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ORIGINAL RESEARCH PAPER

Survey of patients' experiences and perceptions of care provided by nurse and pharmacist independent prescribers in primary care

Michela Tinelli MSc MSc PharmD MRPharmS PhD,* Alison Blenkinsopp OBE PhD BPharm MRPharmS,† Sue Latter BSc (Hons) RN PGDipHV PhD,‡ Alesha Smith BSc MSc PhD‡ and Stephen R Chapman BSc (Hons) CertHEcon FRSM MRPharmS PhD§

*Research Fellow, Centre of Academic Primary Care and Health Economics Research Unit, University of Aberdeen, Aberdeen, †Professor of the Practice of Pharmacy, Department of Medicines Management, Keele School of Pharmacy, University of Keele, Keele, ‡Professor of Nursing, Faculty of Health Sciences, University of Southampton, Keele, ‡Research Fellow, Faculty of Health Sciences, University of Southampton, Keele and §Professor of Prescribing Studies and Head, Keele's School of Pharmacy, University of Keele, Keele, UK

Abstract

Correspondence

Michela Tinelli MSc, MSc, PharmD,
MRPharmS, PhD
Research Fellow
LSE Health and Social Care
The London School of Economics and
Political Science
Houghton Street
London WC2A 2AE
UK
E-mail: m.tinelli@lse.ac.uk

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Background In the United Kingdom, nurses and pharmacists who have undertaken additional post-registration training can prescribe medicines for any medical condition within their competence (non-medical prescribers, NMPs), but little is known about patients' experiences and perceptions of this service.

Objective to obtain feedback from primary care patients on the impact of prescribing by nurse independent prescribers (NIPs) and pharmacist independent prescribers (PIPs) on experiences of the consultation, the patient–professional relationship, access to medicines, quality of care, choice, knowledge, patient-reported adherence and control of their condition.

Design Two cross-sectional postal surveys.

Setting and participants Patients prescribed for by either NIPs or PIPs in six general practices from different regions in England.

Results 30% of patients responded (294/975; 149/525 NIPs; 145/450 PIPs). Most said they were very satisfied with their last visit (94%; 87%), they were told as much as they wanted to know about their medicines (88%; 80%), and felt the independent prescriber really understood their point of view (87%; 75%). They had a good relationship with (89%; 79%) and confidence in (84%; 77%) their NMP. When comparing NMP and doctor prescribing services, most patients reported no difference in their experience of care provided, including access to it, control of condition, support for adherence, quality and safety of care.

Discussion and conclusions Patients had positive perceptions and experience from their NMP visit. NMPs were well received, and patients' responses indicated the establishment of rapport. They did not express a strong preference for care provided by either their non-medical or medical prescriber.

Introduction

The expansion of non-medical prescribing in the United Kingdom (UK) formed part of a wide ranging programme to 'modernize' the National Health Service (NHS).¹ For patients, the stated aims of non-medical prescribing policy were to improve quality of care, patient choice, knowledge, adherence and access to medicines whilst maintaining safety. Following early development of prescribing by community nurses (health visitors and district nurses) in the 1990s, the scope of nurse independent prescribing from a restricted list of medicines was gradually widened. In the next phase, nurses and, for the first time, pharmacists, were authorized to prescribe as part of continuing care for patients with long-term conditions previously diagnosed by a doctor ('Supplementary prescribing'). These changes culminated in 2006 with the introduction of nurse and pharmacist independent prescribing of any medicine for any medical condition within their competence, including some controlled drugs (under the misuse of drugs legislation) for specified medical conditions (nurses only). Non-medical prescribing is also developing internationally, and the UK independent prescribing model is arguably the most radical.^{2,3}

Prior to the study reported here, several literature reviews and national evaluations of nurse independent prescribing (NIP) from a restricted formulary and pharmacist supplementary prescribing had reported positively on patient views. In particular, characteristics such as longer consultations and more in-depth discussion to address any questions and concerns were especially valued by patients.⁴⁻⁸ Patients of nurse and pharmacist supplementary prescribers perceived that their non-medical prescriber (NMP) had particular expertise in the

clinical condition for which they were being seen.⁶ Nurse and pharmacist supplementary prescribers were also viewed as more approachable than doctors and many patients reported finding it easier to get an appointment with their NMP than with their doctor.⁶ However, it was also reported that some patients, especially those reporting poorer health, would have liked to have spent more time with nurse/midwife prescribers.⁸

Although the picture is in the main positive from published studies, a number of findings within them are suggestive of some differential patient preferences that required further investigation. For example, a theoretical study with 'future patients' concluded that one in ten patients said they would prefer to see a doctor rather than a nurse prescriber.⁹ Other research with patients of nurse or pharmacist prescribers also found that some would prefer to see a doctor.^{6,7,10} However, all of these studies were conducted prior to the 2006 changes in NMP.

