RESEARCH ARTICLES

# "We are competing with culture" the chasm between healthcare professionals and Australian Samoan women in the prevention and management of gestational diabetes mellitus


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## ABSTRACT

**Objective:** The Samoan community has a disproportionately higher incidence of gestational diabetes mellitus (GDM). We explored consumer and healthcare providers' insight into perceptions of risk, attitudes to lifestyle behaviour change and experiences of GDM among Australian Samoan women in South Western Sydney.

**Methods:** Semi-structured interviews and a focus group with Samoan women recruited through three churches, a diabetes and pregnancy clinic in South Western Sydney and via social media were conducted. Semi-structured interviews with healthcare providers' were also conducted. Main themes were thematically analysed to identify recurring patterns using Quirkos software. Identified themes were framed against the constructs of the Health Belief Model.

**Results:** One focus group (n=4) and 12 one-to-one interviews were conducted among Samoan women. Eighteen semi-structured interviews with healthcare providers' were also conducted. There was a high concordance between Samoan women and healthcare providers' regarding perception of risk and barriers to maintaining a healthy lifestyle. However, Samoan women reported negative interactions with healthcare providers' that hindered their behaviour change, while healthcare providers' reported that normalisation of diabetes, confusion of GDM with type 2 diabetes and spiritual health beliefs were deterrents to behaviour change among Samoan women.


 https://doi.org/10.37464/2023.402.591

**Conclusion:** Cross-cultural factors can influence the uptake of a healthy lifestyle. Future research should consider use of culturally tailored strategies when developing educational resources targeting Samoan women.

**Implications for research, policy and practice:** The participants' viewpoints expressed in this study suggest a critical need for the development of culturally-tailored health promotion strategies for Samoan women and cultural training for healthcare providers', to improve GDM care and subsequent pregnancy outcomes.

**What is already known about the topic?**
- There is limited data and research on GDM particularly among the Australian-Samoan community though the available data highlight the significant morbidity and mortality due to diabetes in this population.
- Samoan women are at an increased risk of gestational diabetes mellitus.

**What this paper adds:**
- This paper provides knowledge and understanding on ways to prevent and manage GDM by investigating the perception of risk and experiences of GDM among Australian Samoan women and healthcare professionals in Sydney.
- It provides current evidence base for policy makers and researchers to develop health promotion strategies and interventions that are relevant to the Samoan and other culturally and linguistically diverse (CALD) communities in Australia.

**Keywords:** Gestational diabetes mellitus, Samoan women, healthy eating, physical activity, healthcare services, Health Belief Model

## INTRODUCTION

Gestational diabetes mellitus (GDM), defined as glucose intolerance first recognised during pregnancy that is less than overt diabetes in pregnancy,[1] affects ~9% of pregnancies in Australia and up to 25% in other countries.[2,3] In Australia, Pacific people including the Samoan community, have a disproportionately higher incidence of GDM and are three times more likely to develop GDM compared to Anglo-European women,[4,5] likely due to their biological susceptibility and lifestyle. Samoans are the second largest Pacific community (N=75,000) in Australia after New Zealand Māori (N=128,430), with a large proportion of Samoans residing in Greater Western Sydney (GWS).[6] Data from studies among Australian Samoan show that Samoans have a high prevalence of diabetes and its' risk factors compared to the general Australian population.[7,8] Studies from Samoa and the USA also show Pacific women have higher incidence of GDM compared to Anglo-European women and report insufficient uptake of antenatal services,[9,10,11] possibly contributing to more adverse obstetric outcomes.[12,13,14] Additionally, women with GDM are eight-times more likely to develop type 2 diabetes (T2D) compared to women with normoglycaemic pregnancies.[15]

Regular moderate physical activity and a healthy diet are recommended to manage GDM, including limiting gestational weight gain.[16] However, different cultural beliefs and practices around lifestyle and pregnancy may impact on the lifestyle choices culturally and linguistically diverse (CALD) women make before and during pregnancy.[17] Access to services, relationships with healthcare providers (HCPs) and health literacy may also impact on service uptake and information offered.[17] With Australia's multicultural society and the Samoan community expected to triple in the next decade,[18] culturally competent services need to ensure inclusive healthcare for CALD women. Understanding the context within which GDM occurs and barriers and enablers to care need to be recognised to inform strategies to support and educate Samoan women to prevent and manage GDM.

