

Patient satisfaction with medication consultations and medicines information provided by nurses working autonomously in sexual health services: A questionnaire study

Journal:	<i>Journal of Advanced Nursing</i>
Manuscript ID	JAN-2021-0568.R2
Manuscript Type:	Original Research: Empirical research - mixed methods
Keywords:	Nurse Prescribing, Sexual Health, Nurse - Patient Relationships
Category:	Nursing

TITLE

Patient satisfaction with medication consultations and medicines information provided by nurses working autonomously in sexual health services: A questionnaire study

ABSTRACT

Aim: To compare the satisfaction of patients managed by independent nurse prescribers with that of patients managed by nurses using PGDs with respect to experience of the consultation and information received about the medication

Design: Survey

Methods: Patients receiving medications from nurses in five urban sexual health services in the United Kingdom completed validated questionnaires immediately after the consultation, September 2015–August 2016. Scores of independent nurse prescribers and nurses using patient group directions were compared regarding consultation experience (5 items) Satisfaction with Information about Medicines (SIMS 16 items scale).

Results: Of 808 patients receiving medications, 393 (48.6%) received questionnaires and 380 were returned (independent nurse prescribers 180 of 198, 90.9%; patient group directions 173 of 195, 88.7%). Patients in both groups reported high levels of satisfaction. Regarding the consultation experience, patients found nurses friendly/ approachable (>99%), instilling confidence and trust (>99%) and explaining reasons for medications clearly (97%). Satisfaction with medication information: Of 348 (92%) respondents completing SIMS, the overall mean score was 13.4 of maximum 16 (no difference between groups, t-test, p=0.63).

Conclusions: Patients were highly satisfied with nurse consultations and information around medications regardless of whether they were managed by independent nurse prescribers or nurses using patient group directions.

Impact: Findings provide evidence in support of autonomous provision of medications by nurses in sexual health clinics.

Keywords

- Patient experience
- Patient satisfaction
- Medicines information
- Nurse/ non-medical prescribing
- Sexual health
- Patient group directions/ medication directives

What this paper adds:

- Patients autonomously managed by sexual health nurses report high levels of satisfaction with their medication consultations and with the level of information provided about their medications, regardless of whether they were managed by a nurse prescriber or a patient group direction user
- This is the first known study to explore patient experience of nurse-provided medications in sexual health and the first to explore to such depth on the use of patient group directions.

INTRODUCTION

An increasing number of countries worldwide are introducing the ability for nurses to independently provide medications without a medical doctor's prescription. However, the autonomy nurses have with regards to the provision of medicines for patients vary internationally (Kroezen et al., 2011; Gielen et al., 2014). Registered nurses in the United Kingdom (UK) can provide medicines to patients either via independent prescribing or patient group directions. Independent nurse prescribing and use of patient group directions were introduced in the UK National Health Service (NHS) to enable nurses to prescribe and facilitate patient access to medicines (UK Department of Health, 2006a). **Although previous studies have shown nurse prescribing is acceptable to patients, none have been set in sexual health clinics or investigated differences between nurse prescribing and patient group direction use.**

BACKGROUND

Nurses with authority to independently prescribe, have at least one year's post registration practice and have completed a prescribing training course (typically 6 months in length) (UK Nursing and Midwifery Council (NMC), 2018). This contrasts with some countries (e.g. the USA, Canada and Australia), where training to prescribe, also available to registered nurses, is at master's degree level and is a component of the advanced nurse practitioner programme, usually two years in duration (Ball et al., 2009). Independent nurse prescribers, like doctors, are responsible for the assessment, diagnosis and decisions about the clinical management required in patients with diagnosed or undiagnosed conditions (UK Department of Health, 2006a; The Human Medicines Regulations 2012 (SI 2012/1916); NMC, 2006). By contrast, patient group directions are medication directions determined by local services that set out pre-defined drugs and clinical scenarios in which healthcare professionals can supply and/ or administer medication. Patient group directions/ medication directives are used in Australia, Canada and the UK (Kroezen et al., 2011). In contrast to independent nurse prescribing, patient group directions can be used by large groups of clinical staff following competency-based training. Patient group directions are restrictive in clinical application (National Institute for Health and Care Excellence, 2013), whilst independent nurse prescribing is comprehensive and flexible.

Previous studies in various settings (dermatology (Courtenay et al., 2009a; Courtenay et al., 2011), diabetes (Courtenay et al., 2009b; Courtenay et al., 2010; Wilkinson et al., 2014), general practice (Dhalivaal, 2011; Tinelli et al., 2013), hypertension (Hobson et al., 2010; Jones et al., 2010), maternity/ children services (Drennan et al., 2011), mental health (McCann and Clarke, 2008; Earle et al., 2011; Ross et al., 2014), oncology (Hobson et al., 2010) and renal medicine (Jones et al., 2010)) have focussed on independent nurse prescribing, mostly indicating that patients are very satisfied with nurses' medication consultations. While literature reviewed from Australia (McCann and Clarke, 2008), Israel (Natan et al., 2013), Ireland (Drennan et al., 2011), New Zealand (Wilkinson et al., 2014) and the UK (Latter et al., 2007; Courtenay et al., 2009a; Courtenay et al., 2010; Hobson et al., 2010; Courtenay et al., 2011; Earle et al., 2011; Banicek, 2012; Mac Lure et al., 2013; Tinelli et al., 2013), has identified that although patients/ public are generally supportive of nurses providing medication, patients do have some concerns, these concerns being more evident in studies that have explored patients' perceptions, as opposed to studies that have explored patient experience. These concerns focus upon the depth of nurses' knowledge on medications (Hobson et al., 2010), nurses' ability to manage newly diagnosed conditions and treatment regimens (Courtenay et al., 2010; Courtenay et al., 2017), and the adequacy of nurses training (Courtenay et al., 2010; Hobson et al., 2010; Dhalivall, 2011; Tinelli et al., 2013; Wilkinson et al., 2014).

To our knowledge, no studies have specifically explored patient's experience of patient group directions, and there is no evidence of patients' experiences of independent nurse prescribing in sexual health, a setting in which nurses traditionally deliver autonomous care involving contraceptive and screening/ management of sexually transmitted infections and HIV.

THE STUDY

Aim

The aim of the study was to compare the satisfaction of patients managed by independent nurse prescribers with that of patients managed by nurses using PGDs with respect to experience of the consultation and information received about the medication

Design

This study involved a cross-sectional questionnaire survey.

Participants

Five urban, tertiary-level sexual health ambulatory services in the UK, each employing independent nurse prescribers and/ or nurses who supplied or administered medicines using patient group directions, participated in the study. Across these sites, 17 independent nurse prescribers and 19 patient group direction users completed a clinical diary for two weeks in which they recorded consultations involving medications. At the end of these consultations, nurses invited their patients to anonymously complete a questionnaire. Patients were eligible to take part if they were over 16 years of age and spoke English or Welsh. They were excluded if they were primarily managed by another staff member, disclosed a potential vulnerability during the consultation (e.g. safeguarding or sexual assault concerns), or did not receive medication.

Data collection

The questionnaire comprised two sections: (i) five questions from a validated instrument (Weston et al., 2010) exploring patients' experience, confidence and opinion on nurses independently managing their care (see Table 1). Section (ii) 16-items from the validated Satisfaction with Information about Medicines Scale (SIMS) which was designed to assess patients' satisfaction with the medication information received covers information on medications, managing side effects, interactions with alcohol and potential drowsiness implications. The SIMS tool scoring involved three stages (Horne et al., 2001): (i) a judgement of whether medication information was appropriate, lacking or excessive (reported elsewhere (Black et al., 2021b)), (ii) grouping satisfaction with information reported as 'about right' or 'not applicable' (score=1), and information deemed 'too much', 'too little' or 'not received' (score=0), to give a total score of 0 (worst) to 16 (highest), and (iii) splitting the scale into satisfaction relating to "action and usage of medication" (items 1-8, covering medication name, how to take it, how much and when) and "potential problems with medication" (items 9-16, covering what to do if a dose is forgotten, potential side effects, what to do if side effects are experienced, and concurrent use of other medications).

Data were collected between September 2015 and December 2016. Data on patient demographics were not collected.

Ethical considerations

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee Wales Research Ethics Committee 4 (REC reference 15/WA/0120) and with the 1964 Helsinki declaration and its later amendments or

comparable ethical standards. Nurses and patients were provided with information leaflets explaining that participation was voluntary. Patients completed the questionnaire away from the nurse, in the waiting room after their consultation was completed, returning it to a designated box in reception prior to leaving the clinic. Implied consent was obtained from patients who returned questionnaires.

