RESEARCH ARTICLE

Factors relating to sustainability and scalability of the 'Food, Move, Sleep (FOMOS) for Postnatal Mental Health' program: Qualitative perspectives from key stakeholders across Australia

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Abstract

Issue Addressed: Supporting healthy behaviours (quality diet, physical activity, sleep) through home-based interventions is feasible to improve postnatal mental health. Involving stakeholders in developing interventions is essential for maximising accessibility, implementation and scale-up. This study aimed to identify factors affecting the sustainable implementation and scalability of the *Food, Move, Sleep (FOMOS) for Postnatal Mental Health* program, including strategies to enhance research-practice translation.

Methods: Stakeholders ($n = 13$) involved in promoting physical activity, healthy eating, postnatal and mental health, public health and/or policy participated in semi-structured interviews. Interviews, based on PRACTIS Guide recommendations for implementation and scale-up, explored perceptions of program design, implementation and scalability. Reflexive thematic analysis was undertaken. Identified implementation and scale-up strategies were mapped against the Expert Recommendations for Implementing Change compendium and PRACTIS Guide.

Results: *Individual-level*: Targeting multiple systems (primary, tertiary, community-based care) and entry points (early, mid-postpartum) for uptake was important. For equity, screening women in public hospitals, engaging with community agencies and targeting most at-risk women, was suggested. *Provider-level*: Stakeholders identified strategies to enhance future roll-out (organisations assisting with recruitment). Factors impacting sustainability included high demand for the FOMOS program, and governance around screening and funding; online delivery, connecting with partners and providers and integration into existing services may enhance sustainability. *Systems-level*: Political support and community champions were perceived important for

program dissemination. Nine strategies addressing program uptake, reach, implementation, potential scalability and sustainability were identified.

Conclusions: For sustainable implementation and potential scalability of a home-based multi-behaviour postnatal intervention, multi-level implementation and scale-up strategies, aligned with existing health systems, policies and initiatives to support postnatal mental health should be considered.

So What?: This paper provides a comprehensive list of strategies that can be used to enhance sustainable implementation and scalability of healthy behaviour programs targeting postnatal mental health. Further, the interview schedule, systematically developed and aligned with the PRACTIS Guide, may serve as a useful resource for researchers conducting similar studies in future.

KEYWORDS
behaviour change, co-design, diet, implementation, mental health, physical activity, postnatal, postnatal depression, scale up, sleep, stakeholder perspectives

1 | INTRODUCTION

Postnatal depression (PND), defined as depression experienced by a mother within the first year after childbirth, is one of the leading causes of illness and death amongst postnatal women.[1] Although estimates vary widely, PND has been reported to affect up to 23%, 33% and 64% of women in Europe, Australia and America respectively.[2] Physical inactivity,[3] poor diet quality,[4] poor sleep quality[5] and sedentary behaviour[6] are behavioural risk factors for PND and postnatal women are at particular risk of these.[7–10] This underscores the importance of designing and delivering multi-behavioural interventions to reduce PND risk that can be effectively implemented during the postnatal period, which is a critical life-stage for PND prevention.

Home-based interventions targeting health behaviours have been shown to be feasible and acceptable amongst women at risk of PND.[11,12] In part due to such interventions overcoming barriers to mothers' behaviour change during the postnatal period, such as working around baby sleeping routines, lack of childcare and challenges being able to leave the house.[11,12] Despite home-based interventions showing promise in changing health behaviours amongst women at risk of PND, few have been developed that target multiple health behaviours; most require mothers to commit to attending appointments (e.g., one-on-one counselling, group walking), which is not always feasible for this target group; and many include strategies that are not easily scalable due to the resources (e.g., staffing, time, money) required to deliver the intervention (e.g., home visits, one-on-one counselling).[13]

In 2018, the *Mums on the Move* intervention[11] (building upon our earlier *Mums on the Run* intervention[12]), was developed in an attempt to address some of these gaps. *Mums on the Move* is a home-based physical activity intervention that provided free hire of home exercise equipment and access to a purposely designed website to women at risk of PND living in Melbourne, Australia. Initial improved engagement in physical activity, behavioural skills and perceived barriers to

physical activity, were not sustained beyond 12-weeks.[11] Whilst the *Mums on the Move* intervention was designed with significant 'end-user' (i.e., consumer/lived experience) involvement to ensure it appropriately targeted and was tailored to postnatal women at risk of PND; input from selected key stakeholders (e.g., 'next users') during preliminary development ($n = 11$),[14] identified several implementation gaps and considerations that need to be further explored prior to possible program scale-up. For example, whilst most stakeholders perceived its appeal in addressing barriers to postnatal physical activity, feasibility issues were identified regarding funding and delivery mechanisms. Further, logistics and organisational capacity demands were considered barriers to potential scale-up. Moreover, preliminary testing of *Mums on the Move* included organisations predominantly based in one Australian state (Victoria), so perspectives from organisations in other Australian states are needed given the diversity of maternal and mental health systems and procedures across states.

'Next users' (i.e., service delivery organisations likely to be involved in real-world implementation/scale up of a program) are a critical group to involve when designing and developing health behaviour interventions for real-world implementation and scale-up.[15] Co-designing with 'next-users' increases the potential that effective interventions can be more readily and successfully scaled-up and implemented within appropriate and/or existing organisations and channels.[15] The *Food, Move, Sleep (FOMOS) for Postnatal Mental Health* program (herein referred to as *FOMOS*) was developed based on findings from preliminary trials and pilot work of the *Mums on the Move* program,[11,12,14] with modifications to intervention design and structure in response to needs identified by both researchers and participants involved in pilot work (see Table 1). Beyond just the benefits expected for women exposed to *FOMOS*, greater involvement of 'next user' stakeholders has broader applicability for informing the development and sustainable implementation of future health behaviour programs for women with/at risk of PND. Involving key stakeholders early in the implementation process can also provide

TABLE 1 Comparison of *Mums on the Move* and *FOMOS* interventions.

