An exploratory investigation amongst Australian mothers regarding pharmacies and opportunities for nutrition promotion

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Received on January 1, 2013; accepted on June 10, 2013

Abstract

The early years life-stage (1 year either side of childbirth) is an important period for preventive action focusing on optimizing nutritional health for mothers and babies. Community pharmacy is a much utilized, easily accessed setting for health promotion and exposure to the primary health care system. The literature suggests that there has been limited exploration of pharmacy utilization by mothers, particularly in the context of nutrition focused health promotion. This study aimed to explore mothers’ expectations and experiences of pharmacy based health care and to explore mothers’ attitudes and opinions regarding opportunities and scope for nutrition-related health promotion in pharmacy. Qualitative semi-structured telephone interviews were conducted amongst a purposive sample of 28 mothers from across Queensland, Australia. Interviews were transcribed and analysed thematically using an iterative approach. Participants as relatively frequent users of pharmacy services accessed pharmacy for medicines or product related concerns but expected information and health advice to be available. Opportunities for nutrition promotion in pharmacy, identified by participants, related primarily to addressing their personal needs for information, advice and support during this life-stage. Improving and reorienting pharmacy staff practices may contribute to more supportive guidance being provided to mothers in this setting.

Introduction

The early years period (defined here as 1 year either side of childbirth) is an important life-stage for preventive action which focuses on pregnant women and their babies. The evidence that optimal nutrition pre- and post-pregnancy is associated with better health outcomes for both mother and baby [1–3] suggests that a focus on nutrition and physical activity in this period is particularly important. In Australia, breastfeeding rates are well below targets [4], and lifestyle diseases that remain highly prevalent are associated closely with poor nutrition and physical inactivity [5, 6]. Addressing nutrition and associated determinants during the early years life-stage has been identified as a priority for action at the state, national and international levels [7–9]. Public health nutrition goals specific to Australia include (i) improving nutrition for pregnant and lactating women and (ii) promoting breastfeeding and improving infant nutrition [8]. Primary prevention approaches are needed to enhance and support optimal nutrition during the early years.

A settings based approach to primary prevention reinterprets community settings as locations for prevention focused activity given they are readily accessed by the community, with existing capacity on which to build [10, 11]. Community pharmacy (CP) has been identified as a setting for health promotion as it is easily accessible, and provides a conveniently located encounter with the health care system [12, 13]. Generally consumers appear to perceive...
the pharmacist as a reliable advisor on many personal health issues [14]. Whilst there is some recognition of the pharmacist’s role in providing general health advice it appears advice is expected to be in relation to receipt of a prescription [15]. Pharmacists generally provide free counselling and have an opportunity to play an important role in referring clients to health care professionals when appropriate [16–18]. Very little research explores the client perception of paraprofessional staff working in pharmacy or their role in health promotion. Whilst health promotion in pharmacy has been investigated to some extent, the role of pharmacy in enhancing and supporting nutritional health through nutrition focused health promotion has not been explored.

Community pharmacy is characterized by its exposure to diverse populations including apparently healthy people [12, 19] and pharmacies are distributed throughout rural, regional and ‘city’ areas [19, 20]. In the UK, between 60% and 80% of clients accessing pharmacies are women, and women with children often access pharmacies and are more likely to consult with pharmacy staff [17]. An Australian report indicates that a similar proportion of females are accessing community pharmacy on a regular basis [21].

Focusing on health service delivery at a community level has the potential to address a variety of health determinants affecting groups of interest [12]. However, developing effective interventions and building sustainable programmes require engagement of consumers [22]. Understanding existing need and priorities of the community group or sub-population as a key practice task contributes to the development of appropriate and contextualized interventions [23]. Exploring the service user perspective provides important insight into their expectations, beliefs, needs and experiences. This is needed to strengthen the logic and rationale informing intervention strategy development.

There is currently little research available specifically seeking to explore the perspectives of mothers regarding pharmacy utilization during the early years. This study aimed to develop a detailed understanding of this group’s use of needs and perceptions of pharmacy and explore the potential opportunities and scope for the role of community pharmacy, pharmacists and pharmacy staff for nutrition promotion during this crucial life phase.

