

# Supporting self-management of type 2 diabetes: is there a role for the community pharmacist?

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**Background:** Evidence supports the efficacy of pharmacy services in type 2 diabetes (T2D). However, little is known about consumer perspectives on the role of community pharmacists in diabetes care. The objectives of this study were to identify potential unmet needs and explore preferences for pharmacist-delivered support for T2D.

**Methods:** A qualitative study using focus groups was conducted in Sydney, Australia. Patients with T2D who were members of the Australian Diabetes Council in Sydney, Australia, were recruited through a survey on medication use in T2D. Five focus groups with a total of 32 consumers with T2D were recorded, transcribed, and thematically analyzed.

**Results:** The key themes were 1) the experiences of diabetes services received, 2) the potential to deliver self-management services, and 3) the suggested role of pharmacist in supporting diabetes management. Gaps in understanding and some degree of nonadherence to self-management signaled a potential for self-management support delivered by pharmacists. However, consumers still perceive that the main role of pharmacists in diabetes care centers on drug management services, with some enhancements to support adherence and continuity of supply. Barriers to diabetes care services included time constraints and a perceived lack of interest by pharmacists.

**Conclusion:** Given the unmet needs in diabetes self-management, opportunities exist for pharmacists to be involved in diabetes care. The challenge is for pharmacists to upgrade their diabetes knowledge and skills, organize their workflow, and become proactive in delivering diabetes care support.

**Keywords:** diabetes care, community pharmacy, community pharmacist, self-management, preference

## Background

In recent decades, community pharmacists in many countries have witnessed a paradigm shift from a singular focus on traditional dispensing services toward more patient-centered care.<sup>1</sup> Professional pharmacy services have become increasingly recognized and have been included in remuneration models in many countries.<sup>2</sup> Underpinning this recognition and change in health policy as it relates to pharmacists' service provision and reimbursement is a body of evidence for the clinical efficacy of community pharmacist-delivered services to support chronic disease management for conditions such as diabetes, lipid disorders, and hypertension.<sup>3</sup>

Type 2 diabetes (T2D) is a chronic progressive disease which requires strict control of glycemia and other cardiovascular risk factors to reduce the risk and delay the onset of diabetes complications.<sup>4</sup> Community pharmacists are in a unique position to deliver a wide range of services to help patients with T2D to reach and maintain their treatment goals. Self-management support, drug-related problems identification, diabetes education, medication review, and/or management<sup>5</sup> comprise a mix of services which,

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individually or in combination, have been shown to improve various clinical outcomes<sup>6</sup> and health-related quality of life.<sup>7</sup> However, anecdotal reports suggest that uptake of such services by patients with T2D has been limited. An understanding of patients' perspectives and expressed needs and preferences will help in developing an appropriate pharmacy service model for consumers with T2D.

Recently, several qualitative studies have been conducted to gain a better understanding of consumers' views on pharmacy medication management services.<sup>8-10</sup> However, there is a paucity of research on consumer's needs, expectations, and experiences of community pharmacy in the care of T2D. Only one recent UK study has focused specifically on the population with T2D;<sup>11</sup> however, its findings may not apply in other countries as consumers' perspectives may depend on their experience of pharmacy services under different health care systems. To date, opinions of consumers regarding the current and ideal role of community pharmacists in Australia in supporting diabetes management have not been investigated. To address this gap, we recently developed and validated a measure to quantify consumers' attitudes to pharmacist diabetes services.<sup>12</sup> However, to explore consumers' experiences and opinions in greater depth and triangulate the findings of the quantitative study, we conducted a follow-up qualitative study with the following objectives: 1) to identify potential unmet needs in disease management support and 2) to explore consumer preferences for a support model for T2D to be delivered in Australian community pharmacies.