Intervention feature	Description	Mums on the run	Mums on the move	FOMOS	Rationale for adaptations
Targeted behaviours	*FOMOS* includes a greater focus on dietary and sleep behaviours, in addition to physical activity and sedentary behaviours (which were targeted in *Mums on the Move*)	Physical activity Sedentary behaviour	Physical activity Sedentary behaviour	Physical activity Sedentary behaviour Diet quality Sleep health	Physical inactivity,[3] poor diet quality,[4] poor sleep quality[5] and sedentary behaviour[6] are risk factors for PND, which interact with each other. Thus, targeting multiple health behaviours is important.
Intervention duration	To better facilitate behaviour change and maintenance, *FOMOS* was extended to a 6-month duration	3-months	3-months	6-months	Given there were only short-term behavioural (i.e., physical activity) changes in the Mums on the Move[11] trial, strategies to enhance longer-term behavioural maintenance were needed. Therefore, a longer intervention period was warranted.
Intervention components to facilitate behaviour change					
Home exercise equipment	Free-hire (e.g., treadmill, cross-trainer, exercise-bike or yoga mat and resistance bands) to overcome the barrier of leaving the house and enhance initial engagement.	3-months	3-months	First 3-months	N/A
Program website	Purposely built targeting knowledge, self-efficacy, overcoming barriers to behaviour change; including interactive goal-setting and self-monitoring tools.	√	√	√	N/A
Online forum	An online forum (delivered via WordPress) where participants can interact and support each other in behaviour change. Moderated by researcher.	X	√	X	(1) Women involved in the Mums on the Run[12] trial suggested more social interaction or an online forum would be useful for ongoing support and motivation. (2) Online forum usage in the Mums on the Move trial[11] was very low (19% used it; average posts = 1 per user). It was concluded that other m-health strategies to enhance social support and

(Continues)

TABLE 1   (Continued)

Intervention feature	Description	Mums on the run	Mums on the move	FOMOS	Rationale for adaptations
					behaviour change should be considered.[11]
Instagram page	Access to a private Instagram page designed to provide: 'bite sized' information (via regular posts and stories) targeting the 'weekly topic'; social support; links to the website.	X	X	√	Given that online forum and website usage in the Mums on the Move trial[11] was low, other m-health strategies to enhance social support and behaviour change were considered.[11] Instagram was selected as it is one of the most popular social media platforms, with growing popularity amongst women of childbearing age.[16]
SMS	Delivered twice weekly to enhance social support, goal setting, monitoring and feedback.	X	X	√	Given that online forum and website usage in the Mums on the Move trial[11] was low, other m-health strategies to enhance social support and behaviour change were considered.[11] Text messaging has been shown to be an efficacious, low cost, low burden strategy for behaviour change.[17]
Goal planner	Participants provided with support on goal setting and self-monitoring—a goal planner can be used by participants to facilitate setting and monitoring of goals.	Online or paper version	Online or paper version	Fridge magnet	Fridge magnets for behavioural goal setting and self-monitoring have been shown to be well-accepted and useful for keeping parents accountable/ on track.[18]

opportunities to refine and improve the intervention as it moves into practice, to address and accommodate potential 'voltage drop' of effects (when interventions are expected to yield lower benefits as they move from efficacy to effectiveness to implementation and sustainability).[19]

For the purposes of this paper, we use the definition of sustainability as '*the continued use of program components at sufficient intensity for the sustained achievement of desirable program goals and population outcomes*'.[20] We use the definition of scalability as '*the ability of a health intervention shown to be efficacious. on a small scale and/or under controlled conditions to be expanded under real world conditions to. reach a greater proportion of the eligible population while retaining effectiveness*'.[21] The aim of this study is to identify factors affecting the sustainable implementation and scalability of the *FOMOS* program, including strategies to enhance research-practice translation, from key stakeholder perspectives.

TABLE 2 Elements of study design informed by the PRACTical planning for Implementation and Scale-up (PRACTIS) guide.[15]

Step	Description of PRACTIS step	Manuscript location	Process undertaken
1	Characterise parameters of implementation setting (e.g., intervention population, implementers, delivery setting/organisation)	Introduction; Methods (recruitment, data collection)	Mapped implementation context and identify appropriate stakeholders across all levels Undertook interviews/Focus groups with stakeholder representatives based on PRACTIS guide questions
2	Identify and engage key stakeholders across multiple levels within the delivery system(s) (e.g., intervention funding/responsibility, dissemination, host, user).	Methods (recruitment, data collection); Results	
3	Identify contextual (i.e., the physical, social, cultural environment whereby the intervention will be integrated) barriers and facilitators to implementation (e.g., individual-, provider-, organisational- and community/systems-level).	Methods (data collection, analyses); Results	Undertook interviews/Focus groups with stakeholder representatives based on PRACTIS guide questions
4	Address potential barriers to effective implementation (through formative and process evaluation)	Results (recommendations/ adaptations); Discussion	Categorised potential implementation and scale-up strategies. Provided recommendations and suggested adaptations to enhance sustainable implementation of FOMOS

2 | METHODS

2.1 | The FOMOS program

FOMOS is a six-month home-based intervention targeting improvements in physical activity, sedentary behaviour, diet quality and sleep health that are related to PND in women. It is intended to be offered to postnatal women (2–12 months postpartum) experiencing heightened depressive symptoms (identified via screening using the Edinburgh Postnatal Depression Scale[22]). The program builds on the *Mums on the Run*[12] and *Mums on the Move*[11] interventions, and is theoretically underpinned, targeting multiple constructs (e.g., individual, social, physical environmental) of the social ecological model[23] and key behaviour change principles outlined by Michie et al.[24] This includes: Feedback and Monitoring; Goals and Planning; Shaping Knowledge; Social Support; Antecedents.[24] For 6 months, women participating in *FOMOS* receive access to: (1) Program website; (2) Private Instagram page; (3) Twice weekly SMS; and (4) for the first 3-months, women receive home exercise equipment (detailed in Table 1).