### Methods

This study, in accordance with the social constructivist approach that recognizes that humans experience the world through multiple realities [24], and therefore acknowledges that women with children experience pharmacy as mother, female, carer amongst other social roles. It is recognized that these varying roles influence how participants perceive and express their lived experience, ideas and opinions. Ethical approval was obtained from the primary author’s institutional Human Research Ethics Committee. Participants volunteered their time without monetary compensation.

### Sampling

Purposive sampling was used to include women with a mix of socio-economic attributes. Four towns or suburbs were chosen from each of the following Australian Standard Geographical Classification (ASGC) remoteness classifications: (i) Major city, (ii) inner regional, (iii) outer regional and (iv) remote. Very remote locations were not included as it was assumed that most very remote locations are not serviced by pharmacy. It was anticipated that varying experiences of pharmacy may be influenced by locality and so capturing the diversity of responses was deemed important. Recruitment occurred at child care centres and playgroups in the chosen locations (identified using the online business directory; Playgroups Australia and Google maps) with permission from site management.

Women were approached by the primary author during child pick up times at each recruitment site. An explanation of the study was provided and women were invited to participate. Screening questions were used at this exchange to ascertain suitability. Women had to have at least one child <5 years old, be able to read and speak English and be willing to participate. Each woman who met the
criteria was given an information sheet and if interested in being involved provided contact details. A follow up call was be made to organize an interview time. This contact enabled the researcher to start to develop rapport before the interview, which was important for creating a comfortable environment for the participant once recruited [25]. Sampling concluded when sampling criteria had been met and data saturation was achieved.

**Data collection**

A qualitative semi-structured interview method was used in order to provide opportunity to obtain important descriptive data [26]. The interviews required participants to reflect retrospectively on their lived experiences. With a future focus, ideas and opinions were also canvassed. Responses were recognized as being influenced by the complex personal lens through which each participant views the world.

The interview protocol was developed to align with the study objectives and inform by prior review of relevant literature. Questioning centred on participants current perceptions and experience of community pharmacy staff and as a setting. This set the context for further future focused questioning around possible perceived opportunities for nutrition promotion and supporting nutritional health through the CP setting. The questions were open ended and probing was used consistent with the semi-structure interviewing process, enabling the researcher to clarify points and explore areas of interest further with the participant [27–29]. Interview questions were piloted prior to use to ensure comprehension of question meaning.

Telephone interviews took place at a time suitable to the participant. Interviews did not extend beyond 60 min. Interviews were audio recorded to ensure accuracy of recall and allow the interviewer freedom to be attentive to the interviewee, then transcribed verbatim. Field notes were completed by the researcher following interviews. These notes contained observations deemed relevant to methodological and analytical factors and were used to enhance the description and evaluation of interview data.

A series of closed questions were asked at the end of the interview to ascertain demographic characteristics, bodyweight and height. Body mass index was calculated from these self-reported data. Women were also asked to provide an indication of the frequency with which they attended a pharmacy. The responses were categorized into frequent (once or more times per week), regular (2–3 times a month—every few months), occasional (once or twice a year or less often) and never. This categorization has been previously used to categorize frequency data in relation to pharmacy use [21].

**Analysis**

Data analysis, following an iterative approach, occurred both during and following data collection [26]. Transcripts were read and reread prior to coding to ensure familiarity with the conversation and enable mindful understanding. Coding and categorization of responses into themes across key areas of inquiry were undertaken, paying close attention to the participant experience and context. Inquiry, defined by the areas of questioning, followed an iterative process (individual responses > group responses > research questions > returning to the data) and included comparative analysis (between interviewees and between geographically defined groups) [30, 31]. **NVivo 9.0** was used to manage the data and subsets of the data were analysed by two other researchers for researcher triangulation purposes. Responses and identified themes are described qualitatively and direct quotes are included to illustrate the themes. Demographic and frequency data were analysed descriptively using **SPSS 19.0**.

**Results**

**Sample attributes**

Twenty-eight women were recruited from four geographically diverse locations within Queensland from 10 recruitment sites. Participants ranged in age from 20 to 42 years old (Table I). The majority had completed secondary schooling (78.9%) and some further non-school education (82.1%). With
respect to education level, 35.7% of interviewees would be considered highly educated having completed either a bachelor degree or higher. There was a diverse range in family size (mean 2.43 children); 25% of participants had only one child. Over 50% were engaged in work whether part time or full time; those not working designated themselves as full time mothers. The range of occupations of participants was limited primarily to administration or assistant positions (6), teaching (4). Three participants indicated that they were self-employed, one was a student and three worked in a service industry.