## Methods

The qualitative study using focus groups was conducted between August 21 and September 17, 2013. Participants were members of the Australian Diabetes Council (ADC), now known as Diabetes NSW, which is the largest member-based nonprofit organization dedicated to people living with or at high risk of diabetes in Australia. They were recruited through a previous survey on adherence to diabetes medication.<sup>13</sup> Those who indicated interest in participating in focus group discussion were contacted for a confirmation and invited to attend a focus group which took place either at the ADC office in Sydney or at the Faculty of Pharmacy, the University of Sydney. One of the focus groups was conducted via teleconference to allow participants who did not live in Sydney to take part. Their demographic details and consent were also obtained in the previous survey prior to participation.<sup>13</sup>

The topic guide was developed based on the objectives of the study and a review of relevant literature. It comprised a series of open-ended questions addressing each of the

objectives and a series of prompts to help guide the focus group discussion which included topics such as self-management of medication, self-monitoring of blood glucose, experiences of diabetes care delivered by health care professionals, experience and views of pharmacy services, and views about the need for and potential benefit of extended services and support that might be offered by pharmacists such as assessment, counseling, and education<sup>14</sup> to improve diabetes management.

All focus groups were audio-recorded and transcribed *ad verbatim*. In parallel with focus groups, transcripts were analyzed by two researchers using a grounded theory approach which involved use of the method of constant comparison. The purpose was to identify, confirm, or discount relationships in the data by comparing any newly collected data with previously collected data. Both open and selective coding were used for the thematic analysis.<sup>15</sup> Researchers met regularly to discuss and agree on the emergent themes. Focus groups were continued until saturation of themes was reached.<sup>16</sup> The quotations were grouped into themes prior to identifying subthemes. Any discrepancies between the researchers' views were settled through discussion and consensus based on reference to the original data. Ethical approval for the study was obtained from the University of Sydney Human Research Ethics Committee.

## Results

Thirty-two subjects with T2D attended one of the five focus groups with duration ranging from 52 minutes to 76 minutes. Saturation of themes was achieved after five focus groups. The majority of participants were male and aged over 65 years (Table 1), and there was a wide variation in diabetes duration (1–30 years) among participants.

Background information related to attitudes and behaviors toward the use of diabetes medications and self-management was unveiled during the focus groups. Many participants expressed negative attitudes toward diabetes medication and complained that they had to take too many medications, especially considering the fact that these were lifelong medications. In addition, a number of challenges in matching routine of medication taking with lifestyle were encountered by many participants. These included making sure they had an adequate supply during a trip, forgetting to take medicines when going out, and not having a regular lifestyle. They reported using several approaches to cope with these challenges. However, some of the participants' strategies were inappropriate, particularly the practice of storing medicines in a car or a bathroom which may affect the stability of medicine.

**Table 1** Details of focus group participants

Focus group	Respondent number	Sex	Age (years)	Length of time since diagnosis (years)	Level of adherence (MMAS score)	Experience of receiving extended services*
1	1	Female	56	5	Low (5.75)	Y
	2	Male	54	13	High (8)	N
	3	Female	64	13	Medium (6)	Y
	4	Male	60	1	Low (4.75)	N
	5	Female	61	20	Low (5.75)	N
	6	Female	56	15	Low (3.75)	Y
2	7	Female	66	20	Low (3.5)	Y
	8	Male	72	17	Medium (6)	Y
	9	Male	74	23	Medium (6.75)	N
	10	Male	69	25	Medium (7)	Y
	11	Male	76	8	Medium (6.75)	N
	12	Male	68	15	Medium (6.75)	Y
3	13	Male	78	15	Low (3.75)	N
	14	Female	76	9	Medium (7)	Y
	15	Male	65	20	Low (5.75)	Y
	16	Male	71	3	High (8)	Y
	17	Male	81	4	High (8)	Y
	18	Male	68	15	Medium (7)	Y
4	19	Male	68	12	High (8)	Y
	20	Female	68	13	Low (5.75)	Y
	21	Female	65	12	Medium (7)	Y
	22	Male	69	1	Low (3.75)	Y
	23	Male	70	18	High (8)	N
	24	Male	69	1	Medium (6)	N
	25	Female	66	8	High (8)	Y
	26	Male	66	2	Medium (7)	Y
5	27	Female	62	2	Medium (6)	N
	28	Male	49	16	Medium (7)	Y
	29	Female	70	30	Low (5)	Y
	30	Male	71	5	Medium (6)	Y
	31	Male	72	1	Medium (7)	Y
	32	Female	52	5	Medium (6)	Y

