


Perspectives of Nurses on Patients With Limited English Proficiency and Their Call Light Use

Global Qualitative Nursing Research
Volume 3: 1–9
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DOI: 10.1177/2333393616637764
gqn.sagepub.com


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Abstract

Patients use call light systems to initiate communication with their health care team. Little is known how this process is affected when language barriers exist between an English-speaking nurse and a patient with limited English proficiency (LEP). The aims of this study are to describe (a) the perceptions of nurses regarding their communication with patients with LEP, (b) how call lights affect their communication with patients with LEP, and (c) the perceptions of nurses on the impact of advancement in call light technology on patients with LEP. Using focus groups, nurses were asked about their interactions with patients with LEP. The following themes emerged: barriers to communication, formal tools for communication, gestures and charades, reliance on family, creating a better call light system, and acceptability of Eloquence™. This results show that call lights affect the interaction of nurses with patients with LEP and complex issues arise in the subsequent communication that is initiated by the call light.

Keywords

limited English proficiency, call light technology, patient–nurse communication

Received July 27, 2015; revised February 2, 2016; accepted February 9, 2016

Background

Patient-centered communication has steadily gained attention in health care as a way to engage patients with their care (Paget et al., 2011). Nurses are in constant communication with patients and seek to influence the patient's health and well-being thereby affecting the provision of patient-centered care (Slatore et al., 2012). Achieving patient-centered communication becomes more challenging when patients have special language needs, such as those with limited English proficiency (LEP) in the United States where English is the dominant language. Studies have demonstrated that patients with LEP suffer more adverse events than their English-speaking counterparts in health care (Divi, Koss, Schmaltz, & Loeb, 2007). Patients with LEP also report more dissatisfaction about their care and communication with clinicians compared with patients who speak English which indicates that they may not be receiving patient-centered care (Ngo-Metzger, Phillips, & Greenfield, 2007; Schenker, Pérez-Stable, Nickleach, & Karliner, 2011). Professional medical interpreters has been reported to decrease these disparities, but are seldom used (Flores, 2005; Ngo-Metzger et al., 2007). Bilingual family members, on the contrary, were used frequently as ad hoc interpreters (Hasnain-Wynia, Yonek, Pierce,

Kang, & Greising, 2006; Schenker et al., 2011). However, use of bilingual family members to communicate with a patient in the medical setting has been associated with more errors (Flores et al., 2012; Karliner, Jacobs, Chen, & Mutha, 2007). Health care information technology (HIT) has the potential to decrease these disparities in quality of care, health care outcomes, and patient engagement. However, there are many barriers to the adoption of HIT by minority populations—like patients with LEP—such as the challenges in integrating HIT to the work flow of those who provide care for underserved populations (National Opinion Research Center, 2010). An example of HIT in the hospital setting is a call light system.

In many hospital settings, the call light is integral in patient–nurse communication. It provides patients a way to access a nurse who delivers their care. Few studies have described how call light technology affects patient care.

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Qualitative studies have reported that the call light initiates the communication between nurses and patients and gives patients a sense of control in their care (Deitrick, Bokovoy, Stern, & Panik, 2006; Lasiter, 2011, 2014). Call light response times have also been shown to contribute to patient satisfaction (Roszell, Jones, & Lynn, 2009). Thus, the use of call light technology may be part of providing patient-centered care. Studies have reported that more call light use by patients correlated with lower rates of patient injury from falls (Tzeng & Yin, 2009) and faster response times to call lights are related to less hospital-acquired pressure ulcers (Tzeng, Grandy, & Yin, 2013). However, patients perceived inconsistencies in the way nurses responded to call light requests, which may be due to the inconsistent views of nurses on the importance of call light requests and whose responsibility it is to answer the call light (Deitrick et al., 2006; Tzeng, 2010, 2011). Efforts have been made to advance the technology to improve the patient–nurse communication process (Klemets & Toussaint, 2016; Unluturk, Ozcanhan, & Dalkilic, 2015). All but one of the previous studies mentioned involved English-speaking patients and little is known how patients with LEP and their caregivers use and interact with call light systems. Moreover, it is unknown whether the improvements provided by advancements in call light technology are fully extended to those with LEP.