Data analysis

Data from the questionnaires were entered into IBM SPSS Version 24 (IBM Corp., 2016) and analysed descriptively. Questionnaires were labelled as either applying to independent nurse prescribing or patient group directions, as appropriate, before they were provided to nurses for distribution so that patient responses could be linked to the correct type of consultation.

Questions exploring patients' experience with their medication consultations were analysed descriptively using numbers and percentages for each pre-determined response option by group were presented. Due to the similarity in responses between patients managed by nurse prescribers and patient group direction users, combined numbers and percentages are presented and statistical testing was not undertaken.

Mean SIMS scores were compared for statistical difference between independent nurse prescribers and patient group direction users using an independent samples t-test.

Validity, reliability and rigour

Both instruments included in the questionnaire were considered by the research team to have face validity for the study. The experience questionnaire was specifically designed using the Delphi technique to capture patient experience in sexual health services. Questions related to the consultation experience were used in this study; those exploring broader access and follow-up issues were not relevant. The authors of the SIMS tool reported good levels of internal consistency (Cronbach's alpha coefficient 0.81-0.91), test-retest reliability (Pearson correlations 0.67-0.76, $p < 0.05$) and ease of use (Horne et al., 2001). One of the 17 SIMS items (Question 8: How to use your medicine) was inadvertently omitted when questionnaires were printed.

RESULTS

Response rate

Of 808 patients recorded in clinical diaries who received medication from nurses, 393 (48.6%) were issued with a questionnaire. Nurses offered reasons for not distributing a questionnaire for 140 patients (60 not eligible, 54 declined, 26 'nurse forgot'). Of the 393 questionnaires distributed, 360 (91.6%) were returned completed (independent nurse prescribers 180 of 198 (90.9%), patient group directions 173 of 195 (88.7%), 7 unknown).

Patients' experience of the consultation

Patients' experience with nurses' medication consultations was over 95% positive for both independent nurse prescribing and patient group direction users across all questions posed. Respondents were particularly satisfied with regards to nurses being friendly and approachable ($n=359$, 99.7%) and nurses being able to instil confidence and trust to their patients ($n=357$, 99.2%), see Table 1. There was, however, a general lack of awareness by patients around the autonomous nature of nurse delivering medications for both independent nurse prescribers and patient group direction users). Over 25% stated they did not know if a doctor had been involved in the prescribing decision.

Satisfaction with Information about Medicines Scale

1
2
3 Of the 380 returned questionnaires, SIMS was fully or partially completed by 348 (91.6%)
4 respondents. There was no difference in patients' satisfaction with information between independent
5 nurse prescribers and patient group direction users (approximately 84% satisfaction for both). 'About
6 right' (n=4,108, 73.8%) and 'not applicable' (n=526, 9.4%) were the highest scoring categories. From
7 the 'negative' rated categories, nurses tended to provide 'too much' information (n=410, 7.4%), as
8 opposed to not giving enough, see Table 2. Patients reported marginally less satisfaction with
9 information on the 'potential problems' with medications (mean score 6.4 out of 8, *t-test*, *p*=0.98) than
10 with information on action and usage of medicines (mean score 7.0 out of 8, *t-test*, *p*=0.34), but there
11 were no statistically significant differences between independent nurse prescribers and patient group
12 direction users overall (mean score 13.4 out of 16, *t-test*, *p*=0.63), see Table 3. Items with highest
13 levels of dissatisfaction related to information on alcohol consumption (92 of 348; 26.4%), potential
14 of drowsiness (85; 24.4%), and management of side effects (70; 20.1%).
15
16
17
18

19 DISCUSSION

21 Patients reported extremely high level of positive experiences with their medication consultations,
22 with no differences found between patients of independent nurse prescribers and patient group
23 direction users on either experience with the consultations or satisfaction with information about
24 medications. Therefore, despite the clear differences in independent nurse prescribing and patient
25 group direction training and governance, this did not affect patients' experience or satisfaction during
26 their medication consultations. Patients clearly valued nurses' approachability, had confidence in their
27 clinical management, were highly satisfied with medication explanations, and were given
28 opportunities to ask questions.
29

31 Positive patient feedback is a consistent finding in the general nurse prescribing literature (Drennan et
32 al., 2011; Stenner et al., 2011; Bergman et al., 2013; Tinelli et al., 2013; Courtenay et al., 2017), as is
33 patients' confidence in nurses' consultation skills and medication knowledge (Courtenay et al., 2010;
34 Dhalivaal, 2011; Banicek, 2012; Bergman et al., 2013; Ross et al., 2014; Courtenay et al., 2015). Our
35 study has identified that patients attending sexual health services and managed by nurses, in line with
36 other clinical specialities, are highly satisfied with nurses autonomously providing medications.
37 Moreover, this was the first investigation known to explore patients' experience and satisfaction with
38 medication consultations using validated research tools for nurse prescribing in sexual health and the
39 only one to measure patient satisfaction with patient group direction users. As both independent nurse
40 prescribing and patient group directions are already fully integrated within sexual health (Black, 2012;
41 Black et al., 2021) it is reassuring patients' value nurses' medication knowledge and skills.
42 Nevertheless, more than half of these patients were unaware that their nurse independently provided
43 their medications. This aligns with findings of others (Mac Lure et al., 2013) and highlights the need
44 to promote more widely to the public the role nurses play in medicines management.
45
46

47 Others have suggested that prescribers inadvertently focus on medication usage, rather than the
48 associated risks, in order to encourage adherence by avoiding mentioning the negative aspects of
49 medications (Latter et al., 2007). This is consistent with the slightly lower satisfaction of patients in
50 our study with information on potential problems from medications, compared to satisfaction with
51 information on action and usage. This study identified some dissatisfaction with information related to
52 alcohol consumption, drowsiness, and side effects. However, as many sexual health related drugs are
53 unlikely to be affected by moderate alcohol use, or cause drowsiness (BNF, 2016; British Association
54 of Sexual Health & HIV, 2016; Faculty of Sexual & Reproductive Health, 2016), nurses may have
55 been less inclined to routinely discuss these. Nevertheless, nurses need to be aware that additional
56 information in these areas may be indicated but be cautious not to provide too much.
57
58

59 Limitations

1
2
3 A limitation of this study is that patients were nurse-selected for inclusion, potentially introducing a
4 distribution bias (Latter, 2011). A wider spread of patient preferences, **experience**, satisfaction and
5 attitudes was found in a study using a mailed questionnaire (Tinelli et al., 2013). Nevertheless,
6 recruiting patients in our study was a pragmatic decision reflecting availability of research resources
7 and to ensure that patients fulfilled inclusion criteria. Moreover, questionnaires offer a useful way to
8 achieve high volumes of structured patient feedback on their experiences of using services. **The study**
9 **was further limited as it did not collect patient demographics or data that would enable investigation**
10 **into factors associated with patient experience or satisfaction; this should be considered as part of a**
11 **future study. The study only used part of the patient experience questionnaire which may have**
12 **affected its overall validity; other aspects of it were not related to the consultation and thus not**
13 **relevant. One question was inadvertently omitted from the SIMS questionnaire but we do not believe**
14 **this affected the outcome since items are individually scored.**

15
16
17 While this study was limited to sexual health services in the UK, when considered with the nurse
18 prescribing literature that has been undertaken across the various settings such as dermatology
19 (Courtenay et al., 2009a; Courtenay et al., 2011), diabetes (Courtenay et al., 2009b; Courtenay et al.,
20 2010; Wilkinson et al., 2014), general practice (Dhalivaal, 2011; Tinelli et al., 2013), hypertension
21 (Hobson et al., 2010; Jones et al., 2010), maternity/ children services (Drennan et al., 2011), mental
22 health (McCann and Clarke, 2008; Earle et al., 2011; Ross et al., 2014), oncology (Hobson et al.,
23 2010) and renal medicine (Jones et al., 2010), it provides further support that patients are very positive
24 and confident in nurses' abilities to provide medication. This is reassuring given that the role of UK
25 nurses is well established with regards to medicines provision. As well as help to reassure patients
26 about the ability of nurses to deliver medicines, it also provides reassurances to global policymakers
27 who are looking to expand prescribing authorities in their own country and services.

31 **CONCLUSION**

32 Patients attending UK sexual health services were highly satisfied with **their experiences of** nurses'
33 medication consultations and **satisfied with** information given about their medication, regardless of
34 whether they were managed by an independent nurse prescriber or patient group direction user.
35 Patients were often unaware that nurses independently provided the medication, but those who were
36 aware were confident in the nurses' ability to do so. High patient confidence in both independent
37 nurse prescribing and patient group directions has potential implications for policy makers looking to
38 identify the most appropriate method of medicines provision to introduce within their own services or
39 countries.

42 *Practice implications*

43
44 Nurses' ability to provide medication is well established in the UK NHS. Positive patient feedback
45 from sexual health clinics underpins this policy and provides supporting evidence for other health care
46 systems that may be considering expanding prescribing authority beyond medical professionals to
47 meet staffing shortages and improve patient access to medication.

