



The Initial Use of the Home Medication Experience Questionnaire (HOME-Q) in Community-Based Pharmacy

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Matthew J Witry, PharmD, PhD¹ , Kassi Pham, B.A.¹,
Brahmendra Viyyuri, PharmD¹, William Doucette, PhD²,
and Korey Kennelty, PharmD, MS, PhD¹

Abstract

The Home Medication Experience Questionnaire (HOME-Q) was developed to systematically gather information on the medication experience of patients. The objectives of this study were to (1) assess the frequencies of medication experience issues for a sample of patients and (2) report pharmacist recommendations to address issues and patient implementation of recommendations. This study used a single-group design with 3-month follow-up. A convenience sample of patients aged 55 years and older and taking 4 or more chronic medications self-administered the HOME-Q and discussed responses with a pharmacist from 2 community pharmacies. A researcher called or visited participants at 3 months to readminister the HOME-Q and inquire about recommendations. Thirty-three patients completed questionnaires, and 30 participated in the follow-up. At 3 months, the HOME-Q median did not decrease (4 at both administrations). There were 51 pharmacist interventions/recommendations, and 47% were reported adopted. The HOME-Q prompted pharmacists to respond to medication experience issues that may not have been identified otherwise. More work is needed to test the impact of the HOME-Q and better understand medication experience discussions between patients and pharmacists.

Keywords

medication, pharmacist, patient, experience, adherence

Background

Older adults commonly take multiple daily medications to treat chronic conditions such as diabetes and hypertension (1,2). Taking 4 or more medications has been termed polypharmacy (1) and is associated with potentially avoidable adverse events contributing to emergency room use, hospitalization, and even death (3). The costs of nonoptimized medication regimens are estimated to cost the US health-care system US\$528 billion annually (4).

Over the last several decades, pharmacists have worked to position themselves as the health-care practitioner best equipped to address medication use. Community-based pharmacists, in particular, may be embarking on a significant transition in practice (5). It is increasingly apparent that the health-care system must move from a reactive system to a system that proactively engages patients in prevention and monitoring (3) in a way that adds value (6). Some pharmacists similarly appear to be expanding their pharmaceutical

gaze (7) of identifying and resolving medication-related problems (8) to a more patient-centered approach that integrates patients and their medication experiences into decision-making (5,9). One example of this shift is community-based pharmacists expanding their traditional role of accurately dispensing safe medications and providing initial counseling (10) to also include proactively monitoring the ongoing use of medications and actively working to address emerging problems (11).

¹ University of Iowa College of Pharmacy, Iowa City, IA, USA

² Veale Professor in Healthcare Policy, University of Iowa College of Pharmacy, Iowa City, IA, USA

Corresponding Author:

Matthew J Witry, University of Iowa College of Pharmacy, 180 S. Grand Ave, 342 CPB, Iowa City, IA 52242, USA.
Email: matthew-witry@uiowa.edu



For years, prescription reimbursement contracts have incentivized pharmacies to dispense more prescriptions as efficiently as possible. Reimbursement for other activities has been difficult for pharmacists to sustain. Emerging payment models may lead to pharmacists being encouraged to investigate issues about the patient experience with medicines, such as their challenges to adherence or uncertainties about their treatment that may affect their long-term success. This is especially relevant since patients typically are on their own to develop their medication-taking routines. Ultimately, the home use of medications is subject to the same headwinds as any other health behavior (12). These personal preferences and idiosyncrasies are not contained in prescription claims and can only be uncovered when disclosed by the patient. For example, claims may indicate that a patient is late refilling their prescription, but administrative data cannot inform the pharmacist that the patient is skipping doses because of a medication side effect. Or, consider copay amounts which are clear to the dispensing pharmacist, but what may not be apparent is the impact of multiple copays on a patient's fixed income.

Since pharmacies are busy and patient concerns and habits can vary, the Home Medication Experience Questionnaire (HOME-Q) was developed based on the patient medication experience literature to facilitate patients in disclosing their home medication-taking experiences, beliefs, and challenges. The HOME-Q responses provided by patients could contribute to a discussion whereby the pharmacist would team with the patient and prescriber to address beliefs, issues, and practices that may keep someone from their best possible medication experience. This is in contrast to other questionnaires that primarily serve to categorize persons as high-risk patients which warrant intervention or serve as patient-reported outcome measures for research studies (13,14).