2.2 | Study design

A pragmatic paradigm was selected to inform the methodology of this study given: (1) it places the research problem 'as central', with study design, data collection and analysis techniques then selected to best answer the research question, rather than being tied to one system of philosophy; and (2) it's suitability to exploring practical issues related to implementing programs in real-world contexts.[25] Based on this premise, a qualitative study design[26] with data collected via interviews and/or focus groups, and analysed using reflexive thematic analysis,[27,28] was deemed suitable to answer the formative research question. The study design and interpretation of results was further guided by the PRACTical planning for Implementation and Scale-up

(PRACTIS) guide for implementation and scale up of physical activity interventions[15] (see Table 2 for details). The Expert Recommendations for Implementing Change (ERIC) compilation[29] of implementation strategies, was used to guide identification of implementation and scale-up strategies, which were then mapped against the 5 P's of the PRACTIS Guide (People, Place, Process, Provisions and Principles).[15] The Standards for Reporting Qualitative Research (SRQR) have been followed to ensure best-practice, rigour and transparency of this research.[30] Implementation strategy refers to the specific means or methods for adopting and sustaining interventions.[31] Scale up strategy refers to the plans and actions necessary to fully establish the innovation in policies, programs and service delivery.[32]

2.3 | Recruitment

During June to September 2021, key stakeholder organisations in Australia were identified, and representatives from these organisations invited to take part in the study. 'Key stakeholder organisations' were defined as service delivery organisations likely to be involved in real-world implementation/scale up of *FOMOS* in practice (e.g., funding, delivery, referral and/or promotion of the program). Organisations represented perinatal health care (e.g., dietitians, exercise physiologists, nurses), mental health professionals and advisors (e.g. psychiatrists, psychologists), and government and non-government organisations involved in mental and/or perinatal health policy and/or practice. Aiming for maximum variation in sampling, researchers targeted stakeholder representation across different:

1. Australian states (e.g., Vic, NSW, SA), as well as those working across states
2. Organisations influencing implementation and scale-up (e.g., dissemination, advocacy, funding, high influence/interest)

3. Job roles (e.g., practitioners, service delivery managers, research and policy advisors) and organisation types (e.g., government and non-government agencies, professional associations, health services).

Stakeholder organisations were mapped against these three categories and representatives were identified via:

1. The research teams existing links (i.e., stakeholder relations officer)
2. Web-searches
3. 'Snowball' techniques, whereby participants suggested additional organisations

Stakeholder representatives who expressed their interest in participating after being emailed detailed information about the study, then subsequently arranged an interview time with the research team, provided organisational and individual consent and completed a short online demographic survey. To ensure adequate level of organisational knowledge, only representatives who had worked for the organisation for ≥6 months were eligible to participate. Further detail of stakeholder organisations recruited are provided in the results section below.

2.4 | Data collection

Semi-structured individual interviews ($n = 6$) and focus groups ($n = 3$, with either two participants [×2 focus groups] or three participants [1× focus group]) were conducted via zoom with at least two researchers present (MT, with SH or HK). During each interview, a facilitator (HK or SH) took detailed notes, which were reviewed alongside transcripts at the time of data analysis. A brief written and verbal program summary was provided to participants at the start of the interview. The interview schedule explored stakeholders' perspectives on the feasibility of sustainable implementation of the *FOMOS* program, with a key focus on identifying strategies on how to enhance research-practice translation. Specifically, interview questions were directly guided by (and corresponded to) checklist items in Step 1 of the PRACTIS guide,[15] which included: (1) Intervention population (individual level); (2) Implementers (provider level); (3) Environment/ context (Community/systems level); (4) Intervention factors (All levels). The schedule included nine key discussion questions plus subquestions/prompts for each discussion question where relevant, and had previously been piloted (e.g., Hesketh et al.[33]). Our PRACTIS interview schedule (Supporting Information) may thus serve as a useful resources in future studies. See Table 3 for selected example interview questions. Interviews were recorded and transcribed verbatim. Participants were allocated an ID number prior to this process.

2.5 | Data analysis

Reflexive thematic analysis was selected as the analytic method given its theoretical flexibility, ability to identify patterns and meanings from data via rigorous and iterative processes, and it's acknowledgement of the active role the researcher plays in the process of knowledge production.[28] Aligned with the six-step approach developed by Braun and Clarke,[27,28] data were analysed as follows:

Step 1 (familiarisation): Involved the researcher (MA) being immersed in the data via reading transcripts, listening to interview recordings and note taking.

Step 2 (Generating codes): Coding was first conducted deductively, guided by the PRACTIS framework,[15] with additional codes constructed if codes did not fit that framework (i.e., inductive coding). NVivo software (version 12.0) facilitated organisation of the data.

Step 3 (Constructing themes): Once all data were coded, similar codes were combined into sub-themes (major categories) which informed development of 'candidate' themes. A thematic map was created to facilitate this process.

Steps 4 and 5 (Revising and defining themes): Candidate themes were reviewed and refined, with the aim of ensuring in-depth understanding of the data as it relates to central organising concepts, and then re-checking themes (and sub-themes) against the entire dataset. Final themes (and sub-themes) were defined and named to succinctly to reflect the 'core' meaning of the theme and alignment with the PRACTIS guide[15] (Figure 1).

Step 6 (Producing the report): Results included anonymised participant quotes selected to illustrate key themes and concepts. This step was also used to test the best fit between the themes and research question. Researchers (MA, MT, HK) used this opportunity to further revise theme content, structure and naming, if required.

Step 7 (Extracting implementation and scale-up strategies): To explicitly identify strategies to enhance research-practice translation, an additional step in data analysis was undertaken. After thorough review of key themes and concepts from qualitative analysis, researchers (MT, MA, HK) concurrently extracted specific implementation and scale-up strategies from the data. Strategies were mapped against the ERIC compilation for implementation strategies,[29] and the 'five P's' of the PRACTIS guide,[15] which reflect the key criteria for effective implementation and scale-up (described in Table 4). Table 4 presents identified implementation strategies, reported in line with recommendations and definitions for specifying implementation strategies.[44]

2.6 | Researcher roles during data collection and analysis

During Step 2 of data analysis, two authors (MA, MT) aimed to explore the possibility of various interpretations of data and thus coded two transcripts independently. They then met to discuss interpretations of the data, which did not greatly differ (only that of naming conventions). Acknowledging researcher reflexivity, MT conducted all interviews. Having led the development of *FOMOS*

TABLE 3　Example interview schedule questions and sub-questions targeting related levels outlined in Step 1 of the PRACTIS guide.