The following results describe key themes in relation to participants experience and perceptions of CP which provide context and are key to understanding the potential opportunities participants’ perceive exist for nutrition promotion in CP. Analysis suggests on the issues investigated here geographical location was not a major influence on perceptions.

### Reasons for visits to pharmacy
Participants were relatively frequent patrons of community pharmacy with more than 85% self-reporting to be regular or frequent users (Table I). When asked about their general use of pharmacy, a diversity of reasons was identified. The commonly described reasons were accessing sickness related information or products for symptom management. Women often spoke about filling prescriptions or purchasing over-the-counter medications; this was most commonly in the context of children’s illnesses. Other less common reasons for pharmacy use included purchasing personal products, supplements, infant formula and accessing clinic services (baby related) and advice.

> Well I suppose I do have that expectation that I can go in and speak to a pharmacist and that that person would have some level of knowledge about sort of general health, and particularly with young kids I suppose because I’m assuming that they will have seen plenty of young kids [participant 17, age 36, regular user]

### Factors influencing choice of pharmacy
Convenience was the predominant theme relating to the reasons for choice of pharmacy. The location of the pharmacy—such as proximity to either the General Practitioner (GP), home or the shopping centre; opening hours and ease of parking were all factors relating to convenience. Other reasons influencing pharmacy choice included price, shop appeal, familiarity—best represented by established relationships with staff—and quality of service. The size of the pharmacy was mentioned by a number of participants; however, there was no one size that appealed to all. Larger pharmacies were generally associated with perceived increase of product or medicine availability and lower prices, whereas others commented on smaller pharmacies as being more personalized.

> It’s got a lot more variety. So I guess with the small one it’s sort of very limited and

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with the big one, it’s got everything you could possibly need. [Participant 1, age 39, regular user]

Generally I try to go to the one specific pharmacy, it’s a smaller one and I just find them really helpful and it’s the same couple of pharmacists behind the counter and they always come out and have a chat and they’re very, very helpful. [Participant 14, age 39, frequent user]

Expectations of community pharmacy and perceptions of staff roles

Participants’ expectations of community pharmacy related primarily to health service provision, medicine and product related services, and customer service. Women commonly spoke about their expectations of being able to access general health advice and information. Information provided was expected to be both reliable and accurate; however, there was no discussion of how this was being evaluated. Women identified pharmacy as a place where they could access first line medical help—acting in a triaging capacity. Women recognized this service enabled them to avoid the waiting time at the GP, avoiding unnecessary contact with sick people (in a GP waiting room), avoid unnecessary cost (GP visit) and not having to bother the GP with unnecessary visits.

In accordance with traditional roles of pharmacy, responses suggest that women were expecting expertise relating to medicine provision. This included correctly dispensed medication, checking for potential drug related issues, medicine related advice and provision of information sheets about a new drug. Women expected pharmacies to have required products available for purchase and that product related knowledge and advice provided was professional and honest. In addition, women expected to receive assistance in finding the best or most appropriate product for their needs. Women were also interested in how pharmacy’s provided their service. General customer service appropriate to a retail environment characterized by friendly and helpful staff and prompt service was a common expectation. Some women voiced their desire that pharmacies should be a place where their personal experience and intuition would be respected and their concerns would be listened to.

Perceived role/s of pharmacists

Roles of pharmacists as perceived by participants were reflected by a number of themes including servicing prescriptions, medicine optimization and education regarding medications. Women identified pharmacists as the professional who would ensure drug safety, such as the supply of the correct drug and dose, script accuracy, prevent errors through checking and questioning practices. Pharmacists were seen as having significant medication or medicine related product knowledge. This knowledge was also then translated into education regarding medications and dosage practices. Less common was the perception of pharmacists as a source of general health advice and information provision. Expecting that pharmacist’s had the ‘ability to explain’ reflected recognition amongst some participants that skill in education extends beyond just information provision.

