

Embedding a Health Literacy Intervention Within Established Parenting Groups: An Australian Feasibility Study

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ABSTRACT

Background: A significant proportion of new parents in high-income countries have lower health literacy, but few health literacy interventions exist for this group. **Objective:** This study investigated the feasibility of delivering health literacy content within existing postnatal parenting groups. **Methods:** Multicenter feasibility study using a seven-group pre-test post-test design. Parents older than age 16 years with children between age 4 and 26 weeks with sufficient English fluency were invited to participate in a 4-week health literacy program (four 2-hour sessions) delivered by trained facilitators (e.g., child and family health nurses). Mixed-methods evaluation was used, with quantitative data analyzed descriptively and qualitative data (e.g., focus groups, observations, interviews) analyzed using the Framework approach. **Key Results:** Our health literacy program was successfully delivered at six sites in New South Wales, Australia, in 2018. Our recruitment strategy was successful in reaching diverse learners ($N = 73$), many who were born in a country other than Australia. However, few had limited health literacy as assessed by a subjective, single-item measure, and only half completed the follow-up questionnaires. High baseline knowledge, skills, and confidence among participants limited the potential for change in these quantitative outcomes but shed light on the utility of different measurement instruments in this context. Qualitative analyses suggested that the health literacy program aligned well with the institutional objectives of child and family health services and was acceptable to learners from diverse cultural backgrounds. However, in its current form, it may be perceived as too simple for learners with higher levels of education and literacy. **Conclusions:** Our study has offered practical insights into the feasibility of embedding a health literacy intervention into established postnatal parenting groups and shown how program resources and facilitator training could be adapted to make the program more suitable for a range of learners and better support facilitators. [*HLRP: Health Literacy Research and Practice*. 2020;4(1):e67-e78.]

Plain Language Summary: This study looked at the feasibility of delivering a 4-week health literacy program to new parents using existing postnatal parenting groups in New South Wales, Australia. Although the program was generally acceptable to learners and facilitators, this study offers several strategies to further improve the program so that it better supports facilitators and suits a wider range of learners.

A significant proportion of parents in high-income countries have lower health literacy (Mackley, Winter, Guillen, Paul, & Locke, 2016). Previous research has linked low levels of parental health literacy with poorer child health outcomes (Dallacker, Hertwig, Peters, & Mata, 2016; Keim-Malpass, Letzkus, & Kennedy, 2015) and greater incidence of child emergency department visits and hospitalizations (DeWalt, Dilling, Rosenthal, & Pignone, 2007). Despite this, few health literacy interventions exist for new parents worldwide. Lim-

ited evidence from existing programs suggest that tailored health literacy interventions for parents can lead to improvements in confidence (Armstrong-Heimsoth et al., 2017), appropriate health service use (Health Care Institute, 2009; Herman, Young, Espitia, Fu, & Farshidi, 2009), and health outcomes for parents and children (Health Care Institute, 2009), but should be interpreted with caution given nonrandomized study designs, poor retention, and subjective outcome measurement. Sparse evidence for the effectiveness of

parental health literacy interventions reflects the broader field of health literacy in which the great majority of research is descriptive, reporting on health literacy as a “risk factor” for good health but not actively using the concept of health literacy to design interventions for the improvement of health outcomes (Nutbeam, McGill, & Premkumar, 2018).

Health literacy has been proposed as a modifiable personal “asset” describing capabilities that can be developed through health education and training (Nutbeam, 2000). This perspective recognizes the importance of building the capacity of people to participate in decisions about their treatment or care (Nutbeam, 2008; Renkert & Nutbeam, 2001). Nutbeam (2008) proposes a continuum of transferable health literacy skills including basic or functional health literacy, communicative/interactive health literacy, and critical health literacy. Such a continuum suggests that the different levels of literacy progressively allow for greater autonomy in decision-making and personal empowerment. By using the concept of health literacy to guide the content and delivery of health education, attention is focused on the development of the skills and confidence to engage in a continual and adaptive process of managing their health, rather than being limited to prescribed responses to the transmission of information. Ideally, a level of critical health literacy will be reached in people who have the ability to seek out information, assess the reliability of that information and use it to exert

greater control over their health, and make well-informed health choices for themselves and their family (Renkert & Nutbeam, 2001).