By understanding perceptions and experiences of Samoan women and their HCPs, strategies can be developed targeting diet, physical activity and health services tailored to the community to reduce the incidence and adverse outcomes of GDM. Health behaviour change models are commonly used to understand and explain how, and why, people engage in health-related behaviours. The Health Belief Model (HBM) is one such model that provides a framework which attempts to predict behaviour change in disease prevention, by focusing on individual's attitudes and beliefs.[19] The HBM was developed in early 1950s to explain preventive health behaviours such as why people did not attend free screening tests.[20,21] The HBM consists of five dimensions that describe a persons' health belief, and suggests that individual perceptions of disease susceptibility and severity, benefits and barriers to enacting a behaviour and cues to action influence their health-related behaviours.[19] The HBM is widely used to underpin health behaviour change interventions and determine the likelihood of individuals engaging in disease prevention activities.[22,23] In this study, we sought to explore Samoan women's perceptions of risk and

experiences of GDM, as well as barriers and facilitators to care and behaviour change among Samoan women and HCPs. The HBM was used as a conceptual framework to identify perceptions and experiences of GDM in Samoan women and HCPs, and identify main factors influencing lifestyle change.

## METHODS

### STUDY SETTING AND RECRUITMENT

A purposive sample of Samoan women with, or and at risk (defined by Samoan ethnicity),[2] of GDM (18-50 years) were recruited from three SWS Samoan churches, a SWS diabetes and pregnancy clinic and via social media (Facebook). Individuals from churches were invited through participation in a church-wide diabetes prevention study.[7] Within the clinic, flyers were distributed and clinic staff and a researcher (DN) invited women face-to-face to join. HCPs were recruited from the same diabetes and pregnancy clinic. HCPs were purposively sampled to include different health specialities (endocrinologists, midwives, obstetricians, dietitians and credentialled diabetes educators). Purposive sampling was considered appropriate to consciously target participants to help reach the study objectives. HCPs were invited via email or approached by a researcher at the clinic. On Facebook a link with details of the study was promoted in Pacific community groups and people were encouraged to share the links with women of Samoan background. Data collection took place between July 2018- September 2019. Ethics approval was obtained from the University Human Research Ethics Committee and the Local Health District Human Research Ethics Committee and informed consent (written and verbal) was obtained from participants. Verbal informed consent was obtained prior to conducting telephone interviews.