Perceived role/s of pharmacy staff

A key role for pharmacy support staff (e.g. pharmacy assistants), as identified by participants, was the first line retail role of providing a friendly service and appropriate customer service. Product knowledge, including knowledge of over-the-counter products, was a commonly identified role of pharmacy support staff. Women expected pharmacy staff to know the layout of the retail space, the variety of products available and information on product efficacy. Women reported generally finding that pharmacy support staff had good product knowledge but appeared not to be tolerant of staff with little product knowledge who relied on what they could read on the side of the packet. Participants tended to expect a level of product knowledge that extended to anecdotal evidence of use and/or personal experience with a product. This seemed to be used by participants as a gauge of whether the
product was a good purchase or not. Women appeared sceptical of advice which came from an industry representative’s recommendation (where explicit) or from the back of the label. Women saw it as the role of support staff to ask questions to inform the advice they were giving and to be able to answer customers’ questions. When purchasing medicines, women saw it as a part of the role of staff to offer a cheaper alternative. Women frequently indicated that they expected pharmacy support staff to know their scope of practice, particularly in relation to knowing when to refer to the pharmacist or even to a doctor and to provide support for the pharmacist/s.

Participant expectations of pharmacy staff compared with that of pharmacists differed significantly within the group. Interestingly, it was apparent in conversation with participants that they were able to describe more articulately and in more detail the roles of pharmacy support staff than that of pharmacists. Some expectation of pharmacy staff reflected perceptions of their training level influencing their subsequent role.

Well I probably have more expectations from them [pharmacy staff]. Yes, I do like it when you get someone who you think is experienced and knows her products and if you go in and say ‘Look, we’ve tried this and this hasn’t worked what else can you recommend?’ that they would have a knowledge base to draw from or experienced this. [Participant 25, age 41, regular user]

The actual pharmacist, they need to know heaps of stuff, they’re the scientists. The pharmacy assistants are just really smart shop keepers, shop assistants; I’m not saying it’s a bad thing I’m just saying that’s how it is. [Participant 5, age 40, regular user]

**Mothers’ perception of nutrition promotion in community pharmacy**

Participants were generally positive about pharmacies engaging in nutrition promotion; however, there was variability amongst responses that reflected differences in perception of this concept. Those opposed, described most frequently a lack of logical connection between nutrition and pharmacy or a strong sense of cynicism relating to current pharmacy practices and a business model requiring the sale of products to support business—diametrically opposed to nutrition guidance as a service.

**Possible nutrition promotion opportunities**

Perceived opportunities for nutrition promotion in pharmacy, relating specifically to pregnancy and the postnatal period, included a range of services or strategies summarized as key themes here.

**Nutrition guidance**

The availability of advice primarily in the form of not only verbal communication but also written information was seen as an area for nutrition promotion in CP. Participants described the possibility of general nutrition information and advice provision across content areas—from supplementation and nutrients specific in pregnancy through to medications use and breastfeeding.

**Value adding to current pharmacy staff expertise**

Women discussed that opportunities for nutrition information and advice giving would require a level of expertise. Adding to current training and incorporating specialization in nutrition in pharmacy was offered as a possible way forward.

it’s much easier if you could actually speak to somebody or get some information from somebody in person I think . . . you do actually feel a little bit like you’re on your own in that respect and everybody’s got some kind of, like everybody that you know socially gives you all sorts of advice that every child is different, it’s nice to have information from somebody who actually has some sort of training or has some real information to actually give you . . . I think that would be really supportive. [Participant 17, age 36, regular user]
Embedded services

Some women identified the potential use of the pharmacy setting by other service providers. A midwife run clinic, for example, was identified as a potential source of individualized advice relating to various topics including breastfeeding, introduction of solids and also weight—both for mothers during and post-pregnancy and infants.