PRACTIS level (from Step 1)	Example question	Example sub-questions/prompts
Intervention population (Individual level)	What do you think is the best way to target postnatal women at risk of PND?	• What will motivate or incentivise them to take part? (prompt: their well-being, the baby, the family, financial or other) • Are there subgroups that experience disparities in physical activity, sedentary behaviour, diet, sleep, PND? • How could we ensure equity of access for disadvantaged subgroups?
Implementation (Provider level)	If, in the future, FOMOS was offered more widely (i.e., all mothers experiencing heightened PND symptoms in the state) than to just the postnatal women at risk of PND in this trial, what do you think would be required to ensure sustainable promotion?	• How might your organisation be involved in supporting retention of postnatal women at risk of PND and monitoring their involvement? • Is there an existing infrastructure within your organisation that could help enable this?
Environment/context (Community/systems level)	Which factors in the community do you think could influence the dissemination (e.g., awareness raising and referring women to the intervention) of FOMOS in the future?	• This might include: political support, perceptions of parents, priority placed amongst stakeholder organisations
	Who at the community/ systems level could be responsible for promoting and supporting FOMOS beyond this research trial?	• Are there individual or organisational champions for promoting uptake and adherence to FOMOS that could help to plan for sustainability?
Intervention factors (All levels)	Which aspects of FOMOS do you think are 'core' and must remain intact? Are there any elements that you think need to be flexible and could change over time?	• What advantages do you think FOMOS may provide postnatal women over existing, similar programs? • How might this affect postnatal women at risk of PND adoption and sustainability of their use?
	In the future, if FOMOS was offered more widely beyond this research trial, what do you think is the best way to fund the associated costs and resources for delivery (i.e., materials)?	• What factors are important for sustainable implementation of FOMOS into the future?

ensured intimate knowledge of the program, which enhanced the depth of data/participant responses provided in interviews, and interpretation. MA, experienced in thematic analysis, led analysis. Her involvement as project manager in pilot studies informing *FOMOS* provided her with in-depth program knowledge, facilitating interpretation. HK, who developed the interview schedule, facilitated interviews and interpretation, also development of the PRACTIS guide. This expert knowledge enabled her to probe participants during interviews which acquired in-depth responses and enhanced interpretation. The roles of remaining co-authors did not directly influence interpretation of data.

2.7 | Ethics

This study was approved by the Faculty of Health, Deakin University low risk ethics Committee (HEAG 57_2021). Informed written consent was obtained from all participants.

3 | RESULTS

A total of 13 participants representing 10 organisations participated in the study, which enabled the research aims to be addressed.
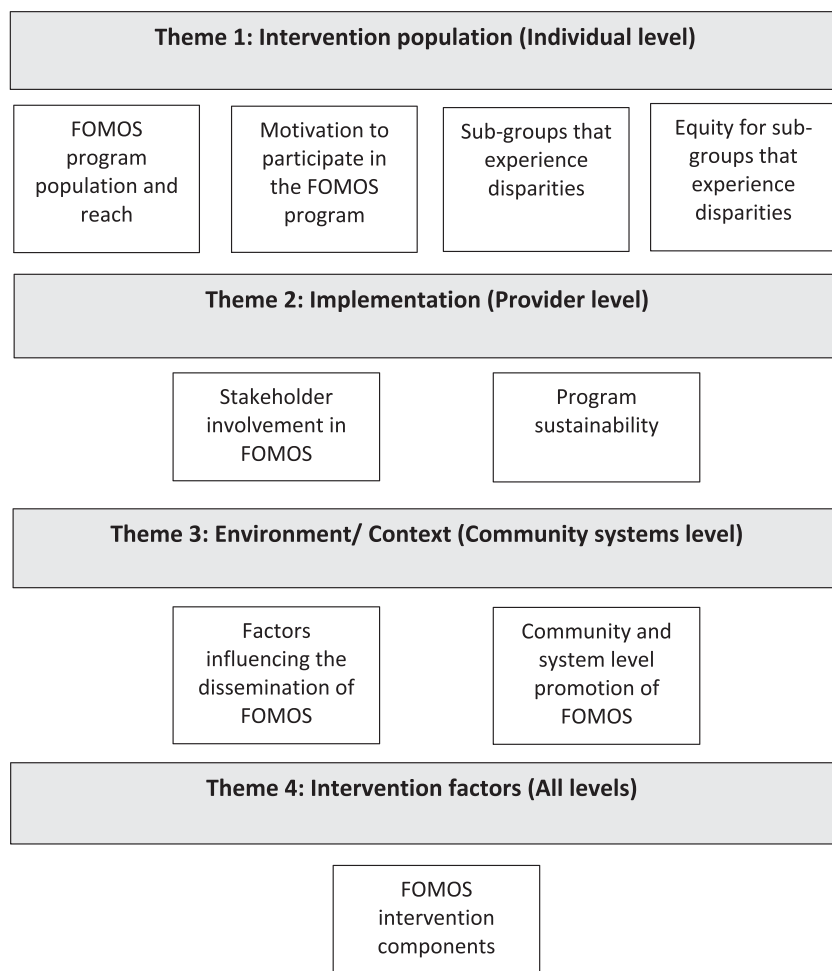
FIGURE 1 Key themes and sub-themes constructed through qualitative data analysis, guided by the PRACTIS guide.[15]