At the time of this research, published studies with a focus on patients' views were concerned with previous models of non-medical prescribing and reported little evidence relating to outcomes such as adherence or impact on condition management.¹¹⁻¹⁴ Furthermore, the scarce evidence on patient experiences of independent prescribing by pharmacists was based on patients' general feedback rather than relating to the management and control of specific conditions. The study reported here was part of a larger patient-centred evaluation of nurse and pharmacist independent prescribing incorporating patient views into research conducted to inform future policy decision-making.¹⁵ The originality of our research lay in the fact that we gathered evidence on patient views after the 2006 extension of the scope of NMP services, and using novel self-reported patient outcome

measures including adherence, or impact on condition management. Its objective was to obtain patient views on their experiences of their consultation with the NMP, access to medicines, quality of care, knowledge about, and adherence to, medicines, patient-professional relationship and their reports on the control of their condition under non-medical prescribing.

Method

Two cross-sectional postal surveys of patients consulting with either nurse independent prescribers (NIPs) or pharmacist independent prescribers (PIPs) prescribing in general practice settings in primary care were conducted.

Questionnaire development

The questionnaire design drew upon previous literature (in particular, two surveys of patients under the care of nurse and pharmacist supplementary prescribers).^{6,11} The current study focuses on independent rather than supplementary prescribing, but the principles are sufficiently relevant and applicable to be transferable. The existing surveys included specific questions on quality of care, patients' experiences of their consultation and knowledge of their medicines. Additional questions were designed covering clinical outcomes, access to medicines, and adherence.

NIPs and PIPs may prescribe for both long-term and acute conditions and elsewhere in the evaluation a national survey showed that PIPs were prescribing mainly for long-term conditions, whilst NIPs were prescribing for both acute and long-term conditions.¹³ The current study focused on long-term conditions to enable investigation of adherence and clinical outcomes (represented here by patient reports of how well their condition was controlled).

The questionnaire was structured in four sections: (i) patient characteristics (including gender, age, ethnic background), number of previous consultations with the same NIP or PIP, reason for most recent consultation; (ii)

views and experiences relating to the most recent consultation with the NIP or PIP; (iii) views and experiences of access to, and quality of, and adherence to, care from the NMP; and (iv) comparing the NIP or PIP with the doctor in relation to safety and quality of care, access to medicines, knowledge, clinical outcome (self-reported adherence and control of condition) and patient-professional relationship. There were 27 questions in total (10 from the Stewart *et al.* survey, 9 from Bissell *et al.* and 8 new).^{5,11,12} In sections ii) and iii), information was collected using 15 items structured on a 5-point Likert scale (from strongly agree to strongly disagree), whilst in section iv) for each of the 12 statements respondents had to choose between NMP, doctor or no difference between professionals. Two versions of the questionnaire were produced with specific wording relating to either NIP or PIP.

Sample

The case study sites and NMPs – The wider evaluation study included six general practice case study sites selected from six different Strategic Health Authorities (SHA) of England to reflect the clinical areas in which NIPs and PIPs had most frequently reported prescribing in the national survey carried out as part of the evaluation. These clinical conditions, for which the case study site NMPs (five NIPs and five PIPs) reported prescribing most frequently, were asthma (NIPs and PIPs), diabetes (NIPs) and secondary prevention in coronary heart disease (CHD; PIPs). Patients involved in the survey (see below) could also present with other conditions. Five of the six sites had either NIPs or PIPs, and one (Site 5) had both and was the only site where patients might have experienced care from the two different NMP types, although the patient was not explicitly asked whether he/she had been exposed to both types of NMP. More details on the case study sites are reported in Table 1.

The patients – A sample of patients' records from the NIP or PIP's caseload was drawn from the practice's clinical system and ordered

Table 1 Participating site characteristics

	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6
Most common area of prescribing	Hypertension	Infections	Hypertension	Hypertension	Asthma	Family Planning
2nd most common area of prescribing	Coronary heart disease (CHD) prevention	Asthma	CHD prevention	CHD prevention	Chronic obstructive pulmonary disease (COPD)	Diabetes
Number of patients prescribed for per week	31–40	41–50	<5	21–30	11–20	51+
Number of items prescribed per week	41–50	41–50	21–30	21–30	31–40	51+
Multiple non-medical prescribers	Yes	No	Yes	Yes	No	Yes
Strategic Health Authority (SHA)	South Central	East of England	West Midlands	London	East of England	North West

either consecutively according to their booking time or alphabetically. Records were then selected if there was prescribing by a NIP/PIP in the last 12 months (any condition) until the target number for each site was met. Since the target number for analysis was approximately 250 returned questionnaires (125 from each survey to allow for comparison across sub-groups, see data analysis), a total of 975 questionnaires (525 to patients of NIPs and 450 to patients of PIPs) were posted to reflect a conservative 25% response rate estimate^{15,16}. Differences in the number of participating patients between NIP and PIP surveys lay in the fact that participating sites presented a variation in caseloads, and the number of surveys posted out from each reflected this.