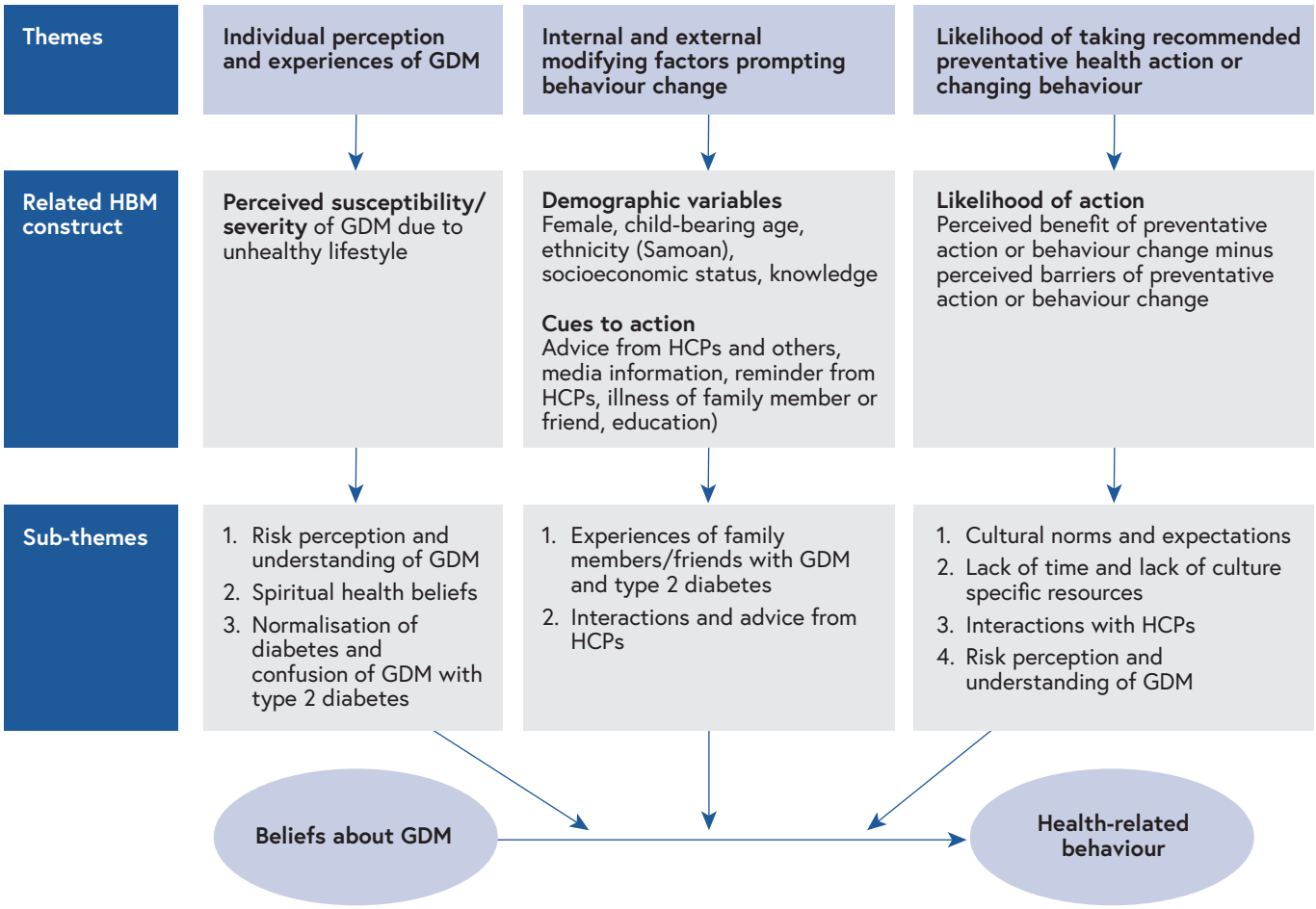
### DATA COLLECTION AND ANALYSIS

To provide flexibility, women were given the option to participate in either interviews or focus groups. In-depth semi-structured interviews and focus groups were deemed appropriate, as they are effective in describing, understanding and explaining areas/topics of interest.[24] Participants recruited through the churches were offered the choice of either participating in a focus group or an interview. Focus groups were offered at church and interviews offered either at participant's homes (face-to-face) with no other family members present or via telephone. The focus group session and interviews were facilitated and conducted in English by DN (a female PhD candidate and registered nurse trained in qualitative research not of Samoan background but from another CALD group). One bilingual author (RT), fluent in English and Samoan was available to provide clarification for any Samoan idiomatic expressions as required. To achieve the aims of the study and facilitate the discussions, an interview guide was utilised (Supporting Table 1) comprising of questions on GDM status, knowledge of GDM and diabetes in general, perceived knowledge of GDM in relation to lifestyle behaviours and experiences with HCPs around lifestyle and diabetes support. HCPs interviews (face-to-face or telephone) were conducted by DN using an interview schedule (Supporting Table 2). Questions centred around their treatment, advice and perceptions of adherence and barriers to uptake of lifestyle behaviour change. Data were collected until thematic saturation was reached, where no new information emerged from the data.[25] Discussions from the focus group and interviews were audio-recorded, transcribed verbatim and identifiable information removed. A general inductive coding approach,[26] was used to analyse data using Quirkos software for data management.[27] Repeated readings of transcripts were undertaken to identify areas of interest and recurring patterns in data aligning with the study objectives. One author (DN) coded data initially to identify patterns from participants' responses and developed a coding framework. Two authors (FM, KM) then independently coded and analysed 10% of the collected data and refined the coding framework in consensus with DN. A deductive thematic approach was used to assign the main patterns identified into the five pre-defined constructs, 'themes,' of the HBM namely: perceived susceptibility; perceived severity; cues to action; perceived benefits and perceived barriers.[19] The overall main patterns identified were independently examined by authors and meetings held until consensus was met.

Results are presented as themes (in relation to constructs of the HBM) with findings related to each construct illustrated using quotes from participant's statements. Patterns identified as not 'fitting' in the HBM model are reported as complementary themes.

## RESULTS

One focus group with four women (at church), 12 individual interviews (nine phone interviews, three face to face interviews in participant's homes) and 18 HCPs interviews (15 face-to face and three via phone) were conducted. Interviews lasted approximately 21-80 minutes. The focus group lasted 60 minutes. Study demographics are listed in Table 1. One woman with GDM was 36 weeks pregnant at the time of the interview and was insulin medicated. Four of the women with a history of GDM were treated with insulin, which was stopped after delivery, while one woman followed a diet-managed program and another was treated with metformin. Eleven women reported a first-degree family history of diabetes including T2D and GDM. Two women had GDM for the first time and five women had GDM in previous pregnancies. Figure 1 displays the five constructs of the HBM and the main patterns (sub-themes) that emerged from the data.