We developed a health literacy program for new parents based on our previous work (McCaffery et al., 2016; Muscat et al., 2016). The program was initially developed for, and piloted in, antenatal settings in New South Wales (NSW), Australia. However, we experienced several logistical issues recruiting pregnant participants from hospital settings. There also appeared to be a mismatch between participant’s expectations of prenatal education and health literacy program content; while parents expected detailed information about childbirth, our program was deliberately focused on transferable skill development for tasks related to caring for a newborn/infant.

The postnatal period may represent a more appropriate stage to intervene to improve the health literacy of parents (Johnston, Fowler, Wilson, & Kelly, 2015). Both need and motivation are high, contact with the health system is considerable, and large benefits may be achieved for both the parent and the child. During this time, parents must acquire a large amount of new health knowledge and new skills but are often faced with information of variable quality that can be contradictory (Joury et al., 2018; Wiley, Steffens, Berry, & Leask, 2017). Postnatal parenting groups have been identified as an ideal setting to support the health literacy development of new parents (Johnston et al., 2015). Postnatal parenting groups are offered in

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Grants: Competitive funding for this project was obtained through the Western Sydney Local Health District Research and Education Network Research Grant Scheme and Western Sydney Primary Health Network (WentWest) Chronic Disease Management and Prevention Services in Western Sydney Tender Scheme.

Disclosure: The authors have no relevant financial relationships to disclose.

Acknowledgment: The authors thank all of the feasibility study participants, as well as Nelma Galas, Deborah Wilkin, Maureen Remfrey, Anne McIntyre (Western Sydney Local Health District), and Norma Boules (Community Migrant Resource Centre) for facilitating the programs.

Received: December 14, 2018; Accepted: April 22, 2019

doi:10.3928/24748307-20200217-01

countries globally (e.g., Rockers et al., 2018; Westminster City Council, 2018). In NSW, parenting groups are part of the “universal” early childhood health services provided free-of-charge by the state government (NSW Health, 2010). They are also offered by community-based organizations. Together, these services have a broad reach and are regularly accessed by most families with infants age 0 to 11 months (Johnston et al., 2015). However, there are currently no widely applied guidelines or standards for postnatal education, and classes vary in length, instructor training, sponsorship, goals, focus, and content. As such, the potential for health literacy development is yet to be fully recognized in these programs.

The aim of this study was to assess the feasibility of delivering health literacy content within existing new parent groups, examine the usefulness of materials, and explore parent and health care provider responses.

METHODS

Program Content

The Parenting Plus program (version 1) embeds graded health literacy skills across several health topics relevant to new parents (e.g., functional skills for medicine dosage, critical skills for appraising online health information; **Table 1**). Program content was informed by a successful health literacy program delivered in adult education settings (McCaffery et al., 2016; McCaffery et al., 2019) and local and national health literacy guidelines. The program has been jointly developed and iteratively revised with input from frontline health practitioners (child and family health nurses), health literacy content experts, consumers, and stakeholders (NSW Health and Western Sydney Local Health District staff).

Study Type

This is a multicenter feasibility study using a pre-test, post-test design and mixed methods evaluation. We accepted some flexibility in the protocol to explore the feasibility of delivering the program under the usual conditions (Thorpe et al., 2009), including flexibility in child’s age, group numbers, and program duration.

Ethical Considerations

This study was approved by the Sydney Local Health District Human Research Ethics Committee (protocol number HREC/17/RPAH/466).

Participants

Participants were parents older than age 16 years with children between ages 4 and 26 weeks with sufficient English fluency.

PROCEDURES

Recruitment

Parents were recruited from existing parenting groups delivered by the state-based health service (NSW Health) and community organizations in western Sydney. Parenting groups are offered free-of-charge to all new parents by NSW Health as part of the Level 1 General Service Response. Parents are informed about the groups during a home visit by a child and family health nurse and/or self-enroll by contacting their local community health center.

Program Delivery

The program was designed to be delivered as a free 4-week health literacy program (four 2-hour sessions) delivered by trained facilitators (e.g., general practitioner liaison nurses, child and family health nurses). The program was delivered in community settings with a maximum of 15 participants per group.

To facilitate program delivery, all facilitators received a facilitator’s handbook and syllabus including detailed instructions for course delivery, student worksheets, and stimuli for delivering the program. Participating parents received a workbook and summary document with key messages from the program. We accepted some flexibility in delivery to account for group variation and the delivery style of health care professionals.

