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Sinclair, Peter M., Day, Jenny, Levett-Jones, Tracy & Kable, Ashley. "Barriers and facilitators to opportunistic chronic kidney disease screening by general practice nurses" Published in *Nephrology*, Vol. 22, Issue 10, pp. 776-782, (2017).

Available from: <http://dx.doi.org/10.1111/nep.12856>

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Accessed from: <http://hdl.handle.net/1959.13/1326513>

Introduction

The early detection and management of Chronic Kidney Disease (CKD) by primary care providers is essential in reducing CKD related mortality and morbidity and the burden of disease on the healthcare system and people affected by this condition.¹ Opportunistic screening is considered the most cost-effective² and sustainable approach to the early detection of CKD in Australia.¹ Mass screening efforts reported in the literature,^{3,4} have proven costly and are more likely to attract people who have a vested interest in their own health.¹ In Australia, CKD screening practices in high risk populations are currently sub-optimal;⁵ consequently, there is a need to identify ways in which opportunistic screening practices in the primary care setting can be improved.

Recent research has explored the management of CKD in the primary care setting⁵⁻⁷ and the reporting of outcomes related to community, in-hospital and workplace screening programs.^{3,4,8} Renal health professionals recommend that opportunistic screening should occur in the general practice (GP) setting, and that education relating to screening practices for healthcare professionals (HCP) needs to be improved.^{1,2} There is a need to identify the most efficient and efficacious method to deliver this education. This can be achieved by identifying the barriers and facilitators to opportunistic CKD screening in the GP context.

Background

Extensive research has been conducted in other specialty contexts to identify factors that prevent chronic disease screening practices from occurring, particularly in the primary care setting. Time is frequently cited as the main cause for HCP inability to undertake screening.⁹⁻¹² In alcohol and nutritional screening, for example, this has been attributed to logistical issues in practice and other competing priorities facing HCP.^{9,11} A recent systematic review¹¹ investigating the barriers to nutritional screening identified that organisational culture strongly influenced screening practices. However, a disconnect existed between HCP beliefs and attitudes regarding screening and actual practice. Green and James (2013)¹¹ suggested that the workplace environment was crucial to the application of screening practices; so much so, that HCP may be willing to undertake screening but the workplace culture dictates whether it will actually happen. Studies that have explored barriers to screening for colorectal cancer,¹³ gestational diabetes,¹⁴ alcohol intake,⁹ and domestic violence screening¹²

have identified that HCP concerns about negative patient reactions also prevent screening practices from occurring. These concerns were also identified in the only study to date that has explored the processes underpinning CKD management in a primary care setting in the United Kingdom.⁶

General Practice Nursing in Australia

Practice nurses are integral members of the primary care team in the general practice (GP) setting and are crucial to the success of the primary care agenda. In Australia, a GP nurse can be either an enrolled nurse (EN), usually certificate or diploma qualified; registered nurse (RN), usually degree qualified; or nurse practitioner (NP) employed in the GP. Their scope of practice is governed by their registration status (i.e. RN or EN), advanced practice roles (i.e. clinical nurse specialist), post registration credentialing and/or endorsement (i.e. NP). In some GP settings, unqualified healthcare workers such as assistants in nursing may also be employed. In a 2014 report, there was an estimated 12,322 nurses working in Australian GP;¹⁵ approximately 64% of practices employ at least one nurse and, on average of 2.7 nurses are employed per GP nationally.¹⁶ The role of GP nurses continues to broaden as a result of Australian federal government initiatives including incentives for employing practice nurses and the addition of Medicare Benefit Scheme (MBS) item numbers specific to nursing services that are delivered independently of the general practitioner.¹⁷ However, the scope and autonomy with which GP nurses deliver preventative and health promotion services is restricted to the conditions of their employment and context of their workplace culture and practices.¹⁸ Practice nurses are ideally placed to lead screening programs and collaborate with general practitioners for the early detection of CKD.⁴ However, it is not known whether nurses working in GP settings in Australia possess the requisite knowledge and skills to lead these screening programs, or whether their scope of practice and the culture within GP settings affords them the opportunity to do so. Consequently, the study described in this paper sought to identify the behavioural (attitudinal), normative and perceived control beliefs relating to CKD opportunistic screening practices of GP nurses working in a regional area of New South Wales, Australia.