The aims of this study are to describe (a) the perceptions of nurses regarding their communication with patients with LEP, (b) how call lights affect their communication with patients with LEP, (c) the perceptions of nurses on the impact of advancement in call light technology on patients with LEP.

Method

Qualitative descriptive methods were used in this study to shed light on this phenomenon. The unexplored nature of this inquiry warrants a qualitative descriptive study to provide deeper knowledge than what currently exists. Using qualitative descriptive methods also allows for a closer view of the data and, hence, a closer view of the perspectives and lived experiences of study participants (Sandelowski, 2010). Thus, results using these methods, as described by Sandelowski (2000), may be used as a foundation for conducting further research on this topic as well as other concepts related. As part of the study, focus groups were used to gather information from the participants. The use of focus groups enable participants to better explain complex concepts and allow the researchers to see the diversity of ideas on a selected topic (Jayasekara, 2012). Constant comparative methods were used in the analysis of the data, resulting in major and minor themes (Glaser & Strauss, 1967).

Recruitment

The recruitment and study took place at a large academic medical center in the Midwest region of the United States.

Two adult medical surgical units that admitted the highest number of patients with LEP over the previous 6 months were used as the site for recruiting registered nurses (RNs), with the help of nurse managers. RNs meeting the following criteria were eligible to participate in this study: (a) greater than or equal to 21 years of age, (b) able to communicate in English, (c) licensed as a RN in the state of the study site, (d) employed in staff nurse line as a RN for at least 12 months, (e) work at least 50% as regular staff providing direct patient care, and (f) care for patients with LEP at the study site. Nurse managers in the study site helped in the recruitment of the participants by introducing and explaining the study, and providing the contact information of the research team. Interested participants who met the inclusion criteria were asked to email one of the authors (M.M.) with their availability. The researchers then arranged a common time and place to conduct the focus groups. Four authors (J.G., M.M., C.S., and M.T.) were affiliated with the university associated with the academic medical center, but otherwise did not have a working relationship with any of the participants.

Data Collection

The study site Institutional Review Board approved the study and informed consent was obtained from all participants prior to the commencement of the study. At the end of the interviews, participants received a gift card as a token of appreciation for their time and participation. All interviews lasted approximately 1 hour and were conducted outside of the nurse participants' units and outside of their work time.

Experiential focus groups were used to collect data. Given the complex nature of the phenomenon, the focus groups allow participants to recall experiences and explore personal views regarding communicating with patients with LEP (Doody, Slevin, & Taggart, 2013; Jayasekara, 2012). Experiential focus groups provide shared perceptions, attitudes, and perceptions, which is important due to the gaps in knowledge regarding this topic (Curtis & Redmond, 2007). The group interaction in focus groups is particularly helpful in this study, as the participants do not take care of a large population with LEP. Two focus groups were conducted for this study. The first focus group consisted of five RNs and the second focus group consisted of two RNs. The participants included five female nurses and two male nurses. The focus groups were formed based on the availability of the participants during scheduled times.

A semi-structured interview guide was used to explore RN's perceptions about care delivery to patients with LEP and the scenarios they face related to the current call light system. The focus group guide was designed to elicit the experiences of RNs regarding (a) communicating with patients with LEP and strategies used for communication, (b) experiences with patients with LEP and their call light use, and (3) how call lights can be improved to better serve patients with LEP. In the second half of the focus group, a

simulation prototype of Eloquence™, a multilingual call light system in development, was conducted wherein participants were able to touch the device and use it as they would in real clinical situations. After the demonstration, open-ended questions were asked to understand the participants' perspectives of the device. To protect the patients' confidentiality and anonymity, participants were not referred to their names during the interview and were de-identified during the transcription. All recordings and transcriptions were stored in a secured server or locked storage. None of the recordings or data were shared with the participants' employer.