**Notes:** MMAS classified level of adherence into low (score <6), medium (score 6 to <8), and high (score =8) adherence. \*Experiences of receiving any of the following extended services: written medicines information, dose administration aid, blood glucose-monitoring advice, printouts of blood glucose meter results, Diabetes Meds Check, and home medicines review.

**Abbreviation:** MMAS, Morisky Medication Adherence Scale; Y, yes; N, no.

If I go out I carry and I've got a packet in cars for when I forget to carry them and I get caught out for lunch, so you leave your medication all around the world. [R10]

I have the ones for morning at a spot that I won't forget when I brush my teeth. [R13]

The majority of participants were well aware of the importance of diet and lifestyle management. They also tried to compensate if, in some circumstances, they could not manage to control other aspects of their lifestyle. Participants were divided in the practice of self-monitoring blood glucose (SMBG). While some participants stated that they regularly undertake SMBG and use it to help adjust medication, diet, and/or physical activity to achieve better glycemic control, others reported sporadic use. Others who did undertake regular SMBG did not use the information to adjust their diabetes

self-management. Attitudes toward SMBG were also divided with strong opposition expressed by some respondents, while others supported the use of SMBG as a tool to self-manage their diabetes.

The key themes identified in association with consumer preferences for a support model for T2D to be delivered in Australian community pharmacies were 1) the experiences of diabetes services received, 2) the potential to deliver self-management services, and 3) the suggested role of pharmacist in supporting diabetes management.

## The experiences of diabetes services received

The majority of participants were under the care of a general practitioner (GP) for their diabetes. However, other health

care professionals including endocrinologists, nurses, and diabetes educators were also involved for a subset of participants. Several also noted the roles of self-care as well as family members in the management of diabetes.

The diabetes educator is working out of the doctor's surgery so she talks with the doctor as well, they communicate with one another and they keep all track of everything. [R1]

I have no time for GPs because I know they're just a process worker [administrative/non-cognitive work] – I go to the endocrinologist. [R2]

My wife constantly tells me what I should be eating and what I shouldn't be eating which I completely ignore and do not do it, but apart from those two I do not get advice from anybody. [R15]

Several participants raised complaints regarding the services provided by health care professionals who did not have a good understanding of their background, and lifestyle.

I've been in hospital a few times in the last six months and each time I've had difficulties with the hospital staff trying to tell me what I should do. [R2]

The only thing that irritates me about pharmacies, I guess, is you will go in with a prescription that's been filled a dozen times to a stranger and he will leap over the counter and say, "Have you had this medication before?" Well, hello. Yes, but I guess they're trained to say that. [R10]

Problems with continuity of care were also described.

There isn't a clear pathway. If something goes wrong with my meter I think will I ring up the company or the chemist or the doctor? [R5]

It's a problem with pharmacists anyway because half the time they're not there – there is another replacement in for the day or there's somebody ... three different pharmacists every week. At least if you go to see your doctor you know who you are going to see, but in a pharmacy you wouldn't have a clue. [R15]

Cost of medications and diabetes services were also raised as a concern by several participants, especially those who were not covered/subsidized by Medicare or the Pharmaceutical Benefits Scheme (PBS). Generally, Australian citizens and permanent residents are entitled to Medicare and PBS to subsidize treatment from primary health care practitioners and for prescription drugs, respectively. Once a relevant threshold, known as Safety Net, is reached, patients' copayment contribution will be reduced or free for concessional patients.

