Hu, 2011). Accordingly, women in Ireland diagnosed with GDM are routinely advised to change their lifestyle behaviours both during and after the pregnancy. However, evidence shows that lifestyle change is not being implemented appropriately by women post a GDM pregnancy despite receiving such advice and information. This is evidenced by a review conducted by Jones, Roche, and Appel (2009), which showed that women with previous GDM are more likely to be overweight or obese, are less likely to meet the ADA recommendations of 150 minutes of aerobic exercise and three resistance exercise sessions weekly, and are less likely to have adequate daily intake of fruit and vegetables. Furthermore, a review conducted by Kaiser and Razurel (2013) confirmed that there is low compliance with the health behaviours recommended for the prevention of type 2 diabetes mellitus in the period after GDM. Despite some work already conducted in the area (Jones et al., 2009), it has been recommended that further research is conducted to further identify factors that influence the health behaviours of women with previous GDM, to assist in understanding why healthy lifestyle behaviours are not implemented in this at-risk group Jones et al. (2009).

With this in mind, the aim of this study is to qualitatively assess the healthy lifestyle behaviours (e.g. diet, physical activity and glucose monitoring) which were undertaken by a group of women both during and after their GDM pregnancy and to gain an understanding of the factors that influenced the undertaking of such behaviours. It is anticipated that identification of these factors will assist in informing the development of future intervention strategies aimed at reducing the number of women developing type 2 diabetes mellitus post GDM.

Methods

This study was conducted in accordance with the Declaration of Helsinki and was approved by the ethics committee of the Galway University Hospitals. Participants were recruited from a larger sample of women who had tested positive for GDM on a 2 h, 75 g oral glucose tolerance test at between 24 and 28 weeks gestation between 2006 and 2010 as part of the ATLANTIC DIP collaborative study and were followed up to determine the prevalence of persistent postpartum glucose dysfunction (Noctor et al., 2012). These participants were recruited from five hospital sites located along the Irish Atlantic seaboard. Details regarding the methods by which the initial GDM screen and follow-up screen were conducted are described elsewhere (Noctor et al., 2012). Consent to hold data on a database for future research was established with 73 women during the original Noctor et al. (2012) study. Inclusion criteria for this study consisted of: (a) participation in the previously mentioned Noctor et al. (2012) study, (b) previous GDM diagnosis and c) sufficient understanding of the English language to enable provision of informed consent and participate in the interview. An information letter outlining the purpose and structure of the research study was sent to 25 randomly selected women of those 73 who had provided consent to be contacted. Of these 25 women, 3 did not provide consent to interview, 5 could not be contacted by telephone, 3 reported that they were not aware of a previous diagnosis of GDM or felt they did not sufficiently remember their GDM period and 1 woman did not have sufficient English communication skills to participate. Thus, 13 women participated in this study, and each provided written informed consent prior to interview.
A semi-structured interview guide was utilised using primarily open-ended questions, to elicit as much information on the women’s experiences as possible. A conversational style of interviewing was adopted to encourage a comfortable and fluent dialogue which was rich in detail, while using an interview schedule as a reference to ensure that all key topics were covered. The research questions covered lifestyle and care in the pregnancy and postpartum periods, specifically the type of advice received, perceptions of the advice and the challenges of engaging in healthy lifestyle behaviours. Questions were devised based on previous gaps in the literature identified. The first author (who is both a health professional and postdoctoral researcher, but was uninvolved in the care of the women) performed all the interviews via telephone, at a time of the participant’s choosing. Telephone interviews are deemed to be productive in qualitative research (Sturges & Hanrahan, 2004) and were utilised in this study as it allowed superior access to this population, which has been deemed hard to reach (Opdenakker, 2006). Interviews lasted between 25 and 40 minutes. Women were recruited into the study until theoretical saturation was achieved, as evidenced by data replication occurring and no new insights or themes being identified.