2. Methods

2.1 Theoretical framework

The Theory of Planned Behaviour (TPB) provided the theoretical framework for the generation of data for this study. The TPB is one of the most widely applied models of determinants of behaviour change. It has been utilised to evaluate various health related behaviour change interventions including breastfeeding,¹⁹ healthy eating²⁰ and physical activity.²¹ Recently, it has been also used to evaluate the influence of e-learning interventions including medication safety,^{22,23} university student health behaviours,²⁴ sun safety^{25,26} and breakfast consumption.²⁰ Despite its predictive potential, there has been no published research to date using the TPB in the context of investigating the barriers and facilitators of CKD screening practices in the GP setting.

The TPB asserts that the immediate antecedent of behaviour is intention.²⁷ Intention is influenced by three predictor variables, behavioural beliefs (attitudinal), subjective norms and perceived behavioural control (PBC). Attitudes are influenced by knowledge, values and beliefs derived from experience and reflect an individual's positive or negative beliefs about performing a given behaviour, in this case opportunistic CKD screening, and whether they are in favour of carrying it out. Subjective norms relate to the individual's perception of social pressure from significant others (for example: general practitioners, practice managers, practice nurses, other practice staff, or patients) to undertake the target behaviour, and their motivation to conform to such pressure. Finally, PBC represents the degree of control the individual perceives they have over the factors that facilitate or inhibit the target behaviour.^{28,29} This recognises that while an individual may have the intention to carry out a specific behaviour they also need to have the opportunity, resources and support in order to do so.³⁰ Figure 1 provides a diagrammatic representation of the relationship between behavioural beliefs, subjective norms, perceived behavioural control, intention and actual behaviour.

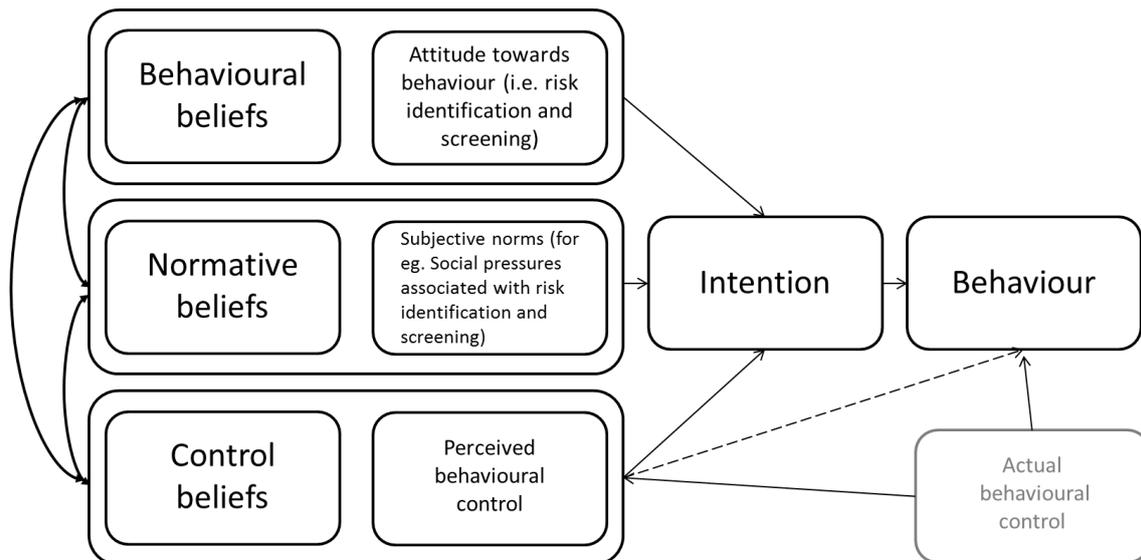


Figure 1: The theoretical constructs of the theory of planned behaviour (Adapted from Ajzen, 2002)

2.2 Study design

The TPB posits that an individual's behavioural beliefs govern their attitude toward the behaviour. It further considers that an individual needs to have the opportunity, resources and support in order to execute the specified behaviour. In order to reveal the salient behavioural (attitudinal), normative and control beliefs regarding CKD screening processes in the target population, an elicitation study was conducted.³¹ The study design was guided by the recommendations of Francis et al., (2004)²⁹ and is a method extensively utilised in research guided by the TPB. Ethics approval was granted for this research by the University of Newcastle human research ethics committee.