Description of Eloquence™. At the time of the study, the participants were using an analog call light system. With this device, patients press a button to indicate that they needed assistance, which activates a light above their room door and a page to their nurse or nurse assistant. The multilingual call light system that was demonstrated in this study was a prototype of the Eloquence™ call light system, developed by Eloquence Communications, Inc. It uses touch screen bedside digital user interface for the patient. This bedside device has icons with phrases presented in the patient's preferred language that represent more than 30 specific requests, categorized in four categories (medication, IV, and pain; bathroom and body care; food and drink; comfort). For instance, if a Spanish-speaking patient wanted food, the patient would select the icon with a picture of a knife and fork with the phrase "Comida y Bebida." Within this category, Spanish-speaking patients would be able to specify that they need water by selecting the phrase "Aqua." The nurse receives the message in English (using the previous example, the message "water" would appear as a message) through their digital handheld device, thereby allowing immediate access for patients with LEP to communicate routine care needs. When the nurse accepts the request, the call light system sends a message, in Spanish, to the patient's digital bedside device indicating that help is on the way. The bedside device also includes an icon, which indicates that the patient would like an in-person interpreter, if in-depth conversation was needed. At the time of this study, the Eloquence™ call light system was still in development and was not yet commercialized.

Data Analysis

The focus groups were audio-recorded and transcribed verbatim. Transcriptions were verified for accuracy by comparing a random sampling of the transcriptions to the recorded audio of the focus group interviews. Transcripts were coded line-by-line and research team investigators conducted independent coding initially. These codes were then compared, reviewed, and then adjusted to streamline the emerging themes. Review by researchers helped to identify and correct individual biases. Upon discussion, codes were compared, sorted, and rearranged until common themes emerged based on the consensus of the researchers. Salient categories of

meaning and relationships between themes were derived from the data itself through a process of inductive reasoning. Major themes yielded further minor themes.

The constant comparative method and qualitative content analysis was used to describe the phenomena (Glaser & Strauss, 1967). Taylor and Bogdan (1984) summarize,

in the constant comparative method the researcher simultaneously codes and analyzes data in order to develop concepts/themes; by continually comparing specific incidents in the data, the researcher refines these concepts, identifies their properties, explores their relationships to one another, and integrates them into a coherent explanatory model. (p. 126)

Content analysis of documents is a form of qualitative analysis shaped by a philosophical perspective that researchers use to identify "patterns, themes, and categories" (Miller & Alvarado, 2005, p. 351) present in a purposively selected group of documents. In accordance with the seminal work of Guba and Lincoln (1985), strategies to establish trustworthiness (rigor in qualitative research) were utilized. Trustworthiness encompasses four necessary criteria: *credibility* (assurance that the research findings and interpretations represent participants' experiences), *transferability* (how widely the research and its findings might be utilized), *dependability* (how consistent and reliable the research is), and *confirmability* (to what extent the process and its findings can be linked to data and whether the researcher minimized bias and maintained neutrality, and through which the research and its finding can be tracked and confirmed). All criteria of trustworthiness of this qualitative study were met.

Members of the research team responsible for the analysis of the data (J.G., M.M., and M.T.) had no financial or marketing interests with the development of Eloquence™.

Results

Six major themes resulted from qualitative data analysis: barriers to communication, formal tools for communication, gestures and charades, reliance on family, creating a better call light system, and acceptability of Eloquence™ (Table 1). These major themes are described in the following sections.

Barriers to Communication

Nurses in the focus groups reported caring for patients with LEP at least monthly. Nurses expressed that these language barriers create unique complexities when communicating with their LEP patients.

