

BMJ Open Barriers and facilitators to healthy active living in South Asian families in Canada: a thematic analysis

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ABSTRACT

Objectives The study objective was to understand the barriers and facilitators to healthy active living in South Asian families living in Canada.

Design Semi-structured interviews of 30–60-minute duration with South Asian women with young families, and analysed using a thematic analytical approach.

Setting Community-dwelling South Asian women interviewed in the home environment or by phone.

Participants Fifteen married South Asian women (mean age=34.2 years) living in the Peel region of Ontario, Canada, with at least 1 child under the age of 5 years. The majority of women had immigrated to Canada (13/15), during a 5–10-year interval preceding interviews.

Results 57 different codes were derived from 18 interview hours, and further evaluated through member checking. The top three barriers to healthy eating were: (1) not having enough time for healthy food preparation, (2) lack of knowledge about what is healthy eating and (3) viewing healthy eating as a matter of engaging in time limited dieting. These barriers were addressed with: (1) knowledge and awareness of healthy eating, (2) clear goal setting, (3) access to fresh vegetables and fruits and (4) better arrangements and more time for food preparation. The top five barriers to physical activity were: (1) not enough time and energy, (2) competing priorities, (3) lack of childcare, (4) lack of family-engaging exercise and (5) limited access to interesting exercise programming. These barriers were addressed by: (1) experiencing exercise as enjoyable and stress releasing, (2) commitments to walking exercise, (3) use of an electronic exercise-tracking device, (4) offspring exercise supported by spouse and family and (5) success stories about exercise from others.

Conclusions Barriers to healthy active living in South Asian women with young families can be addressed with facilitators that stimulate clear goal setting and healthy food preparation skills, and exercise formats that engage mothers and offspring, with or without exercise tracking.

INTRODUCTION

Excess weight and obesity, and related complications, pose a significant burden to the health of children and adults.¹ Children and youth with obesity are increasingly diagnosed with clinical conditions, including type 2 diabetes, hypertension, hypercholesterolaemia and fatty liver. Furthermore, obesity

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ Candid disclosures by participants were supported by an interviewer of South Asian background who was fluent in Urdu, Punjabi and Hindi (languages frequently used by participants to complement English disclosures).
- ⇒ Key theme selection was aided by a careful member checking process.
- ⇒ More than two-thirds of n=15 participants endorsed each key theme.
- ⇒ There was minimal participation by marital partners and offspring.

may impact other health conditions for children and adults, including asthma, disrupted sleep, early puberty, disordered eating and chronic fatigue, smoking and gestational diabetes mellitus.^{1–3} The mental health consequences of overweight and obesity for adults and children include teasing, bullying, reduced self-esteem, isolation, depression, social skill deficits, learning difficulties and excess stress and anxiety.¹

In studies of individual health behaviours, high-energy intake and increased screen time are associated with weight gain, while healthy physical activity (PA) levels and longer sleep durations are associated with normal healthy weight.⁴ As lifestyle behaviours are shaped in early childhood,⁵ healthy active living (HAL) behaviours can contribute to the life-long maintenance of healthy weight.⁵ The Diabetes Canada Clinical Practice Guidelines Expert Committee strongly argues for HAL, emphasising the efficacy of physical exercise in minimising risks for diabetes and cardiovascular disease. They suggest that PA improves glycaemic control in type 2 diabetes, lowering morbidity–mortality and weight.⁶ HAL behaviours in children are affected by family environments, with specific familial impacts reported in multiple studies.⁷ For example, children without siblings are less physically active than children with siblings,

and children in single parent homes have more screen exposure (eg, TV watching hours) than those living with both parents.^{1–6}