Objectives

To (1) assess the frequencies for which a sample of patients respond to a set of medication experience issues and (2) report pharmacist recommendations to address reported issues and patient implementation of the recommendations.

Methods

This study was approved by the university institutional review board on October 31, 2017 (#201710776). Two pharmacies were recruited to administer the questionnaire. These pharmacies were independently owned and serve suburban populations in a single Midwestern US state. Each pharmacy would administer the questionnaire to a convenience sample of older adults aged 55 or older and taking 4 or more prescription medications (Figure 1). These criteria were selected to identify patients who may be of a higher risk for having complicated regimens to treat one or more chronic medical conditions. Also, the HOME-Q could augment the

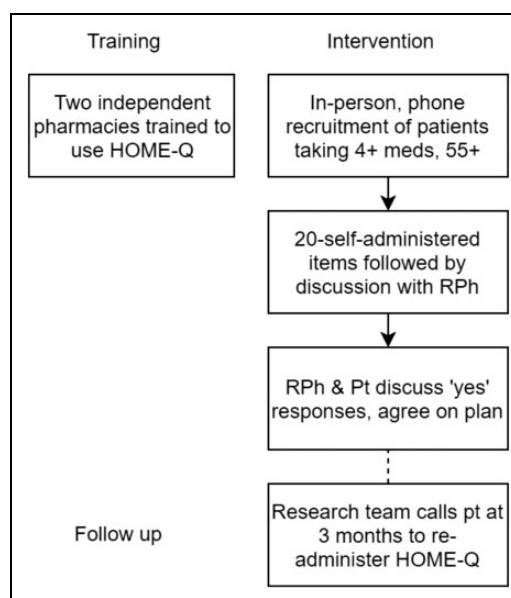


Figure 1. Study overview.

comprehensive medication reviews for which such older adults may be eligible upon reaching Medicare age.

Questionnaire Development and Domains

The literature on medication-related problems, risk assessment instruments, and barriers to medication adherence were reviewed (15). We identified 5 domains of self-reported risk factors for patients taking their medications at home: (1) medication adherence barriers, (2) medication-taking behaviors and organization, (3) proper use of medication management tools and technologies, (4) household/environmental obstacles to optimal medication use, and (5) patient characteristics that could inhibit safe, effective medication use.

An initial pool of 41 items was aggregated based on the following categories and their corresponding references: over-the-counter (OTC) use (16), multiple pharmacy use (17), medication timing and scheduling (14,18), multiple prescriber use (19,20), health literacy (21), physical limitations (16,22–25), medication containers and organization (23,26,27), cost (28,29), belief based and other causes of medication nonadherence (30,31), using old medicines and other persons medicines (32), and a lack of social support (22,33).

This item bank was examined by the authors to determine risk factor areas that could be assessed by items that represented the different domains. Items were prioritized if they presumably could precipitate meaningful patient experience information for a pharmacist to act on. The questionnaire underwent several rounds of modification and editing within the team and then was sent to experts in pharmacy and nursing for comment.

The authors decided on a 20-item study version of the HOME-Q. The HOME-Q used a yes/no format designed for the patient to self-administer or for a pharmacist to verbally administer over the telephone or in person. The goal of the HOME-Q was not to assign a patient an overall risk score level as is the goal of other medication risk questionnaires and medication adherence questionnaires. Hence, we did not conduct psychometric testing because we did not assume there was an underlying latent variable nor an underlying factor structure. Rather, the goal was to help the pharmacist identify patient experience issues which may be affecting the success of a patient's medication regimen and issues where the pharmacist may have targeted interventions to mitigate the issue. Our assumption was that once an issue is identified, the pharmacist could use education, motivation, service offerings, or other problem-solving approaches to help improve the medication experience of the patient.

Pharmacist Training

The participating pharmacists ($n = 4$) were residency trained or a current resident. The training lasted about 60 minutes and covered the background of the questionnaire and its development, recruitment, consent, documentation, meeting with the patient to discuss the questionnaire, and other study logistics. Training also included several recommended practices for promoting a patient-centered dialogue to promote the pharmacist's use of open-ended questions and probes. These techniques were intended to help the patient to be comfortable disclosing negative beliefs about medicines or personal concerns they may be having with their medicines but may not typically disclose because of social desirability.