Facilitator Training

All facilitators attended a half-day training session led by health literacy experts (D.M.M. and J.A.) and a multicultural health worker with experience delivering health literacy training (D.Z.). The session combined didactic and experiential teaching methods, and included an (1) introduction to health literacy and the Parenting Plus program; (2) overview of Parenting Plus content and resources; and (3) small group breakout sessions to discuss delivery methods at each site.

FEASIBILITY OUTCOMES

There are eight general areas of focus addressed by feasibility studies (Bowen et al., 2009). Key areas of focus for this study included (1) demand, (2) implementation and integration, (3) acceptability, and (4) limited efficacy testing. Outcomes were evaluated among students and facilitators using a mixed methods approach.

Demand

Willingness to participate in the program and sample representativeness was assessed through the collection of demographic characteristics.

TABLE 1
Parenting Plus (Version 1) Program Content

Topic	Embedded Content Mapped to Functional, Communicative, and Critical Health Literacy Skills
Taking temperatures	Conceptual knowledge: “normal” body temperature range for adults and infants Functional HL skills: reading a thermometer Communicative HL skills: reading health information (e.g., mastitis) Critical HL skills: Discerning when to seek medical advice
Medication dosage and timing	Conceptual knowledge: medicine label content Functional HL skills: measure out doses correctly Communicative HL skills: interpret directions for taking the medicine when instructions are clear Critical HL skills: interpret directions when there is ambiguity in the instructions
Shared decision-making	Conceptual knowledge: right to participate in health care decision-making Functional HL skills: question-asking skills to clarify meaning Communicative HL skills: question-asking skills to extract information about test/treatment options, benefits, and harms Critical HL skills: integrate knowledge with preferences to make an informed decision
Preventive measures (safe sleeping/settling, immunization and screening, oral health)	Conceptual knowledge: Risk factors for sudden unexpected death in infancy Functional HL skills: understand dates in terms of months and years Communicative HL skills: Extract information from leaflets and other written text (e.g., immunisation schedule) Critical HL skills: Critically appraise implications of immunization for the individual and community
Understanding nutrition labels and nutritional information	Conceptual knowledge: food groups Functional HL skills: understand the format and information given in nutrition labels Communicative HL skills: correctly interpret recommended dietary intakes on labels Critical HL skills: assess health claims on food packaging
Diet, weight control, and postpartum physical activity	Conceptual knowledge: what is a “serving” Functional HL skills: read and understand the Australian Dietary Guidelines Communicative HL skills: access sources about weight control Critical HL skills: applying the guidelines in everyday life
Accessing resources	Conceptual knowledge: types of health websites and apps Functional HL skills: searching for health information online Communicative HL skills: extracting information from health websites or apps Critical HL skills: critical appraisal of parenting apps and websites

Note. HL = health literacy.

Limited Efficacy Testing

Paper-based questionnaires were administered at the beginning of the first session, and again at the end of the final session. The quantitative measures included are highlighted below.

Health literacy skills. Ten specific health literacy skills-based questions were developed by the investigators from the core topics of the course. Items assessed students’ ability to interpret core elements of the information from a thermometer,

medicine label, food and nutrition label, immunization schedule, physical activity brochure, and a health website. Missing responses were scored 0 and total scores could range from 0 to 10.

Confidence in health skills. Ten confidence items modified from our previous work (McCaffery et al., 2016) (e.g., how confident are you using a thermometer to check your child's temperature), measured on a 5-point scale ranging from *extremely* to *not at all* confident.

Knowledge. An 8-item curriculum-based measure assessed retention of core components of health knowledge. Missing responses were scored 0 and total scores could range from 0 to 8.

Acceptability

Acceptability of the program and satisfaction of participating parents was explored using focus groups conducted at the end of the last session. Focus groups were facilitated by D.M. or J.A., who are trained in qualitative methods. We also explored program acceptability from the point-of-view of facilitators via semi-structured interviews and a focus group facilitated by D.M. and J.A. The focus group and interview structure and moderator guides were iteratively developed with input from all authors and included open-ended questions across three topic areas: attitudes toward the course, impact of the course, and improvements and recommendations.