Previous qualitative studies emphasise the needs for social support for adults and children in relation to diet and exercise, especially in populations affected by gestational diabetes.⁸ Barriers to diet and exercise for parents are related to work and childcare responsibilities, which could be reduced with more support for childcare.⁸ Kandasamy *et al*⁹ studied the barriers and facilitators to diet and exercise activity among South Asian women of childbearing age living in Canada, emphasising the importance of cultural and contextual factors that influence knowledge, attitudes and dietary–exercise practices.⁹ Similarly, understandings of South Asian cultural influences are emphasised in several studies related to health behaviour change, especially in preventing diabetes and hypertension in this high-risk group.^{8,9}

South Asians (SA), Canada's largest and fastest-growing non-white ethnic group, are among the ethnic groups with health complications associated with excess adiposity.^{10–14} SA in Canada confront elevated risks for gestational diabetes, central adiposity, type 2 diabetes and associated cardio-metabolic disorders that contribute to the premature onset of coronary artery disease.^{9–14} Immigration is stressful, disrupting old social networks and requiring new network initiations. Efforts in social network building and maintenance can also affect HAL behaviours.^{15,16} Furthermore, HAL role modelling by parents has a strong influence on HAL behaviours in offspring.^{16,17} SA living in Canada possess a unique risk profile for diabetes and cardio-metabolic disorders.^{9,17,18}

The understanding of barriers and facilitators in the adoption of HAL behaviours is instructive, both within intrafamilial and multigenerational contexts. This explains our focus on SA women who, after immigration from the Indian subcontinent, and after the adoption of more North American lifestyles are at higher cardio-metabolic risks. Understanding their perceptions of HAL (barriers and facilitators) is an important step in designing efficacious interventions.^{9,10,19} Previous qualitative studies that have addressed prevention interventions for diabetes, with a focus on SA women^{8,9,11} informed our study and interventions for this group.

The study goal was to use semi-structured interviews with SA mothers of childbearing age from Ontario, Canada, to understand their views of HAL (including barriers and facilitators), especially in relation to nutrition and PA.

METHODS

Study design

This is a qualitative descriptive study, undertaken in accord with an interpretivist perspective.

Setting and participants

The study was approved by the Hamilton Integrated Research and Ethics Board (#10–640) at McMaster University on 23 May 2017.²⁰ Interview participants were recruited from the South Asian Birth Cohort (START), a cohort study of SA women living in Ontario's Peel Region.^{12,21} Between 2011 and the present, over 1000 mother–child dyads have been recruited and followed 1 year, 2 years, 3 years and 5 years later (with 90% follow-up rates).

Patient and public involvement

It was not appropriate or possible to involve patients or the public in the design, or conduct, or reporting of our research. We will engage patients and the public in the dissemination of this research.

Sampling strategy

All participants who attended their scheduled START study visits were eligible for qualitative study enrolment. We approached participants consecutively until the n=15 study goal was reached. All interested participants were contacted by the study coordinator who undertook consents at visits and provided information on how study interviews could be scheduled by phone with the interviewer. The interviewer and participants often met in the identified participant's home environment (n=10), although n=5 interviews were undertaken by phone (see online supplemental table 1).

Twenty-three people who were eligible for this study were approached, 16 agreed to participate and 15 completed the interview. Seven of the approached participants were not included in the analysis. One person's interview was not recorded, as requested by the participant herself. Of the six who declined, one did so because she was moving residences, two were not interested, one initially agreed, but later declined, one could not commit sufficient time and one was expecting a second child and, therefore, too busy to participate (see online supplemental table 1). Comparisons of those who accepted participation versus those who declined indicated that participation was associated with a higher education level, and more people living in the household (see figure 1 for participant flow chart).