The interviews were audio-taped with the permission of each participant, using a digital recorder. Interviews were transcribed verbatim and analysed using theoretical thematic analysis with a semantic approach as outlined by Braun and Clarke (2006). Thematic analysis is a particular type of qualitative analysis which focuses on recognising, analysing and reporting patterns (themes) within a qualitative data set. It is most similar to “discursive analysis”; however, unlike many other forms of qualitative analysis, it is not related to a specific theory or epistemology and thus gives considerably more flexibility to the researcher. The use of theoretical thematic analysis allowed for the analysis to be driven by our clinical and theoretical interests in understanding healthy lifestyle behaviours during and after pregnancy complicated by GDM. More specifically, the goals were to describe the healthy lifestyle behaviours of women during and post GDM, and to develop a better understanding of the factors which influenced these behaviours in order to guide the development of future interventions. A semantic approach, focusing on the explicit meaning of the data, was chosen. This approach extends beyond a description of the themes to an interpretation of the significance and implications of the themes identified.

Transcripts were reviewed independently by two of the authors (M. T. and A. O. D) who followed the phases outlined by Braun and Clarke (2006). Phase one involved familiarisation with the data, reading and re-reading of the transcripts and noting of initial ideas. Phase two involved generating initial codes in a systematic fashion across the entire data set. Phase three involved collating the codes into potential themes. Phase four involved reviewing of the themes and ensuring that they are relevant in relation to both the coded extracts and the entire data set. Phase five involved refining the themes to ensure that they provide a clear reflection of the overall story portrayed in the data set. Both authors met regularly to identify common themes and discuss areas of agreement and divergence.

Results

Thirteen women with a GDM diagnosis in the previous 3.6–6.6 years participated in this study. The participants had a mean age of 41.2 years (range 31.2–49.6) at the time of interview.

Four themes were identified through these in-depth interviews. These themes centred on the type of lifestyle-related behaviours that women undertook during and post a GDM pregnancy as well as the factors that facilitate and hinder these types of lifestyle behaviours. The need for extrinsically driven motivation is evident throughout each of the themes as...
well as a lack of skills related to self-management of health and prioritisation of one’s own health needs.

**Theme one: motivators, barriers and facilitators of a healthy lifestyle**

**Motivators**

The primary motivation for lifestyle modification during pregnancy was for the health of their unborn baby, while maternal health during the pregnancy was rated as a secondary motivation.

I thought that I had to make the changes for the benefit of my child first of all and then for myself.

A number of women \( n = 5 \) also reported that managing their GDM through lifestyle change alone, without the need for insulin during the pregnancy, was a motivating factor for lifestyle change during the pregnancy. One woman reported:

I had to make the changes for the benefit of my child first of all. And then for myself [I wanted to] try to manage the diabetes if I could by exercise and diet … I did not want to go on insulin.

Worry about the future development of diabetes mellitus was generally not a major motivation towards lifestyle change in the antenatal period with one woman saying:

I wasn’t really worried about the [risk of] lifelong diabetes.

**Barriers**

Women reported a number of barriers in the postpartum period which they felt impacted on their ability to undertake a healthy lifestyle. Most revolved around ability to exercise, however, a number involved diet also.

Environmental factors such as weather and finance were reported by women as limiting factors to a healthy lifestyle. This is illustrated by quotes such as:

oh that’s the weather I tell you … when it’s raining outside [I don’t exercise]

from one woman while another reported:

I know financially it can be a problem [to eat healthily] because it’s usually more expensive. I always notice the special offers they have in supermarkets are always on the convenience foods items, never on the healthy foods.

Time-related factors such as a busy lifestyle were also cited as barriers to a healthy lifestyle with one women reporting:

I think time has a lot to do with it. It’s just time to get organised.

Family-related factors such as prioritising others in the family were also reported as barriers. This prioritisation was described by one woman as:

I’m busy at work and then collecting them [children], I’m rushing around. You tend to put yourself down the pile a bit, you know … everything else comes first really I suppose.
Facilitators

In identifying factors that facilitated a healthier lifestyle, a number of reasons were revealed. Having children who were older and having support from others were among the factors seen as helpful in undertaking a healthy lifestyle. One woman reported:

because my youngest one has started crèche it gives me a bit of time in the morning to do my walk

highlighting how older children can facilitate a healthier lifestyle. Having support for living healthily was indicated by one woman reporting:

they’re [family] always saying make sure you’re eating healthy and don’t be eating trash ….they would be very good like that.