Assessing language. Nurse participants easily pointed out the non-English languages they most often encounter such as Spanish. However, nurse participants expressed confusion when patients with LEP spoke unfamiliar languages or dialects:

Table 1. Table of Results.

Major Themes	Minor Themes
Barriers to communication	<ul style="list-style-type: none"> • Frustration with call light • Barriers to care
Formal tools for communication	<ul style="list-style-type: none"> • Visual aids • Interpreter services • Interpreter phone • Google Translate
Gestures and charades	<ul style="list-style-type: none"> • Non-verbal communication • Complex conversations
Reliance on family	<ul style="list-style-type: none"> • Family as interpreters • Preference for family • Concerns with using family as interpreters
Creating a better call light system	<ul style="list-style-type: none"> • Improving communication • Efficiency
Acceptability of Eloquent™	<ul style="list-style-type: none"> • Positive response • Timeliness • Impact on patients with LEP

Note. LEP = limited English proficiency.

Some African dialect that no one had really heard of . . .

In addition, nurses stated having problems determining the extent which patients with LEP understand or speak English, particularly when the patients spoke in “broken English”:

It’s broken English so you might think that she’s understanding what you’re saying, and then you end up on completely different pages.

How would you really know if they [patients] fully understand what you’re trying to say . . . You, you can’t.

Frustration with call light. Call lights provide a way of communication between patients and their nurses. However, the benefits a call light might have for a patient and the nurse might not be fully realized with patients with LEP. This was expressed by the nurse participants in their frustrations of expecting their patients to use the call light for help. These frustrations occur because the nurse participants felt that they were unable to properly communicate the importance of the use of the call light to the patients with LEP:

So, it’s hard . . . If they don’t use the call light you’re not sure if they’re doing ok in there [hospital room].

He [patient] actually went about ten hours without food because there was communication break-down between the nurse and him and she thought that he would be able to signal that he was hungry. He never really asked for food, probably because he was not able to communicate that.

Barriers to care. Nurse participants expressed frustration in providing adequate care for patients with LEP without proper

use of the call light particularly in communicating fall prevention, providing assistance with mobility, and managing pain:

Just having her [patient] understand to be able to press the call light to help get out of bed because we don’t want her to fall and hurt herself.

In terms of the pain at least, you’ll kind of do a visual assessment . . . If they are really grimacing, you’ll push a bit more.

I mean, you have to assume . . . They’ll all point at where it’s hurting and so you kinda get the idea . . . And then when you bring it to them [pain medication] they recognize what it is, but that’s not, it still might be that they really don’t know, I can’t be sure.

Formal Tools for Communication

To overcome the language barrier, nurse participants explained several formal tools that they used to communicate with patients with LEP. Most of these tools are provided and sanctioned by the hospital such as visual aids, interpreter phones, and in-person interpretive services. There were also times that the nurse participants used their creativity to use innovative tools to communicate with patients with LEP.

Visual aids. Nurses reported attempting to use visual aids, such as flash cards that contain pictures with words of the pictures in English and in the patient’s primary language. Nurses point to the picture, and then point back and forth from flash card to the patient in an attempt to communicate and solicit patient needs. However, flash cards and other visual aids were not readily available for all nurses’ use and can be confusing to use as described by the following quotes:

They [flashcards] are at the charge desk . . . not readily available.

But the problem is whether or not they can actually read it [flash card] if they have their glasses.

I’ve never actually seen that [laminated pictorial cards] on my unit.

Interpreter services. Nurses described some success in the use of interpreter services and the interpreter phone, a separate device that requires nurses to dial a number to speak live with an interpreter. However, the nurse participants also had concerns about the availability of each service and the ease of their use as barriers to their effectiveness in aiding communication with patients with LEP. For in-person interpreter services, the main barrier was their availability:

Sometimes they [interpreters] are harder to get because there are only a limited amount of interpreters.

The one I put in today [request for an interpreter], she came, like, 2 hours later.