Reasons for non-participation of organisations approached ($n = 27$) included: Lack of capacity largely due to impacts of COVID-19 ($n = 5$); expertise outside of scope of organisation ($n = 3$); representative approached worked less than 6-months in position ($n = 1$); key representative on leave/left organisation ($n = 3$); no reason provided ($n = 15$). Non-respondents had local/regional ($n = 2$), state-wide ($n = 13$) and national ($n = 12$) reach and included hospital/clinical services ($n = 4$), peak bodies/advocacy groups ($n = 4$), Government agencies ($n = 3$), not-for-profit organisations ($n = 9$) and support services/government-funded initiatives ($n = 9$). The included stakeholder organisations ($n = 10$), focused predominantly on perinatal and/or mental health, included hospital/clinical services ($n = 3$); peak bodies/advocacy groups ($n = 3$); government agencies ($n = 1$); charities ($n = 2$); not-for-profit organisation ($n = 1$). Organisations had local/region ($n = 3$); state-wide ($n = 4$) and national ($n = 3$) reach. Roles of stakeholder participants included: practitioner/clinician ($n = 5$); policy manager/advisor ($n = 4$); programs manager ($n = 1$); clinical governance support ($n = 1$); CEO ($n = 1$); research/evaluation officer ($n = 1$). Interviews ranged 42 to 62 min in length (mean = 49.2 min). To answer the research question, four key themes (and nine sub-themes) were constructed from qualitative data and mapped against PRACTIS guide criteria (Figure 1).

3.1 | Theme 1: Intervention population (individual level)

3.1.1 | Sub-theme 1.1: FOMOS Program population and reach

Stakeholders suggested that the best way to target postnatal women at risk of PND for *FOMOS* is via maternal child health nurses, GP's, immunisation nurses, psychiatrists (as a stepped-down approach), sleep clinics, online education campaigns (using digital screening) and established online communities for postnatal women. Targeting multiple systems and entry points (e.g., antenatal, early and mid-postpartum) was discussed by some stakeholders as being essential in ensuring the program reaches those in need.

> "*it may also be something to support the end of that treatment...more of a step-down model potentially. All right, now that we've got everything in order with your mental health, and we think you're on track. This might be a next step for you to really focus on yourself, self-care, exercise, healthy eating.*" (Stakeholder representative 9).

TABLE 4 FOMOS implementation and scale-up strategies.

#	Strategy	Definition	Related qualitative theme	Actors (those who deliver implementation strategy)	Action (specific action or process)	Action target (who its meant to affect)	Implementation outcome(s) affected	Justification	Alignment with 'five P's' of the PRACTIS guide
1	Build a coalition[a]	Generate new and existing relationships with stakeholders/ partners/health professionals that could assist in the implementation of FOMOS.	2.1	FOMOS research team with stakeholders and health professionals/ clinicians	Leveraging off existing services/ programs to assist with the identification, recruitment and referral of participants; and involving health professionals/ clinicians connected to their existing programs.	Women involved in FOMOS Clinicians (implementers)	Reach, adoption, implementation and sustainability	Maximises potential program dissemination and implementation[34] to target audience	People Process
2	Access new funding[a]	Accessing existing or new funding from the State and/or Federal Government or via private health funds (i.e., health insurance)	2.2	FOMOS research team with stakeholders	Identifying appropriate funding schemes to support ongoing implementation, and seek opportunities via partners to fund FOMOS via existing funding schemes in health services	Women involved in FOMOS	Sustainability, potential scalability	Sustained funding is a key factor impacting implementation and ongoing sustainability of health promotion initiatives,[35] previously identified as a major barrier to potential sustainability in our pilot work leading to FOMOS[14]	Process Provisions
3	Target multiple systems and entry points	FOMOS could target multiple systems and entry points (i.e, antenatal, early, and mid-postpartum) to ensure program flexibility and reach amongst those in need at the appropriate time.	1.1 & 3.2	Health professionals/ clinicians	A two-pronged approach to promoting FOMOS at community and systems level (from maternal child health, local councils etc.) and individual level (via GP's)	Women involved in FOMOS Health professionals/ clinicians who promote FOMOS	Reach, adoption	Engaging women at multiple pathway points (e.g., antenatal and postnatal) likely to increase access and align with 'opportune' moments for intervention engagement[36]	People Place Process

(Continues)

TABLE 4 (Continued)

#	Strategy	Definition	Related qualitative theme	Actors (those who deliver implementation strategy)	Action (specific action or process)	Action target (who its meant to affect)	Implementation outcome(s) affected	Justification	Alignment with 'five P's' of the PRACTIS guide
4	Offer as holding ground program	Stakeholders suggested that FOMOS could be a 'holding-ground' program that postpartum women access whilst on waiting lists for mental health services that are at capacity.	1.1	Health professionals/ clinicians	Women on the waitlist for mental health services referred to FOMOS via clinicians upon screening	Women involved in FOMOS. Health professionals/ clinicians who promote FOMOS	Reach	Lack of availability of mental health services is a critical issue. Approaches to manage service demand and waitlists such as using FOMOS as a 'holding ground' program likely to lead to better outcomes, given delayed treatment is linked to poorer mental health outcomes[37]	People Process
5	Frame program to target other needs (i.e., social connection)	A stealth-based approach whereby FOMOS is framed as targeting social connection in addition to health benefits	1.2, 4.1	FOMOS research team, and health professionals promoting the program	FOMOS promotional material and intervention components emphasise friendships and social connections gained from participating in FOMOS.	Women involved in FOMOS program	Reach, program implementation and sustainability	Promoting social connections/social support for postpartum women has been shown to positively influence physical activity[38] and mental health.[39]	Principles
6	Target organisations that support or work with minority/ CALD/ disadvantaged women	FOMOS could engage with organisations and agencies that work with minority groups.	1.3 & 1.4	FOMOS research team. Agencies/orgs working with minority groups	Engage and partner with Aboriginal services, GP's etc. Ensure online content is presented in various languages to tailor for and reach culturally and linguistically diverse women. Screening women in public hospital maternity units (to access	Women involved in FOMOS (in particular those from minority groups). Health professionals/ clinicians who promote FOMOS	Reach, adoption	Important to work in partnership with organisations and agencies that work with hard-to-reach population groups,[40] to increase access and promote equity in health[41]	People Place Process

TABLE 4 (Continued)