51 **ANONYMISED CONFLICT OF INTEREST STATEMENT**

52
53 All authors declare that they have no conflict of interest.

56 **References**

57
58 Ball, J., Barker, G. and Buchanan, J. (2009) 'Implementing Nurse Prescribing'. International Council
59 of Nurses. Geneva.

- 1
2
3 Banicek, J. (2012) 'Attitudes of postoperative patients towards hospital nurse prescribing', *Nurse*
4 *Prescribing*, 10, pp. 612-18.
5
6 Bergman, Karin; Perhed, Ulla; Eriksson, Irene; Lindblad, Ulf and Fagerström, Lisbeth (2013)
7 'Patients' satisfaction with the care offered by advanced practice nurses: A new role in Swedish
8 primary care', *Int J. Nurs. Pract.*, 19, pp. 326-33
9
10 Black, A. (2012) 'Non-medical prescribing by nurse practitioners in accident & emergency and sexual
11 health: a comparative study', *J. Adv. Nurs*, 69, pp. 535-45.
12
13 Black, A., Gage, H., Norton, C., Franklin, B.D., Murrells, T. and Courtenay, M. (2021) 'A
14 comparison between the training and governance resources of independent nurse prescribing and
15 patient group directions within UK sexual health services: a mixed methods study' [Pre-print].
16
17 Black, A., Gage, H., Norton, C., Franklin, B.D., Murrells, T. and Courtenay, M. (2020) 'A
18 comparison between independent nurse prescribing and patient group directions in the safety and
19 appropriateness of medication provision in UK sexual health services: a mixed methods study', *Int J*
20 *Nurs Stud.*, 107.
21
22 BNF: British Medical Association and Royal Pharmaceutical Society of Great Britain (2016). *British*
23 *National Formulary*. 71st edn. UK: BMJ Publishing Group.
24
25 British Association for Sexual Health & HIV (2016) *BASHH guidelines*. [Online]. Available at
26 <https://www.bashh.org/guidelines> (Accessed: 12 December 2016).
27
28 Courtenay, M., Carey, N. and Stenner, K. (2009a) 'Nurse-prescriber-patient consultations: a case
29 study in dermatology', *J. Adv. Nurs.*, 65, pp. 1207-17.
30
31 Courtenay, M., Stenner, K. and Carey, N. (2009b) 'An exploration of the practices of nurse
32 prescribers who care for people with diabetes: a case study', *J Nurs Healthc Illn*, 1, pp. 311-20.
33
34 Courtenay, M., Stenner, K. and Carey, N. (2010) 'The views of patients with diabetes about nurse
35 prescribing', *Diabetic Med*, 27, pp. 1049-59.
36
37 Courtenay, M., Carey, N., Stenner, K., Lawton, S. and Peters, J. (2011) 'Patients' views of nurse
38 prescribing: Effects on care, concordance and medicine taking', *Brit J Dermatol*, 164, pp. 396-401.
39
40 Courtenay, M., Carey, N., Gage, H., Stenner, K. and Williams, P. (2015) 'A comparison of
41 prescribing and non-prescribing nurses in the management of people with diabetes', *J. Adv. Nurs*. 71,
42 pp. 2950-64.
43
44 Courtenay, M., Rowbotham, S., Lim, R., Deslandes, R., Hodson, K., MacLure, K., Peters, S. and
45 Stewart, D. (2017) 'Antibiotics for acute respiratory tract infections: a mixed-methods study of patient
46 experiences of non-medical prescriber management', *BMJ Open*, 7. [Online]. Available at:
47 <http://bmjopen.bmj.com/content/7/3/e013515> (Accessed: 24 March 2018).
48
49 Dhalivaal, J. (2011) 'Patients' perspectives on prescribing by nurses in general practice', *Practice*
50 *Nursing*, 22, 41-6.
51
52 Drennan, J., Naughton, C., Allen, D., Hyde, A., O'Boyle, K., Felle, P., Treacy, M. and Butler, M.
53 (2011), 'Patients' level of satisfaction and self-reports of intention to comply following consultation
54 with nurses and midwives with prescriptive authority: A cross-sectional survey', *Int. J. Nurs.*, 48, pp.
55 808-17.
56
57 Earle, E., Taylor, J., Peet, M. and Grant, G. (2011) 'Nurse prescribing in specialist mental health (Part
58 1): the views and experiences of practising and non-practising nurse prescribers and service users', *J.*
59 *psychiatr Ment Hlt.*, 18, pp. 189-97. [Online]. Available at: doi: 10.1111/j.1365-2850.2010.01672.x
60 (Accessed: 12 May 2015).

1
2
3 Faculty of Sexual and Reproductive Health (2016a) *Standards & guidance*. [Online]. Available at:
4 <https://www.fsrh.org/standards-and-guidance/> (Accessed: 12 December 2016).
5

6 Gielen, S.C., Dekker, J., Franke, A.L., Mistiaen, P. and Kroezen, M. (2014) 'The effects of nurse
7 prescribing: A systematic review', *Int. J. Nurs.* 51, pp. 1048-61.
8

9 Hobson, R., Scott, J. and Sutton, J. (2010) 'Pharmacists and nurses as independent prescribers:
10 Exploring the patient's perspective', *Fam. Pract.*, 27, pp. 110-20.
11

12 Horne, R., Hankins, M. and Jenkins, R. (2001) 'The satisfaction with Information about Medicines
13 Scale (SIMS): a tool for audit and research', *Int J Qual Health Care*, 10, pp. 135-40.
14

15 IBM Corp. Released 2016. IBM SPSS Statistics for Windows, Version 24.0. Armonk, NY: IBM
16 Corp.
17

18 Jones, K., Edwards, M. and While, A. (2010) 'Nurse prescribing roles in acute care: an evaluative
19 case study', *J. Adv. Nurs.*, 67, pp.117-26.
20

21 Kroezen, M., van Dijk, L., Groenewegen, P.P. and Francke, A.L. (2011) 'Nurse prescribing of
22 medicines in Western European and Anglo-Saxon countries: a systematic review of the literature',
23 *BMC Health Serv.*, 11. [Online]. Available at [http://www.biomedcentral.com/content/pdf/1472-6963-
24 11-127.pdf](http://www.biomedcentral.com/content/pdf/1472-6963-11-127.pdf) (Accessed: 12 May 2015).
25

26 Latter, S., Maben, J., Myall, M. and Young, A. (2007) 'Perceptions and practice of concordance in
27 nurses' prescribing consultations: Findings from a national questionnaire survey and case studies of
28 practice in England', *Int J Nurs Stud*, 44, pp.9-18.
29

30 Latter, S. (2011) 'Qualitative study: consultations between nurse prescribers and patients with
31 diabetes in primary care: a qualitative study of patient views', *Evid Based Nurs*, 14, pp. 124-25.
32

33 Mac Lure, K., George, J., Diack, L., Bond, C., Cunningham, S. and Stewart, D. (2013) 'Views of the
34 Scottish general public on non-medical prescribing', *Int J Clin Pharm.*, 35, pp. 704-10.
35

36 McCann, T. and Clark, E. (2008) 'Attitudes of patients towards mental health nurse prescribing of
37 antipsychotic agents', *Int. J. Nurs. Pract.*, 14, pp. 115-21.
38

39 National Institute for Health and Care Excellence (2013) *Medicines Practical guidelines: patient
40 group directions*. [Online]. Available at <http://www.nice.org.uk/media/2AF/07/MPG2Guidance.pdf>
41 (Accessed: 13 December 2016).
42

43 Nursing & Midwifery Council (2006) *Standards proficiency nurse and midwife prescribers*. [Online].
44 Available at: [http://www.nmc-uk.org/Documents/NMC-Publications/NMC-Standards-proficiency-
45 nurse-and-midwife-prescribers.pdf](http://www.nmc-uk.org/Documents/NMC-Publications/NMC-Standards-proficiency-nurse-and-midwife-prescribers.pdf) (Accessed: 8 March 2015).
46

47 Nursing & Midwifery Council (2018) *Standards for prescribing programmes*. [Online]. Available at:
48 [https://www.nmc.org.uk/standards/standards-for-post-registration/standards-for-prescribers/standards-
49 for-prescribing-programmes/](https://www.nmc.org.uk/standards/standards-for-post-registration/standards-for-prescribers/standards-for-prescribing-programmes/) (Accessed: 28 June 2020).
50

51 Ross, J., Clarke, A. and Kettles, A. (2014) 'Mental health nurse prescribing: using a constructivist
52 approach to investigate the nurse-patient relationship', *J. psychiatr Ment Hlt*, 21, pp. 1-10.
53