Interview schedule and process

Semi-structured interviews of 30–60-minute duration elicited verbal responses from participants about recent and past experiences. A guiding assumption was that SA mothers of childbearing age might be more candid in describing unique obstacles when subjects and the interviewer were matched for ethnicity and age range. Therefore, a South Asian female interviewer (SM) conducted the interviews. The semi-structured interview schedule addressed barriers to and facilitators of healthy exercise and diet and was developed by an investigator (PR) in accord with prior diabetes intervention research.^{22–26}

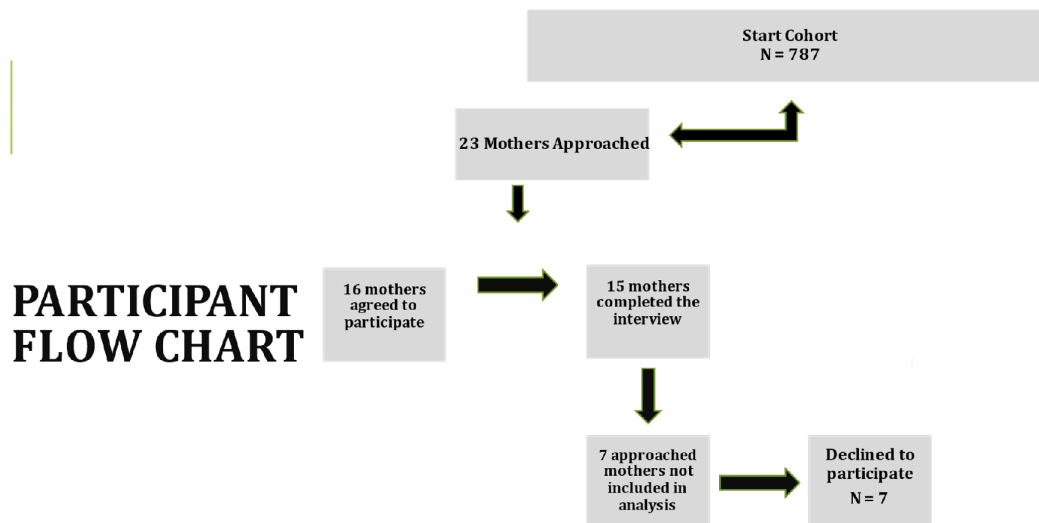


Figure 1 Participant flow chart.

The original draft was reviewed, and modified by team members (SM, SA, SK, RJD, GW, DD and SSA) (see online supplemental table 2) and pilot-tested with participants. Since English was a second language for most participants, several frequently employed linguistic idioms from Urdu, Punjabi and Hindi. The interviewer's ability to speak these languages and understand these multilingual idioms assisted the interview process.

The interview structure thoroughly emphasised different types, frequencies and durations of exercise in order to capture at meaningful levels the physical exercise that was regularly undertaken. With respect to dietary alternatives, the aim was to describe dietary orientations in sufficient detail to assist individuals in considering their dietary patterns carefully. Care was taken during each interview to help participants carefully consider every category in the course of responding to interview questions. The linguistic diversity of participants was significant, requiring the interviewer to clarify different levels and types of orientations in the participant's native language (see online supplemental table 3).

Data processing

To maintain confidentiality, personal information was removed from digitally represented transcripts and audio interview recordings were stored in a locked cabinet in locked research offices.

All interviews were digitally recorded and fully transcribed verbatim. Transcripts were then checked for accuracy and reviewed word by word by the interviewer (SM) and three additional members of the research team (SK, GW and PR), two of whom identified as SA women. Altogether, there were 4 reviewers per transcript, who met weekly at a consistent day and time for 4 months to conduct the analyses. The transcripts were read, re-read and coded individually and then jointly, in group meetings, to explore similar, repeated or new insights. In qualitative research, it is important for reviewers to reach consensus and continually revise coding and analysis

to ensure an in-depth analysis.⁸ The analytical developments were then shared with the rest of the research team (SSA, RJD and DD) every week at a scheduled team meeting. All reviews focused on ensuring an unbiased approach to information elicitation and analyses. Interviews conducted in other South Asian languages were first translated into English prior to verbatim transcription.

Researcher characteristics

The research team was multidisciplinary and comprised of physicians (SSA and GW), a dietitian and nutritional epidemiologist (RJD), PhD-level graduate students in education and health research methods, evidence and impact (SM and SK), a programme manager who oversees multiple epidemiological studies (DD) and a clinical research psychologist (PR). Of the seven team members, a South Asian ethnic background was shared by six members (five female and one male), while one member was of North American–European background (one male).