Ethics approval

Ethical approval was applied for and granted by a NHS Research Ethics Committee Dorset REC (Ref No 08/H0201/163), and NHS Research Governance approval was applied for and received in each of the research site areas. There were some differences between the approvals, conditions and requirements of the NHS Research & Development (R & D) organizations in different areas. Some declined to

give permission for the researcher to have access to patient contact details, necessitating different arrangements for data collection in some practices.

Piloting the questionnaire

The draft questionnaire was reviewed by two patient representatives, and some changes were made to question wording. The questionnaire was then piloted with 15 patients at two sites (these patients were not included in the main study). Respondents were also asked to complete a pro forma which asked about the ease of completion, ease of understanding, length of the survey and confidentiality (extent to which patients felt able to answer the questions honestly), with space for comments or suggestions. Based on the responses to the pilot, no further changes to the questionnaire were found to be necessary.

Data collection

The questionnaires were sent by post (between October and December 2009) with a reply paid return envelope. They were coded to identify the research site, and the NIP and PIP versions were printed on different coloured paper to

enable sorting by site and practitioner type. Sampling and mailings were done by practice staff (briefed by the researcher) in some sites and the researcher in the others depending on local NHS R & D policy. Due to differing local NHS research governance policies, it was not possible to conduct follow-up mailings across all sites and so a single mailing was sent.

Entering and checking data

Fourteen returned questionnaires were found to have missing responses for between one and four questions. Following discussion, they were included in the analysis as the number of missing responses was low. In thirteen questionnaires, respondents gave multiple answers to one or more questions and questions with double answers were coded as missing data. Data were entered into a Survey Monkey data form designed for the questionnaire with a 10% accuracy check.¹⁷

Data analysis

Information on responses, respondent characteristics and reasons for the most recent consultation with the NIP or PIP were analysed. For questions with Likert-type scales, the percentage and numbers strongly agreeing/agreeing were compared with those strongly disagreeing/disagreeing and are reported separately for patients of NIPs and PIPs. The full matrices from both surveys with percentages from all the five Likert categories are fully reported elsewhere (see Supporting information). Respondents' comparisons between the services provided by their NIP or PIP and their doctor were further investigated. Percentages preferring the NMP compared with the doctor or no difference are reported. Comparisons between groups are reported looking at (i) overall sample: NIP or PIP vs. doctor vs. no difference; (ii) the subgroup with strong preferences for a prescriber: NIP or PIP vs. doctor. Because the two surveys were separate and with different respondents, findings from the NIP and PIP questionnaires were not directly comparable,

but it was possible to comment on aggregated differences across results.

Frequencies and valid percentages are reported for the categorical data. Differences between groups were tested with chi-squared statistics. Given the numbers of tests performed significance was considered at 99% ($P < 0.01$). Analysis was conducted using SPSS version 16 package.¹⁸

Results

Results from the whole sample are reported below. In total, 30% patients responded (294/975; 149/525 NIPs group; 145/450 PIPs group). Responses were collected from three (NIP survey) and four (PIP survey) sites (see Table 2).

Patients' characteristics and their reasons for consulting with the NMP

Characteristics of responding patients are presented in Table 2. Most patients of NIPs were females (62% compared with males; $P < 0.01$), older than 54 years (67%, $P < 0.01$) and white (84%, p not reported for limited sample size). The proportions of male and female patients of PIPs were similar (47% vs. 49%; $P = 1$; 4% not stated); most were older than 54 years (82%, p not reported for limited sample size) and white (86%, p not reported for limited sample size). In both the NIP and PIP surveys, the majority of patients had previous experience of two or more consultations with the NMP (84%, $P < 0.01$; 75%, $P < 0.01$ compared with one consultation or no experience of NMP).

The most frequent reasons^a for consulting with the NIP on the most recent occasion were diabetes (36%; 53/149); chest infection/sinusitis/cold/cough (12%; 18/149) and asthma (8%; 12/149). For PIPs, the most frequent were hypertension (31%; 45/145); cholesterol (13%; 19/145); heart problems (10%; 14/145); asthma (8%, 12/145); and general medication review (6%, 9/145).

^aNote that respondents might report more than one reason.