54 *The Human Medicines Regulations 2012* (SI 2012/1916). [Online]. Available at:
55 http://www.legislation.gov.uk/ukxi/2012/1916/pdfs/ukxi_20121916_en.pdf (Accessed: 27 February
56 2014)
57

58 Stenner, K., Courtenay, M. and Carey, N. (2011) 'Consultations between nurse prescribers and
59 patients with diabetes in primary care: a qualitative study of patient views', *Int. J. Nurs*, 48, pp.37-46.
60

1
2
3 Tinelli, M., Blenkinsopp, A., Latter, S., Smith, A. and Chapman, S. (2013) 'Survey of patients'
4 experiences and perceptions of care provided by nurse and pharmacist independent prescribers in
5 primary care', *Health Expect*, 18, pp. 1241-55.
6

7 United Kingdom Department of Health (2006a) *Improving Patients' Access to Medicines: A Guide to*
8 *Implementing Nurse and Pharmacist Independent Prescribing within the NHS in England*. [Online].
9 Available at

10 [http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/prod_consum_dh/g](http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_4133747.pdf)
11 [roups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_4133747.pdf](http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_4133747.pdf) (Accessed: 4 March 2014).
12

13 Weston, R.L., Hopwood, B., Harding, J., Sizmur, S. and Ross, J.D.C. (2010) 'Development of a
14 validated patient satisfaction survey for sexual health clinic attendees', *Int J STD AIDS Journal*, 21,
15 pp. 584-90.
16

17 Wilkinson, J., Carryer, J. and Adams, J. (2014) 'Evaluation of a diabetes nurse specialist prescribing
18 project', *J Clin Nurs*, 23, pp. 2355-66.
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Review Copy

Table 1: Patients' satisfaction with their consultations with nurses

Patient satisfaction with consultation		INP (n=180)		PGD (n=173)		Not known (n=7)		Total (n=360)	
		n	%	n	%	n	%	n	%
1. Was the nurse you saw today friendly and approachable?	Definitely, yes	179	99.4	172	99.4	6	85.7	357	99.2
	Some extent, yes	1	0.6	0	0.0	1	14.3	2	0.6
	Missing answer	0	0.0	1	0.6	0	0.0	1	0.3
2. Did you have confidence & trust in the nurse you saw today?	Definitely, yes	177	98.3	171	98.8	6	85.7	354	98.3
	Some extent, yes	1	0.6	1	0.6	1	14.3	3	0.8
	No	1	0.6	0	0.0	0	0.0	1	0.3
	Missing answer	1	0.6	1	0.6	0	0.0	2	0.6
3. Did the nurse explain the reasons for the medicine in a way you could understand?	Completely, yes	171	95.0	167	96.5	7	100.0	345	95.8
	Some extent, yes	1	0.6	3	1.7	0	0.0	4	1.1
	No	2	1.1	0	0.0	0	0.0	2	0.6
	Didn't need	5	2.8	2	1.2	0	0.0	7	1.9
	Missing answer	1	0.6	1	0.6	0	0.0	2	0.6
4. If you had any questions to ask, were you satisfied with the answers?	Definitely, yes	174	98.9	151	98.1	7	100.0	332	98.5
	Some extent, yes	1	0.6	2	1.3	0	0.0	3	0.9
	No opportunity	1	0.6	1	0.6	0	0.0	2	0.6
	No questions	4		19		0		23	
5A Did the nurse give you medication without speaking to a doctor?	Yes	90	50.0	73	42.2	4	57.1	167	46.4
	No	36	20.0	38	22.0	2	28.6	76	21.1
	Don't Know	42	23.3	56	32.4	1	14.3	99	27.5
	Missing answer	12	6.7	6	3.5	0	0.0	18	5.0
5B [†] If 'YES' did the nurse have necessary skills?	Number:	90		73		4		167	
	Definitely, yes	89	98.9	68	93.2	4	100	161	96.4
	Some extent, yes	0	0.0	1	1.4	0	0.0	1	0.6
	No	1	1.1	0	0.0	0	0.0	1	0.6
	Missing answer	0	0.0	4	5.5	0	0.0	4	2.4

[†]Question 5A asked patients to only complete question 5B if they answered 'yes' to 5A. INP=Independent nurse prescribing, PGD= patient group direction

Table 2 Summary of Satisfaction with Information on Medicines Scale responses

SIMS item responses	INP (n=174 respondents)		PGD (n=169 respondents)		Not known (n=5 respondents)		Total (n=348 respondents)	
	n	%	n	%	n	%	n	%
Total potential score (excludes missing items) [†]	2752	100	2678	100	80	100	5510	100
About right (+1)	2062	74.9	1987	74.2	59	73.8	4108	74.6
Not applicable (+1)	241	8.8	285	10.6	0	0.0	526	9.5
Too much (+0)	223	8.1	187	7.0	0	0.0	410	7.4
None received (+0)	169	6.1	163	6.1	16	20.0	348	6.3
Too little (+0)	57	2.1	56	2.1	5	6.3	118	2.1
Appropriate information total (About right, not applicable)	2303	83.7	2272	84.8	59	73.8	4634	84.1
Inappropriate information total (Too much, too little, none)	449	16.3	406	15.2	21	26.3	876	15.9

[†]Sixteen items of The Satisfaction with Information about Medicines Scale (SIMS) each scored 1 where the information provided was considered by the respondent to be 'about right' or 'not applicable' and 0 if the information was considered to be 'too much', 'too little' or none was given. Items included medication name, how to take it, how much and when, possible side effects and how to deal with them, concurrent use of other medicines, what to do if a dose is forgotten, interactions with alcohol and potential drowsiness implications. Scores are summed, range 0 (worst) to 16 (highest satisfaction). Most responses were fully completed; missing items are not included (32 amongst returns from patients of INPs and 26 from returns of patients of PGD nurses). INP= independent nurse prescribing, PGDs= patient group directions.

Table 3 Satisfaction with Information on Medicines Scale scores

SIMS Scores	INP (n=174)	PGD (n=169)	Not known (n=5)	Total (n=348)	Statistical testing [‡] (INP vs PGD)
SIMS potential score [†]	2784	2704	80	5568	p=0.63
SIMS score achieved	2303	2272	59	4634	
SIMS mean score (/16)	13.3	13.5	11.8	13.4	
SIMS standard deviation	4.3	4.2	6.0	4.3	
AU total potential score	1392	1352	40	2784	p=0.34
AU score achieved	1196	1196	33	2425	
AU mean score (/8)	6.9	7.1	6.6	7.0	
AU standard deviation	2.2	2.0	2.2	2.1	
PPM total potential score	1392	1352	40	2784	p=0.98
PPM score achieved	1107	1076	26	2209	
PPM mean score (/8)	6.4	6.4	5.2	6.4	
PPM standard deviation	2.4	2.5	3.9	2.4	

[†]SIMS potential score is the highest score had every participant been completely satisfied with the medication information they received; SIMS: Satisfaction with Information about Medicines Scale, AU: Action and usage of medicines score; PPM: Potential problems of medicines score. INP =independent nurse prescribing, PGD= patient group directions

[‡]Statistical testing (Independent Samples t-test) compared INP with PGD, and excluded the 5 'not known' responses and those not completed

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Comments to decision letter

JAN-2021-0568

Dear Editor Team and Reviewers,

Thank you very much for again reviewing our article and for the extremely helpful information and feedback that we have found has improved our paper. Please see our response to your feedback.

Editors' comments:

Similarity 51% score (35% excluding bibliography)

The similarity score is very high so we suggest that you run the various manuscripts listed in your letter through your own software so that you can be absolutely sure that there is no inadvertent redundant reporting, salami slicing or dual publication. Please can you report back on this.

Thank you for providing the similarity report – this was very useful as we agree 51% or 35% score is very high. Of note, we have attempted to make this paper as succinct as possible. Consequently, where we have used the terms 'nurse prescriber', 'patient group directions', 'medications' and 'et al.' so frequently, this has pushed up the similarity score. Upon reviewing the similarity report it does not appear that chunks of text are similar but rather these words, phrases or references. The large part of the similarity comes from kclpure.kcl.ac.uk which is the PhD thesis or from reference 2 and 9 – which is our first published paper (but that paper does not report on the patient experience).

Under the heading *Satisfaction with Information about Medicines Scale* on page 5 on our revised document there was some chunks of results text that we have inadvertently lifted from the thesis – we have amended aspects of this paragraph accordingly.

Reference 3 is picking up the standard phrase for ethics.

We believe the similarity is therefore down to the article using common words and phrases linked to this field rather than dual publications or salami slicing the study. We are happy to take further direction if you remain concerned.