If the [patient] admission comes on Friday night, we're not gonna be able to get an interpreter until Monday . . . It'll be a lapse in communication during that time.

Interpreter phone. The interpreter phone is a physical phone that nurses can use to access a specific language interpreter. Nurses state to using it more often than the in-person interpreter due to the interpreters' lack of availability and accessibility:

I've used the interpreter phone two or three times. Uhm, and a lot of it is when you're trying to do more extensive questioning, and things like that.

It becomes really hard because you have to go through dialing it and everything, uhm; just for simple questions.

Interestingly, however, nurses also admitted to using the phone to call a patient's family members to have them translate for the patient rather than using the interpreter phone:

It's easier because the phone [patient's own phone] is there in the room. The interpreter's phone, you have to get it. And, you know, it's probably the ease of it.

Google Translate. The nurse participants also used creative and innovative ways to overcome the language barriers with patients with LEP when they respond to call lights. Google Translate is a program that translates English to other foreign languages and vice versa. But, the nurses only used this app for simple requests, and at the time of the interview, it was unclear if hospital policy sanctioned the use of Google Translate as an appropriate translation program.

The patient's wife would come over and read it . . . but again, be kind of, very simple questions that she could answer yes or no to.

We basically use it for "do you want pain medicine" or saying goodbye at the end of the day, or asking "do you have to use the bathroom?" . . . Just purely basic . . .

In summary, nurses were frustrated with the language barriers they faced with patients with LEP, which prevent them from providing adequate care for these patients. While the conversation centered on call lights, the nurse participants were quick to detail issues with communication as the use of call lights and communication was seen as one and the same. There were many available tools to overcome these barriers, but it was clear that no single tool was effective to provide the interpretive and language services that the nurses need.

Gestures and Charades

Non-verbal communication. Nurses adapt to communicating with LEP patients through non-verbal communication, which

they often describe as "charades":

We try to do charades to explain it [how to use the call light] . . .

I try to say like you know, drink [gestures hand to mouth as if drinking from a glass], eat [gestures hand to mouth as if holding a fork], you know, hand gestures like that, and I don't know that they always understand.

Complex conversations. Non-verbal communication (gestures, pointing) was seen as a good strategy in transactional conversations, when a patient asks for something specific that the nurse can supply. Non-verbal communication, however, is inadequate for more complex conversations when simple gestures cannot substitute for complex ideas.

I've had the experience where they push the button [call light] and you get in there and then it's "fun" trying to figure out what they want . . . if it's the basic stuff, like they have to pee, or have to get into bed, that's fine. But, I realize how hard it is when it's time to order breakfast . . . the menus are in English.

So you might think that she's [patient] understanding what you're saying and then you end up on completely different pages.

These attempts to communicate with patients with LEP through charades are frustrating for nurses because they are often inefficient and ineffective. Nurse participants expressed frustration that failure to communicate with the patients meant that they were not able to give the right kind of care that they want to provide:

Oh yeah it's frustrating . . . 'cause you're trying to protect the patient from hurting themselves, and it's like you can't really do it 'cause they don't understand you and you don't understand how to, communicate at all to them.

It's almost more frustrating to spend 10 minutes trying to use gestures to communicate.

Reliance on Family

Family as interpreters. The nurses saw English-speaking family members such as spouses, children, and close friends as a solution in addressing the communication barriers with patients with LEP. Nurses stated that they relied on English-speaking family members for assistance as ad hoc interpreters.

If the patient has a family member and the family member is leaving, they'll leave their phone number and then we can call if we need to [for interpretation].

I'll look directly at the patient, and then one of the children will translate it to them, and then they'll translate it for me . . .

It gets really hard when the family is not available . . . The son left and didn't come back for another day so that becomes difficult with just small things to call the interpreter every single time for something very small.