Study Process

Study pharmacists typically recruited patients in person during the medication dispensing process. Patients picking up their medicines were asked if they would be interested in completing a questionnaire about their medicines. If interested, the pharmacist elaborated on the study, obtained written consent, and gave the patient a paper-based version of a 20-item questionnaire plus a short demographics section to describe the sample. Some patients completed the questionnaire at the pharmacy, while others took it home to complete and mailed it back to the pharmacy in a postage-paid return envelope.

The pharmacist and patient arranged a time to discuss the questionnaire. For some patients, the pharmacist and patient were able to meet immediately. During the meeting, the pharmacist reviewed the questionnaire responses with the patient and offered suggestions or changes based on the items that were checked. Some patients who elected to complete their questionnaire at home discussed the HOME-Q responses over the phone. Patients were compensated US\$10 for completing the questionnaire and meeting with the pharmacist and another US\$10 for participating in the

3-month follow-up call with a member of the research team. Pharmacies were reimbursed US\$75 for each patient they recruited, consented, met with for the intervention, and documented their meeting. One pharmacy documented their interventions in their own electronic documentation system, and the second pharmacy used a paper form for documenting their encounters which was provided by the researcher team.

Three-Month Follow-Up Call or In-Person Home Visit

Completed HOME-Q forms and pharmacist notes were faxed to the researchers or collected from the pharmacy. After approximately 3 months, a member of the research team either visited the participant at their home ($n = 12$) or called them over the telephone ($n = 18$) to readminister the HOME-Q and to assess if the recommendations from the pharmacist were adopted and maintained. Three months was chosen to give patients enough time to adopt changes but not so long that patients may not remember meeting with the pharmacist. Participants were openly asked if they had feedback on the questionnaire or meeting with the pharmacist. Responses were audio-recorded for the home visits, but not for the calls. For the calls, the research assistant recorded handwritten notes.

Analysis

Frequencies were calculated for each HOME-Q item at baseline and at 3 months. Normality was assessed for continuous variables by examining histograms, examining skew, and using the Shapiro-Wilk test. For continuous variables where normality was not established, medians and interquartile ranges (IQR) were calculated. Differences between baseline and 3-month HOME-Q totals were assessed using a Wilcoxon signed rank test at an a priori .05 level of significance. Pharmacist interventions were coded descriptively into categories and counted. Two authors collaborated on the coding.

Results

Thirty participants were included in this analysis and had full data for their initial pharmacist workup and 3-month reassessment of the HOME-Q. Three patients were lost to follow-up as they could not be reached after 3 attempts. Few patients denied the offer to participate when approached. However, this was not formally recorded. The average age of the participants was 70.6 (standard deviation = 11.1), and 15 (50%) were female. The median number of oral medications was 6.5 (IQR = 4). The total number of "yes" responses to HOME-Q items for these 30 participants was 131 at baseline and 129 at follow-up (Table 1). The median HOME-Q sum for the 30 patients with complete data was 4 (IQR = 2) at baseline and 4 (IQR = 3) at 3 months ($P = .213$).

Respondents commonly reported on their initial HOME-Q (Table 1) that they use multiple prescribers (76.6%

Table 1. Home Medication Experience Questionnaire (HOME-Q) Frequencies From 30 Initial and 3 Months.^a

#	HOME-Q Version 1 Item ^b	T1 Yes	T2 Yes
4	More than 1 doctor prescribes medicines for me	23	21
1	In addition to my prescriptions, I regularly take other pills for my health like vitamins, supplements, herbals, and other OTC medicines	23	28
10	Sometimes I forget to take my medications on time	12	12.5
15	Sometimes I feel like I am taking too many medications	13	8.5
14	I keep old prescription medicines just in case	13	9
12	Sometimes I wonder if my medications are doing more harm than good	8	11
16	I'm not sure some of my medications are working	7	6.5
6	Sometimes my medication containers are hard to open	5	3
11	Sometimes I run out of my medications	4	4
9	In the past 6 months, I have not filled a medication because of the cost	4	1
5	Sometimes it is hard for me to keep all my medicines straight	2	2
2	I use more than one pharmacy to get my prescriptions	4	4
17	Sometimes I need help understanding the handouts from my dr, pharmacy	4	4
19	Sometimes it is hard for me to read the labels on my medicines	3	2
7	I wish I had a better way to organize my medications	1	3.5
18	I am unclear about some of my medication directions	2	2
20	I could use some support managing my medications at home	1	2
3	The timing of my medication schedule is inconvenient	1	2
8	Sometimes I cut my medicines in half or take less so they last longer	1	3
13	Sometimes I use someone else's prescription medicines	0	0

Abbreviation: OTC, over-the-counter.