Facilities/Infrastructure

Pharmacy infrastructure and facilities could be used and available for women to support nutrition-related behaviours. Women identified baby scales and private areas for service provision as part of the way CP could better support nutrition. Use of pharmacy visual space for nutrition promotion through posters was also suggested as a possible approach.

with a newborn it would be good if the pharmacies have scales or stuff so you could weigh your baby and some even have a nursery there for the babies so if you had any questions you could ask. For pregnancy it’s got—when I was pregnant I pretty much just asked the staff where I could get—if I needed it for me—which calcium would be better or, which iron tablets [Participant 13, age 22, regular user]

Whilst there was limited breadth of exploration of possible opportunities, some women identified that pharmacy could have a small contributory role in supporting healthier lifestyle behaviours and could contribute through increasing community knowledge and awareness. Pharmacy was viewed as an environment for opportunistic nutritional health promotion having access to larger sectors of the population. Other women saw that including nutrition promotion would balance out some of the focus on medicine use, which would be a positive step for pharmacy services. Enhancing the balance of advice about nutrition and vitamin sales was seen by some as an example of a positive connection between current pharmacy practices and nutrition.

People have to wait sometimes for a script to be made up, and they’re just sitting around. There’s an opportunity to have a poster there that talks about something to do with nutrition [Participant 16, age 29, regular user]

Opportunities in context: settings based issues

A lack of privacy had previously been experienced by a number of women in the pharmacy setting which affected their perception of what activities would be feasible. The level of busyness in the pharmacy environment was mentioned specifically in relation to the depth of conversation and questioning possible. Specific to the antenatal period, women spoke of their own use of baby weighing services or child health nurse clinics in pharmacy. Commonly this was seen as a beneficial service available as a convenient alternative in an accessible setting. Being able to ‘pop in for a weigh in without an appointment’ was positive as women could go there at a convenient time—important given the unpredictability of infants. Having to wait had been a partially negative aspect of the experience for some. Some women were less positive about the services provided raising concerns that the child health nurses appeared to be more concerned with technique, i.e. growth, than actually engaging with the mother and child in more meaningful ways.

Nutrition specific practices observed in pharmacy included the sale of diet shakes, weight loss related services and nutritional supplements. Whilst some women identified these practices as contrary to their own perception of nutrition (reflecting a medicalization of nutrition rather than an emphasis on eating nutritious food), it was identified that the service model of information and support provision currently available with pharmacy based weight loss services had potential transferability to other nutrition issues.

Conflicts of interest: influencing feasibility and scope

Women frequently recognized community pharmacy as a retail environment which raised questions
for some relating to the tension between sales and profitability and nutrition promotion, an activity associated with no or little income (free advice, etc.). This tension was believed to also undermine the credibility of and potential for impartial and evidence-based advice. Some women perceived significant conflicts of interest between promoting healthy eating and selling diet shakes or promoting breastfeeding while selling formula. These women spoke of being wary of ulterior motives, i.e. using the nutrition message to increase their sales.

To me a pharmacy is a medicine, not nutrition, it seems a bit hypocritical to me to have shake stuff in a chemist, and then convey nutrition on the other hand [Participant 21, age 32, regular user]

Discussion

The findings of this study, indicating that mothers are likely to be relatively high users of community pharmacy, primarily patronizing pharmacies that are conveniently located to the places where they live and shop, are largely consistent with the literature, primarily from the UK, exploring consumer perspectives [32–40]. The primary expectation of mainly drug related roles and services in pharmacy persists and indicates that despite growth of evidence supporting the efficacy of extending roles for the community pharmacist [12, 14] it is apparent that change to service models may not be widely adopted [41], with health education and promotion being inconsistently provided across community pharmacy practice. Whilst primary prevention appears largely unexpected and experienced in pharmacy, modifying the community pharmacy settings to become explicitly supportive of preventive health practices is needed. Reorienting practices in community pharmacy to focus on incorporating opportunistic nutrition promotion may be desirable given the apparent frequent exposure of pregnant women and mothers to the setting. Such approaches would need to be appropriate and contextual given potential sensitivities of the retail environment and the lack of consumer expectation.

Given the responses of participants it is probable that mothers are engaging more frequently with pharmacy support staff for their needs than pharmacists, particularly for non-prescription medicine enquiries. Whilst the role of the pharmacist, as perceived by the consumer, has been widely studied, research into perceptions of the roles of pharmacy support staff is less common and there is no published literature considering the perspective of mothers. A recent study in Australia (non-peer reviewed) using an exit survey methodology found that 77% of customers interacted with only pharmacy staff (non-pharmacist) during their pharmacy visit [21]. This para-professional group is currently under-researched particularly in regards to roles, competence and current practices in the area of health and nutrition promotion and yet are potentially playing a significant role in providing advice in this setting. At present, there appears to be opportunity for pharmacy support staff practices to be more or less supportive of best evidence in nutrition during pregnancy and the early years. Infant feeding is a good example; pharmacies sell infant formula, breast pumps, pacifiers, nipple shields and other paraphernalia that is used in the feeding of young children. All these products, associated advice, their purchase and use can play a significant role in the nutritional health of both mother and baby and may have significant short and long term health outcomes [42]. A supportive, nutritional health promoting pharmacy environment would require appropriate and professional guidance about the use of these by women. Further exploration of the role of pharmacy support staff in promoting and protecting nutritional health during the early years life-stage is needed.