2.3 Participants and setting

The study sample consisted of GP nurses from both small and large GP settings in the Hunter New England Health and Central Coast Primary Health Network catchment areas. Participants were eligible for the study if they were currently working as a practice nurse in GP or had worked in this role within the previous year. After institutional ethics approval was granted, participants were recruited using a snowballing sampling technique. A study recruitment notification was included in the local primary health network e-newsletter in addition to an announcement in a Facebook group regularly used by local practice nurses. A sample size of between 25-30 participants was sought.^{32,33}

2.4 Data collection

An online questionnaire with eight open ended questions was utilised (The interview schedule outline is provided in Appendix S1). These questions were designed to elicit information regarding the predictor constructs of the TPB model (behavioural (attitudinal), normative and control beliefs)³⁰ as applied to opportunistic CKD screening during a nursing consultation in the GP setting. Questions were developed to determine the most frequently perceived advantages and disadvantages of performing opportunistic screening for CKD, the most important people or groups of people who would approve or disapprove of screening for CKD in the GP setting, and finally, the perceived barriers or facilitating factors which could make it easier or more difficult to adopt opportunistic CKD screening practices. Data were collected between November 2015 and March 2016 using the web-based survey tool, SurveyMonkey (SurveyMonkey Inc. Palo Alto, CA).

2.5 Data analysis

Two researchers independently conducted a directed content and frequency analysis, as described by Hsieh and Shannon (2005),³⁴ of participant responses. A deductive process was utilised with *a-priori* coding specific to the TPB predictor variables. Responses were coded based on the similarity of words, phrases and/or concepts, and then listed in order of frequency and response percentage to identify the most salient beliefs. The research team met to review findings and identify discrepancies; and differences were resolved through discussion and negotiated consensus. The data from questions three and six were pooled with questions seven and eight to isolate challenges that participants' faced in terms of barriers and facilitators to CKD screening in their workplace.

3. Results

Twenty six practice nurses participated in the study. The demographic characteristics of participants are presented in Table 1.

<<Insert Table 1 here>>

Variable	Category	<i>n</i> (%)
Age	Less than 29 years	1(3.85)
	30-39 years	5 (19.23)
	40-49 years	10 (38.46)
	50-59 years	9(34.62)

	Older than 60 years	1(3.85)
Gender	Male	1(3.85)
	Female	25(96.15)
Job title	Endorsed enrolled nurse	1(3.85)
	Registered nurse	19(73.10)
	Clinical nurse specialist	1(3.85)
	Nurse manager	2(7.70)
	Nurse practitioner	3(11.50)
Years working as a nurse	1-9 years	1(3.85)
	10-19 years	5(19.23)
	20-29 years	8(30.76)
	30-39 years	10(38.46)
	40-49 years	2(7.70)
Years working as a practice nurse	1-4 years	6(23.10)
	5-8 years	11(42.30)
	9-12 years	4(15.40)
	13-16 years	2(7.70)
	17+ years	3(11.50)

Table 1: Demographic characteristics of participants (n=26)

3.1. Behavioural (attitudinal) beliefs: Perceived advantages and disadvantages of screening for Chronic Kidney Disease during a nursing consultation

Participants agreed that the early identification of CKD afforded the opportunity to manage the disease early, and minimise its progression and burden on the patient. This enabled participants and their colleagues to influence patients' quality of life and reduce costs associated with chronic disease management on the healthcare system. Participants also identified that the screening process created the opportunity for the nurse to increase patient awareness of kidney health and to provide preventative advice regardless of whether kidney disease was present or not. This was particularly important for patients who presented with known risk factors for CKD. The relationship with the nurse was also identified as crucial as it created a sense of trust that enabled patients to discuss their own concerns relating to their kidney health. The most frequently identified advantages of opportunistic screening for CKD by participants are presented in Table 2A, supported by participant verbatim quotes.

