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# BMJ Open Communication about medication management during patient–physician consultations in primary care: a participant observation study

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## ABSTRACT

**Objective** To explore communication about medication management during annual consultations in primary care. Design: passive participant observations of primary care consultations.

**Setting** Two primary care centres in southern Sweden.

**Participants** Consultations between 18 patients (over the age of 60 years) with chronic diseases and 10 general practitioners (GPs) were observed, audio-recorded, transcribed and analysed using content analysis.

**Results** Four categories emerged: communication barriers, striving for a shared understanding of medication management, evaluation of the current medication treatment and the plan ahead and behavioural changes in relation to medication management. Misunderstandings in communication, failure to report changes in the medication treatment and use of generic substitutes complicated mutual understanding and agreement on continued treatment. The need for behavioural changes to reduce the need for medication treatment was recognised but should be explored further.

**Conclusion** Several pitfalls, including miscommunication and inaccurate medication lists, for safe medication management were identified. The purpose of annual consultations should be clarified, individual treatment plans could be used more actively during primary care consultations and efforts are needed to improve verbal communication and information continuity.

## BACKGROUND

In Sweden, as well as in most OECD (The Organisation for Economic Co-operation and Development) countries, the proportion of the population aged 65 years or older has increased since 1960 and is expected to continue to increase to 23.5% by 2050.<sup>1</sup> As age is a risk factor for chronic diseases, healthcare systems globally now face challenges in providing safe, timely, efficient and cost-effective care. Medication is one of the most common treatments for many conditions. A recent Swedish study of people 75 years or older showed that 45% experienced polypharmacy, defined as the use of five or

## STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ The participant observations is a strength as it enables observations of both verbal and non-verbal communication.
- ⇒ The selection of settings, situated in the same region of Sweden and the small sample size, may limit the extent to which our findings can be transferred to other settings.
- ⇒ Consistency in data collection was established and maintained by using a protocol for the observations.
- ⇒ The overall trustworthiness of this study was strengthened by involving a multidisciplinary team but might have been further strengthened if a physician or a consumer representative had been involved in the analysis.
- ⇒ The confirmability of the findings could have been strengthened by follow-up interviews with physicians and patients regarding the consultations.

more medications regularly.<sup>2</sup> Studies from other countries have shown similar levels of polypharmacy.<sup>3–4</sup> Polypharmacy can make it challenging for people to understand all the medication information provided and remember what medications they are taking, when to take them and why, resulting in non-adherence.<sup>5</sup> Difficulties in managing medications could also arise due to the fact that many medication names are complicated, sound similar, are poorly adapted to the languages in which they are used and often switched to a generic substitution.<sup>6–7</sup> The cost of drug-related morbidity in Sweden, including non-adherence, has been estimated to 12–20 billion SEK annually.<sup>8,9</sup>

To reduce the risk of medication-related problems and improve clinical outcomes, prescribers need to ensure that new and repeated prescriptions are appropriate and safe.<sup>10</sup> Having a permanent care contact (i.e., general practitioner (GP)) and a treatment plan incorporating patient's

self-determination decisions and integrity may be key to achieving desired treatment outcomes. A good relationship between patients and their GP has also been shown to improve medication management and medication adherence.<sup>11</sup> However, many people with chronic diseases only see their GP for an annual consultation, and it may thus be the only opportunity to establish personal continuity. This highlights the importance of information exchange between healthcare professionals involved in a patient's care and information exchange with the patient.

Information exchange is an important part of the communication during patient–physician consultations to reach a shared understanding about the medication management plan<sup>12</sup> and to influence patient adherence.<sup>13 14</sup> Various theoretical frameworks have been proposed for effective patient–physician communication. Recurrent features in many communication models are the importance of sharing information, creating a safe relation, achieving shared decision making and providing feedback.<sup>15–17</sup>

To support information exchange, medical records in Sweden are largely electronic and accessible to both GPs and hospital staff within a region, so all healthcare professionals involved in a patient's care can see what has been prescribed and by whom. However, dispensing histories are kept in a separate database. Hence, GPs are not informed if or when a medication has been dispensed. The Swedish eHealth Agency is in the process of introducing a national medication list for all people in Sweden, which will hold information about both prescribed and dispensed medications.<sup>18</sup> Since medical records are not always comprehensive, medication reconciliations remain important to ensure safe and effective medication use.<sup>18 19</sup> In Sweden, patients 75 years of age or older who is prescribed five or more medications should be offered a medication reconciliation when visiting a GP. Medication reconciliations include communication about which medications the patient is prescribed and why; which of these medications the patient uses and how; and which other medications the patient uses.<sup>10</sup>

To improve medication management among older adults in primary care, there is a need to gain a deeper understanding of the information exchange during consultations. The aim of this study was to explore communication about medication management between patients and GPs during annual consultations in primary care.