#	Strategy	Definition	Related qualitative theme	Actors (those who deliver implementation strategy)	Action (specific action or process)	Action target (who its meant to affect)	Implementation outcome(s) affected	Justification	Alignment with 'five P's' of the PRACTIS guide
7	Utilise existing resources within delivery setting	Stakeholders could play a role in the program by sharing their existing resources (i.e., factsheets) that can be embedded within the FOMOS online content/ program materials.	2.1	FOMOS research team with Stakeholders and health professionals/ clinicians	disadvantaged women) Work with stakeholders to embed their existing high-quality resources within the FOMOS website/program, where needed/ appropriate.	Women involved in FOMOS Stakeholders	Adoption, implementation	For physical activity programs, resources available with the target implementation setting can influence potential scalability[42]	Process Provisions
8	Foster community-based champions and political support[a]	Identify community-based champions that can advocate for and disseminate FOMOS to target organisations and participants	3.1	FOMOS stakeholders/ Community champions	Engage with policy makers and community champions to put FOMOS on the political agenda	FOMOS champions/ stakeholders	Adoption, implementation and sustainability	Factors influencing the dissemination of health behaviour programs include having political support and community champions who vouch for the importance of the program.[40]	People Process
9	Aligning program with stakeholder priorities	Ensuring the objectives of the FOMOS program are aligned with priorities and values of stakeholder organisations and health care providers	3.1	FOMOS research team Stakeholder organisations Health care providers	Work with stakeholders to understand their priorities and ensure FOMOS program objectives are clearly articulated to align with those priorities	Stakeholder organisations Health care providers	Program implementation and sustainability	Health interventions that reflect stakeholder priorities can lead to improved engagement and involvement in practice.[43]	Principles

[a]Aligns with ERIC compendium.[29] PRACTIS Guide[15] 5 P's: *People* (type and number of people that the intervention will reach, and individuals involved in/required for implementation and scale up); *Place* (settings/organisations that will be involved in/required for implementation and scale up); *Process* (intervention or implementation process that will occur in practice); *Provisions* (Resources necessary for implementation and scale up), and; *Principles* (underlying principles of the intervention and implementation process that will be scaled up in practice).

It was also suggested that *FOMOS* could be a 'holding-ground program' that women could participate in whilst waiting to access other mental health services that are at capacity.

> "there's not a lot of services with books open that are readily available....the demand is so huge...[so FOMOS] could be something that we could promote as a potential holding ground...for those who might not be able to access our service yet, but are on the wait list and have been classified as mild to moderate. Could be a little bit of an intermediary kind of program" (Stakeholder representative 9).

A handful of stakeholders believed that targeting women antenatally for could be more effective than postnatally when the demands of motherhood may limit their capacity to engage in the program.

> "women that are at high-risk should be identified antenatally and offered some sort of plan of service for that because I think that when you get them into the postnatal period and the babies are there and very much demanding of their time and energy and the focus changes" (Stakeholder representative 7).

3.1.2 | Sub-theme 1.2: Motivation to participate in the FOMOS program

Highlighting the benefits of participating in *FOMOS* to incentivise women to take part, included: (1) building social connections with other women involved; (2) having access to the exercise equipment within the home; and (3) focussing on how women will feel physically (e.g., sleep better) and mentally (e.g., reduce stress, feel happier) after participation.

> "as a mum, you put all your energy to everyone else and you feel depleted or burnt out or whatever, but this is a way you can actually focus some time for you, physically and emotionally and mentally, by being engaged in this program, and I think you'll find that will resonate with people who are feeling like they need that..." (Stakeholder representative 6).

One stakeholder stated that a way to motivate or incentivise women to take part is to use a stealth-based approach where the social connections and friendships they may form in the program are promoted and this will inadvertently have a positive effect on their mental health.

> "...try and sell it with the added benefits...like friendship and connection with community members in similar situations, and peer support.... So selling it as a mum's group... but they are getting all the other added benefits that we know are going to contribute to decreasing their postnatal depression..." (Stakeholder representative 5).

3.1.3 | Sub-theme 1.3: Sub-groups that experience disparities

Stakeholders suggested sub-groups that experience disparities in the targeted health behaviours, included Aboriginal and Torres Strait Islander women, women from a lower socio-economic background, women from CALD backgrounds, women living in regional or remote areas, and women with a history of depression, personal child abuse or in an abusive relationship.

> "There definitely would be women in particular cohorts that wouldn't be accessed by the maternal child health nurse or the GP, because we know in regional areas...people are less likely to go to the GP...but also accessing the GP is really hard around here" (Stakeholder representative 3).

3.1.4 | Sub-theme 1.4: Equity for sub-groups that experience disparities

Suggestions from stakeholders for ensuring *FOMOS* is accessible to all sub-groups include screening women in public hospital maternity units, engaging with organisations and agencies (e.g., GP's, Aboriginal services) that work with at-risk population groups, offering part of the program (e.g., website) to all women, and additional components (e.g., exercise equipment, SMS) to women at highest risk of PND.

> "So Aboriginal and Torres Strait Islanders...from my experience, you need to engage with agencies that are working with this group. They're not going to listen to a white person telling them they need to do an exercise program" (Stakeholder representative 7).

In addition, one stakeholder suggested that sub-groups that experience disparities in relation to health behaviours would benefit most from participating in *FOMOS*.

> "Lower socio-economic would be a group who might not have access to the same opportunities and might need a program...like this, more than others" (Stakeholder representative 6).

3.2 | Theme 2: Adoption/implementation (provider level)

3.2.1 | Sub-theme 2.1: Stakeholder involvement in FOMOS

Some stakeholders suggested their organisation could potentially be involved in *FOMOS* by assisting with the recruitment of women into the program. This could be achieved by promoting the program via

existing online forums, organisational e-newsletters, websites and social media accounts. Two stakeholders suggested their organisations could be involved by that having their clinicians connected to the program who are ready to refer into it where suitable and disseminating program details to their mental health providers to share with patients.

> "we've got a range of different mental health providers that provide mental health services to the community. So we can give the details about the program to our mental health providers and then they can share it with their patients and talk to their patients about whether they want to sign up to the program...or at least advertise it, promote it in that way" (Stakeholder representative 3).