Implementation and Integration

D.M. and J.A. observed the delivery of the program at each site to assess whether the intervention could be fully implemented as planned. This was an unstructured observation in which there were no predetermined notions of the discrete behaviors that would be observed. Chronological field notes were taken including dialogue, the behavior, and interactions of participants and facilitators, and the structural and organizational features of each setting, as well as personal thoughts and reflections on the content of the training program (Mulhall, 2003). Interviews and focus groups with facilitators also explored program implementation and integration.

Analysis

For quantitative data, we calculated means and frequencies using Microsoft Excel software. All qualitative data (focus groups, observations, interviews) was analyzed using the framework approach to thematic analysis as described by Ritchie and Lewis (2003) (Table 2).

RESULTS

Demand

Ninety-four people expressed interest in the study. Of those, 73 participants (78%) attended the first session and completed baseline data. One-half ($N = 37$, 51%) of participants attended all sessions, and an additional nine (13%) completed 75% of the sessions. More than one-half ($N = 45$, 62%) completed the follow-up questionnaire. Baseline demographic characteristics are shown in Table 3.

Limited Efficacy Testing

We observed ceiling effects for several of our quantitative assessments, providing useful lessons about the utility of these measures in this context. At baseline, participants scored on average 8.1 ($SD = 1.9$) points of a possible 10 for health literacy skills and 6.3 ($SD = 1.3$) of a possible eight for health knowledge. On average, participants rated their confidence as 4.2 of 5 ($SD = 0.7$) at baseline. At follow-up scores were on average 0.5 points higher ($SD = 1.6$) for health skills, and 0.6 points higher ($SD = 1.1$) for health knowledge. Confidence at follow-up was 4.6 points on average ($SD = 0.4$) (Table 4).

Acceptability

A balancing act: Meeting the needs of diverse groups. Focus group discussions suggested that learners were motivated and eager to take on new information that would help them to look after their child, and perceived that the course focus on both content and skills was useful for new parents. They also offered practical lessons about acceptability of the program for diverse groups. Learners who were recent migrants, for example, expressed that parenting knowledge and skills were different in the country they had lived in before moving to Australia. These learners tended to find the information on shared decision-making, sudden unexpected death in infancy (SUDI), reading nutrition labels and servings sizes, and medicine timing and dosage useful.

For example, "...because in our culture we can use a tablespoon or teaspoon to put the medicine (laughs). . . Now she's saying that in Australia you have to use the syringe to. . . so useful information. . . you would never know if we did not attend the class. Just use the teaspoon (laughs)." (Site 4)

Facilitators whose classes had a high proportion of learners born overseas also thought course content and concepts were particularly relevant for their learners. In the extract below, for example, the facilitator perceived shared decision-making to be an important topic given the cultural perspectives her learners brought to the class:

TABLE 2

Qualitative Data Analysis Using the Five Key Steps of the Framework Approach

Framework Steps	Approach
Familiarization	Three authors with a background in maternal health, public health, and psychology (A.H., D.M.M., J.A.) independently read through all transcripts and discussed the emerging themes that resulted in a preliminary coding scheme
Creation of a thematic framework	A.H., D.M.M., and J.A. developed the initial framework scheme that was discussed with experienced qualitative researchers, K.M. and D.N.
Indexing	J.A. and A.H. coded the remaining transcripts according to the framework, with new themes and revisions to the framework discussed with D.M.M., D.N., and K.M.
Charting	J.A. and A.H. summarized themes and supporting quotes from each transcript in the framework (a matrix with participants as rows and themes as columns)
Mapping and interpretation	J.A. and D.M.M. examined the framework within and across themes and participants to identify overarching themes and relationships and discussed the interpretations with K.M. and D.N.