Many women expressed suggestions for what would help them engage in health lifestyle behaviours necessary to attempt to modify their high type 2 diabetes risk. They have a strong desire for increased levels of postpartum advice and more regular follow-up, including screening, which they felt would act as a motivation to lead a healthy lifestyle. One participant indicated that:

you should be called back maybe in two years or three years just to go through it again, just to see that if there was an increase in the [blood sugar] reading

as she felt that this would be particularly helpful.

Education was felt to be fundamental to the facilitation of a healthy lifestyle into the long term, as highlighted by one woman revealing:

I think education on diabetes [is important], definitely, and risks of it in years to come

with another participant outlining:

I suppose practical menus and as regards the exercise, maybe pointers as to what you can do

Women suggested group meetings and/or support meetings, which continued for many years after the GDM pregnancy as another potential facilitator of a healthy lifestyle postpartum with a participant saying:

group meetings and things like that would help. Because if you are going and chatting to somebody you are going to get motivated [to live in a healthier manner].

Lifestyle intervention programmes were felt to be a significant facilitator of a healthy lifestyle postpartum. It was suggested that online delivery was a more appropriate means of offering such support in order to overcome the time and availability constraints that women experienced. One women said:

sometimes if you couldn’t get out and if there was something online [instead]

to highlight this point.

Some women also noted that receiving regular communication in the form of emails or letters would serve to trigger them into action and would be helpful in facilitating them to live a healthy lifestyle highlighted by the quote:
I think that the letters [results of tests] that you sent me, that triggers me … . It’s like a real kick in the bum.

**Theme two: ability to live a healthy lifestyle**

All of the women reported engaging in a healthy lifestyle, in terms of their dietary and physical activity behaviours during their GDM pregnancy. Both diet and, where not contraindicated, exercise levels improved significantly in this period.

The Health Service Executive in Ireland recommends monitoring carbohydrate intake and ensuring healthy carbohydrate choices are made, and regular physical activity for the management of GDM (Health Service Executive, 2010).

Dietary and exercise advice designed to help the GDM women in this study to manage their glucose function and prevent complications was reported to have been provided mainly by nursing staff in the diabetes clinics throughout the antenatal period. The information was well received with all women reporting that they implemented all the advice diligently, despite the difficulties associated with making radical lifestyle changes. Participants reported:

> the nutritional advice they had given [to] me, I did stick to it. I did take it on board, definitely and

> whatever advice was given, I was going to take it on board and [I said] I’m actually going to do everything.

A small number ($n = 4$) of the women reported that they were trying to live a healthy lifestyle, or it had improved since their GDM pregnancy saying:

> I’ve lost a good bit of weight … I’d be eating much more regularly …. I wouldn’t be as stressed and I get more exercise.

However, despite their ability to undertake a healthy lifestyle in the antenatal period, women typically did not manage to maintain the changes in the postpartum period with one participant saying:

> I probably have slid back to my usual ways.

The predominant response ($n = 12$) was that they had become complacent about their lifestyle since the GDM pregnancy. Many wished that they had kept up a healthy lifestyle but reported having returned to old ways in the years since their GDM pregnancy with one participant describing this by saying:

> I was grand [good] for the first few months but then I went to the way side [off track], I just went back to my usual thing, I stopped walking and started eating rubbish [food] that I shouldn’t have.

**Theme three: satisfaction with care**

The women’s interactions with staff at the GDM clinic, particularly with nursing staff, appeared to be an important component of their satisfaction with their care. Nurses were seen as the source of
most of the information and support that the women required to manage their condition indicated by the response:

the diabetic nurses probably would’ve been the main people that give advice.

Furthermore, it was felt that support was available at any time through a nurse-led telephone service and this facility appealed to these women, which was highlighted by one of the participants reporting:

if I had any queries at any time I know I could have rang, there was always someone to ring and I was told that at the time.