One stakeholder stated that their organisation could link with *FOMOS* by sharing existing resources (e.g., fact sheets and information) that could potentially be embedded within the program website, ensuring consistent messaging and '*so you're not having to reinvent the wheel*' (Stakeholder representative 5).

3.2.2 | Sub-theme 2.2: Program sustainability

Most stakeholders believed several factors could impact the ongoing sustainability of *FOMOS*, including high demand of the program (e.g., interest in program, supply of exercise equipment), governance around screening (e.g., targeting *FOMOS* to those with mild to moderate PND symptoms who would benefit most) and funding. It was suggested that *FOMOS* could be funded by the State and/or Federal Government (dependent on program delivery agencies) or via private health insurance funds. Ensuring online delivery of the program, connecting (and building trust) with partners in the sector and care providers and integrating *FOMOS* into existing support programs or services were suggested as strategies to enhance ongoing sustainability.

> "... partnering with something that's already established would be really important, both for sustainability and for funding and for it as an initiative" (Stakeholder representative 7).

3.3 | Theme 3: Environment/context (community systems level)

3.3.1 | Sub-theme 3.1: Factors influencing the dissemination of the FOMOS program

The factors that could influence the dissemination of *FOMOS* according to stakeholders relies on political support and champions in the community who vouch for the importance of supporting the program

as well as whether *FOMOS* is a priority amongst stakeholder organisations.

> "it comes down to having champions in the community... and sometimes that might be a politician... around the time of an election...once the program is finished, you've got your data and you've got your strong case study about why the Government should fund it. You then go to both political parties with the proposal...and you ideally want both parties to say, we're committing to this as an election commitment" (Stakeholder representative 6).

3.3.2 | Sub-theme 3.2: Community and system level promotion of the FOMOS program

Most stakeholders suggested that community and system level promotion of *FOMOS* would predominantly come from maternal child health, GP's, local councils and community health services. One stakeholder stated that GP's would be aware of an individuals health history and can recommend the program to those who are in need and deemed suitable to take part in *FOMOS*.

> "...GP's probably would be core to it because you probably want a health professional... They can just be keeping an eye on how it's all tracking for individual patients, as well as then offering it to patients" (Stakeholder representative 1).

3.4 | Theme 4: Intervention factors (all levels)

3.4.1 | Sub-theme 4.1: FOMOS Program intervention components

Most stakeholders agreed that all components of the program (e.g., exercise equipment, website, Instagram and SMS) were needed to ensure program success.

> "...in today's world, people need to see things at least 13 times before it goes in because there's so much information. People are scrolling through Instagram, media, Facebook....and sometimes things are presented in different ways from different channels... So the more you can have, the better" (Stakeholder representative 6).

However, a couple of stakeholders believed that *FOMOS* could include either the website or social media (e.g., Instagram) but the component chosen must allow women participating to socially connect and support each other throughout the intervention.

> "You could perhaps build into the web(site) a way of there being some social connection...like... an online messaging

system between participants…" (Stakeholder representative 9).

There was extensive discussion regarding the management of participant comments on Instagram. Some ideas proposed by stakeholders were to either turn off comments or have members of the research team monitoring and approving or rejecting comments. This would avoid negative, harmful, irrelevant, and non-evidence-based comments being shared with program participants.

"*the groups that do seem to work quite well, the online parenting groups that I've seen are the ones where there is somebody who is the administrator for that. You need the resources and somebody to do that. But that is one way of moderating the content and making sure that it's the right content for the cause*" (Stakeholder representative 2).

A few stakeholders recommended that the online content (website and Instagram) needs to be visually attractive, updated regularly and cater for CALD women. This could involve presenting content in various languages and finding out the best way to reach these broader population groups.

"*I think relying on the most recent [census] data on language prevalence of people who don't have high English proficiency would be the key bit of data that you would need to inform your choices of language to translate the content into*" (Stakeholder representative 8).

3.5 | Implementation and scale-up strategies to enhance translation of the FOMOS program

From the nine sub-themes, a total of nine discrete strategies were identified that addressed program uptake and reach, implementation, potential scalability and/or sustainability, with three of those strategies (build a coalition; access new funding; promote use of community-based champions and political support) directly aligned to the ERIC compendium. Strategies detailed in Table 4.

4 | DISCUSSION

Flexibility and contextual adaptation of interventions and the implementation/scale up process, is a critical component of sustainable impact, adoption and implementation at scale.[15] In line with PRACTIS guide recommendations, prioritising this early in intervention planning processes, with active engagement from delivery organisations and stakeholders, is a major element of identifying factors relevant to future scale up and may contribute to 'voltage drop'. This study sought to address this in *FOMOS*, providing new and important evidence for others wishing to scale evidence-based interventions, or

plan future implementation a priori. This study identified several factors at the individual-, provider-, and systems-level, likely to impact the sustainable implementation and scalability of *FOMOS*. Additionally, nine strategies to support research-practice translation were constructed. Only three (build a coalition; access new funding; and promote use of community-based champions and political support) of the nine strategies directly aligned with the ERIC compendium.[29] Below we discuss key findings and specific implementation and scale-up strategies identified, in context with the broader implementation literature. It should be noted that although these findings and strategies are presented under the sub-headings 'Uptake', 'Implementation', and 'Sustainability', many of the strategies identified impact multiple implementation outcomes (as evident in Table 4).