Table 2 Responses according to participating sites and patient characteristics

	Nurse independent prescriber survey ¹			Pharmacist independent prescriber survey		
	<i>n</i>	%	<i>P</i> value	<i>n</i>	%	<i>P</i> value
Sites						
1	–	–	NA	54	41.9	NA
2	43	33.3		–	–	
3	–	–		28	21.7	
4	41	31.8		23	17.8	
5	–	–		24	18.6	
6	45	34.9		–	–	
Gender						
Male	47	33.3	<0.01	62	47.0	1
Female	87	61.7		65	49.2	
Age						
34 years and under	14	10.0	<0.01	3	2.3	NA ²
35–54 years	29	20.6		18	13.6	
55–74 years	66	46.8		80	60.6	
75–85 years & over	29	20.9		28	21.2	
Ethnic background						
White	119	84.4	NA ²	114	86.4	NA ²
Black	8	5.7		11	8.3	
Asian	4	2.8		1	0.8	
Mixed	1	0.7		3	2.3	
Other	4	2.8		1	0.8	
I have consulted this						
nurse independent prescriber		pharmacist independent prescriber		
Only once	11	7.8	<0.01	27	20.5	<0.01
Twice	16	11.3		29	22.0	
3 or 4 times	34	24.1		26	19.7	
5 or more times	69	48.9		44	33.3	

¹Two NIP survey patients have been miscoded to a PIP only site and therefore deleted from the analysis as we do not know which site they were from. Their responses are still considered for the other comparisons.

²Limited sample size.

Perceptions and experiences relating to the most recent consultation with the NMP

The majority of patients strongly agreed or agreed (SA/A) that they were very satisfied with their most recent consultation with their NIP (94% SA/A; $P < 0.01$) or PIP (87% SA/A; $P < 0.01$; see Table 3).^b Respondents SA/A that the NIP or PIP told them as much as they wanted to know about their medicines (88% and 80% SA/A; $P < 0.01$), and that the NMP had really understood their point of view (87%

and 75% SA/A; $P < 0.01$). About half of respondents reported that the independent prescriber asked them what they thought about their prescribed medicines (49% and 56% SA/A; $P < 0.01$ only in PIP survey). Relatively few wished it had been possible to spend a little more time with the NIP or PIP (24% and 23% SA/A; $P < 0.01$) or agreed that some things about their consultation with the NIP or PIP could have been better (13% and 22% SA/A; $P < 0.01$). Results are fully reported in Table 3.

Relationship with the independent prescriber^c

Respondents reported having a good relationship with their prescribing nurse or pharmacist

^bIn this section *P* values are for the comparison of strongly agreed/agreed (SA/A) responses with disagreed/strongly disagreed (D/SD) for respondents under the care of either the NIP or PIP.

Table 3 Perceptions and experiences relating to the most recent consultation with the NMP

	Nurse independent prescriber survey			Pharmacist independent prescriber survey		
	Number of SA/A	%	SA/A vs. SD/D <i>P</i> value	Number of SA/A	%	SA/A vs. SD/D <i>P</i> value
I was very satisfied with my visit to this independent prescriber	133	94.3	<0.01	115	87.1	<0.01
This independent prescriber told me as much as I wanted to know about my medicines	124	87.9	<0.01	105	79.5	<0.01
Some things about my consultation with the independent prescriber could have been better	18	12.8	<0.01	29	22.0	<0.01
I felt the independent prescriber really understood my point of view	123	87.2	<0.01	99	75.0	<0.01
I wish it had been possible to spend a little more time with the independent prescriber	34	24.1	<0.01	30	22.7	<0.01
The independent prescriber asked me what I thought about my prescribed medicines	69	48.9	0.03	74	56.1	0.01

SA, strongly agree; A, agree; D, disagree; SD, strongly disagree. The full data matrices (including data on NS = not sure) are available elsewhere (see supporting information). *P* values are for the comparison of SA/A responses with D/SD for respondents under the care of either the NIP or PIP.

(89% and 79%, respectively SA/A; $P < 0.01$) and confidence in them (84% and 77% SA/A; $P < 0.01$).^c More than half reported being involved in decisions about the medicines prescribed for them by their independent prescriber (57% and 60%, SA/A; $P < 0.01$). Full results are reported in the supporting information.

Comparing care received from the independent prescriber and the doctor

Respondents were asked to compare different aspects of care received from their NIP or PIP with care from their prescribing doctor, including quality and safety of care, support for adherence, clinical outcomes (reported control of condition), and access to care and their medicines. Results are shown in Tables 4–6.

^cIn this section *P* values report on comparisons between: (i) NIP (or PIP) vs. doctor vs. no difference: All groups; (ii) the subgroup with strong preferences for a prescriber: NIP (or PIP) vs. doctor.

Quality and safety of care

In both the NIP and PIP surveys, a majority of respondents stated no difference in the safety or quality of care received from the NMP or the doctor (all group comparison, $P < 0.01$; see Table 4).^c However, there were some differences among the small subgroups of patients, with a stronger preference for either the NMP or doctor option. Here, patients of both NIPs and PIPs were significantly more likely to prefer the doctor's option for safety of care, and patients of PIPs were also significantly more likely to do so for quality of care (see Table 4).