Referral to a dietician or nutritionist was believed to be a particularly helpful component of the GDM management as they focused attention on diet and provided a dietary programme for the women with a participant reporting:

I met with a nutritionist or a dietician … she provided better guidance [on] what food to eat, what food to limit.

Furthermore, women felt secure that their GDM was being managed well due to the close, intense monitoring they received at the time of their GDM. This close, intense monitoring is illustrated by responses such as:

they keep a really close eye. Towards the end, they would see me nearly every week. So [they were] really keeping an eye on me

and

I had to record seven readings a day on a sheet. [Diabetes Nurse] would ring every week to get the readings. It kept you on the ball … I think if you didn’t have that you’d be kind of lackadasical.

Conversely, in the postpartum period, women felt isolated and missed the close and intense support and monitoring by others which they had become accustomed to during pregnancy. The majority of women reported dissatisfaction with the care provided to them in the postpartum period. This dissatisfaction was highlighted by women reporting:

once I finished the pregnancy …. [I] was left in the middle of the whole thing,

nothing happened. I [felt] like I was dropped from the top of a roof. Nothing happened. It was like I did not even exist

and

my main area [of dissatisfaction] would have been post [pregnancy]. I would’ve thought more could have been done [after] having your baby.

Most (n = 12) reported not being provided with any further structured diabetes care, except for a postpartum glucose screen, once the GDM pregnancy had ended, despite having been warned of their risk of developing diabetes mellitus in the future. These women no longer attended the diabetes clinic which would have been central to their care during pregnancy and were transferred
back to their primary care physician after the GDM pregnancy. Some women found their GP to be a good source of support and advice on their increased diabetes risk as highlighted by one women reporting:

he [GP] does [give diabetes advice], he’s brilliant … he’s fantastic that way.

However, the predominant response was that GPs were not particularly responsive to these women to assist them to manage their diabetes risk with one woman reporting:

they [GPs] don’t seem to have expertise in that particular field

while another outlined:

there was no after care … not even the GP, nothing. There was no collaboration.

**Theme four: risk awareness and acknowledgement**

All of the interviewed women were aware of their increased risk of developing type 2 diabetes mellitus because of their GDM history reporting:

they did advise about … the fact that you could develop diabetes in later years.

However, despite having knowledge of this increased risk, women believed that this risk was not imminent, and thus it did not motivate them to take immediate action to remedy the risk with one woman describing this as:

it’s the fact that I don’t have it at the moment … that I know I haven’t got it at this moment [means] I’m a bit more lackadaisical about it.

**Discussion**

This qualitative study explored Irish women’s experiences and perspectives regarding the factors which influenced healthy lifestyle behaviours both during and after a GDM pregnancy.

During the GDM pregnancy, women interviewed as part of this study reported diligently implementing the advice regarding healthy lifestyle that was proposed to them. This high rate of implementation of lifestyle advice during pregnancy has previously been reported (Doran, 2008; Evans & O’Brien, 2005) as have the factors motivating implementation, namely avoidance of insulin therapy (Carolan, Gill, & Steele, 2012; Doran, 2008) and maximising foetal health (Bandyopadhyay et al., 2011; Carolan et al., 2012; Evans & O’Brien, 2005). However, in the longer term, women found it difficult to maintain positive lifestyle behaviours in the postpartum period. As previously outlined, this drop-off in health-enhancing behaviour is evident elsewhere, with reviews conducted by Jones et al. (2009) and Kaiser and Razurel (2013) reporting suboptimal healthy lifestyle behaviours in this population during postpartum follow-up periods.

This drop-off in healthy behaviour occurs despite an adequate awareness of the risk of developing pre-diabetes and diabetes arising from a GDM diagnosis among these women. Women are aware that they are at an increased risk of developing type 2 diabetes in later life; however, they are not taking adequate steps to minimise this risk. This has been termed the ‘knowledge-behaviour gap’ in previous literature (Jones et al., 2009). The women are exhibiting avoidance
techniques, stating other priorities that prevent them from engaging in healthy behaviours and relying on extrinsic motivation (family, increased health service engagement) to assist them to take responsibility for implementing the behaviours they know are necessary.