Participants acknowledged that practice nurses were ideally positioned to undertake screening practices with participant 13 suggesting that nurses have "more time to discuss these issues with patients than the general practitioner and can listen and engage [with] the

patient". However some participants recognised that they had a knowledge deficit as to what constituted best practice screening for CKD.

<<Insert Table 2A here>>

Advantages	Participant quotes	Frequency (n = 26)	Response %
Early detection and treatment	<p><i>Early diagnosis leading to better outcomes. Better patient care mapping and understanding of health care needs (Participant 4)</i></p> <p><i>Early identification in order to manage chronic disease early and maintain health (Participant 13)</i></p>	20	77
Reduction of disease burden	<p><i>...that [CKD] will be detected and treated, assisting in stabilising or reducing the effects on the cardiovascular system, burden on the patient in terms of quality of life now and in the future as well as the cost on the health care system (Participant 12)</i></p> <p><i>Nursing consults usually allow more time to discuss conditions and lifestyle changes that can improve health (Participant 22)</i></p>	16	62
Increased awareness and prevent CKD	<p><i>- A nurse can provide simple advice such as eat less salt or processed food, explain dehydration and kidney function relationship, blood pressure and kidney function relationship (Participant 7)</i></p> <p><i>- To increase awareness and provide information and education to patients about prevention of CKD (Participant 19)</i></p> <p><i>- Promoting patient awareness of kidney health. Many patients with high blood pressure are unaware of the link to CKD so a nursing consultation is a good opportunity to educate patients (Participant 21)</i></p>	9	35

Table 2A: Behavioural (attitudinal) beliefs - Most frequently reported advantages of screening for Chronic Kidney Disease in nursing consultations (n=26)

While some participants believed there were no disadvantages to opportunistic CKD screening practices, the most frequently perceived disadvantage was the impost on

consultation time and the need to manage multiple patients with competing clinical priorities. For GP nurses, the advantages of early CKD detection were balanced with what they believed to be the best use of their consultation time and the financial interests of the practice as a business. The second most frequently reported disadvantage was a concern that harm could result from opportunistic screening activities, for example through the stress caused by the identification of a new health problem or additional cost on patients with limited financial resources. Participants raised concerns that patients attending the GP setting often focus on their presenting concern, and the introduction of new issues come as a shock. In this context, opportunistic screening may increase patient anxiety and raise issues that patients were unaware of and may not be able to emotionally deal with. Some participants also identified that they lacked the necessary knowledge and/or skills to appropriately respond to patient's questions about screening and CKD, possibly reducing their ability to educate and reassure patients about screening outcomes. The most frequently reported disadvantages of CKD screening are reported in table 2B with participant quotes.

<<Insert Table 2B here>>

Disadvantages	Supportive quotes (Participant number)	Frequency (n = 26)	Response %
Impost on time and competing clinical priorities	<i>...with so many other conditions and the acute nature of when patients are often present (that) there are often minimal opportunities to screening for anything other than the incident (or condition) that is directly presented for (Participant 1)</i> <i>Time consuming when nursing staff are pressed for time (Participant 4)</i>	11	42
No disadvantages	<i>There are never any disadvantages about screening for any chronic disease (Participant 19)</i>	9	35
Threat of patient harm (stress and financial)	<i>...patients' not really able to cope with diagnosis (Participant 3)</i> <i>Cost to patient if not bulk billed and further testing i.e. blood tests (Participant 4)</i>	8	31

Knowledge and/or skills deficit identified	<i>Lack of nurse knowledge to answer questions [asked] by patient (Participant 9)</i> <i>[I am] not sure what screening to do (Participant 11)</i>	4	15
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Table 2B: Behavioural (attitudinal beliefs) - Most frequently reported disadvantages of screening for Chronic Kidney Disease (n=26)

3.2. Normative beliefs: Individuals or groups perceived to approve and disapprove of screening for Chronic Kidney Disease during a nursing consultation

Participants reported that they perceived general practitioners and patients to hold differing normative beliefs about who should be screening for CKD in the GP setting. Positive beliefs were most frequent and supported the inclusion of CKD screening as a component of the GP nurse role, acknowledging nursing contributions to preventative health, comprehensive patient assessment, and care of patients with chronic conditions. However, when participants believed that doctors felt that screening was their responsibility only, these negative beliefs translated into constraints on the nurse's role which prevented them from screening for CKD during consultations. Participant 15 summed this up by stating "some general practitioners do not believe the nurse should be screening or consulting with patients as they believe that it is their role, not the nurses". Whilst participants valued CKD screening and considered that it had a place in their nursing consultations, they believed the authority to enact this screening was held by general practitioners. Beliefs about the exercise of medical authority and supervision negatively impacted on nurse's role autonomy and their screening practices for CKD.