Support for adherence

The 10 items reporting on support for adherence (see Table 5) were from two different question types.

The first set of questions (the first two items of Table 5) used Likert-type scales, where the percentage and numbers SA/A were compared with those SD/D. When asked whether they were more likely to take their medicines when

Table 4 Comparing care received from the independent prescriber and the doctor - Quality and safety of care

	Pharmacist independent prescriber survey				Pharmacist independent prescriber survey			
	N	%	Comparisons		n	%	Comparisons	
			All groups P value	NIP vs. doctor P value			All groups P value	PIP vs. doctor P value
I receive better quality care from the								
Independent prescriber	17	12.7	<0.01	0.87	14	10.9	<0.01	<0.01
Doctor	18	13.4			42	32.8		
No difference	99	73.9			72	56.3		
I receive safer care from the								
Independent prescriber	11	8.2	<0.01	<0.01	13	10.2	<0.01	<0.01
Doctor	28	20.9			43	33.6		
No difference	95	70.9			72	56.3		

P value reports on comparisons between (i) NIP (or PIP) vs. doctor vs. no difference: all groups (ii) the subgroup with strong preferences for a prescriber: NIP (or PIP) vs. doctor.

they were prescribed by their NIP or PIP, the majority strongly agreed/agreed (82% and 79% SA/A; $P < 0.01$).

The second set of questions (remaining 8 items of Table 5) asked the respondent to compare the services provided by their NIP or PIP and their doctor and reported on three separate options (independent prescriber, doctor and no difference)^c. In response to statements relating to aspects of consultations with prescribers that might impact on non-adherence, in most cases respondents did not report a difference in their experience of care between either an NIP or prescribing doctor, although there were some significant differences among the subgroups with a stronger preference for either NIP or doctor option.

In the NIP survey, patients were more likely to report being asked by the NIP compared with the doctor *about how they could fit medicines into their routine* (24% vs. 11%, $P < 0.01$). More patients of NIPs reported they were likely to *be told how a new medicine would help them* (31% vs. 17%; $P = 0.02$) by their NIP in comparison with a doctor, but this did not reach significance at 0.02. Patients also reported they were more likely to *be told about the possible side effects of a new medicine* by the doctor than by the NIP, but this did not reach significance either (30% vs. 16%; $P = 0.02$).

In the PIP survey, the majority of respondents stated no difference in care received from

either PIP or doctor for the likelihood of being *asked about how they could fit medicines into their routine* (48% no difference vs. 24% higher from PIP vs. 28% higher from doctor; $P < 0.01$) and for the likelihood of being *advised about non-drug treatments for their condition/s* (51% no difference vs. 20% higher from PIP vs. 29% higher from doctor; $P < 0.01$).

Control of condition

When asked about control of their condition, the majority SA/A that being treated by their NIPs or PIPs had no effect on their condition (46% and 44%; significant in the NIP survey only $P = 0.03$; see Table 6).

Access to care^c

Fewer than half of patients of both NIPs and PIPs SA/A that they had longer appointments with their NMP compared with their doctor (47% and 42% SA/A; $P < 0.01$ for NIP survey only).^c Results are fully presented in Table 6.

Access to medicines^c

In both the NIP and PIP surveys, the majority of respondents stated no difference in care received from either NIP or doctor compared with better care from the NIP or better care from a doctor for getting *'their prescription more quickly'* ($P < 0.01$) and *'how easy'* it was to *'get their medicines'* ($P < 0.01$; see Table 6).^c

Table 5 Comparing care received from the independent prescriber and the doctor - Support for adherence

	Nurse independent prescriber survey			Pharmacist independent prescriber survey		
	N of SA/A	%	SA/A vs. SD/D <i>P</i> value	N of SA/A	%	SA/A vs. SD/D <i>P</i> value
I am happier with my medicines since being treated by my independent prescriber	61	43.3	0.84	59	44.7	0.85
I am more likely to take my medicines when they are prescribed by an independent prescriber	26	18.4	<0.01	28	21.2	<0.01

	<i>N</i>	%	All groups <i>P</i> value	NIP vs. doctor <i>P</i> value	<i>n</i>	%	All groups <i>P</i> value	PIP vs. doctor <i>P</i> value
If I have a concern about a new medicine I find it easier to raise it with								
Independent prescriber	33	24.4	<0.01	0.35	42	33.3	0.68	0.67
Doctor	41	30.4			46	36.5		
No difference	61	45.2			38	30.2		
My condition / health is monitored better by the								
Independent prescriber	37	28.0	<0.01	0.32	35	27.3	0.04	0.03
Doctor	29	22.0			56	43.8		
No difference	66	50.0			37	28.9		
I am better informed about my treatment by the								
Independent prescriber	34	25.6	<0.01	1.00	37	28.7	0.05	0.05
Doctor	34	25.6			56	43.4		
No difference	65	48.9			36	27.9		