Reviewer comments:

Reviewer 1:

In the data analysis section, it says: "Questions exploring patients' experience with their medication consultations were analysed descriptively using numbers and percentages for each pre-determined response option by group were presented. Due to the similarity in responses between patients managed by nurse prescribers and patient group direction

1
2
3 users, combined numbers and percentages are presented and statistical testing was not
4 undertaken". However, in the discussion, it says: "Patients reported extremely high level of
5 positive experiences with their medication consultations, with no differences found between
6 patients of independent nurse prescribers and patient group direction users on either
7 experience with the consultations or satisfaction with information about medications". Based
8 on the information, no statistical test was carried out to compare patients' experience with
9 their medication consultations managed by nurse prescribers and patient group direction
10 users. Therefore, the claim in the discussion is not supported by the findings. It says this is
11 not done because of "the similarity in responses". I would suggest the authors conduct
12 relevant inferential tests to confirm/test if there is any difference.
13
14
15
16
17

18 **Statistical tests added – mostly Fisher's Exact as there were limited negative patient**
19 **responses. Updated the analysis and results section accordingly in red font.**
20
21

22 Regarding Table 2, there are two 'n's. I understand the first 'n' refers to the number of
23 respondents, but it is not clear what the second 'n' next to % refers to, so are the figures
24 under 'n'. Please check.
25
26

27 **Agree – as you have pointed this out we recognise this was confusing. Addition information**
28 **provided, table modified to be clearer.**
29
30
31
32

33 **Reviewer: 2**

34
35
36 Comments to the Author

37 In this revision, the statistical data analysis continues to be sound and the findings and
38 discussions suitably represent the analysis results.
39
40

41 **Thank you for taking the time to re-review and for your positive feedback.**
42
43
44

45 **Conclusion**

46
47 **Thank you for reviewing this manuscript again for us. We greatly appreciate the time and**
48 **support from the editorial team and the reviewers.**
49
50
51
52
53
54
55
56
57
58
59
60

TITLE

Patient satisfaction with medication consultations and medicines information provided by nurses working autonomously in sexual health services: A questionnaire study

ABSTRACT

Aim: To compare the satisfaction of patients managed by independent nurse prescribers with that of patients managed by nurses using PGDs with respect to experience of the consultation and information received about the medication

Design: Survey

Methods: Patients receiving medications from nurses in five urban sexual health services in the United Kingdom completed validated questionnaires immediately after the consultation, September 2015–August 2016. Scores of independent nurse prescribers and nurses using patient group directions were compared regarding consultation experience (5 items) Satisfaction with Information about Medicines (SIMS 16 items scale).

Results: Of 808 patients receiving medications, 393 (48.6%) received questionnaires and 380 were returned (independent nurse prescribers 180 of 198, 90.9%; patient group directions 173 of 195, 88.7%). Patients in both groups reported high levels of satisfaction. Regarding the consultation experience, patients found nurses friendly/ approachable (>99%), instilling confidence and trust (>99%) and explaining reasons for medications clearly (97%). Satisfaction with medication information: Of 348 (92%) respondents completing SIMS, the overall mean score was 13.4 of maximum 16 (no difference between groups, t-test, $p=0.63$).

Conclusions: Patients were highly satisfied with nurse consultations and information around medications regardless of whether they were managed by independent nurse prescribers or nurses using patient group directions.

Impact: Findings provide evidence in support of autonomous provision of medications by nurses in sexual health clinics.

Keywords

- Patient experience
- Patient satisfaction
- Medicines information
- Nurse/ non-medical prescribing
- Sexual health
- Patient group directions/ medication directives

What this paper adds:

- Patients autonomously managed by sexual health nurses report high levels of satisfaction with their medication consultations and with the level of information provided about their medications, regardless of whether they were managed by a nurse prescriber or a patient group direction user
- This is the first known study to explore patient experience of nurse-provided medications in sexual health and the first to explore to such depth on the use of patient group directions.

INTRODUCTION

An increasing number of countries worldwide are introducing the ability for nurses to independently provide medications without a medical doctor's prescription. However, the autonomy nurses have with regards to the provision of medicines for patients vary internationally (Kroezen et al., 2011; Gielen et al., 2014). Registered nurses in the United Kingdom (UK) can provide medicines to patients either via independent prescribing or patient group directions. Independent nurse prescribing and use of patient group directions were introduced in the UK National Health Service (NHS) to enable nurses to prescribe and facilitate patient access to medicines (UK Department of Health, 2006a). Although previous studies have shown nurse prescribing is acceptable to patients, none have been set in sexual health clinics or investigated differences between nurse prescribing and patient group direction use.

BACKGROUND

Nurses with authority to independently prescribe, have at least one year's post registration practice and have completed a prescribing training course (typically 6 months in length) (UK Nursing and Midwifery Council (NMC), 2018). This contrasts with some countries (e.g. the USA, Canada and Australia), where training to prescribe, also available to registered nurses, is at master's degree level and is a component of the advanced nurse practitioner programme, usually two years in duration (Ball et al., 2009). Independent nurse prescribers, like doctors, are responsible for the assessment, diagnosis and decisions about the clinical management required in patients with diagnosed or undiagnosed conditions (UK Department of Health, 2006a; The Human Medicines Regulations 2012 (SI 2012/1916); NMC, 2006). By contrast, patient group directions are medication directions determined by local services that set out pre-defined drugs and clinical scenarios in which healthcare professionals can supply and/ or administer medication. Patient group directions/ medication directives are used in Australia, Canada and the UK (Kroezen et al., 2011). In contrast to independent nurse prescribing, patient group directions can be used by large groups of clinical staff following competency-based training. Patient group directions are restrictive in clinical application (National Institute for Health and Care Excellence, 2013), whilst independent nurse prescribing is comprehensive and flexible.

Previous studies in various settings (dermatology (Courtenay et al., 2009a; Courtenay et al., 2011), diabetes (Courtenay et al., 2009b; Courtenay et al., 2010; Wilkinson et al., 2014), general practice (Dhalivaal, 2011; Tinelli et al., 2013), hypertension (Hobson et al., 2010; Jones et al., 2010), maternity/ children services (Drennan et al., 2011), mental health (McCann and Clarke, 2008; Earle et al., 2011; Ross et al., 2014), oncology (Hobson et al., 2010) and renal medicine (Jones et al., 2010)) have focussed on independent nurse prescribing, mostly indicating that patients are very satisfied with nurses' medication consultations. While literature reviewed from Australia (McCann and Clarke, 2008), Israel (Natan et al., 2013), Ireland (Drennan et al., 2011), New Zealand (Wilkinson et al., 2014) and the UK (Latter et al., 2007; Courtenay et al., 2009a; Courtenay et al., 2010; Hobson et al., 2010; Courtenay et al., 2011; Earle et al., 2011; Banicek, 2012; Mac Lure et al., 2013; Tinelli et al., 2013), has identified that although patients/ public are generally supportive of nurses providing medication, patients do have some concerns, these concerns being more evident in studies that have explored patients' perceptions, as opposed to studies that have explored patient experience. These concerns focus upon the depth of nurses' knowledge on medications (Hobson et al., 2010), nurses' ability to manage newly diagnosed conditions and treatment regimens (Courtenay et al., 2010; Courtenay et al., 2017), and the adequacy of nurses training (Courtenay et al., 2010; Hobson et al., 2010; Dhalivall, 2011; Tinelli et al., 2013; Wilkinson et al., 2014).

To our knowledge, no studies have specifically explored patient's experience of patient group directions, and there is no evidence of patients' experiences of independent nurse prescribing in sexual health, a setting in which nurses traditionally deliver autonomous care involving contraceptive and screening/ management of sexually transmitted infections and HIV.

THE STUDY

Aim

The aim of the study was to compare the satisfaction of patients managed by independent nurse prescribers with that of patients managed by nurses using PGDs with respect to experience of the consultation and information received about the medication

Design

This study involved a cross-sectional questionnaire survey.

Participants

Five urban, tertiary-level sexual health ambulatory services in the UK, each employing independent nurse prescribers and/ or nurses who supplied or administered medicines using patient group directions, participated in the study. Across these sites, 17 independent nurse prescribers and 19 patient group direction users completed a clinical diary for two weeks in which they recorded consultations involving medications. At the end of these consultations, nurses invited their patients to anonymously complete a questionnaire. Patients were eligible to take part if they were over 16 years of age and spoke English or Welsh. They were excluded if they were primarily managed by another staff member, disclosed a potential vulnerability during the consultation (e.g. safeguarding or sexual assault concerns), or did not receive medication.