## METHODS

### Design

The study had an explorative observational design. Passive participant observations, that is, observers do not interact with the subjects in any way,<sup>20</sup> were conducted in primary care during annual consultations with people who had one or more chronic diseases. This approach can be advantageous for gathering information on interactions and communication between participants in a naturalistic

setting and provide information that those involved might otherwise be unaware of.<sup>21</sup> All observed patients and GPs provided written consent to participate in the study. The study align with the Consolidated criteria for Reporting Qualitative research.<sup>22</sup>

### Patient and public involvement

No patient or consumer representatives were involved in the design, conduct or analysis of this study.

### Participants and recruitment

Four publicly operated, tax-funded primary care centres were purposefully selected to reach variation in demographics of the patients. The managers of each centre were contacted and two approved having their centres included in the observation study.

Patient–GP consultations were the unit of observation, and eligible consultations were selected by the respective primary care managers. Criteria for inclusion were an annual consultation with a patient 60 years or older who had at least one chronic disease and experienced polypharmacy.

### Procedure and data collection

All healthcare professionals at the two primary care centres were verbally informed about the study during staff meetings by IA, LN and ME in March and September 2018, respectively. GPs who would be observed were also provided with written information before signing a consent form. At one of the primary care centres, five of the observed GPs were permanent staff and one was a locum. Only one of the four observed GPs at the second primary care centre was a permanent staff member.

Leaflets with information about the study were available to patients in the waiting areas at the two primary care centres. The patients were informed about the study verbally by IA and LN and by their GP in connection with the consultation. Observations were performed between May 2018 and October 2018, by IA, who is a male specialist nurse in intensive care and doctoral student, or by LN, a female sociologist with PhD in applied health informatics and experience in participatory observations. None of the observers had previous involvement with the participating GPs, patients or primary care centres. In 4 of the 18 observations, the patients had a close family member (a spouse or an adult child) present. The observations lasted between 14 and 43 min (median length 29 min). The scheduled consultations are normally 20 min, but it is possible to book a double consultation, thus have a 40 min consultation. The conversations between patients and GPs were conducted in Swedish, with one exception where the conversation was conducted in English. Field notes, based on an observation guide, were used to document non-verbal communication. A digital recorder was used to record the verbal communication between the patients and the GPs and transcribed verbatim.

## Analysis

Qualitative content analysis was conducted, inductively searching for patterns in the text. Qualitative content analysis may take various scientific positions in the analysis depending on the aim of the study, including descriptions of manifest content, close to the text or data, as well as latent content, distant from the actual text but close to the lived experience of the participants.<sup>23</sup> In the current study, focus was on the manifest content, which means visible, obvious components of data<sup>24</sup> and more concrete descriptions and interpretations.<sup>23</sup> Field notes made during the observations were used to clarify and guide the interpretation of the data. Data were sorted into meaning units, which were condensed with a low degree of interpretation and labelled with codes.<sup>23 24</sup> The transcripts from the first six observations were coded by all the researchers to create a coding scheme. The remaining transcripts were coded by one of the two observers (IA or LN). Once all transcripts had been coded, one author (IA) grouped the initial codes manually into 11 tentative subcategories based on similarities and differences in the data. Data analysis was done using Microsoft Excel. To address the challenge of dependability during the creation of categories, and the inclusion of codes and quotations from the original text, all the authors with their respective perspectives (nursing: ME, AH and IA; sociology: LN; and pharmacy: ECL) were involved in the analysis.<sup>23</sup> These discussions continued until consensus was reached, and the 11 subcategories were abstracted into four main categories, still close to the data.