	Nurse independent prescriber survey				Pharmacist independent prescriber survey			
	<i>N</i>	%	All groups <i>P</i> value	NIP vs. doctor <i>P</i> value	<i>N</i>	%	All groups <i>P</i> value	PIP vs. doctor <i>P</i> value
I am more likely to be asked about how I can fit medicines into my routine by the								
Independent prescriber	33	24.4	<0.01	<0.01	30	24.2	<0.01	0.54
Doctor	15	11.1			35	28.2		
No difference	87	64.4			59	47.6		
I feel more able to ask questions about my medicines with the								
Independent prescriber	37	27.6	<0.01	0.32	47	37.0	0.21	0.12
Doctor	29	21.6			33	26.0		
No difference	68	50.7			47	37.0		
I am more likely to be advised about non-drug treatments for my condition/s by the								
Independent prescriber	28	21.2	<0.01	0.68	24	20.0	<0.01	0.15
Doctor	25	18.9			35	29.2		
No difference	79	59.8			61	50.8		
I am more likely to be told how a new medicine will help me by the								
Independent prescriber	23	16.9	<0.01	0.02	37	29.8	0.53	0.28
Doctor	42	30.9			47	37.9		
No difference	71	52.2			40	32.3		
I am more likely to be told about the possible side effects of a new medicine by the								
Independent prescriber	22	16.3	<0.01	0.02	44	34.4	0.88	0.66
Doctor	40	29.6			40	31.3		
No difference	73	54.1			44	34.4		

The 10 items reported in Table 5 were included in two separate sets of questions. *The first set of questions* (the first two items of the table) were Likert-type scales, where the percentage and numbers SA/A were compared with those SD/D. *The second set of questions* (remaining 8 items) compared the services provided by their NIP or PIP and their doctor and reported on three separate options (independent prescriber, doctor and no difference). *P* value reports on comparisons between (i) NIP (or PIP) vs. doctor vs. no difference: all groups; (ii) the subgroup with strong preferences for a prescriber: NIP (or PIP) vs. doctor.

Table 6 Comparing care received from the independent prescriber and the doctor – control of condition, access to care and medicines

	Nurse independent prescriber survey			Pharmacist independent prescriber survey				
	Number of SA/A	%	SA/A vs. SD/D <i>P</i> value	Number of SA/A	%	SA/A vs. SD/D <i>P</i> value		
Control of condition								
My condition is controlled better since being treated by my independent prescriber	61	43.3	0.13	57	43.2	0.12		
Being treated by my independent prescriber has had no effect on my condition	46	32.6	0.03	44	33.3	0.27		
Access to care								
I get longer appointments with my independent prescriber than my doctor	54	38.3	0.57	52	39.4	0.63		
Since being treated by my independent prescriber I have the same number of appointments for my condition as previously when treatment by my doctor	67	47.5	0.01	56	42.4	0.38		
Access to medicines								
	<i>n</i>	%	All groups <i>P</i> value	NIP vs. doctor <i>P</i> value	<i>n</i>	%	All groups <i>P</i> value	PIP vs. doctor <i>P</i> value
I can get my prescription more quickly from the								
Independent prescriber	29	21.6	<0.01	0.15	37	28.7	<0.01	0.21
Doctor	19	14.2			27	20.9		
No difference	86	64.2			65	50.4		
Generally, getting my medicines is easier from the								
Independent prescriber	27	20.1	<0.01	0.39	33	25.8	<0.01	0.90
Doctor	21	15.7			32	25.0		
No difference	86	64.2			63	49.2		

The 6 items reported in Table 6 were included in two separate sets of questions. *The first set of questions* (the first four items of the table reporting on *control of condition* and *access to care*) were Likert-type scales, where the percentage and numbers SA/A were compared with those SD/D. *The second set of questions* (remaining two items on *access to medicines*) compared the services provided by their NIP or PIP and their doctor, and reported on three separate options (independent prescriber, doctor and no difference). *P* value reports on comparisons between (i) NIP (or PIP) vs. doctor vs. no difference: all groups; (ii) the subgroup with strong preferences for a prescriber: NIP (or PIP) vs. doctor.

Discussion

This study addressed patients' perceptions and experience of care by nurse and pharmacist independent prescribers in general practices in primary care in England. Overall, the findings show that independent non-medical prescribing was valued highly by patients and that generally there were few perceived differences in the care received from respondents' NMP and their usual doctor. Patients' reports on the presence

of key quality features of consultations with NMPs provide evidence indicating an orientation towards producing good medicine management outcomes. Most patients did not express a strong preference for receiving care from a particular professional although there was a small group of patients who expressed a preference for the GP. There was some evidence that patients of NIPs, who had a longer therapeutic relationship than those of PIPs (for whom independent prescribing was more

recently introduced), generally tended to give more positive ratings.