Similarly, the ability of practice nurses to enact CKD screening was, in part, determined by their perceptions of patients' normative beliefs. The notion that patients may 'disapprove' of the nurse undertaking screening practices was highlighted with the suggestion, again by participant 15, that "some patients believe it is their doctor's role to discuss their health concerns, rather than the nurse who is only there to perform basic care". Together with negative beliefs about screening as a nursing role, participants believed that the financial management of the practice as a business constrained their role in screening and impacted their role autonomy in some settings. They believed an absence of activity based funding, through item numbers for CKD screening in the Medical Benefit Schedule (MBS), meant that some nurses were unable to attract remuneration for the time they spent with patients for

screening purposes. Without this remuneration their work was viewed as unfunded which detracted from the financial sustainability of the practice. The most frequently reported social supports and pressures on CKD screening are reported in Tables 3A and 3B.

<<Insert Tables 3A & 3B here>>

Perceived social supporters	Supportive quotes (Participant number)	Frequency (n = 24)	Response %
General practitioners	<i>Doctors are pro nursing assessment if it provides data for clinical decision making (Participant 2)</i> <i>Some GP's welcome the nurses role in screening for chronic diseases and in the role of preventative care (Participant 20)</i>	18	75
Patient endorsement or approval	<i>Patients and doctors approve of early identification of disease and improved patient outcomes (Participant 19)</i>	7	29

Table 3A: Normative beliefs - Most frequently reported individuals or groups perceived to approve of screening for Chronic Kidney Disease (n=24)

Perceived social pressures	Supportive quotes (Participant number)	Frequency (n = 24)	Response %
Activity based funding model (MBS)	<i>Screening activity for any chronic disease is not Medicare rebatable so therefore not economical use of nursing time (Participant 2)</i> <i>With no specific item number associated with screening activities, it does not get the time required allocated to the task (Participant 24)</i>	13	54
Medically defined roles	<i>Some general practitioners practising do not believe the nurse should be screening or consulting with patients as they believe that it is their role, not the nurses. Some patients believe it is their doctor's role to discuss their health concerns, rather than the nurse who is only there to perform basic care (Participant 15)</i> <i>Older doctors who are a little set in their ways may not approve, they regard it as a doctor's job! (Participant 18)</i>	10	42

	<i>The surgery is so busy and there are not enough nurses to perform screenings as well as the other roles they are employed to do such as immunisations, ECG's, wound dressings etc.</i> (Participant 22)		
The business	<i>The practice as a whole has to financially survive in a hostile Medicare environment, additional unfunded services, regardless of patient benefit, are difficult to justify</i> (Participant 1) <i>I work in a bulk billing practice, therefore I am limited in the item numbers that I can bill for</i> (Participant 13)	7	29

Table 3B: Normative beliefs - Most frequently reported individuals or groups perceived to disapprove of screening for Chronic Kidney Disease (n=24)

3.3. Control beliefs: Enablers and barriers to screening for Chronic Kidney Disease during a nursing consultation

The presence of funded population specific screening protocols or initiatives were identified by participants as business related factors that enabled opportunistic CKD screening to occur. Factors relating to the patient were the presence of known risk factors for CKD and the nurse-patient relationship. Participants highlighted that if their workplace had funded protocols or initiatives such as nurse led chronic disease management clinics, screening was more likely to occur. In these cases, screening opportunities were directly enhanced through provision of financial reimbursement, via the MBS, for the cost of service provision. For example, according to Participant 25 there are "MBS item numbers for the 45-49 year-old health assessment, diabetes cycle of care, and the over 75 year old health assessment". Participant 19 further reiterated that "nurse led chronic disease clinics foster screening [practices] as we always take a history, measure BP, order bloods and urine for all patients. The active promotion of the 45- 49 year-old health assessment [also] helps with early detection." Software used for clinical practice management also acted as a facilitator, but only for practice nurses whose workplaces operated practice based chronic disease management clinics.