Data collection

The questionnaire comprised two sections: (i) five questions from a validated instrument (Weston et al., 2010) exploring patients' experience, confidence and opinion on nurses independently managing their care (see Table 1). Section (ii) 16-items from the validated Satisfaction with Information about Medicines Scale (SIMS) which was designed to assess patients' satisfaction with the medication information received covers information on medications, managing side effects, interactions with alcohol and potential drowsiness implications. The SIMS tool scoring involved three stages (Horne et al., 2001): (i) a judgement of whether medication information was appropriate, lacking or excessive (reported elsewhere (Black et al., 2021b)), (ii) grouping satisfaction with information reported as 'about right' or 'not applicable' (score=1), and information deemed 'too much', 'too little' or 'not received' (score=0), to give a total score of 0 (worst) to 16 (highest), and (iii) splitting the scale into satisfaction relating to "action and usage of medication" (items 1-8, covering medication name, how to take it, how much and when) and "potential problems with medication" (items 9-16, covering what to do if a dose is forgotten, potential side effects, what to do if side effects are experienced, and concurrent use of other medications).

Data were collected between September 2015 and December 2016. Data on patient demographics were not collected.

Ethical considerations

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee Wales Research Ethics Committee 4 (REC reference 15/WA/0120) and with the 1964 Helsinki declaration and its later amendments or

comparable ethical standards. Nurses and patients were provided with information leaflets explaining that participation was voluntary. Patients completed the questionnaire away from the nurse, in the waiting room after their consultation was completed, returning it to a designated box in reception prior to leaving the clinic. Implied consent was obtained from patients who returned questionnaires.

Data analysis

Data from the questionnaires were entered into IBM SPSS Version 24 (IBM Corp., 2016) and analysed descriptively. Questionnaires were labelled as either applying to independent nurse prescribing or patient group directions, as appropriate, before they were provided to nurses for distribution so that patient responses could be linked to the correct type of consultation.

Questions exploring patients' experience with their medication consultations were analysed descriptively using numbers and percentages for each pre-determined response option by group were presented. Due to the similarity in responses between patients managed by nurse prescribers and patient group direction users, **the Fisher's Exact test was used to test differences between nurse prescribers and patient group direction users where expected cell values were less than 5, the chi-squared test was used when all cell values were >5.**

Mean SIMS scores were compared for statistical difference between independent nurse prescribers and patient group direction users using an independent samples t-test.

Validity, reliability and rigour

Both instruments included in the questionnaire were considered by the research team to have face validity for the study. The experience questionnaire was specifically designed using the Delphi technique to capture patient experience in sexual health services. Questions related to the consultation experience were used in this study; those exploring broader access and follow-up issues were not relevant. The authors of the SIMS tool reported good levels of internal consistency (Cronbach's alpha coefficient 0.81-0.91), test-retest reliability (Pearson correlations 0.67-0.76, $p < 0.05$) and ease of use (Horne et al., 2001). One of the 17 SIMS items (Question 8: How to use your medicine) was inadvertently omitted when questionnaires were printed.

RESULTS

Response rate

Of 808 patients recorded in clinical diaries who received medication from nurses, 393 (48.6%) were issued with a questionnaire. Nurses offered reasons for not distributing a questionnaire for 140 patients (60 not eligible, 54 declined, 26 'nurse forgot'). Of the 393 questionnaires distributed, 360 (91.6%) were returned completed (independent nurse prescribers 180 of 198 (90.9%), patient group directions 173 of 195 (88.7%), 7 unknown).

Patients' experience of the consultation

Patients' experience with nurses' medication consultations was over 95% positive for both independent nurse prescribing and patient group direction users across all questions posed. Respondents were particularly satisfied with regards to nurses being friendly and approachable ($n=359$, 99.7%) and nurses being able to instil confidence and trust to their patients ($n=357$, 99.2%), see Table 1. There was, however, a general lack of awareness by patients around the autonomous nature of nurse delivering medications for both independent nurse prescribers and patient group direction users). **There were no statistical differences found between nurse prescribers and patient group direction users with regards to patients' experience of their consultations, see Table 1.** Over 25% stated they did not know if a doctor had been involved in the prescribing decision.

Satisfaction with Information about Medicines Scale

A total of 380 questionnaires were returned, of these the SIMS was fully or partially completed by 348 (91.6%) respondents. No difference was found with regards to patients' satisfaction with information between independent nurse prescribers and patient group direction users (approximately 84% satisfaction for both). The highest scoring categories were 'About right' (n=4,108, 73.8%) and 'not applicable' (n=526, 9.4%). Where nurses were scored 'negatively' this was usually because they provided 'too much' information (n=410, 7.4%), rather than not enough, see Table 2. There was slightly less patient satisfaction identified with regards to information about the 'potential problems' with medications (mean score 6.4 out of 8, t-test, p=0.98) compared to information relating to the action and usage of medicines (mean score 7.0 out of 8, t-test, p=0.34), but there were no statistically significant differences between independent nurse prescribers and patient group direction users overall (mean score 13.4 out of 16, t-test, p=0.63), see Table 3. Items with highest levels of dissatisfaction related to information on alcohol consumption (92 of 348; 26.4%), potential of drowsiness (85; 24.4%), and management of side effects (70; 20.1%).

DISCUSSION

Patients reported extremely high level of positive experiences with their medication consultations, with no differences found between patients of independent nurse prescribers and patient group direction users on either experience with the consultations or satisfaction with information about medications. Therefore, despite the clear differences in independent nurse prescribing and patient group direction training and governance, this did not affect patients' experience or satisfaction during their medication consultations. Patients clearly valued nurses' approachability, had confidence in their clinical management, were highly satisfied with medication explanations, and were given opportunities to ask questions.

Positive patient feedback is a consistent finding in the general nurse prescribing literature (Drennan et al., 2011; Stenner et al., 2011; Bergman et al., 2013; Tinelli et al., 2013; Courtenay et al., 2017), as is patients' confidence in nurses' consultation skills and medication knowledge (Courtenay et al., 2010; Dhalivaal, 2011; Banicek, 2012; Bergman et al., 2013; Ross et al., 2014; Courtenay et al., 2015). Our study has identified that patients attending sexual health services and managed by nurses, in line with other clinical specialities, are highly satisfied with nurses autonomously providing medications. Moreover, this was the first investigation known to explore patients' experience and satisfaction with medication consultations using validated research tools for nurse prescribing in sexual health and the only one to measure patient satisfaction with patient group direction users. As both independent nurse prescribing and patient group directions are already fully integrated within sexual health (Black, 2012; Black et al., 2021) it is reassuring patients' value nurses' medication knowledge and skills. Nevertheless, more than half of these patients were unaware that their nurse independently provided their medications. This aligns with findings of others (Mac Lure et al., 2013) and highlights the need to promote more widely to the public the role nurses play in medicines management.

Others have suggested that prescribers inadvertently focus on medication usage, rather than the associated risks, in order to encourage adherence by avoiding mentioning the negative aspects of medications (Latter et al., 2007). This is consistent with the slightly lower satisfaction of patients in our study with information on potential problems from medications, compared to satisfaction with information on action and usage. This study identified some dissatisfaction with information related to alcohol consumption, drowsiness, and side effects. However, as many sexual health related drugs are unlikely to be affected by moderate alcohol use, or cause drowsiness (BNF, 2016; British Association of Sexual Health & HIV, 2016; Faculty of Sexual & Reproductive Health, 2016), nurses may have

1
2
3 been less inclined to routinely discuss these. Nevertheless, nurses need to be aware that additional
4 information in these areas may be indicated but be cautious not to provide too much.
5

6 **Limitations**

7
8 A limitation of this study is that patients were nurse-selected for inclusion, potentially introducing a
9 distribution bias (Latter, 2011). A wider spread of patient preferences, experience, satisfaction and
10 attitudes was found in a study using a mailed questionnaire (Tinelli et al., 2013). Nevertheless,
11 recruiting patients in our study was a pragmatic decision reflecting availability of research resources
12 and to ensure that patients fulfilled inclusion criteria. Moreover, questionnaires offer a useful way to
13 achieve high volumes of structured patient feedback on their experiences of using services. The study
14 was further limited as it did not collect patient demographics or data that would enable investigation
15 into factors associated with patient experience or satisfaction; this should be considered as part of a
16 future study. The study only used part of the patient experience questionnaire which may have
17 affected its overall validity; other aspects of it were not related to the consultation and thus not
18 relevant. One question was inadvertently omitted from the SIMS questionnaire but we do not believe
19 this affected the outcome since items are individually scored.
20
21