Preference for family. Nurse participants found that having family members at the bedside was important, not only because it provides a means of communicating with patients but also because it encourages patients with LEP to seek help through the use of the call light and it bypasses less efficient ways of communicating for their routine needs. In fact, nurses explained that patients with LEP prefer the use of family members as ad hoc interpreters:

If there's anything you don't understand, just point to this phone [interpreter phone] and we'll get the interpreter on. And, he kept pointing to his son's number, saying "call my son", "call my son."

Concerns with using family as interpreters. However, nurse participants also discussed issues in using family members as ad hoc interpreters particularly with the accuracy of interpretation:

We had a Chinese family, it was about 8 months ago, the [interpreter] service wasn't sure if the family was accurately telling the patient what their condition really was, outcomes, etcetera . . . So the patient wasn't able to make informed decisions about what they wanted . . .

They'll [patient's family] translate for us . . . But we've had issues where we haven't been a hundred percent sure that what we've been saying has been translated, communicated effectively because of cultural issues where they might not be telling the patient everything . . .

And a lot of times, they [patients] will just nod and say yes all the time . . . And then you get a family member in who speaks English and you'll ask the same question. They'll be like "no."

In summary, nurse participants admitted that using the family members as ad hoc interpreters was a more convenient way of communicating with patients with LEP, but they also admitted that the interpretation provided may not always be reliable. Acknowledging the limitations of different strategies for communicating with patients with LEP, nurse participants provided suggestions in improving the call light system.

Creating a Better Call Light System

Improving communication. Nurses were asked what improvements could be made with the current call light system to aid them in communication with patients with LEP. Nurses stated that they thought two major ideas could improve the call light system and, thus improve communication with this

patient population. For example, nurses wanted to see more interactive elements in the call light:

I'd love a separate button that if you hit it and this works for everybody regardless of language, it [request] goes strictly directly to me [nurse] because they need pain meds techs cannot do it.

Maybe a tablet, with pictures on it . . . pictures of a drink, food, or toilet, or pain.

Nurses described these interactive elements as necessary to improve not only patient care for those with LEP but also communication with these patients. These interactive elements could also, according to nurses, demonstrate the ability to understand the patient with LEP through direct translation (i.e., English to Spanish for example, and vice versa).

They [patients with LEP] could speak into it [call light] whatever language they are speaking and then it comes back to me in English.

It [direct translation with the call light system] would cut back on you know, patient and staff frustration with plan of care and stuff like that.

Efficiency. As the call light system is the catalyst for communicating with patients with LEP and the provision of nursing care, nurse participants reported that improvements need to be made to the call light system. They described that the addition of interactive elements and direct translation to the call light system would allow them to manage patient requests in a more timely fashion:

I would like to go back to the intercom where you can just say [what the patient is requesting].

Like come in when you can . . . Like we have the paging system for the docs . . . If it's not urgent, it [patient request via the call light] will be answered in 30 minutes . . . That will be nice . . .

I'd love a separate button that if you hit it, it would either be, if you need to use the toilet specifically, hit that button, if you need pain medicine specifically . . . and this works for everybody regardless of language.

Nurses' comments regarding the desire for a more efficient call light system, prior to viewing the Eloquence system, suggests that nurses' time in communicating and taking care of patients is inefficient and needs vast improvement, particularly with patients with LEP. A frequent suggestion that the nurses made, that would not only address communication between nurses and patients with LEP but also efficiency and time management was a call light system that directly translates patient languages, and, at the same time, proactively assigns calls to the appropriate nursing staff (RN or nurse assistant).

Acceptability of Eloquence™

Positive response. Following the focus groups' discussion about communication with patients with LEP and their use of call lights, nurses participated in a demonstration of the new Eloquence™ call light system and answered open-ended questions to gain their perspectives regarding the new device and its functionality. Nurses' were overall supportive of Eloquence™, especially with regard to potential communication with their patients with LEP:

I think it [Eloquence™] would facilitate communication much better.

As far as the non-English speaking patients they've got those pictures and they'll be able to understand better as well.