This figure is a modified version based on Strether and Rosensrock 1997[19] and Ge et al. 2016.[39]

**FIGURE 1. THEMES AND SUB-THEMES ARISING FROM THE DATA FRAMED AGAINST THE CONSTRUCTS OF THE HEALTH BELIEF MODEL**

## TABLE 1. CHARACTERISTICS OF PARTICIPANTS INTERVIEWED

| **Australian Samoan women interviewed** | **n=16** |
|---|---|
| Mean age± SD (range) years | 39±8 (19–50) |
| Women diagnosed with GDM (previous/current) | 7 |
| Women with type 2 diabetes | 1 |
| Women without history of GDM | 8 |
| **Healthcare providers (HCPs) interviewed** | **n=18** |
| Years of experience (Mean±SD; range) | 9±7 (2–19) |
| Female | n=15 |
| **HCPs specialties** | |
| Endocrinologist | n=4 |
| Clinical diabetes educator | n=5 |
| Dietician | n=3 |
| Midwives | n=4 |
| Obstetrician | n=2 |

Note: GDM=gestational diabetes mellitus; SD=standard deviation; n=number of participants in each group

## PERCEIVED SUSCEPTIBILITY

In this study perceived susceptibility referred to the degree to which a woman believed she was susceptible to experiencing GDM and/or related complications. Perceptions of susceptibility of GDM and its complications (including future risk of T2D) varied among Samoan women. Despite most women (12/16) having a family history of T2D or GDM, some women felt they were not at risk of GDM or T2D because they felt strong, had no prior health problems or lacked knowledge on GDM as described by one woman.

> *"Yeah, my mum has diabetes, I think, but I'm not sure what type...I don't know much about diabetes in general let alone with pregnancies"* (19 years, No GDM).

Women with a history of GDM stated they knew little about GDM prior to diagnosis, however, three women with GDM felt they were susceptible to GDM because it was a common occurrence in their community.

 https://doi.org/10.37464/2023.402.591

All HCPs stated that every Samoan woman was at increased risk of GDM due to their ethnicity, family history of diabetes and high BMI prior to pregnancy:

> *"I say for particularly Samoan women, I think it's definitely their ethnicity…there's usually family history. We see a lot of Samoan population have diabetes already. We would tend to say probably as a generalisation that a lot of the Samoan women that we see have a very high BMI even before going into pregnancy"* (HCP 13).

HCPs stated that Samoan women's view of health affected their perception of risk and understanding of GDM. HCPs felt diabetes was 'normalised' in the community and was seen as a normal part of ageing and that most Samoan women, due to their strong religious beliefs, had a fatalistic attitude towards their health.

> *"I think there certainly is a cultural aspect of their perception of what health is. I think Samoan women may perceive health and illness and the effect of GDM on themselves differently. Maybe they don't see it as much of a problem as the health professionals…when they think that "there's not much I can do about it. This is what was meant to happen to me" and again, you'll find that a lot of these women have family members with type 2 diabetes. So, again, they might see it as a normal part of getting old because their father got type 2 diabetes or their mother got type 2 diabetes"* (HCP 6).

## PERCEIVED SEVERITY

Perceived severity referred to how women perceived the seriousness of GDM and measures they took to prevent GDM and its complications. According to one Samoan woman, health conditions such as diabetes are not considered severe unless there are visible symptoms of the disease, which would then trigger them to seek medical help.

> *"I think that in Samoan culture, it takes a lot for them to go to the doctors about it because they're very stubborn about issues that they can't see, or especially ones that are diet-based or if the diet is a huge factor in it, I think they disregard it oftentimes."* (19 years, No GDM).

Nearly all women (5/7) with GDM were aware they were at increased risk of having diabetes later in life, although their understanding of their risk varied. Once diagnosed with GDM there were attempts to engage in healthier lifestyle choices. Three women reported trying to maintain a healthier lifestyle to have a healthy pregnancy and baby. However, HCPs believed some Samoan women wanted a healthy baby but were not necessarily concerned about some complications of GDM. The lack of concern was attributed to by HCPs as a lack of adequate GDM knowledge and its complications which they observed through some women 'making up' their blood sugar readings, normalisation of diabetes in the Samoan community and confusion with T2D.