22 While this study was limited to sexual health services in the UK, when considered with the nurse
23 prescribing literature that has been undertaken across the various settings such as dermatology
24 (Courtenay et al., 2009a; Courtenay et al., 2011), diabetes (Courtenay et al., 2009b; Courtenay et al.,
25 2010; Wilkinson et al., 2014), general practice (Dhalivaal, 2011; Tinelli et al., 2013), hypertension
26 (Hobson et al., 2010; Jones et al., 2010), maternity/ children services (Drennan et al., 2011), mental
27 health (McCann and Clarke, 2008; Earle et al., 2011; Ross et al., 2014), oncology (Hobson et al.,
28 2010) and renal medicine (Jones et al., 2010), it provides further support that patients are very positive
29 and confident in nurses' abilities to provide medication. This is reassuring given that the role of UK
30 nurses is well established with regards to medicines provision. As well as help to reassure patients
31 about the ability of nurses to deliver medicines, it also provides reassurances to global policymakers
32 who are looking to expand prescribing authorities in their own country and services.
33
34

35 **CONCLUSION**

36
37 Patients attending UK sexual health services were highly satisfied with their experiences of nurses'
38 medication consultations and satisfied with information given about their medication, regardless of
39 whether they were managed by an independent nurse prescriber or patient group direction user.
40 Patients were often unaware that nurses independently provided the medication, but those who were
41 aware were confident in the nurses' ability to do so. High patient confidence in both independent
42 nurse prescribing and patient group directions has potential implications for policy makers looking to
43 identify the most appropriate method of medicines provision to introduce within their own services or
44 countries.
45
46

47 *Practice implications*

48
49 Nurses' ability to provide medication is well established in the UK NHS. Positive patient feedback
50 from sexual health clinics underpins this policy and provides supporting evidence for other health care
51 systems that may be considering expanding prescribing authority beyond medical professionals to
52 meet staffing shortages and improve patient access to medication.
53
54

55 **ANONYMISED CONFLICT OF INTEREST STATEMENT**

56
57 All authors declare that they have no conflict of interest.
58
59
60

References

- Ball, J., Barker, G. and Buchanan, J. (2009) 'Implementing Nurse Prescribing'. International Council of Nurses. Geneva.
- Banicek, J. (2012) 'Attitudes of postoperative patients towards hospital nurse prescribing', *Nurse Prescribing*, 10, pp. 612-18.
- Bergman, Karin; Perhed, Ulla; Eriksson, Irene; Lindblad, Ulf and Fagerström, Lisbeth (2013) 'Patients' satisfaction with the care offered by advanced practice nurses: A new role in Swedish primary care', *Int J Nurs. Pract.*, 19, pp. 326-33
- Black, A. (2012) 'Non-medical prescribing by nurse practitioners in accident & emergency and sexual health: a comparative study', *J. Adv. Nurs*, 69, pp. 535-45.
- Black, A., Gage, H., Norton, C., Franklin, B.D., Murrells, T. and Courtenay, M. (2021) 'A comparison between the training and governance resources of independent nurse prescribing and patient group directions within UK sexual health services: a mixed methods study' [Pre-print].
- Black, A., Gage, H., Norton, C., Franklin, B.D., Murrells, T. and Courtenay, M. (2020) 'A comparison between independent nurse prescribing and patient group directions in the safety and appropriateness of medication provision in UK sexual health services: a mixed methods study', *Int J Nurs Stud.*, 107.
- BNF: British Medical Association and Royal Pharmaceutical Society of Great Britain (2016). *British National Formulary*. 71st edn. UK: BMJ Publishing Group.
- British Association for Sexual Health & HIV (2016) *BASHH guidelines*. [Online]. Available at <https://www.bashh.org/guidelines> (Accessed: 12 December 2016).
- Courtenay, M., Carey, N. and Stenner, K. (2009a) 'Nurse-prescriber-patient consultations: a case study in dermatology', *J. Adv. Nurs.*, 65, pp. 1207-17.
- Courtenay, M., Stenner, K. and Carey, N. (2009b) 'An exploration of the practices of nurse prescribers who care for people with diabetes: a case study', *J Nurs Healthc Illn*, 1, pp. 311-20.
- Courtenay, M., Stenner, K. and Carey, N. (2010) 'The views of patients with diabetes about nurse prescribing', *Diabetic Med*, 27, pp. 1049-59.
- Courtenay, M. Carey, N., Stenner, K., Lawton, S. and Peters, J. (2011) 'Patients' views of nurse prescribing: Effects on care, concordance and medicine taking', *Brit J Dermatol*, 164, pp. 396-401.
- Courtenay, M., Carey, N., Gage, H., Stenner, K. and Williams, P. (2015) 'A comparison of prescribing and non-prescribing nurses in the management of people with diabetes', *J. Adv. Nurs*. 71, pp. 2950-64.
- Courtenay, M., Rowbotham, S., Lim, R., Deslandes, R., Hodson, K., MacLure, K., Peters, S. and Stewart, D. (2017) 'Antibiotics for acute respiratory tract infections: a mixed-methods study of patient experiences of non-medical prescriber management', *BMJ Open*, 7. [Online]. Available at: <http://bmjopen.bmj.com/content/7/3/e013515> (Accessed: 24 March 2018).
- Dhalivaal, J. (2011) 'Patients' perspectives on prescribing by nurses in general practice', *Practice Nursing*, 22, 41-6.
- Drennan, J., Naughton, C., Allen, D., Hyde, A., O'Boyle, K., Felle, P., Treacy, M. and Butler, M. (2011), 'Patients' level of satisfaction and self-reports of intention to comply following consultation with nurses and midwives with prescriptive authority: A cross-sectional survey', *Int. J. Nurs.*, 48, pp. 808-17.

1
2
3 Earle, E., Taylor, J., Peet, M. and Grant, G. (2011) 'Nurse prescribing in specialist mental health (Part
4 1): the views and experiences of practising and non-practising nurse prescribers and service users', *J.
5 psychiatr Ment Hlt.*, 18, pp. 189-97. [Online]. Available at: doi: 10.1111/j.1365-2850.2010.01672.x
6 (Accessed: 12 May 2015).
7

8 Faculty of Sexual and Reproductive Health (2016a) *Standards & guidance*. [Online]. Available at:
9 <https://www.fsrh.org/standards-and-guidance/> (Accessed: 12 December 2016).
10

11 Gielen, S.C., Dekker, J., Franke, A.L., Mistiaen, P. and Kroezen, M. (2014) 'The effects of nurse
12 prescribing: A systematic review', *Int. J. Nurs.* 51, pp. 1048-61.
13

14 Hobson, R., Scott, J. and Sutton, J. (2010) 'Pharmacists and nurses as independent prescribers:
15 Exploring the patient's perspective', *Fam. Pract.*, 27, pp. 110-20.
16

17 Horne, R., Hankins, M. and Jenkins, R. (2001) 'The satisfaction with Information about Medicines
18 Scale (SIMS): a tool for audit and research', *Int J Qual Health Care*, 10, pp. 135-40.
19

20 IBM Corp. Released 2016. IBM SPSS Statistics for Windows, Version 24.0. Armonk, NY: IBM
21 Corp.
22

23 Jones, K., Edwards, M. and While, A. (2010) 'Nurse prescribing roles in acute care: an evaluative
24 case study', *J. Adv. Nurs.*, 67, pp.117-26.
25

26 Kroezen, M., van Dijk, L., Groenewegen, P.P. and Francke, A.L. (2011) 'Nurse prescribing of
27 medicines in Western European and Anglo-Saxon countries: a systematic review of the literature',
28 *BMC Health Serv.*, 11. [Online]. Available at [http://www.biomedcentral.com/content/pdf/1472-6963-
11-127.pdf](http://www.biomedcentral.com/content/pdf/1472-6963-11-127.pdf) (Accessed: 12 May 2015).
29

30 Latter, S., Maben, J., Myall, M. and Young, A. (2007) 'Perceptions and practice of concordance in
31 nurses' prescribing consultations: Findings from a national questionnaire survey and case studies of
32 practice in England', *Int J Nurs Stud*, 44, pp.9-18.
33

34 Latter, S. (2011) 'Qualitative study: consultations between nurse prescribers and patients with
35 diabetes in primary care: a qualitative study of patient views', *Evid Based Nurs*, 14, pp. 124-25.
36

37 Mac Lure, K., George, J., Diack, L., Bond, C., Cunningham, S. and Stewart, D. (2013) 'Views of the
38 Scottish general public on non-medical prescribing', *Int J Clin Pharm.*, 35, pp. 704-10.
39

40 McCann, T. and Clark, E. (2008) 'Attitudes of patients towards mental health nurse prescribing of
41 antipsychotic agents', *Int. J. Nurs. Pract.*, 14, pp. 115-21.
42

43 National Institute for Health and Care Excellence (2013) *Medicines Practical guidelines: patient
44 group directions*. [Online]. Available at <http://www.nice.org.uk/media/2AF/07/MPG2Guidance.pdf>
(Accessed: 13 December 2016).
45