Respondents prescribed for by NIPs or PIPs had generally comparable characteristics, although there were more female respondents for the NIP survey. All patients had consulted with a NIP or PIP in the last 12 months and, although there were differences in the number of times each patient had done so, this is typical of consultation patterns in primary care. Most patients reported at least two previous consultations with their NMP, with patients of prescribing nurses reporting higher numbers. This profile is unsurprising as nurses in general practice have been involved in the monitoring and management of long-term conditions for many years prior to the extension of independent prescribing. Pharmacists' involvement has been more recent, and this was reflected in the experience of the patients in the survey. These differing experiences may partly explain the variation in missing data for some questions and the possibility that the small number who did not respond may not have been able to answer all of the questions if they had seen the NMP only once.

Patients' consultations were mainly for diabetes and respiratory problems in the NIP sample and for hypertension or secondary prevention of heart problems in the PIP sample. For these particular conditions, although we did not ask directly about disease measurements, we would argue that it is likely that patients would have been in a position to comment on how well controlled their condition was. For asymptomatic conditions such as hypertension primary care quality standards require regular measurement and recording of values, at which point usual practice would be that the patient is made aware of whether changes in treatment are necessary. There is little published research in this area but in a survey of patients whose hypertension was managed by a pharmacist supplementary prescriber almost two-thirds of the respondents said that the standard of care they received in the management of their hypertension was higher than previously and only 2% said it was worse.¹⁹

Patients' responses, in the majority of cases, affirmed the presence of key consultation characteristics highlighted in national guidelines as underpinning elements of support for adherence²⁰ including establishment of rapport, being told as much about their medicines as they wanted and feeling that the prescriber understood their point of view. Almost two-thirds said they were involved in decisions about their medicines, confirming findings from other research.²¹ Most classified their relationship with the NMP as good and had confidence in them. These findings echo those of previous surveys of patients of pharmacist and nurse supplementary prescribers.^{8,19,22} and also suggest congruence with national guidelines on adherence.²⁰ In comparison with the overall positive trends reported here, about one-quarter of the sample agreed or strongly agreed that 'some things about my consultation could have been better'. It would be interesting to explore this further in future research on patients' views.

Eliciting patients' beliefs about their medicines is known to be an important element of supporting adherence. Here, results were more mixed and around 40% of respondents in both surveys disagreed that this was the case. There may be a number of reasons for this (such as patients having been asked this at a previous consultation). However, this finding is consistent with other research on health professionals' communication in consultations which indicates that beliefs about the necessity of, and concerns about, medicines are not always explored and therefore might indicate a need for further research and/or practice development in this area.^{23,24} There is evidence from a small qualitative study with mental health services users being cared for by nurse prescribers that information about why medication use may be beneficial was an unmet need.¹⁴

Overall patients did not express a strong preference for care received from either non-medical or medical prescriber, including access to care and their medicines, control of condition, support for adherence, quality and safety of care. Among the subgroups of patients expressing a preference for a particular professional,

responses to a small number of statements showed a trend to rate the doctor more highly. This was the case for safety of care among patients of both NIPs and PIPs and quality of care for patients of PIPs. Previous research with patients of nurse and pharmacist supplementary prescribers found that they were perceived as having specialist expertise in the specific clinical areas in which they prescribed and doctors were viewed as having a more generalized expertise.^{6,25} Our results support these findings by confirming high levels of acceptance of care of long-term conditions from independent nurse and pharmacist prescribers.

In a theoretical study of patients' preferences for pharmacist supplementary prescribing, patients valued the NMP service, but were reported to be 'resistant to change'.²⁶ More recently, from the views of pharmacy clients with no experience of pharmacist prescribing services, it emerged that most respondents trusted pharmacists adopting an expanded role in prescribing, although the majority supported this change only if the diagnosis was undertaken by a doctor.²⁷ Findings from other research with patients and their supplementary NMPs in general practices found that patients had few concerns about long-term conditions being managed by NMPs, but many viewed responsibility for acute health problems as remaining with their GP.²⁸ There is also some evidence that patients' acceptance of non-medical prescribing has increased over time and with their experience. The percentage of patients of PIPs agreeing that given a choice, they would prefer to be treated by a doctor was 65%¹¹ in a study and 43% in a 2010 survey by the same researchers.^{11,13} Further research should investigate any difference in patient characteristics, and the condition they were consulting for when comparing subgroups of respondents stating different preferences for choice of health-care professionals.