> *"I think as well because they know other people with diabetes and their blood sugars maybe quite have been higher. They think that their own blood sugars are probably okay because it's been lower than other people but not understanding they're a target for GDM for much lower and something that reads in that the targets are much lower"* (HCP 11).

Four women viewed GDM as severe and expressed concern that GDM had long lasting consequences to both mother and baby. They reported eating more healthily and increasing their physical activity, although this increase was reported to be challenging. One of these women reported feeling guilty for being diagnosed with GDM as she felt it was her duty to protect her child but had 'failed'.

> *"Well for me, the scary thing was passing the diabetes to my child. It is almost like it's the mother's job to protect their baby. I actually felt like I failed my baby when I got diabetes. I think that's why I took it seriously because I knew if I couldn't control it while I was pregnant, my baby could possibly get it when it was born"* (34 years, GDM).

HCPs acknowledged that although some women were aware of the severity of GDM, competing interests between Western medicine and cultural expectations affected how Samoan women adhered to HCP advice.

> *"I tend to find a lot of the ladies, they've still got to manage their family, cook the meals for the family, do things for their family and even extended family in cultural situation…so that makes it difficult, then they've got to try and blend the two cultures and they tend to stick to their traditional way of doing things"* (HCP 6).

> *So, you (Samoan woman) might have been born in Australia, but your mum, your aunties, your grandmother weren't. So, you say to them, "Mum, auntie, I'm pregnant," all the things that are said, the things that are passed down through the generations. So, then this girl comes to us and we say, "Why are you doing that for? No, do this, do that," and it's very conflicted. So, who does she listen to? So that's one issue here"* (HCP 13).

## CUES TO ACTION

Cues to action included factors triggering decision making, which may have been internal (e.g. disease symptoms) or external (e.g. advice or information from HCPs). Some women expressed that a GDM diagnosis was a trigger to change their lifestyle to protect their child. Four women acknowledged that the experiences of family members with diabetes made them change their behaviour to break the cycle of diabetes.

> *"For me, because I have seen some people going through diabetes and they have diabetes, and it's not a good thing so I don't want diabetes. I need to have a healthy lifestyle and stay healthy for my kids, because I want to see my kids getting married and have family"* (35 years, No GDM).

 https://doi.org/10.37464/2023.402.591

This was echoed by HCPs who expressed concern there was some normalisation of diabetes leading to women not always taking the advice given to them, unless they had a family member with diabetes complications.

> *"Again, you'll find that a lot of these women have family members with type 2 diabetes. So, again, they might see it as a normal part of getting old"* (HCP 6).

For others, the cue for action to change their lifestyle behaviour was through education from HCPs and complications during pregnancy.

### PERCEIVED BENEFITS

Perceived benefits referred to whether adopting a healthy lifestyle and attending diabetes specialists' appointments (endocrinologist, dietitian, diabetes educator or obstetrician) for those with GDM would result in positive health outcomes. Women with GDM expressed perceived benefits of adopting healthier lifestyles and attending specialist appointments for the sake of their unborn child and to avoid complications of GDM.

> *"…I had set my mind that I was gonna have a natural birth, which is why it was important to keep my baby under four kilos, which is why I changed my diet around."* (34 years, GDM).

The desire for a healthy baby was also reported by HCPs as the main reason for behaviour change and attending specialist appointments by Samoan women.

### PERCEIVED BARRIERS

Perceived barriers refers to these women's own evaluation of obstacles to engaging in healthy lifestyle behaviours or seeking support from family/HCPs to prevent and manage GDM. Common barriers that emerged from the data from both Samoan women and HCPs were lack of understanding of GDM, cultural norms and expectations, financial constraints and lack of time. Women stated additional barriers to care included negative experiences with HCPs. Barriers specific to HCPs included limited resources in managing women with GDM and cultural incompatibility, especially in relation to diet and normalisation of diabetes. Interactions with HCPs influenced whether Samoan women returned to their HCP or not. Women reported lack of person-centred care with some stating they felt like a 'number' during appointments.

> *"On actual appointment to see the doctors, you're just like a piece of meat. You go there, you take a ticket, you wait, and you just wait for hours and hours on end for diabetes. I feel like they need to – because they only make gestational visits once a week? And that's for all us women with gestational in [hospital] area to come all on this one day. …But maybe they should make it more than one day for gestational diabetes. There's a lot of us"* (35 years, GDM).