They're just expensive and you have to just grin and bear it if they're going to keep you alive. I like it when I reach my threshold. But it is not until about October. [R21]

So because I've not had Medicare so really it is not possible for us to go and check every week, every month because we have not applied for permanent residency. Very, very difficult for us. Because if you have to go to specialist I have to pay \$250 for that one, because I am not having any income outside, but I know we are dependent on my children. [R16]

Participants' experiences of pharmacy services were highly variable. Several respondents had virtually no contact with the pharmacist when collecting their prescriptions and had not received any services related to their diabetes. Others described receiving a range of extended services including a reminder service to collect their repeat prescriptions, written drug information, drug interaction checks, advice on blood glucose measurement, and meters and insulin devices.

They have just started last month a reminder service, so if the prescription is going to be over they text. [R1]

They showed me how to use the insulin, how to use the pen and they also told me when you are doing your blood glucose and that, different ways to do it, so they've been very good. [R7]

They will run a MIMS Search to check on the inter-relationships of the drugs. They will check the actual dosage, whether I'm out of prescriptions and whether the prescriptions are in fact correct, if there's been an error, that type of thing. [R8]

## The potential to deliver self-management services

Participants generally appreciated the friendliness of pharmacists and convenience of pharmacies (Table 2). However, several obstacles to delivering diabetes care and self-management support were raised. These included lack of a private area, time constraints in a busy pharmacy, a perceived low level of interest in offering diabetes services by pharmacists, and reservations about the pharmacists' skill and knowledge in diabetes management.

## The suggested role of pharmacist in supporting diabetes management

There was general support for the concept of diabetes care management being offered by community pharmacists provided that this service targeted specific groups of patients in need of additional support, for example, newly diagnosed

**Table 2** Themes and key quotes associated with patients' preferences for a support model for T2D to be delivered in Australian community pharmacies

Themes	Key quotes
<b>The potential to deliver self-management services</b>	
Support	
Friendliness of pharmacists	"I find pharmacy pretty good. They will certainly ask you if you've taken them before, offer some information". [R20] "I went in he would ask how was it going? How was I feeling? Did I need any information? He is very kind and generous like that". [R32]
Convenience of pharmacies	"If I have to have Insulin, I think it would not be a bad thing if I go to the pharmacy and get the top up advice or help which is much more accessible". [R1] "I seem to be able to have more time and information from a pharmacist than often I can get with a doctor. I mean call into a pharmacist on a Saturday afternoon if you've got an enquiry, you can't go the GP because they're not working, and often they won't assist over the phone anyway, so yes, it's a good point of information and support". [R32]
Obstacles	
Lack of a private area	"If you're talking to somebody about your diabetes, there's another lady there talking about being pregnant, and they say, 'You're pregnant are you'... all that sort of stuff". [R12] "I think that's the problem with going to your average chemist – you've got a counter and no private areas at all, if you need it, not that anything about it is really private". [R23]
Time constraints in a busy pharmacy	"If I want to know something I'll ask them, but they're all so busy too". [R21] "The pharmacies are all very busy I wonder whether they have staff for this purpose. (supporting peoples adherence to medication)". [R31]
A perceived low level of interest in offering diabetes services by pharmacists	"My pharmacist was whinging to me the other day because we were saying that somebody is trying to oblige pharmacists to become diabetes helpers and she just found the way it was being structured it was not in her interest – it was a whole lot more trouble for no benefit". [R13] "Why do not you do the diabetes thing?" and they said, "Well a) we do not want to because it is all too much trouble, but b) there's somebody else close by who is therefore we do not want to do that", so I actually changed pharmacists". [R14]
Reservations about the pharmacists' skill and knowledge in diabetes management	"I think any new service like that somehow the public, the client has to have the feeling you can trust their knowledge. How do I know when I walk in, you know? So is there accreditation for some pharmacists who can assist so that you know". [R1] "I do not think a chemist would be nearly as qualified to tell me what to do as my GP is". [R15]
<b>The suggested role of pharmacist</b>	
Target specific groups of patients in need of additional support	"This sort of service (monitoring service) would be of great value especially on the newly diagnosed". [R2] "It could be for some people, yes. I'm not saying for me because I manage my own regimen quite easily, but for some people I still think it could be almost a necessity". [R17]
Administrative role (eg, reminder service or arranging for the supply of diabetes medication)	"Well I think there is a role. I think it could be improved. For instance if they had my profile in some sort of filing system and they communicated with me electronically, send me an email when things are due, or how are you going, or how's your diet, these medicines go best with this food". [R10] "The chemist will fulfill more than one prescription at a time if you're going on holidays or you need it". [R23]