Opportunities for nutrition promotion in pharmacy, as perceived by participants in this study, were primarily addressing determinants of nutritional health relating to mothers’ need for advice and support during this life-stage [43, 44]. Opportunities canvassed by participants provide insight into services and supports that could be integrated into current pharmacy service models and
practice, to create a more supportive environment and orientate practice to incorporate a prevention focus. Further exploration and feasibility of primary prevention with a specific focus on nutrition may be needed prior to further work in this setting given that the majority of health promotion programmes in the community pharmacy has to date primarily focused on secondary prevention, more closely aligned with a disease focus and often relating to product sale, e.g. quit smoking programme [45]. In addition, exploration of other stakeholder perspectives may assist in exploring opportunities that address additional and perhaps broader determinants. Future intervention development based in the pharmacy setting would also need to be aware of and manage the perceived and real conflicts of interest between nutrition promotion and current retail practices that could arise in this setting, particularly given this appears to be a concern for a least some mothers as seen in this study.

Communication and interpersonal interactions in the pharmacy setting are a significant part of pharmacy practice and would be integral to any nutrition guidance based initiatives. The results from this study indicate that mothers are not only interested in theoretically sound information and products; they expect nuanced service that invites the consumer into a collaborative interaction where the consumer and their perspective and views are valued. This finding is consistent with the work of Banks et al. [46]. They highlight the need to recognize the skill involved in managing the diversity of discourses across the medical-retail continuum. Development of any education or service based opportunities for nutrition promotion in pharmacy needs to integrate these approaches to practice. Emphasis in education on ‘what’ the population of interest needs to know needs to be met with an adequate reflection and integration of ‘how’ that education is relayed and a recognition of the role of appreciative exchanges [47].

Community pharmacy is a potential setting for nutrition guidance, support and promotion during the early years life-stage given mothers appear to be relatively frequent users and currently seek support for health related issues. Pharmacy presents as a setting that is potentially more responsive to consumers and their needs than other primary health care settings such as general practice and whose current practices fit with the mothers’ need for convenience in accessing health related services.

**Conclusion**

Implementing nutrition promotion initiatives in the community pharmacy setting requires an understanding of the consumer’s perspective to ensure an appropriate fit, and to canvas issues relating to feasibility and scope. The results in this study indicate that mothers are relatively high frequenters of pharmacy especially during the post-birth/early years phase and primarily access the most conveniently located pharmacy. Whilst they appear to be accessing pharmacy for medicine or product related concerns there is an expectation that information and advice be available and is not limited to information relating to medicines. Women are frequently interacting with pharmacy support staff that are potentially playing a significant role in advice giving. This paraprofessional group is currently under researched particularly in the area of nutrition and health promotion more generally in pharmacy. Opportunities for potential nutrition promotion programmes identified by participants primarily revolved around individual level determinants, addressing consumer needs for advice and support during the early years life-stage. Whilst training of health service providers appears to be important in relation to information and advice provision, consumer participation in interpersonal interactions in the pharmacy setting would be integral to any nutrition guidance based initiatives. In addition, conflicts of interest in the pharmacy setting are apparent to some consumers which may limit the reach of nutrition promotion work in this setting. Implications of these findings may need further exploration and will be important to consider during any subsequent intervention development. CP is a widely accessible health care setting which may benefit from more concerted reorientation of services toward nutritional health promotion and may have a future role.
to play as a supportive environment for nutritional health during pregnancy and the early years.

Acknowledgements

The authors would like to acknowledge the mothers who participated in this study. Thank you for giving freely of your time and sharing your stories.

Conflict of interest statement

None declared.

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