## RESULTS

Out of 25 eligible patients scheduled for consultations, 18 (10 women and 8 men, median age 75 years) consented to being observed, while seven declined as they did not feel comfortable with having another person present during the consultation. Ten GPs (six in one primary care centre and four in the second) consented to being observed. GPs were observed during up to three consultations each. Four categories that illustrate the communication about medication management during annual consultations in primary care were constructed: communication barriers, striving for a shared understanding of medication management, evaluation of the current medication treatment and the plan ahead and behavioural changes in relation to medication management.

### Communication barriers

It appeared that GPs and patients had differing understandings of what to achieve during the consultation and did not always reach a mutual understanding. GPs commonly had a structure for the consultation that they tried to keep, even if individual variations occurred. However, sometimes the patients would take the initiative steering the conversation into another direction than anticipated by the GP. The patient would start with

describing symptoms that were troublesome or by asking about the results of recent blood tests.

Regardless of who started the conversations, GPs showed flexibility in their communication and kept asking probing questions to get more information or to clarify the symptoms the patient described. Use of vague expressions by both GPs and patients, opened for possible misunderstandings. For example, one patient reported suboptimal analgesic effects despite taking a medication with extended release twice daily, in the morning and at dinner, as prescribed by the GP. However, dinner could mean midday, that is, less than 6 hours between intake of the analgesics, potentially resulting in a medication-free window of around 18 hours, which could explain the suboptimal effect. In cases where the GP repeated a question from a different perspective, important information could be obtained.

GP: Do you take any medication for the pain?

Patient: Medication... for the pain... no.

GP: No.

Patient: No.

GP: No... no ibuprofen or anything?

Patient: Aspirin.

Observation 2

Another communication barrier was when medication treatment needed changing. GPs would often use clinical guidelines to support their recommendations, whereas patients usually relied on their own experience or what they had been told by family and friends when deciding to take the medication or not.

In some cases, the patient–GP communication was affected by hearing impairments or declining cognitive functions rather than vague expressions or different standpoints. These communication barriers were sometimes overcome by a close family member attending the consultation together with the patient. Another communication barrier was time. In some cases, it was the patient who was in a hurry, constantly checking the time and shifting restlessly in their chair.

### Striving for a shared understanding of medication management

The medication list was reviewed during each consultation. A common approach to reconcile medications was for the GP to read the medication list in the medical record aloud and ask the patient to confirm whether or not they were still using each medication. As several patients had difficulties remembering or even recognising the names of their medications, GPs sometimes referred to medications by effect, rather than by name, for instance saying, ‘the lipid-lowering tablet’, or mentioned something characteristic about the appearance of a tablet, such as calling it heart shaped.

The medication use reported by patients was often found to differ from what was documented in the medication

list. The most common discrepancies were omissions, additions or differences in dose or frequency. There were different reasons for these discrepancies, including unintentional non-adherence due to forgetfulness or lack of motivation, but also intentional non-adherence. Another important factor for discrepancies was poor information exchange between different prescribers as exemplified by a patient who had been recommended to change the dose by a specialist without this information being communicated to the GP. After discussing the medication treatment with the patient, the GP would update the medication list in the medical record, and patients were offered a printout, which most accepted. It was frequently observed that GPs talked *to* patients rather than *with* them and that they rarely stopped to assess what and how much the patients understood from the information provided.

GP: Okay, so let's see, yeah, that should be continued, and then you have the tablet for your gout, yeah, prophylactic.

P: No, I don't take that now.

GP: Oh?

P: No, I feel like I have so damn much of this crap anyway, so...

GP: But you've been okay anyway.

P: Yeah.

GP: Yeah.

P: It was, I thought that this isn't gout...

GP: No, gout, no, this, no, this isn't gout.

Observation 10

When medication non-adherence was discovered, GPs provided comprehensive information on more appropriate use. However, some patients remained unconvinced and insisted that their way of using medications was more effective. This was especially true for patients with asthma and other chronic diseases, where symptoms could be relieved quickly with short-acting medications, whereas preventive, long-acting medications would not offer the same immediate relief and were therefore considered less effective by the patients.