Participants reported several barriers to nurse screening for CKD, the most frequent being unfunded clinical time and funded clinical priorities. This emphasis is summed up by participant 17 who wrote "the number one barrier is time, because in ... time is money and

with no specific MBS item number associated with screening activities, it does not get the time required allocated to the task". The perception that the setting business model was 'financial return for service provision', had a major impact on the role of practice nurses in CKD screening. The impact on the patient was also identified on several levels including patient reluctance to undertake screening procedures, particularly when they were not related to the presenting complaint. The most frequently reported enablers and barriers to CKD screening are reported in Table 4.

<<Insert Table 4 here>>

Enablers	Response %	Barriers	Response %
Funded Existing screening protocols or initiatives in the setting (45- 49 year-old health assessment)	65	Unfunded time versus competing funded priorities	80
Presence of known risk factors	35	Lack of Medicare item number	60
Relationship with patients	15	Impact on patient	40
		Practice business rules	36

Table 4: Perceived behavioural control - Most frequently reported factors that enable or prevent screening for Chronic Kidney Disease in the general practice setting (n=26)

Discussion

Using the TPB as a guiding theoretical framework, this study has provided insights into the salient beliefs of nurses working in GP settings in regional New South Wales, Australia, regarding CKD screening practices.

Behavioural (attitudinal) beliefs

GP nurse attitudes towards opportunistic CKD screening were positive overall and reflected their belief that they were ideally placed to undertake CKD screening during consultations, a finding that is contrary to previous primary care screening studies.^{14,35} Screening was seen to be essential for improved patient awareness of CKD, kidney disease prevention, early disease detection and treatment, and reduced burden of kidney disease on patients. These beliefs are consistent with the key kidney health screening and prevention policies and

guidelines at state and national levels.^{36,37} These findings reflect a fundamental appreciation and understanding of preventative health strategies, and that GP nurses have a legitimate role to play across all phases of patient management in primary care. However, GP nurse beliefs relating to opportunistic CKD screening also reflect concerns about patient welfare, particularly relating to personal and financial stressors that may be associated with screening practices. Similar dilemmas have also been reported in primary health care based alcohol,⁹ gestational diabetes,¹⁴ colorectal cancer¹³ and domestic violence¹² screening. In the current study, it was important to GP nurses that screening imposed no financial burden on the patient, and that consideration be given to the potential impact on the patient in the eventuality of a positive CKD screening outcome. These findings are consistent with Blakeman et al's (2012)⁶ findings about CKD screening in primary care settings in the UK, whereby general practitioners and practice nurses voiced concerns about possible negative patient reactions associated with the diagnosis of CKD. In the current study participants acknowledged that CKD screening required a depth of knowledge and specific skills to ensure screening was conducted accurately and that correct patient advice was provided during the consultation. These beliefs reflect the specialist knowledge base required in the GP nurse role.³⁸

Participants' beliefs about the advantages of opportunistic screening for CKD conflicted with their beliefs about the availability of time for screening during nursing consultations. They acknowledged that competing clinical demands and priorities within the practice setting, from multiple patients presenting with conditions of varying acuity, limited the time available to undertake screening and that, in this busy setting, they often focused on the patient's presenting health issues. This tension between what GP nurses know to be beneficial and what is realistic in practice has also been reported in nutritional screening practices in primary care¹¹ whereby the workplace environment influences the application of practice.

Normative beliefs

Participants identified that overall, general practitioners were in favour of opportunistic CKD screening where indicated. However, some participants believed that certain general practitioners held more traditional views of nursing roles and were not in favour of

delegating CKD screening to nurses or endorsing nurse screening in their practice setting. These opposing beliefs possibly account, in part, for reported inconsistencies in opportunistic CKD screening and management practices in general practice.⁵⁻⁷

Participants' perceptions of general practitioner and patient beliefs about nursing consultations, who should conduct screening, the underutilisation of GP nurses, and about providing approval for screening activities, points to deeper normative beliefs about the exercise of personal and professional authority and power over nursing roles and activities. They also point to the pervasive impact of activity based funding on GP services and practice viability, and how this can influence the culture of individual GP settings. The issue of remuneration is consistent with previous findings relating to GP nurse screening for cervical cancer in the Australian primary care setting.³⁸