Due to lack of awareness of GDM, several women did not immediately take charge of their GDM. They reported not receiving personally tailored information at their first appointment. According to the HCPs, however, due to the high number of GDM in SWS, there is a set pathway once GDM is diagnosed where women attend a group session delivering generic information not tailored to Samoan women's needs. However, culturally inclusive 1:1 sessions with diabetes educators and dietitians were also planned for women with GDM after the group sessions. HCPs acknowledged that more culturally tailored resources and strategies were required to address the burden of GDM in SWS.

> *"I think it's time to actually have culturally-specific education programs and literature and resources. There should be big posters up on the wall that doesn't just say in English… put something on their language, and don't just have white faces, have Samoan women on a Samoan poster and stick it out there in the churches, in the community groups, in the sports clubs, anywhere, start giving these messages out there that target them, and I think you'll go a long way but also it's about community engagement as well. So finding people who are elders in the communities and getting them on board"* (HCP 13).

Women reported that decisions on their care and GDM management were not always inclusive, with one woman saying care decisions were imposed on her by HCPs rather than having the opportunity to ask questions and be involved in decision making. On the contrary HCPs stated most Samoan women agreed with their advice and did not ask questions during appointments with the assumption this was a cultural issue.

> *"They're not a culture that – well…they're just likely to nod and listen to you and agree, but whether they achieve it or not, it's a different thing once they get into their own setting. I just think it's probably a cultural thing"* (HCP 8).

Notably, one woman stated she would just say 'yes' to get through her dietitian appointment and had no intention of changing her diet.

> *"Because for me, I started snorting back at her and I'm very uncomfortable and she kept going, to the point when I was just saying, "Yeah, yeah, yeah. Okay, okay, okay," just to get that point over and done with"* (34 years, GDM).

Six women with GDM and one woman with T2D expressed concerns with the experiences they had with their dietitian. Women stated the dietary advice from their dietitians was unrealistic and not part of the Samoan culture, therefore they did not change their diet as suggested.

> *"But it wasn't realistic what they were telling me. They were like have say for breakfast, I usually have – if I have four Weet-Bix, they were telling me to have one, skimmed milk, just stuff that I don't eat." I didn't do it how I should've…"* (35 years, GDM).

Both Samoan women and HCPs also reported that cultural norms and expectations were a deterrent to adopting and maintaining a healthy lifestyle. Ability to maintain a healthy diet in particular was reported to be a struggle due to the Samoan hospitable nature, and women expected to be 'big' to look healthy.

> *"With our culture, we're very hospitable people right! So when you're visiting someone in hospital, or you visit someone at their house, when you come over, you always bring food as a gesture of a good guest or wellbeing or wishing them well, so it's also rude if you don't eat that food…I could just overindulge on them for the sake of eating that"* (34 years GDM).

HCPs acknowledged diet and weight were often difficult topics to discuss with Samoan women, as they understood food is an integral part of Samoan culture. One dietitian further acknowledged most women dislike dietitians as they are usually trying to change their eating habits.

> *"A lot of people don't like dietitians. Because I guess food is part of their culture and they don't want someone to tell them not to eat certain foods. It's the stigma around dietitians…"* (HCP 5).

HCPs also felt cultural traditions such as weight perceptions among the Samoan community were a barrier to healthy lifestyle adoption. Only a few women talked about the importance of physical activity to prevent and manage GDM. The most common barrier for not engaging in regular exercise was cost.

> *"Financially up till now is the main issue to me and I'm sure most of our Pacific women because we have to pay. That's the other thing that will stop us from exercising and losing some weight – is the cost."* (45 years, GDM).

Busy clinics, scheduling of appointments and family commitments were also barriers perceived by both Samoan women and HCPs that prevented women from returning to specialist appointments or maintaining a healthy lifestyle.

> *"I think for all women, our clinics are very busy and often run late, particularly for women who have other children, if they have other commitments, looking after the children, it's a burden to come to the clinic. We only have the clinic one day a week, so they have to be able to come to that. I think sometimes maybe even seeing a male doctor or seeing someone who doesn't necessarily understand their cultural background"* (HCP 1).

## COMPLEMENTARY THEMES

### SOCIAL SUPPORT AND FOLLOW-UP CARE

Samoan women and HCPs acknowledged that family members have a strong mediating influence on behaviour. Social support (family and friends) was useful especially in women who experienced post-natal depression following a GDM diagnosis, with women stating that this support assisted with their mental wellbeing including recovery. However, family members and social events were also identified as reasons hindering women from eating healthily.