Our study raises questions about possible differences in the nature of the relationship between NIPs and their patients compared with PIPs and their patients. For some questions, patients of NIPs generally tended to give

more positive ratings than those of PIPs. Given that direct experience of consultations with NMPs was greater in the NIP group, it is likely that the relationship between NIP and patient had been built up over a period of time, perhaps leading to greater experience and trust in their care. In a qualitative study with 18 patients of medical and NMPs in primary and secondary care, it was reported that although the expert knowledge of pharmacist prescribers about medicines was valued, 'nurses were highly regarded, accepted and preferred as prescribers with few concerns'.²⁹ In contrast, a survey of members of the public found the proportion saying they would be comfortable with prescribing by pharmacists was higher than that for nurses.¹²

Previous studies have found that patients reported having longer appointments with NMPs and that this was viewed positively.^{4,6-8,13} In the current study, fewer than half of patients of both NIPs and PIPs had longer appointments with their NMP compared with their doctor and around a quarter said they wished it had been possible to spend more time in their most recent consultation with the NMP. These findings may reflect a change over time in the length of appointments of NMPs or that even if appointments are longer than for typical GP consultations, there is still a substantial minority of patients who wish for more time. Data from elsewhere in our evaluation showed that length of appointment had no observable impact on patient satisfaction with their prescriber, whilst attributes relating to patient-professional interaction did impact on patients' choices in the management of diagnosed hypertension.³⁰

In contrast to the findings of earlier studies of nurse prescribing, our respondents did not report any significant differences in access to medicines from NMPs and medical prescribers either in terms of the ease of getting prescriptions or speed of getting prescriptions. Elsewhere in our evaluation, NIPs and PIPs reported that the number of available appointments in the practice was higher with NMP and the findings of the current study suggest

that this increased capacity may now be fully utilized. Some commentators on NMP were concerned that care may become fragmented and that patients might have to attend the practice for more appointments. Our findings in this regard are mixed, and there is no significant agreement that their total number of appointments had remained the same.

Our research confirms that independent prescribing by pharmacists and nurses is well received by patients and that the expanded range of medicines now prescribed by NIPs and the introduction of PIPs has not detracted from the overall picture of patient satisfaction with NMPs. Furthermore, when measuring patients' preferences for PIP services for managing common existing long-term conditions, we have also reported that the PIP service is valued by patients as an alternative to prescribing by a doctor in primary care and therefore represents an acceptable form of service delivery when promoting patient-centred policy developments.³⁰

When interpreting the results of the study some strengths and limitations need to be considered. This study is one of the largest surveys of patients of both NIPs and PIPs to date and the first to have focused primarily on the management of long-term conditions and with responses from almost 300 patients of 10 NIPs and PIPs. To our knowledge, it was also the first survey conducted with patients of PIPs and, for NIPs, the first since the 2006 changes enabled prescribing of a wider range of medicines. A potential limitation is that there was no existing validated questionnaire so where possible we used questions drawn from previous surveys and we piloted new questions to cover areas not addressed in prior studies. The questionnaire focused on patients' direct experience of consultations with NMPs as evidence suggests that measures addressing only satisfaction are insufficiently discriminating.³¹ Patients were identified and contacted independently from their NMPs, reducing potential selection bias compared with other studies where the practitioner nominated patients to receive a questionnaire. Researcher access to patient

contact details was not granted at several sites, and thus, a single mailing was used. This is likely to be the main reason why response rates were not as high as would have been desirable, with the mean response rate 30%. Demographic data for the total population were not available. Therefore, it is possible that the respondents were not representative of the total population. The study focused on the conditions in which NIPs and PIPs reported prescribing most frequently; hence, the findings cannot be applied to all long-term conditions. The study has generated evidence from patients' perspectives about how well their condition was controlled before and after the involvement of the NMP. However, it was not possible to collect clinical data for comparison, and this is an area for future research. Patients were asked about their experience of either a NIP or a PIP, and most patients are likely to have only experienced care from one of these. Therefore, it was not possible to ask patients to make comparisons between care from a NIP and a PIP. The sample sizes for the two datasets did not allow testing for differences according to all patient characteristics, future research can address this. An added caveat is that the present evaluation is based on self-reported data, and studies focused on evaluating NMP impact on clinical and health-related outcomes as well as patient experience data collected in randomized controlled trial conditions are now required.³²

Conclusions

Independent prescribing by nurses and pharmacists for long-term conditions was well received by patients who reported having established good relationships with their NMP and having confidence in the care provided. Most patients did not express a strong preference for care provided by either their non-medical or medical prescribers with a small subgroup preferring to receive care from their doctor. These findings support the further implementation of non-medical prescribing to support patients with long-term conditions.

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Conflict of interests

None.

Supporting Information

Additional Supporting Information may be found in the online version of this article:

Table S1. Perceptions and experiences relating to the most recent consultation with the NMP (full data matrices).

Table S2. Relationship with the independent prescriber, and comparing care received from the independent prescriber and the doctor (Nurse independent prescriber survey).

Table S3. Relationship with the independent prescriber, and comparing care received from the independent prescriber and the doctor (Pharmacist independent prescriber survey).

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