Data analysis

Coding and analyses were performed using NVivo (V.10; QSR International) and employed a thematic analytical approach^{27 28} to thoroughly explore the relevant themes that surfaced during interviews (see online supplemental table 2). Thematic analysis provides a systematic identification of emergent patterns through the logical organisation of the qualitative data into broader (representative) themes.^{27 28} Our analytical strategy of constant comparison included code development (SM and SK) as the basic analytical unit and then, with code use, the derivation of broader themes (through team discussions) that illustrated coherent views of the data. 'Code development' refers to how we labelled and organised the qualitative data when conducting analysis of transcripts, to identify varying themes and relationships between themes.^{27 28} Participant perspectives and self-management experiences were explored in the context of individual,

offspring and family-based efforts to adopt and sustain positive HAL changes (see online supplemental table 2). Saturation, or the point where novel information is not detectable with additional interviews, was evaluated by all research team members, in accord with study goals.²⁹ Member checking was undertaken with all interviewees (15 of 15), and included reviews of both group and individualised findings (each interviewee responded to carefully constructed summaries of her interview)^{28 30} (see online supplemental table 4). The member checking was undertaken by the original interviewer (SM) by telephone, using detailed notes describing subject perceptions of convergences and divergences of the findings assumed to be representative.

In summary, the thematic analysis process included: (1) code development as the basic unit of analyses capturing relevant aspects of data, (2) code summaries into broader themes and (3) creation of an organised, coherent picture to illustrate major themes within the data.

RESULTS

The average age of the 15 interviewees was 34.2 years (SD=2.1 years). Thirteen of the 15 women immigrated to Canada in the 5–10-year interval preceding interviews (see online supplemental table 1). All participants were married, spoke English as a second language and had one or more children. Participants co-inhabited households with a mean of 2 residents other than spouse and offspring (household members who were often extended family members) and while 46.2% (7/15) of participants were employed, their spouses were 100% employed. The spousal work patterns identified in interviews involved long hours of inflexible but shifting engagements with a high prevalence of evening and night-time shift work (see online supplemental table 5).

In total, 57 codes were derived from 18 interview hours with 15 mothers. These were re-evaluated during member checking. Our thematic analysis identified four themes: (1) barriers related to healthy diet, (2) facilitators related to healthy diet, (3) barriers related to physical exercise and (4) facilitators related to physical exercise. Online supplemental table 3 presents the full set of barriers and facilitators identified.

Barriers, in the study, are defined as obstacles to positive behaviour changes. Facilitators, on the other hand, are defined as behaviours, cognitions and environments that result in a higher likelihood of positive behaviour change.⁶ Often, barriers can be confronted with the purposeful use of facilitators. For example, a mother who does not want to leave a child in a childcare situation with paid staff, may be able to leave her children with relatives and the success in arranging this situation, would facilitate more frequent exercise. Representative quotes and themes can be found in online supplemental tables 6,7 (see figure 2 for integrated graphic of study results).

Demotivating barriers and motivating facilitators for healthy eating

Three barriers, according to member checking, were the most frequently endorsed in importance. Each barrier or facilitator theme identified is followed by a representative quote.

Not enough time for healthy food preparation

... we are making fresh food and it's very time consuming because you have to cut everything ... a lot of chopping in our food ... and then [doing] the dishes. [Interviewee #4]

Lack of knowledge about what is and how to implement healthy eating

... Someone told me once to drink water with a spoon of this or that ... and then I'll lose weight ... I tried many, many times to do this but I never noticed a difference. [Interviewee #8]

Viewing healthy eating as a matter of engaging in time-limited dieting

... I start something, but I don't know what happens with the busyness ... I just lose momentum and eventually stop. [Interviewee #4]