46 Nursing & Midwifery Council (2006) *Standards proficiency nurse and midwife prescribers*. [Online].
47 Available at: [http://www.nmc-uk.org/Documents/NMC-Publications/NMC-Standards-proficiency-
48 nurse-and-midwife-prescribers.pdf](http://www.nmc-uk.org/Documents/NMC-Publications/NMC-Standards-proficiency-nurse-and-midwife-prescribers.pdf) (Accessed: 8 March 2015).
49

50 Nursing & Midwifery Council (2018) *Standards for prescribing programmes*. [Online]. Available at:
51 [https://www.nmc.org.uk/standards/standards-for-post-registration/standards-for-prescribers/standards-
52 for-prescribing-programmes/](https://www.nmc.org.uk/standards/standards-for-post-registration/standards-for-prescribers/standards-for-prescribing-programmes/) (Accessed: 28 June 2020).
53

54 Ross, J., Clarke, A. and Kettles, A. (2014) 'Mental health nurse prescribing: using a constructivist
55 approach to investigate the nurse-patient relationship', *J. psychiatr Ment Hlt*, 21, pp. 1-10.
56

57 *The Human Medicines Regulations 2012* (SI 2012/1916). [Online]. Available at:
58 http://www.legislation.gov.uk/ukxi/2012/1916/pdfs/ukxi_20121916_en.pdf (Accessed: 27 February
59 2014)
60

1
2
3 Stenner, K., Courtenay, M. and Carey, N. (2011) 'Consultations between nurse prescribers and
4 patients with diabetes in primary care: a qualitative study of patient views', *Int. J. Nurs*, 48, pp.37-46.
5

6 Tinelli, M., Blenkinsopp, A., Latter, S., Smith, A. and Chapman, S. (2013) 'Survey of patients'
7 experiences and perceptions of care provided by nurse and pharmacist independent prescribers in
8 primary care', *Health Expect*, 18, pp. 1241-55.
9

10 United Kingdom Department of Health (2006a) *Improving Patients' Access to Medicines: A Guide to*
11 *Implementing Nurse and Pharmacist Independent Prescribing within the NHS in England*. [Online].
12 Available at
13 [http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/prod_consum_dh/g](http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_4133747.pdf)
14 [roups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_4133747.pdf](http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_4133747.pdf) (Accessed: 4 March 2014).
15

16 Weston, R.L., Hopwood, B., Harding, J., Sizmur, S. and Ross, J.D.C. (2010) 'Development of a
17 validated patient satisfaction survey for sexual health clinic attendees', *Int J STD AIDS Journal*, 21,
18 pp. 584-90.
19

20 Wilkinson, J., Carryer, J. and Adams, J. (2014) 'Evaluation of a diabetes nurse specialist prescribing
21 project', *J Clin Nurs*, 23, pp. 2355-66.
22

23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Review Copy

Table 1: Patients' satisfaction with their consultations with nurses

Patient satisfaction with consultation		INP (n=180)		PGD (n=173)		Not known (n=7)		Total (n=360)	
		n	%	n	%	n	%	n	%
1. Was the nurse you saw today friendly and approachable?	Definitely, yes	179	99.4	172	99.4	6	85.7	357	99.2
	Some extent, yes	1	0.6	0	0.0	1	14.3	2	0.6
	Missing answer	0	0.0	1	0.6	0	0.0	1	0.3
	Statistical testing	Fisher's Exact = 1							
2. Did you have confidence & trust in the nurse you saw today?	Definitely, yes	177	98.3	171	98.8	6	85.7	354	98.3
	Some extent, yes	1	0.6	1	0.6	1	14.3	3	0.8
	No	1	0.6	0	0.0	0	0.0	1	0.3
	Missing answer	1	0.6	1	0.6	0	0.0	2	0.6
	Statistical testing	Fisher's Exact = 1							
3. Did the nurse explain the reasons for the medicine in a way you could understand?	Completely, yes	171	95.0	167	96.5	7	100.0	345	95.8
	Some extent, yes	1	0.6	3	1.7	0	0.0	4	1.1
	No	2	1.1	0	0.0	0	0.0	2	0.6
	Didn't need	5	2.8	2	1.2	0	0.0	7	1.9
	Missing answer	1	0.6	1	0.6	0	0.0	2	0.6
	Statistical Testing	Fisher's Exact = 0.499							
4. If you had any questions to ask, were you satisfied with the answers?	Definitely, yes	174	98.9	151	98.1	7	100.0	332	98.5
	Some extent, yes	1	0.6	2	1.3	0	0.0	3	0.9
	No opportunity	1	0.6	1	0.6	0	0.0	2	0.6
	No questions	4		19		0		23	
	Statistical Testing	Fisher's Exact = 1							
5A Did the nurse give you medication without speaking to a doctor?	Yes	90	50.0	73	42.2	4	57.1	167	46.4
	No	36	20.0	38	22.0	2	28.6	76	21.1
	Don't Know	42	23.3	56	32.4	1	14.3	99	27.5
	Missing answer	12	6.7	6	3.5	0	0.0	18	5.0
	Statistical Testing	$\chi^2=3.82, df=2, p=0.15$							
5B† If 'YES' did the nurse have necessary skills?	Number:	90		73		4		167	
	Definitely, yes	89	98.9	68	93.2	4	100	161	96.4
	Some extent, yes	0	0.0	1	1.4	0	0.0	1	0.6
	No	1	1.1	0	0.0	0	0.0	1	0.6
	Missing answer	0	0.0	4	5.5	0	0.0	4	2.4

†Question 5A asked patients to only complete question 5B if they answered 'yes' to 5A. Statistical testing combines positive responses ('Completely, yes', 'Some extent, yes', 'Didn't need') and negative ('No', 'No opportunity'); missing answers not included in statistical testing. INP=Independent nurse prescribing, PGD= patient group direction

Table 2 Summary of Satisfaction with Information on Medicines Scale responses

SIMS item responses	INP		PGD		Not known		Total	
Number of respondents who answered/ partially answered SIMS	174		169		5		348	
Total potential SIMS score: (Number of completed question responses X potential top score of 16; excludes missing items)†								
SIMS response	n	%	n	%	n	%	n	%
Potential top score	2752	100	2678	100	80	100	5510	100
About right (+1)	2062	74.9	1987	74.2	59	73.8	4108	74.6
Not applicable (+1)	241	8.8	285	10.6	0	0	526	9.5
Too much (+0)	223	8.1	187	7	0	0	410	7.4
None received (+0)	169	6.1	163	6.1	16	20	348	6.3
Too little (+0)	57	2.1	56	2.1	5	6.3	118	2.1
Appropriate information total (About right, not applicable)	2303	83.7	2272	84.8	59	73.8	4634	84.1
Inappropriate information total (Too much, too little, none)	449	16.3	406	15.2	21	26.3	876	15.9

†Total potential score of 16 within each Satisfaction with Information about Medicines Scale (SIMS) assessment if each question scored 1. Total potential score multiplies the number of completed responses for each question (i.e. missing answers not included) by 16. Each question scored 1 where the information provided was considered by the respondent to be 'about right' or 'not applicable' and 0 if the information was considered to be 'too much', 'too little' or none was given. Items included medication name, how to take it, how much and when, possible side effects and how to deal with them, concurrent use of other medicines, what to do if a dose is forgotten, interactions with alcohol and potential drowsiness implications. Scores are summed, range 0 (worst) to 16 (highest satisfaction). Most responses were fully completed; missing items are not included (32 amongst returns from patients of INPs and 26 from returns of patients of PGD nurses). INP= independent nurse prescribing, PGDs= patient group directions.

Table 3 Satisfaction with Information on Medicines Scale scores

SIMS Scores	INP (n=174)	PGD (n=169)	Not known (n=5)	Total (n=348)	Statistical testing [‡] (INP vs PGD)
SIMS potential score [†]	2784	2704	80	5568	p=0.63
SIMS score achieved	2303	2272	59	4634	
SIMS mean score (/16)	13.3	13.5	11.8	13.4	
SIMS standard deviation	4.3	4.2	6.0	4.3	
AU total potential score	1392	1352	40	2784	p=0.34
AU score achieved	1196	1196	33	2425	
AU mean score (/8)	6.9	7.1	6.6	7.0	
AU standard deviation	2.2	2.0	2.2	2.1	
PPM total potential score	1392	1352	40	2784	p=0.98
PPM score achieved	1107	1076	26	2209	
PPM mean score (/8)	6.4	6.4	5.2	6.4	
PPM standard deviation	2.4	2.5	3.9	2.4	

[†]SIMS potential score is the highest score had every participant been completely satisfied with the medication information they received; SIMS: Satisfaction with Information about Medicines Scale, AU: Action and usage of medicines score; PPM: Potential problems of medicines score. INP =independent nurse prescribing, PGD= patient group directions

[‡]Statistical testing (Independent Samples t-test) compared INP with PGD, and excluded the 5 'not known' responses and those not completed