**Abbreviations:** T2D, type 2 diabetes; GP, general practitioner; R, respondent number.

or those who have problems in managing their medication. However, there was also a minority view that the scope of the pharmacists' role in diabetes should focus on an administrative role involving a reminder service or arranging for the supply of diabetes medication.

## Discussion

A wide diversity in experiences of receiving diabetes health care services including from community pharmacists was identified. Although unmet needs were not overtly expressed by focus group participants, their self-management practices

suggested some gaps in understanding, and some degree of nonadherence to aspects of lifestyle and medication regimens, erratic use of SMBG to support self-management, signaling a need for accessing additional monitoring, motivational support, and education through enhanced diabetes support services. Newly diagnosed patients were explicitly identified as a group who may be in need of additional support for diabetes management. Although consumers generally had positive views about pharmacists' services, to date, many had very limited experience of any enhanced diabetes support services.

The strength of the qualitative approach used in this study is that it has provided a clearer understanding of the needs, attitudes, experiences, and preferences of consumers with T2D with respect to disease management. The focus groups were chosen to overcome the limitation of interviews where participants may be reluctant to discuss their concerns. The group environment, in contrast, is particularly useful for exploring not only what people think but also how they think and why they think that way.<sup>17</sup> These findings support and enhance those of the previously published quantitative survey.<sup>12</sup>

## The experience of diabetes services received

Complaints regarding health care services raised by consumers with T2D were similar to consumers' views reported in other studies<sup>18</sup> but should not be overlooked. Concern over continuity of care identified in this study concords with findings from previous studies<sup>19</sup> which showed that patients preferred to see the same care provider as they believed in the importance of continuity of comprehensive, coordinated, and integrated diabetes care as well as continuity and consistency of information. Difficulty in affording the treatment cost identified in this study has also been identified as a concern in other settings<sup>20–22</sup> and undoubtedly has an impact on medication adherence and eventually treatment outcomes.

## The potential to deliver self-management services

Given the general lack of exposure to any enhanced pharmacy services, consumers in this study considered that the main role of pharmacists in diabetes care should continue to center on administration of medication, with some enhancements to support medication adherence and continuity of supply. In reflecting on the potential for the community pharmacist to assume a greater role in providing diabetes self-management support services, consumers identified several potential obstacles.

In the quantitative survey, time constraints and attitudes to pharmacist competency in diabetes care were identified as potential barriers to role expansion.<sup>12</sup> This study identified further potential barriers including lack of a private area in some pharmacies and a perceived low level of interest in offering diabetes services by pharmacists. A greater insight into these consumer perceptions will help inform the development of a future pharmacy diabetes care model.

Friendliness and convenience were the two main features perceived by subjects that could help establish diabetes

self-management support services delivered by community pharmacist. It is unsurprising that good communication improved the patient experience and contributed to the positive attitudes expressed by some consumers toward pharmacy services.<sup>23</sup> Convenience of access and prolonged service hours have always been recognized as key advantages of community pharmacy as a portal for health care services.<sup>24,25</sup> These advantages however are offset by other issues identified in this study.