Two additional barriers were frequently mentioned but less frequently endorsed

Spouse or children's unhealthy eating habits

Trying to eat healthier ... like trying to stop with the white bread and white rice ... [Interviewee #14]

RESULTS

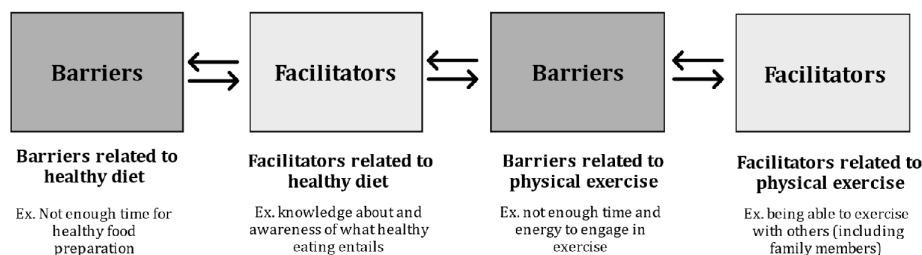


Figure 2 Integrated graphic of study results.

Pressures to personally eat unhealthy foods

... sometimes they want to order pizza I don't want to eat any, you know ... but you see the pizza and you're like, okay, I can have one slice ... [Interviewee #3]

All barriers were seen as mutually reinforcing as insufficient time for food preparation left mothers vulnerable to serving quickly prepared and unhealthy foods, particularly when these latter foods were aligned with spouse and offspring preferences. The intention to solely engage in a time-limited healthy eating plan rather than commit to longer-term plans seemed to decrease the strength of intentions to prepare healthy foods; healthy eating was most frequently seen as a brief, time-limited exception to status quo consumption.

These barriers were experienced as addressed by facilitators that included

Knowledge about and awareness of what healthy eating entails

... trying to eat more ... boiled or baked stuff. Trying to eat healthier. [Interviewee #14]

Setting clear goals for eating 'healthier'

... when I pack their snacks I always tell them that before they can have ... snacks they have to finish all their health food [Interviewee #15]

Better access to fresh vegetables and fruits

Suppose if we are eating ... kale and cucumber ... but when it's finished, it's finished ... I don't know when the next time will be that I'll go get groceries. I'm so busy that I just make sure the main things are at home [Interviewee #4]

Clear arrangements (including apportioning adequate time) for healthy food preparation

My friend ... gave me a diet chart ... about which diet is best ... they didn't have the flour we use, there were ... replacements ... like soy [Interviewee #8]

Another frequently mentioned facilitator was:

Becoming a vegan or vegetarian, although it was less frequently endorsed during member checking

I couldn't figure out what was going on, but ... I cut those two (meat and dairy) out of my diet I figured out ... afterwards ... I wasn't digesting properly... so I went vegan ... completely one day... . [Interviewee #6]

Demotivating barriers and motivating facilitators for healthy exercise

Five barriers were the most frequently endorsed, according to member checking as important for healthy exercise. Each barrier or facilitator theme identified will again be followed by a representative quote.

Not enough time and energy to engage in exercise

Sleep. When I have lack of sleep, I'm already tired and ... I don't really feel like doing more exercise or anything, ... I'm so tired of watching my baby at night and then he's all cranky in the morning too. So, I'm like, you know what, let's just put him to sleep and I will take a nap while he's sleeping. [Interviewee #1]

Competing priorities

I used to do running, walking a lot. Now I get tired just doing the housework and I don't have that much energy. [Interviewee #4]

Lack of childcare (while exercising)

... sometimes they have day care in the gym and sometimes they don't Sometimes he [my son] doesn't want to go, even if I want to go ... and then nobody is at my home to watch him, so I can't go [Interviewee #4]

Lack of family-engaging exercise

... a world gym ... near my house for 3 weeks, I didn't go ... because my kids are busy, busy, busy [Interviewee #8]

Limited access to exercise programming viewed as interesting and beneficial

I'm going to my sister's in Edmonton. She is training at the gym. She is joining Zumba classes she wanted me to join ... for one month so I can learn [Interviewee #11]

These barriers were also seen as mutually reinforcing, as insufficient time and energy were reinforced by conflicts with offspring priorities, supported by the lack of high-quality childcare (during exercise) and family-engaging exercise programmes.