^an = 30.

^bHome Medication Experience Questionnaire response categories: yes, no.

n = 23/30) and use OTC medications and supplements (n = 23/30). Forgetfulness and feelings of taking too many medications were reported 12 of 30 and 13 of 30 times (40% and 43.3% respectively). Keeping old prescription medicines just in case was reported 13 of 30 times. Only 1 item—sometimes I use someone else's prescription medicines, received no “yes” responses. Small decreases were seen in the number of yes responses at time 2 for keeping old medicines just in case and the feeling of taking too many medicines. Feeling like medications do more harm than good increased.

There were 51 coded interventions across 9 categories (Table 2). Common pharmacist actions were printing or

Table 2. Pharmacist Interventions and Patient Adoption or Maintenance.

Pharmacist Intervention/Action	Made, n	Maintained/Adopted, n (%)
Print, share medication list	8	3 (37.5)
Recommend takeback	8	2 (25.0)
Pill box, phone reminder	8	3 (37.5)
Medication packaging, EZ cap	7	0 (0.0)
Medication side effect, low need counseling/action	6	3 (50.0)
OTC recommendation	5	4 (80.0)
Timing recommendation	4	3 (75.0)
Medication synchronization	3	3 (100.0)
Cost problem-solving	2	2 (100.0)
Total	51	23 (45.1)

Abbreviation: OTC, over-the-counter.

recommending medication lists (n = 8), recommending medication takeback for unneeded medications (n = 8), recommending pillboxes or other adherence aids (n = 8), and recommending packaging solution or easy open bottle caps (n = 7). Some recommendations were not as well accepted as others. For example, of the 8 participants offered a printed medication list, only 3 took the pharmacist up on the offer. Only 2 of 8 participants reported disposing of medications at a takeback disposal event. None of the 7 patients who were offered prepackaging solutions from the pharmacy signed up for the service. The number of interventions per patient ranged from 0 to 3, and 23 of the interventions (45.1%) appeared to be adopted and/or maintained at the 3-month call.

Discussion

Overall, patients self-reported a mean of 4.3 medication experience issues on their HOME-Q assessments. This total, however, did not decrease on follow-up as initially hypothesized. It may be that new items arose to replace resolved issues or some issues persisted perhaps requiring ongoing support. For example, financial constraints are often out of the control of the patient and the pharmacist. Research suggests that medication adherence also can be challenging to influence and requires persistence to address the underlying reasons (3,30,34).

Some of these patient experience items yielded pharmacist interventions, while others did not. The mean number of recommendations (1.7) is similar to the number of drug therapy problems identified by pharmacists for patients completing a medication-related problem predictor scale (14) and persons participating in medication review services (35,36). While pharmacist interventions in response to the HOME-Q workups varied in significance and the rate of adoption, such problem-solving discussions may have benefits to the pharmacist-patient relationship if the patient sees them as altruistic and “going the extra mile.” (37)

For example, patients in this sample commonly reported negative beliefs about their medicines including 13 (43.3%) at time 1 and 8.5 (28.3%) at time 2 feeling they take too many medicines (one of the participants marked between the columns to denote a “somewhat” response). While there may not have been an intervention that resulted in a change to the patient’s medications or routine associated with this response, a pharmacist discussion of this nature could serve to reassure the patient about the appropriateness of their regimen or the benefit of certain medications. The rates of negative beliefs reported by patients on their HOME-Qs also were higher than in other pharmacist intervention studies. Participants may have felt more comfortable reporting negative medication beliefs on a questionnaire than face-to-face where a patient may default to a socially desirable response. For example, the rate of reporting negative medication beliefs was only reported in 0.2% of pharmacist medication adherence assessments in a chart review study (38). This suggests a medication experience inventory like the HOME-Q may bring medication beliefs to light where they otherwise may go unvoiced, which may help pharmacists expand their focus from identifying traditional medication-related problems related to prescribing appropriateness (8) to medication monitoring interventions.

When asked about each pharmacist recommendation during the 3-month call with a member of the research team, some interventions were more often maintained or adopted than others. For example, prepackaging was not adopted following any of the 8 times it was offered. Patients may have negative attitudes toward medication packaging solutions (26,39), especially if there is an associated cost. Packaging also may make a patient feel vulnerable as taking medications may have been an activity that they handled in the past.