4.1 | Uptake (i.e., reach & adoption)

It was suggested that recruitment efforts target multiple systems/ entry points (i.e., antenatal, early and mid-postpartum) to ensure that the program provides flexibility and reaches those in need at the appropriate time. The timing of routine screening for PND differs across states and countries. In Australia, this typically occurs between 2 and 8 weeks postpartum, with 4 weeks postpartum previously suggested as an optimal time to refer this type of program.[14] However, depression in the postpartum period may begin with symptoms during pregnancy or may have onset beyond the first postpartum month.[45] Therefore, offering *FOMOS* to women at different time points at various time points, would enable more at-risk women to receive support at the right time. Recruiting antenatally may also enable the intervention to minimise the severity of onset of PND. It has also been identified that a mother's capacity to participate in healthy behaviour interventions may be greater if they are engaged prior to their baby being born when there are potentially less barriers (e.g., fatigue, increased demands, need for childcare).[46] Another suggestion was that *FOMOS* could be a 'holding-ground' program for postpartum women to access whilst on wait lists for mental health services that are at capacity. The intervention strategies in *FOMOS* could complement other mental health services and as such the program could be started ahead of further treatments. Finally, equity in access was an ongoing concern. It was suggested that the research team work with organisations that support or work with minority/Indigenous/CALD/ disadvantaged women who have a disproportionate risk of PND, as well as screening of women in public hospital maternity units to better access these groups. To further aid equity in uptake, online content could be presented in a variety of languages and be tailored to be culturally meaningful and appropriate to women from various cultures that are prominent in Australia.

4.2 | Implementation (i.e., delivery)

Stakeholders identified several implementation considerations. First, noted was the importance of building relationships with stakeholders

that could assist in the implementation of *FOMOS*. This is an important factor identified in a systematic review of the barriers and facilitators to implementing community-based physical activity interventions[40] and identified in the ERIC compendium.[29] Second, consistent with previous studies,[47,48] an intervention with a social support focus, where promotional material and intervention components emphasise social connections, was suggested. Social support enhances physical activity[38] and mental health,[39] with benefits for those with severe mental illness, who can experience social isolation and stigmatisation. The consensus amongst existing studies is that social connection should be prioritised to overcome barriers to participation. Accordingly, this stealth-based approach may aid the creation of a safe space without the 'stigma' of PND for participants whilst improving program reach and sustainability. Finally, stakeholders identified the opportunity to utilise existing resources within the delivery setting. Ensuring programs can leverage existing services and utilise relationships with stakeholders will ensure messaging is consistent across the program and services. This could be particularly useful to facilitate implementation as well as support the embedding of the program within an existing infrastructure or services.[49,50]

4.3 | Sustainability (i.e., ongoing delivery)

Funding from the State/Federal Government or via private health insurance funds was deemed essential for sustainability of *FOMOS* implementation. Financial stability is key to ongoing sustainability of health promotion initiatives,[35] and was identified as a major barrier to potential sustainability in pilot work underpinning the *FOMOS* program.[14] Further, it may be helpful to align *FOMOS* with other stakeholder priorities. Organisations that work with women at risk of PND are often responsible for running multiple programs targeting various population groups, behaviours and health needs. Aligning *FOMOS* with existing priorities may help to overcome organisational capacity barriers and reduce risk for other priorities competing with *FOMOS* for investment of resources, consistent with previous literature.[14,40] Finally, identifying community-based champions that can advocate for and distribute information about *FOMOS* to target organisations and postnatal women could assist dissemination. For example, program champions were key drivers in the implementation of obesity prevention program targeting parents with infants, whereby champions working at a local level enabled translation of the program into routine practice.[49] Moreover, identifying and preparing individuals as program champions is acknowledged in the ERIC compendium[29] and highlighted in previous studies assessing key stakeholder perspectives of physical activity programs in postpartum women and adults.[14,40,47]

5 | STRENGTHS AND LIMITATIONS

Study strengths include recruitment of a range of stakeholders from hospital/clinical services, peak bodies, Government agencies and not-for-profit organisations. This enabled a broader exploration of the barriers to implementation and scale-up of *FOMOS* highlighting wider implications throughout stakeholder organisations and enhancing translational value for more diverse populations. Using PRACTIS, a comprehensive framework for implementation science research in public health[15] and a qualitative design, in-depth data and rich insights were obtained that aligned with and expanded on the ERIC compendium.[29] Further, whilst we present the data collected and results according to the four PRACTIS guide steps, we additionally report on the methodological process we took to adhere to PRACTIS recommendations in this study (i.e., Table 2). Demonstrating how PRACTIS was applied as a framework in addition to what was learnt, potentially increases the use and reporting of the framework (and other implementation frameworks) in future studies. The interview schedule we developed based on PRACTIS Guide criteria provided a systematic way to identify key elements important to future implementation and scale up of FOMOS. The schedule could also serve as a data collection tool for others in the field wishing to assess prospective scalability via qualitative approaches. However, data generated in the current study are relevant primarily to the context of Australia and therefore global implications remain unknown. Consequently, the transferability of findings to physical activity programs offered in other locations may be limited. Nonetheless, many of the issues identified by stakeholders are consistent with previous research that has explored challenges with scaling up in public health,[51,52] and thus our findings may have relevance to scaling up of broader programs. Whilst the final themes identified were agreed by the authors involved in data collection and analysis, member checking was not performed in the current study due to time constraints and perceived participant burden. Finally, uptake of organisations was low (10/37), compared to similar studies (e.g., Teychenne et al., 2021[14]). Given the current study was conducted between June and Sept 2021, in the midst of the COVID-19 pandemic, whereby the states of Victoria and NSW in particular were navigating multiple extended lockdowns and changing public health priorities in key organisations targeted, it is highly likely that this may have adversely impacted the uptake of key stakeholder organisations. It is noteworthy that half (5/10) of the organisations that agreed to participate were recruited via existing networks of the research team, which suggests that ensuring strong working relationships and networks may be particularly important for supporting uptake in future studies.

6 | FUTURE DIRECTIONS & CONCLUSION

Strategies for implementation and scale-up of the program identified in this paper can be used to inform the broader process of translation of this and similar programs that target the promotion of healthy behaviours for postnatal mental health. Future research will need to test the effectiveness of the different strategies on the implementation and effectiveness of *FOMOS*, using a hybrid-implementation trial design, including outcomes of scale up to determine the extent of intervention scalability.

AUTHOR CONTRIBUTIONS

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

The datasets analysed during the current study are not publicly available due to ethical restrictions (participants have not consented to the use of their data for purposes other than those for which they originally consented). Should a researcher request the data for a particular purpose, an ethically compliant (anonymised) dataset may be made available via the lead author upon approval by the Deakin University Human Research Ethics Committee. Requests can be emailed to: research-ethics@deakin.edu.au.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.