The above barriers were viewed as addressed by facilitators that included

Experiencing exercise as enjoyable and stress releasing

... I love to do exercise. ... before I got married, I used to ... exercise. ... I would love to continue ... Like, every day for ... two hours [Interviewee #1]

Commitments to walking forms of exercise, especially with use of Fit Bits or other electronic exercise tracking devices

I wear the Fitbit. ... I keep track of calories ... But ... I don't have ... to ... lose ... weight. ... I just want to track how ... how much I ran today, how many steps I took [Interviewee #13]

A high priority on offspring exercise supported by spouse and family

After ... prayer, she takes the group of kids ... for a walk [Interviewee #5]

Hearing success stories from others who adopt healthy exercise

Yesterday my friend was telling me that ... there's a track ... a 400-metre track and she's been going there for 3 or 4 days ... a ... she'll do 400 metres, 10 times. [Interviewee #8]

Being able to exercise with others (including family members)

... my sister ... motivated me because she's going to the gym. ... many people are going on my street ... I saw them and ... I realised I had to go too. [Interviewee #11]

In all the codes developed during analyses of verbatim transcripts, there was a strong role for multiple elements of 'culture' that influence the family, with 'mother' occupying a central role. Cultural elements, combined with the community environments, appeared to aid or reduce motivation and behavioural adoption.

DISCUSSION

Disclosures about, and descriptions of, the barriers and facilitators of HAL behaviours were derived from interviews with South Asian mothers (mean age=34.2 years) of children below the age of 10 years. The interviews were mainly conducted in home environments, by an interviewer of similar ethnic background who was fluent in English, Urdu, Punjabi and Hindi. The facilitators and barriers to HAL identified were unique in important ways but shared commonalities with other studies in the general population,^{25 31 32} in Indigenous communities,^{31 33} in other specific ethnic groups,³⁴⁻³⁶ in pregnant South Asian women³³ and in women with postgestational diabetes.²⁹

Negative 'barriers' to healthy eating were compensated for by facilitators that revolved around knowledge and awareness of healthy eating, cooking, meal preparation and consumption goal setting. Limited exploration and contemplation could, therefore, be compensated for by clear, 'how-to' messaging. For example, the ambiguities about 'what is healthy eating?' could be addressed by support in thinking beyond status quo to an application of goal setting for healthier eating. Another facilitator emphasis was access to high-quality (fresh) fruits and vegetables. Despite the emphasis on vegetables and fruits, there was ambivalence as to whether vegetarian or 'vegan' lifestyles facilitated healthy eating, evident in the member checking, where only 7 of 15 participants endorsed non-meat eating as advantageous. Specific mentions referred to mothers who were highly devoted to vegan or vegetarian lifestyles but still engaged in excess carbohydrate and sugar consumption. When vegan-vegetarian choices were linked to religious beliefs and not health judgements, a lack of knowledge about healthy vegetarian or vegan eating presented a barrier to healthy choices, resulting in unhealthy (though plant-based) diets that increased diabetes risks and the risks of other metabolic disorders.^{37 38}

The perceived exercise barriers included insufficient time and energy amid resistances to using inadequate childcare (while exercising), due to concerns about safety and the engagement of childcare workers, and ongoing conflicting priorities. The barriers specifically related to a lack of family-engaging exercise combined with the availability of limited exercise programmes that neither aroused interest nor confidence. These barriers were counterbalanced by facilitators that included preferred family-based exercise options, with spousal/family support aided by priorities on offspring exercise.^{9 39} The final perceived facilitator was a consistently adopted exercise programme that provided enjoyment and momentum toward health-related goals.