Jones et al. (2009) highlighted the need for research to identify factors to assist in the maximisation of women’s ability to carry out risk reduction behaviours in the postpartum period, similar to those implemented during pregnancy. The current study provides some indications as to why a discrepancy exists in the lifestyle behaviours at these two points in time, and makes suggestions at potential solutions which may assist in the development of strategies designed to improve lifestyle behaviours in the latter period.

In this sample, women with previous GDM were satisfied with the care they received during their GDM pregnancy. They felt supported and cared for, felt their condition was managed well and described positive relationships with healthcare providers at this time. However, in the postpartum period, there was general dissatisfaction with the care received. Women felt isolated and felt that there was a lack of a relationship with healthcare providers to assist them in managing their diabetes risk. This is evident in previous literature in this population with Evans, Patrick, and Wellington (2010) reporting a “sense of abandonment” in the postpartum period. Both that study and our study noted a quick transition from close monitoring and management by the antenatal team to minimal or no follow-up in the postpartum period. Research evidence highlights the importance of a positive relationship between healthcare provider and patient. It is widely accepted that good communication enhances patients’ adherence to treatment (Zolnierek & DiMatteo, 2009), and in diabetes, the quality of the patient–doctor relationship is considered an important determinant of adherence (Delamater, 2006). In our sample, the loss of the professional relationship appears to coincide with the time that adherence to a healthy lifestyle decreased in many cases.

It has been acknowledged that the management of diabetes and diabetes risk by specialist diabetes centres is not feasible and over the past two decades, health professionals based in the community have been tasked with providing many routine diabetes services (Khunti & Ganguli, 2000). Primary care providers appear well placed to fill the healthcare provider void in the postpartum period for this population. However, increased collaboration between specialist diabetes services and primary care is necessary to ensure that these at-risk women are supported to manage their high-risk status as well as having opportunities for screening to ensure that appropriate diabetes management can be put in place when necessary.

We hypothesise that the intense monitoring and close support provided during the GDM pregnancy may in fact serve to limit women’s ability to be autonomous and to take responsibility of their at-risk state. Waller (2001) described “autonomy” and “take charge responsibility” as contributors to both physical and psychological well-being. Similarly, Waller (2005) proposed that those who can effectively and confidently enjoy a sense of control are generally healthier, physically and psychologically. It has been shown that the more practice an individual has at implementing a behaviour, the more skilled they are likely to become at it (Waller, 2005). However, the post-GDM women have had limited opportunity during pregnancy to take responsibility and practice self-management behaviours for their diabetic health. Rather, health professionals have focused on persuading patients to change and maintain healthy lifestyle through “informational power” and “expert power” (Glanz, Lewis, & Rimer, 1990), that is, through use of factual information and professional credentials. However, the findings of this study suggest that used alone, these methods may be ineffective in promoting long-term behaviour change and may even contribute to the knowledge-behaviour gap that is evidenced in this group in the postpartum period.

Instead, it seems imperative that healthcare professionals introduce techniques which aim to increase the ownership and self-management of health and increase motivation to improve their at-risk state. Incorporating behaviour change techniques that are grounded in theories of health
behaviour change including, for example, the health belief model, social cognitive theory and self-management theory, into diabetes prevention programmes are likely to be important to ensure that the positive lifestyle behaviours are maintained into the longer term with only minimal external support. For example, the Diabetes Prevention Programme (Diabetes Prevention Program Research Group, 2002), which has shown positive results in the prevention of type 2 diabetes mellitus, includes components which encourage and develop self-monitoring and self-management skills. Thus, based on our findings as well as the positive results found in the Diabetes Prevention Programme, it is likely that interventions that go further than provision of advice and information but also focus on strategies to change and maintain positive behaviours will be important and necessary in this population. It is unclear whether these interventions are best be implemented in the antenatal or post-natal period, and further research will be necessary to determine this.

