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## Health Literacy based communication by Illinois pharmacists

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### Abstract

**Objectives:** Health literacy has received attention as an important issue for pharmacists to consider when interacting with patients. Yet, there is little information about methods pharmacists use to communicate with patients and their extent of use of health literacy based interventions during patient interactions. The purpose of this study was to examine methods of communication and types of health literacy based interventions that practicing pharmacists use in Illinois.

**Methods:** A survey instrument addressing the study purpose was designed along with other items that were part of a larger study. Eleven items in the survey referred to pharmacist-patient communication. The instrument was pilot tested before administering to a random sample of 1457 pharmacists from the Illinois Pharmacists Association. Data were primarily collected via a mailed survey using Dillman's five step total design method (TDM). Two reminder letters were mailed at two week intervals to non-respondents.

**Results:** Usable responses were obtained from 701 respondents (48.1% response rate). Using simple words (96%) and asking patients open-ended questions to determine comprehension (85%) were the most frequent methods that pharmacists used to communicate with patients. Only 18% of respondents always asked patients to repeat medication instructions to confirm understanding. The various recommended types of health literacy interventions were "always" performed by only 8 to 33% of the respondents. More than 50% of respondents indicated that they rarely or never had access to an interpreter (51%), or employed bilingual pharmacists (59%). Only 11% of pharmacists said that they rarely/never pay attention to nonverbal cues that may suggest low health literacy.

**Conclusions:** Pharmacists infrequently use action oriented health literacy interventions such as using visual aids, having interpreter access, medication calendars, etc. Additional training on health literacy, its scope, and related interventions coupled with system redesign and compensation for time spent counseling are essential to encourage health literacy tailored communication with patients.

### Introduction

Low health literacy (LHL) has been widely studied and there is established evidence of its negative impact on numerous patient outcomes such as poor adherence, medication mismanagement, poor health status, increased risk of mortality, and higher overall health care costs.<sup>1</sup> Estimates from the 2003 National Adult Literacy Survey (NAAL) suggest

that 36% of the U.S. adult population has LHL.<sup>2</sup> Health Literacy has been defined by the Institute of Medicine as the "degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions."<sup>3</sup> It is expected that the passage of the Affordable Care Act and resulting expansion of care, will lead to greater access to care for patients at all health literacy levels, thereby making the challenges posed by LHL to become more pronounced.

Pharmacists are on the frontline of medication delivery and are the most accessible sources of medication information for patients. Their role in patient care is even more vital because of several challenges such as: a) patients some of whom remember only a fraction of the information conveyed by the provider,<sup>4</sup> b) those with LHL who experience a sense of shame

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about their literacy level and may not be forthcoming with the pharmacist about their ability to read and understand medication information,<sup>5</sup> c) written patient education materials being at higher grade levels than that understood by patients with low health literacy.<sup>1-3,6,7</sup> For pharmacists to provide optimal care for their patients, they need to be familiar with not only the concept of health literacy but also with routine health literacy based interventions (such as using simple words, asking patients to repeat medication instructions to confirm understanding, enhancing communication with open ended questions etc.) that they can incorporate in their practice.

Published pharmacy literature on health literacy has been growing, however few studies have focused on pharmacists as the objects of study.<sup>8-14</sup> Schwartzberg et al surveyed a convenience sample physicians, pharmacists, and nurses on communication techniques for patients with low health literacy and determined that the recommended health literacy based communication strategies were not used routinely by the participants.<sup>12</sup> Their study was limited in that it involved a convenience sample of providers attending continuing education seminars on patient safety and quality. Praska et. al addressed whether pharmacists identified patients with low health literacy and the frequency with which they provided assistance to patients with low health literacy.<sup>8</sup> Their study determined that pharmacists seldom address the literacy-related needs of their patients. Their study was limited in scope and had a small sample size of N=30 pharmacies limited to one city. Health literacy based communication provided by pharmacists was studied from the patients' perspective.<sup>14</sup> However, this study included only 19 patients from one clinic-based pharmacy.