Similar to findings from others,<sup>26</sup> lack of a private area particularly in a traditional pharmacy and limited time to interact with patients in a busy pharmacy were mentioned by participants in this study. A perception by some consumers of a low level of interest in offering diabetes services by pharmacists was also expressed which contrasts with previous research findings showing that pharmacists are willing to provide extended patient care services.<sup>27,28</sup> This highlights the need for pharmacists to be more proactive in offering and communicating/promoting their willingness to provide diabetes care services to consumers. Further investigation is warranted to clarify Australian pharmacists' attitudes and capacity to provide diabetes care services. Reservations about the pharmacists' skill and knowledge in diabetes management reported in this study align with those of the quantitative study where a substantial proportion of respondents with T2D were uncertain or did not believe that community pharmacists are knowledgeable about certain aspects of diabetes management including general advice about what they should eat to control their diabetes and the management of hypoglycemia.<sup>12</sup> This highlights the need for a strategic approach, such as further training and accreditation, to gain consumer trust regarding pharmacists' knowledge.

## The suggested role of pharmacist in supporting diabetes management

Targeting unmet needs of additional support in a specific group of patients, such as newly diagnosed patients, recommended by participants in this study may be a logical focus for pharmacy services for patients with T2D. This is because consumers who are newly diagnosed generally do not understand the seriousness of their condition and how to manage it appropriately.<sup>29</sup> A previous qualitative study also indicated that GPs do not fulfill all information needs of patients starting oral antidiabetics.<sup>30</sup>

Overall, many of the findings of this study concur with those of the UK study.<sup>11</sup> Participants in both studies perceived that pharmacies are busy places and many cannot offer a private consultation room/area which would be required for

provision of pharmacist-delivered diabetes support services. Services viewed as very helpful in both studies were principally related to the supply of medicines. Maybe one of the reasons is that the public still perceive that the primary role of pharmacists is as a distributor of medicines. They may also be not aware of the possibility of patient care services being offered in community pharmacy.<sup>31</sup> However, the administrative role as described by consumers in the present study coincides with previously expressed preferences of Australians regarding how the community pharmacist may help manage their chronic conditions, that is, by providing a prescription reminder system such as receiving an automatic alert when a new prescription is due,<sup>32</sup> and a continued dispensing service that allowed pharmacist to dispense a further supply of prescription medications without a valid prescription.<sup>33,34</sup>

Several potential limitations are acknowledged, specifically the sample selection bias. A possible source of bias could be that consumers who opted to participate in the focus groups may have been those with strong views on pharmacy services or limited to consumers in a specific geographical location. However, participants in this study were diverse in terms of factors that might have an impact on their attitudes such as duration of diabetes and level of adherence. Subjects who had never received extended pharmacy services also accounted for one-third of the participants. In addition, a tele-conference focus group was conducted to allow consumers from a broader geographical area to take part.

## Conclusion

Despite several decades in the evolution of patient care services in community pharmacy, consumers still perceive that medicines supply remains the principal role of the community pharmacist. However, given the unmet needs of patients in aspects of diabetes self-management, there are clear opportunities for pharmacists to become more proactive in providing support specifically to target those in need of this support, for example, newly diagnosed patients. Understanding patterns of diabetes self-management as well as views of patients on pharmacy services identified in this study will help inform the development of services to suit patients' needs and to engage them to make use of such services. The challenge is for pharmacists to address these perceived barriers by enhancement of their diabetes knowledge and skills, better organization of workflow, changes to the pharmacy environment, and becoming proactive in promoting their capacity to deliver enhance diabetes care support.

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## Author contributions

TD participated in study design, preparing data collection and analysis, and drafted the paper. IK conceived of the study, participated in its design, carried out the focus groups and analysis, and helped to draft the paper. All authors read and approved the final paper and agree to be accountable for all aspects of the work.

## Disclosure

The authors declare that they have no competing interests relevant to this work.

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