#### Evaluation of the current medication treatment and the plan ahead

The effects of current medication treatments were discussed during the consultations. Patients were asked if symptoms had changed, and the effects were also interpreted and evaluated with blood tests and clinical examinations. If results from blood tests were missing, evaluation of and decisions on continued treatment became more difficult. Sometimes, prescriptions were renewed despite no results of blood tests being available. In those cases, the GPs told the patients that they would be notified by phone if the blood tests indicated that the medication or dose needed to be changed.

Discussions about side effects were initiated by both patients and GPs. The topics ranged from side effects

experienced by the patient and how to manage these, to common side effects that the GP wanted to inform the patient about and how to avoid them. Some patients expressed that they avoided too extensive information about side effects.

Patient: I never read the patient information leaflet... if you aren't ill already, you will be.

Observation 1

Some side effects had such negative impact on patients that the medication treatment had to be changed. Other side effects were perceived as desirable, if managed appropriately. For example, taking a medication that has drowsiness as a known side effect could eliminate the need to prescribe a sleeping pill. Generic substitutions also created significant problems for some of the patients because of different names and because of different packaging that is not always suitable to put in a weekly pill organiser. In such cases, patients were advised to ask the pharmacy for the brand they felt safe with.

GPs were sometimes dissatisfied with the clinical response and made changes to the medication treatment. Benefits and risks of different treatment options were often discussed superficially, without the patient taking an active role in the decision-making process. Most patients seemed to accept this and agreed to do what the GP thought best. One example was when the GP considered changing from 'a weak blood thinner' (acetylsalicylic acid) to a 'stronger tablet' (warfarin) and the only question asked was whether the patient bruised easily.

#### Behavioural changes in relation to medication management

Lifestyle factors, such as physical activity, diet or use of alcohol and tobacco, were mentioned during several of the consultations. GPs often mentioned the importance of lifestyle factors, without discussing any specifics. What constitutes a *healthy lifestyle* was not explained or discussed, and no clear recommendations on how to improve one's lifestyle, if and where one could get help, or how this would be followed up, were provided. If an overweight patient reported a diet high in fat and sugar, the GP would simply tell them to reduce the amounts of fat and sugar, as illustrated in the quote further.

GP: How's your diet? I wrote 'low vegetable intake' last time.

P: Well, it probably hasn't increased.

GP: You haven't increased your daily intake of vegetables?

P: No, I don't think so.

GP: Is it something you have considered?

P: No, not really.

GP: No? Ok. That was an honest answer.

Observation 5

Having received that answer, the GP moved on without providing information on how the diet should be changed

or why it was important. It was clear during the observations that GPs would often drop the topic of diet, or any other lifestyle factor, when met with resistance or unwillingness to change behaviour, and focus on other things instead. There were, however, also examples where GPs provided comprehensive information on, for example, smoking cessation, along with offering support from the primary care centre.

The planning and recommendations for the coming year were often provided towards the end of the consultation, wrapping up the conversation. Several of the patients were reminded to contact the GP before the next annual consultation if there were any problems, if they experienced new or worsened symptoms, or if they ran out of medication before the next consultation. No information was provided on how to self-manage worsening symptoms or when to seek medical attention, nor did the patients ask about specific symptoms to be aware of. Patients with home-monitoring equipment were encouraged to check their blood pressure or blood sugar levels regularly at home. However, several patients stated that they rarely or never used their equipment.

## DISCUSSION

The communication about medication management during annual consultations in primary care were characterised by *communication barriers* including frequent miscommunication and misunderstandings about medication treatment on the one hand and *striving for a shared understanding of medication management* on the other. All consultations consisted of an *evaluation of the current medication treatment and the plan ahead*, while *behavioural changes in relation to medication management* was discussed to a lesser extent.