Two related factors emerge as significant barriers to the undertaking of healthy lifestyle behaviours in the postpartum period: (a) lack of time and (b) lack of willingness to prioritise one’s own health over other competing demands, primarily that of a newborn child. Evidence from this study suggests that many women consistently prioritise their children’s and partner’s needs over their own. Numerous other studies have shown that women who care for dependent family members experience worse health outcomes because they give a higher priority to the need of their dependents and a lower priority to their own health needs (DiGiacomo, Davidson, Zecchin, Lamb, & Daly, 2011; Godfrey & Warshaw, 2009; Wall, 2013). Although women are generally aware of the importance of caring for themselves, the maternal “ethic of care” associated with culturally endorsed notions of the “good mother” stereotype can make it difficult for them to prioritise time for themselves over childrearing or domestic duties, as by doing so they may be positioned as “bad” or “inadequate” mothers who are not fulfilling their societally expected role (Lewis & Ridge, 2005). Time scarcity is known to impact on healthy lifestyle behaviours in parenthood (Bava, Jaeger, & Park, 2008; Jabs et al., 2007), most particularly in working mothers and mothers with deficient economic and social resources (Reczek, Beth Thomeer, Lodge, Umberson, & Underhill, 2014). Furthermore, Wall (2013) reported that the amount of time available for mothers to tend to their own needs while meeting the cultural expectations of good motherhood appears to be reducing, making the prioritisation battle even more difficult.

Women in the post-GDM period must be educated, encouraged and motivated to care for and prioritise their own health to a greater extent than they currently do, in order to reduce their risk of developing type 2 diabetes mellitus. They need to learn to re-focus the “care” role society places on mothers, understanding that practising healthy lifestyle behaviours can in fact strengthen the “good mother” role by improving family relationships, contributing to well-being of the family through shared family time, provision of good role models for children and providing healthy family environments. Interventions that focus on methods to improve prioritisation and health self-management are likely to be important in the development of strategies to assist these women to adopt healthy lifestyle behaviours. This will assist women to learn how to prioritise their own health and take on positions of health responsibility which will reduce the perceived necessity for external input.

In response to their perceived lack of time to engage in healthy behaviours, the women in this study expressed a wish for access to online health intervention programmes. It has previously been reported that electronic health (ehealth) and mobile health (mhealth) interventions can be used to overcome barriers to the implementation of traditional programmes and have many benefits (McTigue et al., 2009; Meier, Fitzgerald, & Smith, 2013). We acknowledge some limitations to this study. Primarily, we did not observe or measure behaviours and these women experienced their GDM pregnancy three to seven years prior to the interviews conducted as part of this study. Thus, the behaviours reported may differ to
those actually engaged in. Furthermore, we did not assess the socioeconomic status of the women involved as we are unable to determine whether certain socioeconomic groupings are more likely to report an increased likelihood to engage in healthy behaviours or exhibit better self-management skills. In addition, the researcher who conducted the interviews also conducted the analysis which may lead to experimenter bias being applicable to the research result reported. However, we attempted to mitigate the risk of bias through (a) use of an interview guide designed in advance of the interviews, (b) use of an interviewer who was not involved in the care of the women involved and (c) concurrent transcript analysis by another researcher, again who was not involved in the women’s care. However, readers must be cognisant that despite these checks being implemented to minimise the risk of experimenter bias occurring, there is the possibility that bias did influence the outcome of the research result in this case. Future work is called for that accounts for the limitations of this study and may result in additional perspectives and thus, better identification of solutions which may improve women’s ability to engage in healthy behaviours to account for their identified higher type 2 diabetes risk post a GDM pregnancy.

In summary, this study revealed that during a GDM pregnancy, women implemented positive lifestyle change as they were motivated by protecting the health of their unborn child. However, the motivation to continue with a healthy lifestyle was often reduced in the postpartum period, and appears relevant to the lack of external support available to the women and the lack of health self-management skills developed by the women. As recommended by Jones et al. (2009), this study has provided further evidence of the barriers and facilitators to undertaking healthy lifestyle behaviours in this population. The study also makes suggestions as to how best to support the improvement of healthy lifestyle behaviours in the postpartum period. We would recommend the routine inclusion of interventions to develop prioritisation and health self-management skills among these women. These findings can contribute to the development of lifestyle interventions and behaviour change strategies designed to assist women with previous GDM to manage their increased diabetes mellitus risk.

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