With introduction of the Agency for Healthcare Research and Quality (AHRQ) health literacy tool which included questions regarding print materials, verbal communication, and sensitivity to health literacy, there was considerable expectation of widespread use of the tool by pharmacists. Some studies have reported on the use of this tool in community pharmacy settings.<sup>9,10,13</sup> Bradley-Baker et al. examined the use of the AHRQ health literacy tool by pharmacists using an online survey.<sup>9</sup> Their study recommended the need for additional health literacy training for pharmacists and reported that pharmacists who completed health literacy training seemed to provide greater access to easy-to-read materials and were willing to offer verbal consultation on medications. Bradley-Baker's study too had a poor response rate (16%) and offered information on how pharmacies were performing with respect to print and verbal communication related to health literacy, rather than how pharmacists communicated with, and what health

literacy tailored strategies pharmacists used with their patients. O'Neal examined the use of the AHRQ tool in the community pharmacy environment, however, their study was limited by small sample size and use of one regional community pharmacy chain.<sup>13</sup> Thus previous literature reports have significant limitations either due to methodological rigor with the use of convenience samples,<sup>12</sup> small sample sizes,<sup>8,13</sup> or poor response rates limiting generalizability,<sup>9</sup> and do not offer a clear picture of the methods of communication and types of health literacy based communication techniques used by practicing pharmacists.

Clear communication with patients every time a medication is dispensed is critical.<sup>7</sup> Improved communication between pharmacists and patients has the potential to enhance patient understanding of the prescribed medication regimens and improve patient adherence.<sup>7</sup> With established evidence that communication mismatch is one of the causes of nonadherence,<sup>7</sup> it is imperative that pharmacists focus efforts to apply health literacy tailored techniques to communicate clearly with patients. Research on patient-physician communication has demonstrated that physicians tend to overestimate patients' literacy levels,<sup>15</sup> and rarely consider the patients' literacy level in their interactions,<sup>7,16</sup> however, there has been little examination of pharmacist-patient communication within the health literacy framework. Thus, while awareness of the impact of LHL on patient outcomes is established, there is still very little information about the extent of use of health literacy based communication in pharmacy practice where it actually impacts patients. For appropriate health literacy based training to be offered and for wider use of health literacy based techniques, it is imperative to first understand the current situation, that is, the current methods by which pharmacists communicate with patients and their current use of health-literacy based strategies. This study aimed to determine the methods of communication and types of health literacy based interventions provided by practicing pharmacists.

### Objectives

We sought to investigate: a) methods by which practicing pharmacists in the state of Illinois communicate with their patients, and b) the extent to which health literacy tailored interventions were used in routine practice.

### Methods

This study was part of a larger study that examined pharmacists' knowledge of health literacy, their attitudes towards health literacy, and barriers they face when communicating with patients with LHL.<sup>11,17</sup> The study was approved by the Southern Illinois University Institutional Review Board. Details of the full study are provided in

previously published articles.<sup>11,17</sup> Briefly a survey instrument consisting of 11 knowledge items, 16 attitude items, 11 items addressing patient-pharmacist interactions, and 11 barrier items were designed based on previous literature, focus group, and pilot testing. This report pertains to the 11 items referring to patient-pharmacist interactions. These items were on a four point rating scale ranging from 1 (strongly agree) to 4 (strongly disagree). The demographic data collected included gender, age, highest degree obtained (BS, PharmD, other), years in practice, current primary practice setting (independent, chain, consultant, hospital/institutional, skilled nursing facility, and other), and average number of prescriptions dispensed per day. An open-ended question about the types of value-added services offered, other than counseling, was also included.

The survey was pilot tested on a convenience sample of seven licensed pharmacist faculty practicing in Illinois to evaluate item clarity and completion time. A pretest was also conducted using the same procedures as the actual study. The pilot and pretest helped further refine the study instrument as well as test the study methodology. The sampling frame consisted of 11,280 pharmacists who were members of the Illinois Pharmacists Association (IPhA). Of these, 209 names were excluded because they belonged to one of the following groups: focus group, pilot study, or pretest participants. From the remaining names, a systematic random sample was used to yield a sample of 1500 pharmacists.