Our study showed that vaguely formulated questions from GPs or words with ambiguous meaning could lead to misconceptions and hampered mutual understanding, while previous studies have often referred to deficient language skills<sup>25 26</sup> or certain disabilities<sup>27</sup> in terms of communication barriers. A study of patients discharged from an emergency department concluded that a majority of patients with poor understanding of their discharge instructions were not aware of their lacking understanding.<sup>28</sup> This highlights the need of summarising and checking patient understanding.<sup>29</sup> Asking patients what medication they are using rather than reading the medication list aloud and ask them to confirm or deny using each medication would be an opportunity to assess patient's understanding of their medications. Very few instances of shared decision making or patient participation in terms of the patient sharing their preference and priorities for treatment or management were observed during the consultations. Increased patient participation has been shown to improve adherence to recommendations, clinical outcomes and perceptions of control over health.<sup>30</sup> The level of patient participation is determined by the patient's willingness to participate and the

physician's communicational behaviour, hence strengthening physicians' communication skills may enhance patient participation.<sup>31</sup>

Different communication models have been adopted and taught in the medical education to achieve a patient-centred approach in consultations.<sup>32</sup> Whether or not any of these models was used is hard to determine based on our observations. Applying a structured model for consultations, where both parties share information and discuss decisions, could increase mutual understanding.

Some of the GPs in our observations were locums, thus had limited previous knowledge about the patients. Strengthening personal continuity might facilitate a trusting encounter and the creation of common grounds for understanding,<sup>33 34</sup> as well as result in better patient outcomes.<sup>35 36</sup> As there is a shortage of GPs, correct and complete information exchange, across professionals and organisational borders, becomes even more important.<sup>37</sup> In our result, there were several examples of patients who were advised to change their medication during hospital visits, without this information being communicated to the GP, illustrating that information exchange is not always complete. Involving patients in medication reconciliations can provide crucial information about the actual use of medications. In our observations, GPs relied heavily on the information in the medical record and confirmed with yes/no questions to patients. Several discrepancies between patients' actual medication use and what was documented in the medical records were identified during the conversations which is consistent with a recent large evaluation of medication reconciliation in primary care.<sup>38</sup> Incorrect information on patients' medication treatments may lead to inappropriate prescribing and patient harm.<sup>39</sup>

In our study, several patients had difficulties remembering or even recognising the names of their medications. This is consistent with other studies.<sup>40</sup> Patients in this study used different approaches to remember what medications to take and when. Most of them relied on counting the number of tablets. While this might be considered as a sign that patients find their own ways to manage their medication treatment, it might also pose a risk. Patient inability to identify their medications by name or by appearance has been associated with more missed doses in previous research.<sup>41</sup> There are several strategies to improve self-management and medication adherence, including patient education, behavioural counselling and simplification of medication treatments.<sup>42</sup> Although many patients rely on information provided by healthcare professionals,<sup>43</sup> it does not have to be delivered by GPs, but can be provided by nurses<sup>44</sup> or pharmacists.<sup>45</sup> Multiprofessional collaboration is deemed essential for the delivery of effective and comprehensive care services that are perceived as seamless and consistent across care contexts from a patient's perspective.<sup>37</sup>

Many chronic diseases can be improved by increased physical activity and a modified diet.<sup>46</sup> In our observations, GPs often commented on the importance of



making healthy food choices and exercising more but did not explicitly explain what that meant, nor did they offer any individual self-management plans or other forms of support for changing behaviour. Patients appeared reluctant to change their habits, which is not uncommon,<sup>47</sup> and instead chose to continue taking medications. Making behavioural changes is difficult, and merely providing information about the importance of a healthy lifestyle does little to support change. An increasing number of self-management programmes are being delivered digitally,<sup>48</sup> facilitated by healthcare professionals other than GPs, for example, pharmacists, physiotherapists and dietitians.

Pharmacists could for example perform medication reconciliation and medication reviews with patients before the GP consultation to free up more time for the GP to create relationship and establish better communication with the patient during consultation.<sup>49</sup> Studies have shown that pharmacists are both efficient,<sup>50</sup> obtain more comprehensive medication lists compared with GPs<sup>51</sup> and reduce the number of patients with potentially inappropriate medications.<sup>52</sup> Clinical pharmacists or nurses could also provide medication education to improve medication adherence after the consultation if needed.<sup>53</sup> Dietitians and physiotherapists could support patients to implement lifestyle changes and reduce the reliance on polypharmacy.<sup>54</sup> Improved multidisciplinary team collaboration between healthcare professionals in primary care has been found to deliver healthcare with comparable or even improved outcomes, allowing GPs to focus on more complicated cases and achieving cost savings.<sup>55 56</sup>