> *"Well, in our culture, we love – when we get together, we have big meals. It's like a feast. So I really have to control myself. Family is very important with our cultures…if you don't eat, it's very rude, so you've got to eat a bit"* (47 years, No GDM).

In addition to social support, women with GDM stated follow-up appointments by a midwife/nurse assisted in their recovery and requested more visits until their children were immunised.

> *"I got a nurse come in once – before when she was first born, when she was a newborn, they came every week. It's been a big help – first to my mental state and just to have somebody there reassuring like I'm doing a good job"* (35 years, GDM).

Five women with GDM felt that HCPs were most concerned with the baby but follow-up care for themselves after delivery was poor.

> *"I felt like the information in the beginning of my pregnancy, when I was pregnant and the support during the pregnancy was good. However, now that I've had the baby, I feel like it's all gone quiet on me. So I feel like the support is there before and during the pregnancy. It's after the pregnancy that I feel that it lacks* (34 years, GDM).

## DISCUSSION

This study used the HBM framework to explore perceptions of risk and experiences of GDM as well as attitudes and challenges towards behaviour change among Samoan women and their HCPs. Generally, a high level of concordance existed between women and their HCPs regarding perceptions of risk and barriers to maintaining a healthy lifestyle and attending specialist appointments. However, Samoan women reported negative interactions with HCPs hindered their behaviour change, while HCPs reported normalisation of diabetes, confusion of GDM with T2D and spiritual health beliefs were barriers to behaviour change. These findings show some consistency with previous studies among Pacific communities (including Samoan communities) in Australia and New Zealand, although these studies were not related to GDM.[28, 17] Additionally, lack of time due to competing family needs and financial constraints also influenced the uptake of healthy behaviour change among Samoan women. Studies conducted among other CALD populations in Australia highlight similar constraints to uptake of preventative health services in CALD women.[29,30] Our study also found Samoan women have low perceptions of risk and awareness of GDM, consistent with existing literature on Samoan women in the Independent State of Samoa and the USA.[31,32]

 https://doi.org/10.37464/2023.402.591

According to the HBM, perceived susceptibility and severity of a health condition (e.g. GDM) should motivate women to engage in health-related behaviours,[33] however our results suggest otherwise. In this study, perception of risk and complications of GDM did not always translate into behaviour change, with many citing barriers to changing their behaviour. A possible explanation is the prevailing perception that GDM is a common occurrence during pregnancy and transient, so it would disappear following delivery. Lack of behaviour change may be further amplified by advice from HCPs that GDM would 'go away' after delivery. The findings in our study were similar to those of a review by Parsons et al., on perceptions of women with GDM, which found the information provided by HCPs about GDM led women to be complacent after giving birth.[34] This information may be given to women by HCPs to reassure them and reduce anxiety, especially women being treated with insulin,[35] with treatment of diabetes with insulin perceived as a signal of a severe state of the disease.[36] HCPs should therefore be cautious about the reassurance they provide these women about the resolution of GDM after delivery and their future increased risk of T2D. HCPs reported Samoan women's high reliance on their cultural norms and religion may result in their reluctance to engage in preventative health, consistent with studies among American Samoan women.[11,13]

There were mixed experiences around interactions with HCPs although all women in our study expressed dissatisfaction with dietitians, whom many women stated lacked sympathy and cultural awareness. Samoan women reported that dietary information targeted all women with a 'one size fits all' dietary approach. This was similar to another study conducted in Australia, which included Anglo-European women and CALD women, which found CALD women with GDM reported that information delivered during group sessions was tailored for Australian-born women only, and that HCPs lacked cultural awareness, resulting in miscommunication on dietary advice.[36] This discourse was reflected between Samoan women and HCPs in our study. HCPs, in particular dietitians, reported offering culturally specific dietary advice, though they acknowledged the Samoan cultural information they had was limited. Food and family are an integral part of Samoan culture with sharing of food common practice during visits and gatherings, making healthy lifestyle changes problematic. It would be challenging to expect every HCP to have knowledge of every culture in Australia, given its highly multicultural nature. However, development of technology, such as computer software, consisting of culturally specific food examples from different ethnicities, may assist HCPs to provide culturally tailored advice. Having such technology could assist HCPs to tailor education around the health needs of different CALD groups, including the Samoan community, ensuring advice is better understood and relevant. These findings mirror those of studies conducted with other CALD groups in the UK and Australia, demonstrating that these experiences and the 'chasm' between HCPs and women are not unique to Samoans, or an Australian context.[30,36,37]

Overall perceived barriers to changing behaviour outweighed perceived benefits from the perspectives of both women and HCPs. This likely explains why many women did not change their health behaviour before or after birth. Further, perceived benefits were for a healthy baby rather than for themselves, indicating most women would be unlikely to continue healthy behaviours after the baby was born.