In themes that cross the barrier/facilitator and healthy eating/exercising boundaries, a lack of time and energy was primary, and linked to conflicting priorities and the lack of high-quality information. The prioritisation dilemma indicated low confidence in the information accessed, with 'not enough time and energy' reflecting indecision about which priorities merited investment. For example, most participants had not formulated specific health goals.³⁴ Furthermore, a significant number noted that healthy eating and exercise were not emphasised in SA culture, and that this absence of emphasis influenced their offspring. As a result, changes in the direction of improved physical fitness and healthier eating were frequently temporary and fragmented. The absence of family-engaging exercise and/or childcare during exercise sessions were major pragmatic obstacles as few mothers would tolerate inadequate childcare to exercise on a regular basis. Other maternal studies point to similar barriers, asserting that altering diet and exercise requires social support from friends, family, spouse and specifically, childcare support, to allow for attendance in exercise programmes.⁸

Most women had husbands who worked long day, evening and night hours resulting in the mothers being primarily responsible for cooking, cleaning and childcare. Some of the mothers additionally worked professionally outside the home and felt overwhelmed with 'juggling' many caretaking tasks.

Culture is a term with multiple relevance here. First, it refers to the adopted North American culture that impinges on healthy eating and exercise priorities. Quickly prepared preprocessed foods dominated diets and exercise was considered non-essential by most mothers.³⁹⁻⁴¹ Furthermore, our subjects' perceptions of SA culture also indicated a lack of perceived support for healthy exercise and eating. This may contribute to the unique cardiovascular risk profile of South Asian people living in Canada.¹⁰ Thus, there is an emerging cultural awareness that South Asian women and mothers require additional support. Furthermore, it is important to consider the cultural influences in relation to how knowledge about healthy eating and exercise is obtained, shared and valued.^{9 41-43}

In psychological terms, the inattention and restricted cognitions of mothers reflect a precontemplative stage of

change (where status quo behaviours are not internally debated) or early contemplation (where debates are limited to considering temporary calorie-reducing diets in place of previous dietary patterns).³⁴

The remainder of healthy eating barriers could be categorised as both psychological and sociocultural. There was acknowledgement of a general fatigue related to disturbed sleep (also a frequent cause of excess, unselective eating) and a range of cultural factors that ranged from social pressures to eat traditional but unhealthy foods (eg, during holiday celebrations and extended family gatherings) to the TV advertisements that influence offspring to resist introductions of healthier, minimally advertised foods. These influences, in turn, were differentiated from social factors that are partly cultural and partly psychological, such as catering to spouse's unhealthy eating habits that reinforce the deficits for healthy eating from family members and peers (including the influence of extended family household members in joint family systems). Altogether, there is an identified susceptibility to unhealthy fast-food consumption that operates inside and outside the household.

In terms of intervention strategies, based on the findings of this study, equal emphasis should be placed on exercise promotion and dietary modification. As mothers were reluctant to leave offspring at daycare centres to exercise individually, emphasis would focus on family-based exercise (ie, what parents and children can do jointly). This is inherently more complex than individual exercise, as parental care taking is merged with individual exercise. What the literature indicates is that the simpler exercise alternatives, for example, going for walks, are more easily transformed into family-based exercise.^{43–45} However, the complexity of ensuring a positive experience for offspring might warrant training in specific skills, where exercise is made palatable for children accompanying their parents.^{43–45} For example, the Diabetes Canada Clinical Practice Guidelines Expert Committee emphasises strategies to improve motivation and self-efficacy related to PA through goal setting and use of monitoring tools such as pedometers.⁶ As gleaned from our interview participants, Fit Bits and smartphone applications that track steps, exercise and diet were perceived as motivating and helpful. In terms of diet, the tendency to adopt frequently advertised foods by offspring (that influence family choices) would be addressed with specific health behaviour change strategies. Although dietary changes in immigrant family interventions have been more successful in adult family members, the role modelling of adults can have a positive impact on offspring.⁴⁶

Strengths and limitations

The selection of key themes was substantially aided by a careful member checking process, where each interviewee (15 of 15) was contacted by phone and during follow-up interviews given the opportunity to judge whether the communicated findings affirmed what was conveyed. The themes emphasised yielded the most confirmations and

the least disconfirmations. Altogether, more than two-thirds of participants endorsed each theme, although for most key themes >73% provided endorsement (eg, 73%, 87%, 93% and 100%).