This study has several strengths and limitations. The choice of passive participant observations by a nurse and a sociologist, unrelated with the primary care centres and using a protocol for documenting interesting observations such as facial expressions during the consultation, enriched our data compared with audio recordings alone. However, the presence of an observer during the consultation might have changed what and how freely both patients and GPs engaged in conversation during the consultation. We do not think this had a major impact on the data we were able to collect, as reluctant patients might have opted out of the study, rather it might have limited the range of data we were able to collect. To increase credibility and authenticity of the analysis, we used research triangulation in all analyses and interpretations of data as researchers' interpretations may vary depending on professional background and preunderstanding.<sup>23</sup> We also left an audit trail of representative citations in the text and examples of the abstraction and the interpretation process (online supplemental appendix 1). Despite the research team consisting of both nurses, a sociologist and a pharmacist, we lacked the input from GPs and consumer representatives. Their perspectives might have strengthened the trustworthiness of the study. We initially planned for follow-up interviews with patients after the consultation to gauge their impression

of the consultation in terms of communication, information provided and how involved in the decision-making process they felt. Unfortunately, not enough patients agreed to a follow-up interview to allow for data analysis.

## CONCLUSION

Communication during annual consultations is important for mutual understanding regarding diseases and medication management. Several pitfalls, including miscommunication and inaccurate medication lists, for safe medication management were identified. The purpose of annual consultations should be clarified, and efforts are needed to improve verbal communication and information continuity. Using an explicit agenda, based on each patient's individual treatment plan, to guide the consultation may optimise communication. Using precise expressions in lay language and frequently checking that mutual understanding of the treatment plan is achieved could improve communication and understanding and reduce misuse of medication. More emphasis on non-pharmacological treatment and referrals to other healthcare professionals for support in changing one's lifestyle habits could potentially reduce the need for polypharmacy.

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**Contributors** ECL, AH and ME contributed to the design of the study. IA and LN conducted the observations. IA conducted the first coding of data, which was discussed by all authors, who also participated in the analysis process. IA drafted the first manuscript, and all authors contributed to the writing of successive drafts. IA is the guarantor, accepts full responsibility for the work and the conduct of the study, had access to all the data and controlled the decision to publish. All authors have read and approved the final version of the manuscript.