I think it was good because some of them, like you can see, you know, in our countries we see the doctor like a God. Whatever the doctor say[s], we have to follow. You know? Now the lady's got a choice to ask and [say how] they feel. The [program] encourage[s] them to ask the right questions and. . .not, you know, agree with whatever they say, [and to] ask for second opinions. . .That was really good. . .(Facilitator 3)

By comparison, learners who had grown up in Australia found other parts of the content useful. These learners spoke positively about links to websites and apps, as well as information about starting solids, recommended servings of food while breast-feeding, and reading nutrition labels. However, as also suggested by the ceiling effects shown in **Table 4**, many learners who had grown up in Australia voiced that much of the information was not new to them (particularly healthy eating and asking the doctor questions), or that they had already received this information from other pre- and postnatal services (particularly information on SUDI): “so there wouldn’t, I don’t think, be too many people coming to a parenting group after a baby that haven’t heard that [about SUDI] a zillion times.” (Site 2)

These learners also expressed that the materials were often too simple, acknowledging that it may have been “. . .aimed at a different demographic. . .” (Site 1) and more appropriate for “new immigrants who are not really familiar with the health care systems. . .” (Site 4). In this respect, accommodating the perceived needs of learners was a complex negotiation, and represented a concern for some facilitators. Facilitators noted that they tried to adapt the program and the “pitch” (Facilitator 5), particularly for learners who spoke English as a first language, such as by either skimming over

some sections or introducing new content to maintain learner interest. However, one facilitator felt that she struggled to provide an appropriate level of complexity for her group.

I think some, some of it was too simple and we just ended up, you know, glossing over it and we didn’t think it was really necessary. Yeah, the, um, just the diagram of, um, the body [parts]. . .yeah, if you don’t speak English at all that might be helpful. (Facilitator 1)

Notably, some learners reported that skimming over content could contribute to a sense of rushing through topics. These learners suggested that the course could include a greater number of sessions over a longer period and/or a final session to summarize content and revise.

Interestingly, although the course content was not necessarily new and at times was perceived to be quite “simple,” learners were aware and acknowledged that they often did not act on this information, particularly for the topics about shared decision-making, healthy eating/reading nutrition labels, and physical activity. In these instances where content was already familiar, learners spoke about the program as a “good reminder” (Site 2) to consolidate previous learnings. This was particularly valued at a time when they felt “so bombarded with. . .stuff all the time.” (Site 2). Some learners also discussed how the content provided them with a more structured and systematic way of engaging in or thinking about health behaviors.

...But it is actually really helpful I think because, um... like I’m educated yet I still don’t like going to my doctor and like questioning and asking them all this stuff... And kind of like I don’t have, like have that right to question. So I think when we we’re going through that it was helpful to kind of say: ‘No, it’s ac-

TABLE 3
Baseline Demographic Characteristics (N = 73)

Characteristic	Mean (n)	SD (%)
Child's age ^a		
<13 weeks	14	30.4
13-26 weeks	20	43.5
>26 weeks	12	26.1
Highest level of tertiary education ^b		
Bachelor of higher degree	58	81.7
Advanced diploma or associate degree	1	1.4
High school diploma or associate diploma	2	2.8
Certificate	8	11.3
Highest level of school education ^c		
Year 12 or equivalent	67	94.4
<Year 12 or equivalent	4	5.6
Country of birth		
Australia	25	34.2
Other	48	65.8
Years since arrival in Australia ^{d,e}		
<5 years	17	38.6
5-9 years	11	25
10-14 years	7	15.9
15-19 years	2	4.5
>20 years	7	15.9
Single item literacy screener (limited health literacy)	5	6.8

Note. ^aForty-six participants provided the age of their baby. ^bTwo people selected "none of the above" for education level and two data points are missing. ^cTwo data points are missing. ^dForty-four participants provided the year of arrival in Australia. ^eNumbers do not equal 100% due to one-decimal place rounding.

tually ok for you to write things down or ask questions or like ask them for other options,' cause I don't think you usually. . .I didn't think about that sort of stuff. So that's helpful practically. (Site 3)

Bridging gaps in support: The importance of timing. The notion of timing was a common feature in both facilitators' and learners' narratives. For facilitators, there was a strongly expressed belief that new parenthood was an important time for skill-building to prepare parents for the new experiences they will face. This is clearly reflected below with respect to the perceived impact of the shared decision-making component of the course:

I think [the shared decision-making content] was really good because. . .It's the first time in their lives they've got to advocate for somebody else. . .and so I thought that was really empowering for [the parents] and I felt like the feedback from the group was that was really empowering for them to feel like they had a little bit of a framework to work off when they do that at the doctor and advocate for someone. . . (Facilitator focus group)

However, learners emphasized that their child's age greatly influenced the relevance of health literacy content and argued that health literacy skills are most needed either during pregnancy, or at around 3-months postpartum. This coincided with sentiments that after 3 months, parents started to feel less supported by health services. Learners also suggested that it would be beneficial to align program content with time-specific changes in child development, including starting solids, food hygiene, baby first aid, and information on developmental milestones.