Perceived behavioural control

Participants' beliefs about a lack of time for screening activities during consultations was a recurring theme. The lack of time related to the busyness of the GP setting from having multiple patients presenting to the practice at the one time, multiple general practitioners to support, the often complex and acute nature of patient presentations, and the demands of having different and competing presenting health issues at one time. Importantly however, the participants held strong beliefs about the negative impact a lack of MBS funding had on how they were able to spend their nursing time and what activities they could perform. For these nurses, a lack of a specific MBS item number for CKD screening translated into CKD screening being displaced by activities that were reimbursable. In these circumstances nurse screening activities were controlled by general practitioner beliefs about the cost of nurse employment, potential practice income generation, and the financial sustainability of the practice.

While participants identified time and lack of funding for screening services as being the principal barriers to CKD screening, the reality was that their workplace culture and relationships with general practitioners often did not afford them the opportunity to do so. While the advent of roles such as nurse practitioners have advanced the scope of practice for nurses, it is apparent from the findings of this study that inter-professional conflicts still exist in workplaces where the hierarchical structure sees nurses as subordinate to doctors.

Consequently, there may be situations where GP nurses recognise the need for opportunistic screening but lack the volitional control to do. These findings are consistent with other specialty areas including cervical cancer screening,³⁹ oral cancer screening,⁴⁰ and nutritional screening,¹¹ where discord between organisational cultures preclude healthcare professionals from implementing evidence-based screening practices and create a dissonance between personal beliefs and practice behaviours.

The findings of this study indicate a major disconnect between practice nurses' understanding of the benefits of CKD screening and whether screening is actually carried out due to the lack of an MBS item number. These results are of concern given the evidence that early detection of CKD is critical in reducing the disease burden and limiting its progression,¹ let alone the cost savings of early detection on health expenditure.² Participants suggested that the availability of an MBS item number would address this issue.

Unfortunately, it appears that currently decisions about opportunistic CKD screening during nursing consultations are determined by the business orientation of general practices, and the perception of nurses' time being a fiscal imperative.

Limitations of this study and implications for future research

As with most qualitative research, the generalisation of these findings to the wider GP setting may be limited. This study sample was derived from GP nurses who worked in regional New South Wales, Australia and was not representative of metropolitan, rural or remote settings. Additional studies are required to determine whether the findings of this study are consistent in these practice settings. The use of an online platform to collect data was a limitation as this approach did not allow for a deeper exploration of issues raised by participants. However, the aim of this study was to identify the most common salient behavioural, normative and control beliefs related to CKD screening practices rather than explore and find deeper meaning from the data. Additionally, although we anticipated that an online recruitment strategy would extend the pool of potential participants, it may have in fact restricted participants who did not have access to email or social media. Future research in this area should consider using focus groups or face to face interviews as alternate data collection methods.

Conclusion

This study revealed that participants recognised the benefits of opportunistic CKD screening particularly in the areas of prevention, early detection and timely management of the disease. The challenges of time constraints and lack of financial reimbursements meant that opportunistic screening was not always performed. Participants identified tension between practice nurse and general practitioner roles that contributed to either confusion about who should undertake screening practices, or an explicit resistance from general practitioners who believed practice nurses should not be screening or consulting with patients. Some participants also identified a lack of knowledge related to best practice screening.

Before interventions to improve the uptake of screening practices in primary care can be designed and implemented, it is necessary to identify the barriers to change. In the current study the barriers to CKD screening were identified as complex and multifaceted with many inter-related variables that were both socially and organisationally driven. The major barrier of time is only likely to be overcome if an MBS item number for chronic disease screening is implemented or if practices can learn from other practices that have successfully implemented chronic disease screening programs with minimal cost to the practice. The early detection of CKD reduces disease-related morbidity and mortality, consequently there is a moral imperative that GP settings identify strategies to improve opportunistic screening. This will be most likely achieved if the organisational culture of general practice respects a more collaborative approach to patient care and general practices can be reimbursed for nurse-led CKD screening activities.

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