Data were primarily collected using a mailed survey, mailed to pharmacists' home addresses, using procedures outlined in Dillman's five step Total design Method (TDM).<sup>18</sup> The five step mail contact method included: a) pre-notice postcard about the upcoming survey mailed to all participants one week prior to the actual survey, b) a study package consisting of a cover letter, survey instrument, and postage-paid return envelope, c) two reminder letters sent at two week intervals after the study package mailing, d) and finally another copy of the survey mailed to all non-respondents two weeks after the last reminder. Additional efforts were made to boost response rates based on the poor response rate in the pretest. These efforts included: a) providing a \$1 bill in each package as a token of appreciation, and b) offering the option of online access to the survey. To provide online access, a URL link to the survey was placed in the School of Pharmacy website during the study period, and the entire sample was offered the option of responding by mail or online. To confirm that only members in the study sample would be able to access the survey, a passcode was provided to participants in the cover letter during the first mailing.

Additionally, duplicate completions were tracked using unique identifiers allotted solely for tracking purposes.

#### Data analysis

Data were analyzed using SPSS for Windows version 17 (SPSS Inc., Chicago). Descriptive analyses, in particular frequencies and percentages were determined to describe the study sample and address the study objectives. Frequencies and percentages were used to address the study objectives. Chi Square, t-tests, and ANOVAs were performed to compare methods by which practicing pharmacists communicate, and extent to which health literacy tailored interventions were used, by demographics. Bonferroni correction was applied to the p values to account for multiple comparisons.

#### Results

From the sample of 1500 mailed surveys, 43 surveys were returned as undeliverable. Thus 1,457 surveys were considered delivered. Of these, 701 complete surveys were returned and used in analyses, yielding a 48.1% useable response rate. Retired respondents (n=14) who did not currently practice were not used in the analyses. The demographics of the sample have been reported elsewhere and are shown in Table 1.<sup>11</sup> Table 2 shows methods by which pharmacists communicated with patients. Missing responses for the statements ranged from N=25 to N=34 (3.6 to 5.7%). The most frequently used methods (includes those that reported "always" and "sometimes") that pharmacists communicate with patients included using simple words (96%), and asking patients open-ended questions to determine comprehension (85%). Majority (54%) of the respondents "asked patients to repeat medication instructions to confirm understanding" "only "sometimes" when communicating with patients. Only 18% of the respondents "always" asked patients to repeat medication instructions to confirm understanding. Majority (71%) of the respondents "never" or "rarely" performed post discharge follow-up calls to determine problems with comprehension of medication instructions.

Table 3 shows how often pharmacists performed health literacy interventions in their routine practice. The frequency of various types of health literacy interventions (Table 3) were "always" performed by only 8 to 33% of pharmacists. On the other hand, more than 50% of the pharmacists indicated that they "rarely" or "never" had access to an interpreter (51%), or employed bilingual pharmacists (59%). Only 11% of pharmacists said that they "rarely" or "never" pay attention to nonverbal cues that may suggest LHL, while 37% of the respondents "rarely" or "never" used fourth to sixth grade reading materials. When individual items in both

Table 2 and 3 were analyzed by demographics significant results were obtained for 24 out of the 66 comparisons. Six significant results out of 30 comparisons by demographics were present for items examining methods by which practicing pharmacists communicate with patients (Table 2). These included practice setting (items 2, 5), average number of Rx's/day (item 5), age (items 3, 4), and highest degree obtained (item 5). Comparisons of types of health literacy interventions incorporated in practice (Table 3) and demographics showed significance in 18 out of 36 comparisons. Statistically significant comparisons were present for gender (items 1,3,4,5), age (items 1,3,4), highest degree (items 3,5) practice setting (items 2,3,4,5), years in practice (items 3,5), and average number of prescriptions per day (items 3,4,5).

Non-respondent analysis was assessed by comparing early and late respondents to determine if non-respondents differed significantly from respondents with respect to demographics. Non response analysis was conducted using the assumption that late respondents more closely resemble non-respondents.<sup>19</sup> Significant differences by practice setting (chi sq=16.67, df=4 p=0.002) were noted between early and late responders, suggesting that non-responders may have differed from responders with respect to practice setting. However, no significant differences were noted between early and late responders with respect to other demographic characteristics.