For example, . . .there's a lot of mothers' groups. . .when your baby's up to 12 weeks old. And then it feels like there's a massive information gap from 12 weeks onwards. And there's a lot of stuff that happens to babies as they grow past that 3-month period. . .and when you don't feel like you've got that support or that connection point. . .you kind of start to feel a little bit isolated from an information perspective and then again you kind of go, well which source can I trust?. . . (Site 3)

TABLE 4
Measures of Limited Efficacy Testing, Baseline, and Follow-Up Survey (N = 45)

Measure	Baseline		Follow-Up		Change (Follow-Up Baseline)	
	M	SD	M	SD	M	SD
Health literacy skills (10 items)	8.1	1.8	8.6	1.2	0.5	1.6
Health knowledge (8 items) ^a	6.3	1.3	7	1.1	0.6	1.1
Confidence in health skills (1 = low confidence; 5 = high confidence)	4.2	0.7	4.6	0.4	0.3	0.4

Note. ^aFive participants were not included in the change calculation; due to time constraints, these participants did not complete a baseline measure of health knowledge.

Institutional alignment. Ideologically, facilitators indicated that the goals of the program aligned with those of their professional roles as child and family health nurses, or as a social worker. More specifically, two facilitators perceived that the skill-development and empowerment focus of Parenting Plus complemented values of their existing nursing role to support parents to be more independent and actively involved in their own health and the health of their child.

“It just all feeds into, um, the frameworks that we’re, we’re using to support families. Because we can’t be there with them every moment.” (Facilitator 1)

However, they perceived there to be more scope to incorporate aspects of the family and child nursing framework into the Parenting Plus program. For example, facilitators reported incorporating other health resources such as public health brochures and websites that they had used in their previous work into the program. They also anticipated that it would be helpful to use language that was consistent with the parenting groups from which learners were recruited:

... Yeah, because you can feed that into the course then and then everyone’s becoming literate about the same sorts of things with the same sorts of words around them, I suppose. Like I was thinking about how we could ask families to identify what are your strengths and vulnerabilities. . . (Facilitator 1)

Implementation and Integration

Outside the comfort zone. Facilitators’ narratives suggested that the Parenting Plus program involved a more formalized and educational presentation style than they were used to delivering, and this required getting their “head around how to teach it” (Facilitator 2). Some facilitators reported that they were initially less comfortable presenting information in this style but gradually became more confident.

Um, but once we started I, I think we were focusing on like an adult type way of learning of, um... teaching a little bit and then opening it for discussion. Um, and as the course went on the four weeks I became more comfortable with it and actually enjoyed the format and learnt the delivery. (Facilitator 2)

Regardless, most facilitators reported embedding small and whole group discussions within the program. All groups of learners reported preferring this more informal interactive style of teaching, and some suggested that more time should be allocated to discussion as they felt these helped them to strengthen social connections, meaningfully reflect upon content, and learn from the experiences of their peers. Learners from culturally diverse backgrounds reported that discussions in which facilitators drew on their own stories and experiences made content more interesting and memorable.

For example, [the facilitator] made examples that were quite relevant to us. . .relating things to our cultures. . .like it made it more personal I think. Yeah, rather than just an overall. . .general thing. . .Yeah, like making things more relatable. (Site 6)

Facilitators also described how they were less confident about presenting content that they had not encountered in their previous teaching roles. For example, most appraised the section on nutrition labels as challenging to deliver given that the information was often new to them and complex.

Yeah, ok. Um. . .when, you know, when we went through nutrition labels, I didn’t find that particularly easy. Yeah, because I think that’s really new to us even. . .I was a bit, you know, frightened of teaching that section because. . .oh, well do I get this myself? (Facilitator 1)

To support program delivery, facilitators felt a “few more tips on how to present each topic” (Facilitator 1) would have been useful. They also expressed a desire for greater knowledge of adult learning techniques, acknowledging that they were not trained adult educators and therefore had limited expertise in this area.