As mentioned previously, the goal of the HOME-Q is not to serve as a patient-reported outcome measure. Rather, the goal of the questionnaire is to facilitate provider assessment of a patient’s medication experience issues. Therefore, future work to validate interventions that use the HOME-Q will need to employ outcome measures to test construct validity. Measures of medication self-efficacy (40) and pharmacist–patient relationship (41) may be useful for assessing interventions focused on improving a patient’s medication experience. Also, disease-specific measures could be used, such as for diabetes distress (42). Objective measures of adherence could be used if patients are targeted based on historical nonadherence as many, although not all, of the patient experience items could contribute to missing doses or not filling prescriptions.

Since the goal of the HOME-Q is to make patient medication experience data available to pharmacists and other providers, it is necessary to evaluate how the HOME-Q influences the discussions between pharmacists and patients about the patient’s medication experience. It will be important to test if pharmacists using the HOME-Q also engage in patient-centered communication strategies conducive to

trust building and disclosure. Interview and observational research will be needed to better understand the medication experience discussions and how they can be improved as pharmacists tend to focus on providing information to patients (9, 43–45).

The next step with this research is to evaluate these findings to inform revisions to the HOME-Q. For example, some of the items were rarely chosen, and others were not associated with pharmacist interventions. These items could be considered for modification. Also, several respondents made marks between yes and no on their questionnaire to denote a may be or somewhat response. It may be appropriate to add in a middle option. This may increase disclosure. Another strategy to increase discussion may be to phrase some of the items positively, suggesting the presence or absence of a medication-taking best practice. The pharmacist could then help patients consider adopting such a practice. For example, telling one’s doctor and pharmacist about their vitamins and supplements.

Given the purpose of the HOME-Q is to precipitate medication experience discussions, it may be beneficial to examine how the HOME-Q can augment medication workups already being offered, such as comprehensive medication reviews, chronic care management, and others. Expanding the number of completed questionnaires and pharmacist interventions also may provide data needed to shorten or modify the questionnaire. Targeting patients based on greater medication regimen complexity, patients new to chronic medication use, patients with less well-developed habits, or patients with apparent medication nonadherence may have greater responses. Also, experimental research is needed to determine whether the HOME-Q identifies medication use barriers that would not be identified without the questionnaire.

Limitations

This was an exploratory evaluation study with a small sample of patients and pharmacists. Transferring these initial results should be done cautiously given the limited geographic, patient, and pharmacy variability. Additional trials with a focus on increasing sample diversity are needed for greater generalizability. The use of a convenience sample may have led to selection bias. The study was not designed to differentiate telephone and in-person administration of the tool or test-retest reliability.

Conclusions

While there was not a decrease in the number of medication experience issues reported on the HOME-Q between the start of the study and at 3 months, the HOME-Q helped patients report medication experience issues and engage in discussion with the pharmacist on topics that may have been ignored otherwise. Some patients in the study adopted new behaviors and routines because of the discussion with the

pharmacist. More work is needed to test the use and impact of the HOME-Q on medication experience and management by patients in their homes.

Authors' Note

This study was approved by the university IRB on October 31, 2017 (#201710776).

Declaration of Conflicting Interests

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ORCID iD

Matthew J Witry, PharmD, PhD  <https://orcid.org/0000-0001-8381-7224>

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Author Biographies

Matthew J Witry, is Assistant Professor, Department of Pharmacy Practice and Science, University of Iowa College of Pharmacy, Iowa City, IA

Kassi Pham, is third-year student pharmacist and research assistant, Department of Pharmacy Practice and Science, University of Iowa College of Pharmacy, Iowa City, IA

Brahmendra Viyyuri, is graduate student and research assistant, Department of Pharmacy Practice and Science, University of Iowa College of Pharmacy, Iowa City, IA

William Doucette, is Deborah K. Veale Professor in Healthcare Policy and Head of the Division of Health Services Research in the Department of Pharmacy Practice and Science, University of Iowa College of Pharmacy, Iowa City, IA

Korey Kennelty, is Assistant Professor in the Department of Pharmacy Practice and Science at the University of Iowa College of Pharmacy, and in the Department of Family Medicine at the University of Iowa Carver College of Medicine, Iowa City, IA. Her clinical practice is through the University of Iowa Hospital and Clinics as a geriatrics pharmacist.