### Discussion

This is the first study to use rigorous survey methodology to examine the extent to which practicing Illinois pharmacists use health literacy based methods to communicate with patients. The results suggest that while pharmacists used some health literacy tailored communication methods such as using simple words, and asking open-ended questions frequently, the use of specific "action-oriented" health literacy based interventions typically recommended by health literacy experts such as using visual aids, having interpreter access, using fourth to sixth grade materials), were reported by only 7-33% of pharmacists as "always" being used. However, "paying attention to nonverbal cues that may suggest low health literacy" was performed by most (84%) of the respondents at least "sometimes" or more. This suggests a considerable gap between what health literacy experts suggest is needed to enhance health literacy and what actually occurs in practice. While it is encouraging to note that a large percent (27 to 51%) of pharmacists indicated that they "sometimes" provided one or more of the health literacy interventions, it is not enough to "sometimes" communicate with patients using these health literacy based techniques, considering the undesirable health outcomes associated with

LHL. Our results are similar to that reported by Bradley-Baker and Schwartzberg et al., in that specific interventions such as teach-back were not used very often by pharmacists,<sup>9,12</sup> while using simple language was the most frequently used communication technique.

One explanation for the minimal use of "action-oriented" interventions could be that individual pharmacists, particularly in chain pharmacy settings are governed by their respective corporate rules and procedures and may not have access or the freedom to use action-oriented interventions. Alternatively, it is possible that pharmacists may not perceive the need for use of the above strategies in the population they serve. Nevertheless, offering training on "action-oriented" health literacy techniques, and the nonverbal cues that serve as red flags to identify patients with low health literacy will equip pharmacists with the tools needed to tailor their communication to all patients, not just patients with low health literacy. Such training will also address the disparities in health literacy communication by demographics.

Considering the significant problem of medication adherence, it is discouraging to note that 48% of the respondents rarely or never used visual aids such as medication calendars or pictorials, even though majority (75%) of the respondents indicated that they always or sometimes monitor medication adherence behavior as a means of ensuring comprehension of medication instructions. Similarly, while there is evidence that printed patient education materials are written at high grade levels,<sup>6</sup> more than one third (37%) of respondents rarely or never provided reading level materials at fourth to sixth grade levels. While non adherence to medications is multifactorial, communication mismatch leading to misunderstanding of the regimen and language barriers are fundamental reasons for unintentional nonadherence.<sup>7</sup> With evidence that limited health literacy is associated with poor medication adherence,<sup>7</sup> it is imperative that pharmacists use established health literacy tools and techniques to maximize the value of their time spent communicating with patients.

Examination of pharmacist knowledge and barriers that were part of the larger study and published elsewhere offer evidence for the need to improve pharmacists' knowledge and address system barriers.<sup>11</sup> In fact, when pharmacists were asked what is needed to better communicate with patients with limited health literacy, the highest percent of responses (33%) were for more continuing education and in-service programs on this topic.<sup>9</sup> Publication of health literacy as a continuing education topic<sup>7</sup> offers an encouraging first step in this direction, however more efforts are needed.

Given that health literacy interventions in this study are relatively simple and inexpensive, concerted efforts are needed to close the gap between what currently occurs in practice and the optimal health literacy tailored care delivery. Closing this gap will require a multi-layered approach involving continued efforts to enhance pharmacists' knowledge or awareness of the problem of health literacy (including scope, red flags, and types of interventions), coupled with effective systems re-design ensuring access to interpreters, availability of literacy sensitive educational materials, and private space for one-on-one patient interaction and counseling. Additionally, compensation for time spent counseling patients, and possible use of star ratings requiring demonstration of improved medication adherence, such as that required by Medicare Part D plans<sup>20</sup> might help propel the promotion of health literacy tailored techniques in practice.

Incorporating simple changes to their practice to accommodate health literacy tailored techniques will allow pharmacists to better serve their patients and improve care delivery. Awareness of the current experience of practitioners is a first step and serves as a call to action for the pharmacy profession to use more concerted efforts to emphasize the significance of health literacy, so that more pharmacists will "always" provide such health literacy based interventions and communicate with patients in a health literacy friendly manner. In addition, supporting pharmacists by making them aware of the freely available tools such as the AHRQ health literacy tool kit,<sup>21</sup> the PILL card,<sup>22</sup> addressing barriers by redesigning workflow and providing more time and private space for counseling are all essential to successfully enhance health literacy of all patients with respect to their medications.<sup>11</sup>