I, I think with the, when we had that training, um, to look at adult learning and techniques that we could use, um, 'cause we were thinking, you know, breaking them up into groups and the importance of discussions in it, but it would, in that time, just to have a few techniques. . . Yeah. (Facilitator 1)

Additional specific lessons learned from this feasibility study are shown in **Table 5**.

DISCUSSION

The successful delivery of our Parenting Plus intervention across six sites in New South Wales suggests that it is feasible to deliver health literacy content within existing postnatal parenting groups. New parenthood was considered an important time for skill development, and the content of our health literacy program was perceived to align with the professional roles of facilitators. Our results also offer practical action items for program adaptation and future health literacy research (**Table 5**). Of particular importance are lessons related to the need for sufficient flexibility in programs that are offered “universally,” and to equip facilitators with the skills, time, and agency to modify program materials to meet the diverse needs of their cohort, both in terms of literacy and the varied cultural perspectives that learners bring. Results also suggest that, going forward, it will be necessary to balance participant expectations of simple information provision about parenting topics of interest (e.g., developmental milestones) with the skills-directed focus of health literacy training. Ceiling effects on several quantitative measures also shed light on the utility of different measurement instruments in this context.

In this feasibility study, we recruited parents from existing New Parents Groups across western Sydney, which is a highly diverse area of Sydney, New South Wales (Western Sydney Local Health District, 2018). Nevertheless, few of the recruited parents had lower health literacy as measured by a subjective, single-item screener and the vast majority had a university degree. This was an unexpected finding given the diversity in the communities we worked with and will require us to consider more closely how to engage a more diverse population in a full trial of the intervention resources. The use of targeted recruitment approaches (including those suggested in a recent systematic review of strategies for improving health and medical research with socially disadvantaged groups [Bonevski et al., 2014]) in parallel to recruiting from established parenting groups may be key to achieving this. We will also reassess the type of measure we use to assess change in health literacy.

This feasibility study has also highlighted the need to ensure that content delivered universally to parents with-

out screening for health literacy is acceptable across literacy levels. To achieve this, future programs could, for example, embed additional higher order communicative and critical-level health literacy skills. This would allow facilitators to move through basic information to more advanced learning for those people and groups that want it, provided that they feel sufficiently equipped to do so. The addition of theory-based behavior change techniques could also support learners of any level to put into action the knowledge and skills gained throughout the program (Michie, van Stralen, & West, 2011), and small-group and class discussions are likely to improve program acceptability (Muscat et al., 2019). Additional content about parenting topics of interest may also help to increase retention of learners. However, given the recognition that there was already too much content for the length of the program, this may require a restructure of the program such that health literacy skills are embedded within topics of interest (e.g., taking temperatures embedded within a topic about baby first aid) rather than adding additional topics. It may also be necessary to manage the expectations of both learners and facilitators in respect to this. This could be achieved by defining health literacy and explicitly acknowledging the program’s skills-focus during facilitator training and learners’ first session. Given that several parents in our study acknowledged that as their baby aged they felt less supported by health services, we anticipate that a focus on building skills to make health decisions, navigate the health system, and act on health information may resonate well.

Observed ceiling effects on measures of knowledge, confidence and skills has also shed light on the appropriateness of different quantitative measurement tools. Measures used in this study were adapted from our previous work in adult basic education (ABE) settings where they had shown the propensity to measure change (Muscat et al., 2016). However, the ceiling effects observed in this study suggest that they may have insufficient measurement precision in the context of postnatal health literacy programs. This may be because participants in our ABE health literacy program had been previously assessed as basic/beginner learners on five core skills of learning, reading, writing, oral communication, and numeracy (Australian Government, 2018), whereas parenting programs are offered universally regardless of baseline skills. Based on these findings, we are currently developing and validating a new skills-based measure appropriate for this context. Given the perceived difficulties of administering written assessments in parenting groups, alternative delivery formats (e.g., online prior to the first session) may also need to be considered.