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## REFERENCES

- 1 James C, ed. *Health at a Glance 2021*. OECD Health Division, 2021.
- 2 Wastesson JW, Cedazo Minguez A, Fastbom J, et al. The composition of polypharmacy: a register-based study of Swedes aged 75 years and older. *PLoS One* 2018;13:e0194892.
- 3 Payne RA, Avery AJ, Duerden M, et al. Prevalence of polypharmacy in a Scottish primary care population. *Eur J Clin Pharmacol* 2014;70:575–81.
- 4 Pereira KG, Peres MA, Iop D, et al. Polypharmacy among the elderly: a population-based study. *Rev Bras Epidemiol* 2017;20:335–44.
- 5 Pérez-Jover V, Mira J, Carratala-Munuera C, et al. Inappropriate use of medication by elderly, Polymedicated, or Multipathological patients with chronic diseases. *Int J Environ Res Public Health* 2018;15:310.
- 6 Bryan R, Aronson JK, ten Hacken P, et al. Patient safety in medication nomenclature: Orthographic and semantic properties of international Nonproprietary names. *PLoS One* 2015;10:e0145431.
- 7 Dunne SS. What do users of generic medicines think of them? A systematic review of consumers' and patients' perceptions of, and experiences with, generic medicines. *Patient* 2016;9:499–510.
- 8 ALBA II. *Mindre sjukdom och bättre hälsa genom ökad följsamhet till läkemedelsordinationerna: professionernas roll: rapport från Arbetsgruppen för bättre läkemedelsanvändning (ABLA II)*. Stockholm: Landstingsförbundet, 2001.
- 9 Gyllenstein H, Hakkarainen KM, Hägg S, et al. Economic impact of adverse drug events—a retrospective population-based cohort study of 4970 adults. *PLoS One* 2014;9:e92061.
- 10 National Board of Health and Welfare. *HSLF-FS 2017:37 Socialstyrelsens föreskrifter och allmänna råd Om ordination och hantering AV läkemedel I hälso- och sjukvården*. Stockholm: Socialstyrelsen, 2017.
- 11 Chen C-C, Tseng C-H, Cheng S-H. Continuity of care, medication adherence, and health care outcomes among patients with newly diagnosed type 2 diabetes: a longitudinal analysis. *Med Care* 2013;51:231–7.
- 12 Manojlovich M, Squires JE, Davies B, et al. Hiding in plain sight: communication theory in implementation science. *Implement Sci* 2015;10:58.
- 13 Fortuna RJ, Nagel AK, Rocco TA, et al. Patient experience with care and its association with adherence to hypertension medications. *Am J Hypertens* 2018;31:340–5.
- 14 Hesse C, Rauscher EA. The relationships between doctor-patient Affectionate communication and patient perceptions and outcomes. *Health Commun* 2019;34:881–91.
- 15 de Haes H, Bensing J. Endpoints in medical communication research, proposing a framework of functions and outcomes. *Patient Educ Couns* 2009;74:287–94.
- 16 Clochesy JM, Dolansky MA, Hickman RL, et al. Enhancing communication between patients and healthcare providers: SBAR3. *J Health Hum Serv Adm* 2015;38:237–52.
- 17 Windover AK, Boissy A, Rice TW, et al. The REDE model of healthcare communication: optimizing relationship as a therapeutic agent. *J Patient Exp* 2014;1:8–13.
- 18 Sim J, Joyce-McCoach J, Gordon R, et al. Development of a data registry to evaluate the quality and safety of nursing practice. *J Adv Nurs* 2019;75:1877–88.
- 19 Cullinan S, O'Mahony D, Byrne S. Application of the structured history taking of medication use tool to optimise prescribing for older patients and reduce adverse events. *Int J Clin Pharm* 2016;38:374–9.
- 20 Spradley JP. *Participant observation*. New York: New York: Holt, Rinehart and Winston, 1980.
- 21 Salmon J. Using observational methods in nursing research. *Nurs Stand* 2015;29:36–41.
- 22 Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health Care* 2007;19:349–57.
- 23 Graneheim UH, Lindgren B-M, Lundman B. Methodological challenges in qualitative content analysis: a discussion paper. *Nurse Educ Today* 2017;56:29–34.
- 24 Graneheim UH, Lundman B. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Educ Today* 2004;24:105–12.
- 25 Clarke SK, Jaffe J, Mutch R. Overcoming communication barriers in refugee health care. *Pediatr Clin North Am* 2019;66:669–86.
- 26 Karliner LS, Auerbach A, Nápoles A, et al. Language barriers and understanding of hospital discharge instructions. *Med Care* 2012;50:283–9.
- 27 Agaronnik N, Campbell EG, Ressler J, et al. Communicating with patients with disability: perspectives of practicing physicians. *J Gen Intern Med* 2019;34:1139–45.
- 28 Engel KG, Heisler M, Smith DM, et al. Patient comprehension of emergency department care and instructions: are patients aware of when they do not understand? *Ann Emerg Med* 2009;53:454–e15.
- 29 Parker L, Ryan R, Young S, et al. Medications and doctor-patient communication. *Aust J Gen Pract* 2021;50:709–14.