### Limitations

This study has several limitations common to survey research such as sampling and measurement errors. Further the response rate was only 48% for this study despite attempts to increase response rate using pre-notice and reminder letters. Differences in practice setting between early and late responders suggests that there may be non-respondent bias. While both early and late responders had highest percent of responses from chain practice setting, the next highest percent of early responders were from independent community practice settings whereas late responders were from hospital/institutional practice settings. In addition, only one focus group was used to generate survey items due to limited funding. Another limitation is that definitions for terms such as "simple words", or "fourth to sixth grade reading level materials", or "nonverbal cues" were not identified and provided in the survey. It is possible that

without the definition, respondents may have interpreted the term "simple words", "fourth to sixth grade materials", or "nonverbal cues" variably. Additionally, another limitation is the absence of "not applicable" or "other" option for the 11 communication items may have influenced the validity of the results. However, given the nature of the communication questions, we perceive that the need for the additional above-mentioned options may have been needed for only 2 out of the 11 questions.

### Conclusions

This study suggests that pharmacists infrequently used action oriented health literacy interventions such as using visual aids, having interpreter access, using fourth to sixth grade materials, and so on in their routine practice. It is not enough if toolkits, and continuing education on health literacy, both of which are essential and helpful are alone available. For greater use of health literacy tailored interventions in practice, a concerted multidimensional approach combining one or more of the following methods: enhancing knowledge of health literacy and its impact, systems redesign, offering reimbursement for pharmacist time, ensuring accessibility to interpreters, offering needed training on the topic of health literacy, and monitoring pharmacist performance based on medication adherence metrics, are all essential.

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Table 1: Demographics of the sample (N=701)

Characteristics	No (%)
<b>Gender</b>	
Male	368 (53.3%)
Female	322 (46.7)
<b>Age (years)</b>	
20-30	55 (8.0)
31-40	142 (20.6)
41-50	155 (22.5)
51-60	181 (26.2)
61-70	109 (15.8)
> 70	48 (7.0)
<b>Highest degree obtained</b>	
Bachelor	445 (64.4)
Pharm D	226 (32.7)
Other	20 (2.9)
<b>Years in practice</b>	
<b>0-5</b>	59 (8.6)
6-10	73 (10.6)
11-15	91 (13.2)
16-20	78 (11.3)
21-30	134 (19.4)
>30	254 (36.9)
<b>Practice setting</b>	
Community independent	109 (15.8)
Community chain	285 (41.4)
Hospital/institutional	172 (25.0)
Consultant pharmacy	19 (2.7)
Other	103 (14.9)
<b>Average number of prescriptions dispensed per day</b>	
<100	68 (9.9)
100-200	159 (23.2)
201-300	119 (17.4)
301-400	86 (12.6)
401-500	40 (5.8)
>500	70 (10.2)
Do not dispense	143 (20.9)



**Table 2: Methods pharmacists use to communicate with patients. (N= 687)**

Methods pharmacists communicate with patients:	Always Frequency (%)	Sometimes Frequency (%)	Rarely Frequency (%)	Never Frequency (%)
1. Using simple words	465 (68)	192 (28)	3 (0.4)	2 (0.3)
2. Asking patients to repeat medication instructions to confirm understanding	126 (18)	370 (54)	143 (21)	23 (4)
3. Asking patients open-ended questions to determine comprehension	215 (31)	370 (54)	69 (1)	6 (1)
4. Monitoring medication compliance behavior as a means of ensuring comprehension of medication instructions	157 (23)	354 (52)	122 (18)	27 (4)
5. Performing post discharge follow-up calls to determine problems with comprehension of medication instructions.	37 (5)	141 (21)	285 (42)	196 (29)

Percentages do not add up to 100 % due to missing responses.

**Table 3: Health Literacy interventions incorporated in Clinical Practice**

Health literacy intervention	Always Frequency (%)	Sometimes Frequency (%)	Rarely Frequency (%)	Never Frequency (%)
1. Fourth to sixth grade reading level materials	127 (19)	266 (39)	132 (19)	123 (18)
2. Teach back technique	75 (11)	310 (45)	183 (27)	84 (12)
3. Access to interpreters	112 (16)	196 (29)	180 (26)	168 (25)
4. Visual aids (such as pictorial, medication calendars, or wallet cards)	50 (7)	275 (40)	212 (31)	116 (17)
5. Bilingual pharmacists	58 (8)	187 (27)	184 (27)	220 (32)
6. Attention to nonverbal cues that may suggest low health literacy	229 (33)	350 (51)	60 (9)	14 (2)

Percentages do not add to 100% due to missing responses.