TABLE 5

Lessons Learned from the Feasibility Study and Action Items for the Larger Trial

Lessons Learned	Potential Action Items
Demand	
<p>A very low proportion of participants had low health literacy based on a validated measure of health literacy (single item literacy screener)</p> <p>Drop-out mainly occurred in a group with very high recruitment and attendance at the first session (<i>n</i> = 25)</p>	<p>Identify and use additional recruitment channels (e.g., universal home visiting)</p> <p>Consider more sensitive screening measures for health literacy</p>
Acceptability	
<p>Participants in some groups indicated that they wanted more health content (e.g., information about solid foods)</p> <p>Participants valued hearing about the experience of facilitators and the social aspects of a group-based program</p> <p>Learners requested a final session to summarize the content and revise</p> <p>Pre-intervention data collection was often time consuming and facilitators felt uncomfortable with this as the first task</p>	<p>Embed health literacy skills training into topics of interest to parents</p> <p>Consider more specific “expectation setting” regarding the focus of the health literacy program when recruiting parents to the program and in the first session</p> <p>Incorporate more time for discussion within the program</p> <p>Allow for time in the delivery protocol to revise content from the previous week, and to address parent’s issues/concerns arising since the last session</p> <p>Implement alternative options for data collection (e.g., online prior to program)</p> <p>Allow for introductory activities prior to data collection in the protocol for intervention delivery</p>
Implementation and integration	
<p>Facilitators felt they had limited knowledge about adult learning and wanted more training</p> <p>Many learners found the workbooks difficult to use during (and outside of) class because they were often holding the baby</p> <p>Facilitators perceived there to be more scope to incorporate aspects of the family and child nursing framework into the Parenting Plus program</p> <p>Learners valued practical demonstrations and opportunities to practice skills (e.g., measuring syringe doses). However, observations at each site suggested that facilitators often skipped practical demonstrations embedded within the program</p>	<p>Include a session on adult learning in the pre-intervention facilitator training program</p> <p>Use PowerPoint presentations and mobile-compatible formats for program resources</p> <p>Streamline content with existing frameworks and available resources</p> <p>Embed and draw attention to practical demonstrations and opportunities to practice skills within health literacy training</p> <p>Discuss the evidence for modeling and behavioral rehearsal of skills with facilitators</p>
Limited efficacy testing	
<p>Ceiling effects observed on the health literacy skills questionnaire</p> <p>Only small changes observed in confidence from pre- to postintervention</p>	<p>Develop and validate a new measure of parents’ health literacy that assesses a range of skills with varying levels of difficulty</p> <p>Better match confidence questions to content of the program</p>

STUDY STRENGTHS AND LIMITATIONS

As a feasibility study with a short-term follow-up period, this study was not designed to detect significant pre- or post-differences in health outcomes as a result of health literacy training. Rather, the study was designed to provide meaningful insights into how the Parenting Plus program and study procedures can be adapted and optimized. A mixed methods

process evaluation including focus groups, unstructured observation, and quantitative data collection helped us to achieve these aims. To ensure rigor in qualitative analyses, all data were indexed by at least two researchers, and a continuous process of comparing concepts and themes to data was employed.

We were able to implement a health literacy program within an existing group structure working with experienced staff. In

doing so, our intervention is potentially cost effective. However, there was a relatively high drop-out rate between between the first and last session of the intervention, and inevitably, some unpredictability about whether parents were “exposed” to the whole intervention, either because they missed a week, or were distracted by child-minding duties even when present. Given that we did not recruit many parents with lower levels of health literacy, we will investigate the use of targeted recruitment approaches in future trials. The extent to which this program can be generalized to and across other countries may also be limited. Parenting Plus was specifically designed to promote health literacy and empowerment in an Australian context. In fact, participants who were born in a country other than Australia noted that skills that they learned throughout the program were oftentimes different to the skills needed in the country they had previously lived in. Given that health literacy is context specific, adaptation to context would be necessary prior to using Parenting Plus in other countries, as would arguably be the case for all health literacy programs.

CONCLUSION

Enhancing parental health literacy is an important endeavor given the association between poorer health literacy and poorer health outcomes. Building community capacity through a tailored postnatal health literacy courses offers promise in an Australian context where few initiatives exist, and internationally as well. Findings from feasibility testing of the Parenting Plus program suggest that embedding health literacy courses within existing postnatal classes could be a feasible mechanism to increase the health skills and knowledge of new parents. Given the broad reach of postnatal education efforts, comprehensively understanding the potential impact such programs could have represents an important step in an ongoing effort to address health literacy and health inequalities in Australia. Having established feasibility, we are now better placed to incorporate the “lessons learned” and to move on to a more structured trial of efficacy using a research design to fit that goal.

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