In terms of limitations, we note the sparseness of participation by marital partners and offspring. Strong efforts were made during in-home interviews and in attempts at follow-up phone interviews with spouses. However, the offspring present during interviews was hesitant to speak and spouses were not inclined to accept and follow-up with the invited phone interviews. Finally, we acknowledge that our guide may have been too structured, but we made the deliberate choice to specifically interrogate barriers and facilitators, while allowing for the greatest degree of flexibility in the participants' descriptions.

CONCLUSION

The SA women interviewed reported being busy attending to family matters (including supporting the long hours of spousal work) with insufficient scheduled time to emphasise HAL behaviours. This is of particular concern because SA-ethnicity families confront elevated risks for diabetes and metabolic syndrome disorders. Fortunately, there are applicable facilitators that can stimulate clearer goal setting and healthy food preparation skills (based on more attentiveness and devoted time) and immediate exercise formats (eg, walking) that engage mothers, fathers and offspring (together). A family-based prioritisation of HAL behaviours can be rewarded by and sustained by observable and shared health improvements.

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Contributors SM: substantial contributions to the conception or design of the work subject interviewing; interview transcribing; interview coding; article draft; table construction; final approval of the version to be published; and agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. SK: substantial contributions to the conception or design of the work interview coding; article draft; table construction; final approval of the version to be published; and agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. RJD: substantial contributions to the conception or design of the work article draft; final approval of the version to be published; and agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. GW: substantial contributions to the conception or design of the work interview coding; article draft; final approval of the version to be published; and agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. DD and SSA: substantial contributions to the conception or design of the work article draft; table construction; final approval of the version to be published; and agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. PR (guarantor): substantial contributions to the conception or design of the work interview construction; interview coding; article draft; table construction; final approval of the version to be published; and agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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Competing interests RJD has served as an external resource person to the World Health Organization's Nutrition Guidelines Advisory Group on trans fats, saturated fats, and polyunsaturated fats. The WHO paid for his travel and accommodation to attend meetings from 2012–2017 to present and discuss this work. He has presented updates of this work to the WHO in 2022. He has also done contract research for the Canadian Institutes of Health Research's Institute of Nutrition, Metabolism, and Diabetes, Health Canada, and the World Health Organization for which he received remuneration. He has received speaker's fees from the University of Toronto, and McMaster Children's Hospital. He has held grants from the Canadian Institutes of Health Research, Canadian Foundation for Dietetic Research, Population Health Research Institute, and Hamilton Health Sciences Corporation as a principal investigator, and is a co-investigator on several funded team grants from the Canadian Institutes of Health Research. He has served as an independent director of the Helderleigh Foundation (Canada). He serves as a member of the Nutrition Science Advisory Committee to Health Canada (Government of Canada), and a co-opted member of the Scientific Advisory Committee on Nutrition (SACN) Subgroup on the Framework for the Evaluation of Evidence (Public Health England). PR is currently funded by the Canadian Institutes of Health (2021–2025). He coordinates research with NexJ Health, which provides a software platform to convey the psychosocial and psychiatric programming he develops and assesses. He receives no personal compensations for studies coordinated with NexJ but does receive free-of-charge platform support. All other authors declare no conflicts of interest.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Consent obtained directly from patient(s).

Ethics approval This study involves human participants and was approved by Hamilton Integrated Research and Ethics Board (#10-640) at McMaster University. Participants gave informed consent to participate in the study before taking part.

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Data availability statement Data are available upon reasonable request.

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