The thing is that it would allow them [patients with LEP] to pretty confidently request specifically what they want; stuff that before that they may have had some difficulty communicating and we understand it now.

Timeliness. Nurses appreciated the efficient communication that Eloquence™ could offer as well as the associated preparation time for certain tasks it allows them:

You could save a lot of time for the patient in getting pain meds or nausea meds, because you would know what they want.

The aide doesn't have to go in and say, "what do you need?" If they [patients] are having pain, then they have to come and find us . . . It's [appropriate] triage . . .

It [Eloquence™] breaks down that they specifically need, if they wanted to get cleaned up, we [nurses] would know to go get a bag, bath towels, linen.

Impact on patients with LEP. The nurses reported that Eloquence™, through its ability to provide translation and increase the nurses' efficiency, has the potential to empower patients with LEP:

Being able to choose what they want, you know their safety factor. They would feel safer because they are able to communicate.

I [nurse] think a lot of patients even if they do speak a little English still prefer their native language . . . So being able to choose what they want would help them a lot . . . a lot more.

I think they [patients with LEP] would feel more satisfied with their care because they can actually explain to us what they need . . . I think they would be happier as patients to be able to express their needs.

Nurses were interested in the Eloquence™ system not only from a professional viewpoint but also from the patients' perspectives with regard to having a better understanding

and involvement of their care. Although nurses overall were supportive of the Eloquence™ device, they did voice some concerns regarding logistical and programming usage:

It's very nice, but it is complicated . . . Like the learning curve trying to figure it out, you have to learn how to use it.

The different [language] dialects, like I know, Arabic for example, has many dialects. So, it might not work for those cases.

Discussion

Nurse participants in this study acknowledged the challenges of taking care of patients with LEP due to the language barriers. These challenges are not unique to the participants, as studies have shown similar issues of language discordant health providers (Diamond, Luft, Chung, & Jacobs, 2012; Ngo-Metzger et al., 2007). What was particularly revealing was how language barriers with patients with LEP affected their call light use. Nurses perceived that patients with LEP use the call lights less frequently than their English-speaking counterparts. According to the nurses, the patients with LEP may be discouraged in trying to use the call light due to the difficulty of communicating. Other participants revealed that they have difficulty explaining how to use the call light system to patients with LEP. This is troublesome as the call light is the main conduit between nurses and patients who need their help. Patients with LEP might also have a diminished sense of control and safety that the call light button provides (Lasiter, 2011, 2014). Patients with LEP, as the nurse participants acknowledged, may not receive the same quality of care that nurses provide to patients without language barriers. It is, then, not surprising that LEP patient's report dissatisfaction in their care and suffer more adverse outcomes in the hospital compared with their English-speaking counterparts (Divi et al., 2007; Roszell et al., 2009; Schenker et al., 2011). Finally, patient-centered communication and care cannot be achieved if basic linguistically appropriate care is not provided.

The provision of linguistically appropriate care is a health systems issue (Baurer, Yonek, Cohen, Restuccia, & Hasnain-Wynia, 2014). Foremost, determining what language a non-English speaking patient speaks or prefers is a particularly difficult problem that health systems face, which was apparent to the nurse participants, particularly in accessing appropriate language services. Current solutions to language access issues are inadequate for nurses to provide care to LEP patients. Visual aids are limited by the patients' vision, understanding of certain iconography, and disease process. Trained in-person interpreters, which are shown to be the most effective, are seldom used because of their availability (Baurer et al., 2014; Hasnain-Wynia et al., 2006). Interpreter phones are not used as effectively because nurses found them to be cumbersome. In order for nurses to consistently use an interpretive service, the solution has to be convenient to use. For example, nurse participants showed preference in using less standard forms of communication with patients with

LEP such as mobile apps and the use of gestures, though they might not be very effective. They also found convenience in using the English-speaking family members as ad hoc interpreters despite concerns about the accuracy of the interpretation similar to the ones reported in the literature (Karliner et al., 2007). The use of English-speaking family members as ad hoc interpreters may also present concerns in patient privacy, confidentiality, and informed consent. Patient preference for this method should be considered and confirmed using a trained medical interpreter.