- 30 Harrington J, Noble LM, Newman SP. Improving patients' communication with doctors: a systematic review of intervention studies. *Patient Educ Couns* 2004;52:7–16.
- 31 Thompson AGH. The meaning of patient involvement and participation in health care consultations: a taxonomy. *Soc Sci Med* 2007;64:1297–310.
- 32 Hedberg C. Patientcentrerad konsultation – Bra för både patient och läkare. *Lakartidningen* 2020;117:20056.
- 33 Freilich J, Wiking E, Nilsson GH, et al. Patients' ideas, concerns, expectations and satisfaction in primary health care - a questionnaire study of patients and health care professionals' perspectives. *Scand J Prim Health Care* 2019;37:468–75.
- 34 Ljungholm L, Klinga C, Edin-Liljegren A, et al. What matters in care continuity on the chronic care trajectory for patients and family carers?—A conceptual model. *J Clin Nurs* 2022;31:1327–38.
- 35 Freeman G, Walker J, Heaney D, et al. Personal continuity and the quality of GP consultations: knowing the doctor or having a regular doctor? *Eur J Gen Pract* 2002;8:90–4.
- 36 Lytsy P, Engström S, Ekstedt M, et al. Outcomes associated with higher relational continuity in the treatment of persons with asthma or chronic obstructive pulmonary disease: a systematic review. *EClinicalMedicine* 2022;49:101492.
- 37 Haggerty JL, Reid RJ, Freeman GK, et al. Continuity of care: a multidisciplinary review. *BMJ* 2003;327:1219–21.
- 38 Gionfriddo MR, Duboski V, Middernacht A, et al. A mixed methods evaluation of medication reconciliation in the primary care setting. *PLoS One* 2021;16:e0260882.
- 39 Lavan AH, Gallagher PF, O'Mahony D. Methods to reduce prescribing errors in elderly patients with multimorbidity. *Clin Interv Aging* 2016;11:857–66.
- 40 Jones G, Tabassum V, Zarow GJ, et al. The inability of older adults to recall their drugs and medical conditions. *Drugs Aging* 2015;32:329–36.
- 41 Lenahan JL, McCarthy DM, Davis TC, et al. A drug by any other name: patients' ability to identify medication regimens and its association with adherence and health outcomes. *J Health Commun* 2013;18 Suppl 1:31–9.
- 42 Izeogu C, Kalinowski J, Schoenthaler A. Strategies to improve adherence to anti-hypertensive medications: a narrative review. *Curr Hypertens Rep* 2020;22:105.
- 43 Ivynian SE, Newton PJ, DiGiacomo M. Patient preferences for heart failure education and perceptions of patient-provider communication. *Scand J Caring Sci* 2020;34:1094–101.
- 44 Markle-Reid M, Ploeg J, Fraser KD, et al. Community program improves quality of life and self-management in older adults with diabetes mellitus and comorbidity. *J Am Geriatr Soc* 2018;66:263–73.
- 45 van Eikenhorst L, Taxis K, van Dijk L, et al. Pharmacist-Led self-management interventions to improve diabetes outcomes. A systematic literature review and meta-analysis. *Front Pharmacol* 2017;8:891.
- 46 Pedersen BK, Saltin B. Exercise as medicine - evidence for prescribing exercise as therapy in 26 different chronic diseases. *Scand J Med Sci Sports* 2015;25 Suppl 3:1–72.
- 47 Brotons C, Bulc M, Sammut MR, et al. Attitudes toward preventive services and lifestyle: the views of primary care patients in Europe. The EUROPREVIEW patient study. *Fam Pract* 2012;29 Suppl 1:i168–76.
- 48 Greenwood DA, Gee PM, Fatkin KJ, et al. A systematic review of reviews evaluating Technology-Enabled diabetes self-management education and support. *J Diabetes Sci Technol* 2017;11:1015–27.
- 49 Stewart AL, Lynch KJ. Identifying discrepancies in electronic medical records through pharmacist medication reconciliation. *J Am Pharm Assoc* 2012;52:59–68.
- 50 Nester TM, Hale LS. Effectiveness of a pharmacist-acquired medication history in promoting patient safety. *Am J Health Syst Pharm* 2002;59:2221–5.



- 51 Reeder TA, Mutnick A. Pharmacist- versus physician-obtained medication histories. *Am J Health Syst Pharm* 2008;65:857–60.
- 52 Milos V, Rekman E, Bondesson Åsa, *et al.* Improving the quality of pharmacotherapy in elderly primary care patients through medication reviews: a randomised controlled study. *Drugs Aging* 2013;30:235–46.
- 53 Hedegaard U, Kjeldsen LJ, Pottegård A, *et al.* Improving medication adherence in patients with hypertension: a randomized trial. *Am J Med* 2015;128:1351–61.
- 54 Klein D, Jeejeebhoy K, Tremblay A, *et al.* The change program: exercise intervention in primary care. *Can Fam Physician* 2017;63:546–52.
- 55 Hickson M, Child J, Collinson A. Impact of a dietitian in general practice: care of the frail and malnourished. *J Hum Nutr Diet* 2022;35:145–53.
- 56 Leong SL, Teoh SL, Fun WH, *et al.* Task shifting in primary care to tackle healthcare worker shortages: an umbrella review. *Eur J Gen Pract* 2021;27:198–210.