## STRENGTHS AND LIMITATIONS

This is the first qualitative study to explore perceptions of risk and experiences of GDM as well as perceptions of barriers and facilitators to care and behavioural change among Samoan women and HCPs. This study adds to other Australian based studies which explore the perception and experiences of GDM among women from other CALD communities[33,35] by providing specific strategies to improve healthcare provision among CALD women. This study recruited Samoan women through various methods who attended different diabetes clinics for their diabetes management. Their experiences were therefore not just limited to one health centre or women under the care of one professional, and should represent the care received by the wider Samoan female population in SWS. The HCPs interviewed consisted of multiple professions providing diverse perspectives on GDM management among Samoan women in SWS. In addition, one of the authors (RT), who is Samoan, acknowledged and confirmed interpretation of study findings were representative of her experience of community beliefs. This study also had limitations, however. First, participants were not contacted to review their transcripts, which may have helped further validate findings. Further, the small sample size comprising of women living in South Western Sydney may not represent a complete picture of Samoan women and may not be generalisable to the wider Australian Samoan community. However, the Samoan women in this study were diverse in age and recruitment continued until data saturation was met. Additionally, there are limitations around the generalisability of this study due to the qualitative nature of the study methodology.[38] However, data was collected from a diverse range of participants and the qualitative research methodology was the best method of addressing the study research aim. There may have been recruitment bias as some women with or at risk of GDM were recruited from an ongoing church-based diabetes prevention study.[7] These women may have been more conversant with some diabetes topics. Although the current study aimed to gain insights into perceptions and experiences of risk of GDM, women participating in the diabetes prevention study may have gained knowledge on diabetes prevention topics such as diet and physical activity, which they may have shared when conversing about GDM.

However, the findings from those that had not been part of the diabetes prevention program were consistent with diabetes prevention program participants. HCPs were asked to describe their experiences treating Samoan women, but they may have inadvertently described their experiences with women of other Pacific Island backgrounds. In addition, while women were recruited from multiple locations, HCPs were recruited from one centre, therefore their opinions may not be representative of other HCPs in different settings.

## CONCLUSION

Our study highlights significant cross-cultural discordance between Samoan women and HCPs. Samoan women reported negative interactions with HCPs as deterrents to behavioural change and HCPs reported normalisation of diabetes, confusion of GDM with T2D and spiritual health beliefs as perceived barriers to preventing and managing GDM among Australian Samoan women. Future research and health promotion initiatives should consider the strategies and recommendations arising from our findings presented in Box 1 when developing interventions and educational resources targeting women from CALD backgrounds.

### Recommendations to improve health behaviours and healthcare access for CALD women based upon experiences with Australian Samoan women

1. Develop more inclusive culturally tailored GDM resources for CALD communities. This could include use of posters featuring CALD women rather than Anglo-European women displayed in clinics and community centres.
2. Develop technology, such as computer software, consisting of culturally specific food examples from different ethnicities, which may assist HCPs to provide culturally tailored advice that will be better understood and relevant.
3. Healthcare systems to facilitate culturally competent healthcare workers to ensure HCPs provide clear cultural specific lifestyle messages and awareness of future risk of type 2 diabetes after a GDM diagnosis to CALD women.
4. Involve influential CALD community leaders when developing health promotion strategies.
5. Consider employing CALD healthcare professionals or bilingual workers to bridge the gap between western medicine and specific CALD community cultural beliefs.
6. Deliver culturally-specific gestational diabetes education sessions for CALD women where they can exchange ideas including barriers they may face, both in terms of access to healthcare and ability to undertake lifestyle recommendations.
7. Offer more specialist appointments at a wider range of times and days during the week

**BOX 1. STRATEGIES AND RECOMMENDATIONS TO IMPROVE HEALTH BEHAVIOURS AND HEALTHCARE ACCESS**

**Acknowledgments:** The authors wish to thank all study participants. Additionally, we wish to thank Le Taeao Afua Samoan Diabetes Prevention community reference group for their guidance in recruiting participants for this study.

**Funding:** This study was conducted as part fulfilment of a PhD funded by Western Sydney University.

**Conflict of interest:** The authors declare no conflicts of interest

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