This study adds to the knowledge of the impact of a specific HIT, the call light system, to the care of an underserved population, hospitalized patients with LEP. The results suggest the potential impact of HIT to decrease the disparities as well as the challenges in its adoption, particularly in its implementation (National Opinion Research Center, 2010). Health technology plays a role in the care that nurses provide for patients with LEP. It can hinder communication such as the decreased use of call lights by this vulnerable patient population. Technology can also be perceived as a solution as evidenced by the nurses use of mobile translation applications. In search for a better call light system for patients with LEP, nurses sought a solution that is easy to use and convenient, incorporating innovations found in commercialized communication technology such as direct translation software similar to mobile apps and the use of touch screens found in modern phone devices. It is not surprising then that the nurse participants welcomed Eloquence as advancement to current call light technology, particularly in providing linguistically appropriate care for patients with LEP. It is interesting to point out that some nurses acknowledged that Eloquence, despite its advancement, still is limited by the difficulty in determining the language that the patient with LEP speaks and prefers.

Hospital systems need to develop strategies to increase language access for patients with LEP. As trained in-person interpreters are the most reliable communication resource for patients with LEP, hospitals must ensure their accessibility by making them available at all times. This may be seen as a costly measure, but proper assessment of the population that the hospital serves may help guide them to which language interpreters they need to be most cost-effective. Determining the language that a patient with LEP speaks and prefers remains a problem with an elusive solution. Increasing the diversity of the hospital workforce might be beneficial in the recognition of the different languages and dialects that patients speak. Moreover, hospital leaders must be sensitive to the needs of patients with LEP when selecting different health technology and must also take into consideration the technology's ease of use for both nurses and patients.

Limitations

The study provides new knowledge that addresses the gaps in the phenomenon of interest. However, the results of the study may not be generalizable due to the use of experiential focus

groups, which allows for rich data from the homogeneity of the group, but may not be replicated due to the varied individuals that make up the composition of the focus groups. Furthermore, in a focus group setting, individuals with differing thoughts and opinions may not be as forward in expressing their thoughts, resulting in less variety in the perspectives presented. Finally, a demonstration of Eloquence was provided during the focus group, allowing the participants to envision its capabilities. Participants would be able to provide a better perspective on this technologies' impact on communicating with patients with LEP had it been fully operationalized.

Conclusion

This study sought to explore nurses' perception of patients with LEP and their use of the call light, and the subsequent communication with these patients. Using qualitative descriptive methods, nurse participants in focus groups revealed themes of barriers to communication, formal tools for communication, gestures and charades, reliance on family, creating a better call light system, and acceptability of Eloquence™. The results of this study further validate the complexity of issues surrounding communication between English-speaking nurses and patients with LEP, starting with initiating the communication through the use of call lights. Health systems must ensure that nurses and clinicians are well equipped to provide high-quality patient-centered care to this vulnerable LEP patient population. Finally, further research must be undertaken to develop interventions and strategies to ensure that advances in technology do not widen the gap in disparities due to language barriers but rather address the needs of this vulnerable population.

Authors' Note

The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health (NIH).

Declaration of Conflicting Interests

The authors declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: Dr. Patak is a cofounder of the company that received National Institutes of Health funding support for this study. Dr. Patak is also an equity stakeholder in the company (G40%). His role in the study was as a consultant to the research team. In order to avoid bias, he did not perform any data collection, nor did he perform any data analysis. He did, however, make a significant contribution to the manuscript in consideration.

Funding

The authors disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This research was supported by Small Business Technology Transfer Program of the National Institutes of Health (NIH) under award number R42MD006149.

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