


RESEARCH ARTICLE

Nurses' knowledge of health literacy, communication techniques, and barriers to the implementation of health literacy programs: A cross-sectional study

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Abstract

Nurses' health literacy knowledge and communication skills are essential for improving patients' health literacy. Yet, research on nurses' health literacy knowledge and perception is limited. The study aimed to evaluate nurses' health literacy knowledge, communication techniques, and barriers to the implementation of health literacy interventions. A cross-sectional study was used, and a total of 1697 nurses in 104 community hospitals in Thailand completed self-report measures. Approximately 55% of the participants had heard about the concept of health literacy; 9% had received formal training specific to interaction with patients with low health literacy. About 50% of the nurses were aware of their patients' low health literacy; therefore, they applied the recommended communication techniques for them. Delivery of effective health literacy training was hampered by a lack of assessment tools, health literacy training and specialists, educational materials, and health provider time. Hospital administrators, nurse managers, health leaders should develop strategies to create environments and resources supporting health literacy interventions.

KEYWORDS

health literacy, health promotion, nurse, patient education, Thailand

1 | INTRODUCTION

The concept of health literacy has become the subject of increasing interest over the past two decades, and there has been much discussion about the definition (Batterham, Hawkins, Collins, Buchbinder, & Osborne, 2016; Sykes, Wills, Rowlands, & Popple, 2013). The National Academy of Medicine defined health literacy 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" (Somers & Mahadevan, 2010, p. 7). Other definitions emphasize that health literacy is not just an individual trait, but a characteristic related to families, communities, and organizations providing health and social services and effectively increasing health literacy can increase

social equity (Batterham et al., 2016). Limited health literacy affects many types of health conditions, is a barrier to self-management, and can increase the risk of adverse health outcomes as well as increase costs (Centers for Disease Control and Prevention [CDC], 2016). Those with low health literacy are less knowledgeable about their own health status, have limited understanding about the overall importance of preventive measures in maintaining and managing good health (Argarwal, Shah, Stone, Ricks, & Friedlander, 2015; Australian Commission on Safety and Quality in Health Care, 2016; Hersh, Salzman, & Snyderman, 2015), and those who self-report worse health outcomes also has the most limited literacy, numeracy, and health literacy skills (CDC, 2016).

Hospitalized patients with low health literacy experience more adverse outcomes (Australian Commission on Safety and Quality in

Health Care, 2016) and there is an established relationship between low health literacy and poor outcomes including medication error (Mixon et al., 2014); 30-day hospital readmission (Mitchell, Sadikova, Jack, & Paasche-Orlow, 2012); mortality (McNaughton et al., 2015); and the increased cost of health care due to overuse and inappropriate use of health care services (Eichler, Wieser, & Brugger, 2009; Haun et al., 2015).

Individuals' health literacy is influenced by factors that include reading, comprehension, and writing skills, but organizational policy and regulations also affect health literacy, and it remains challenging to embed health literacy principles into routine practice (Batterham et al., 2016). Health care systems, where the emphasis is on the quality of delivery of health care services through effective communication between patients and their health care providers, demonstrate more success with improving their patients' health literacy and overall treatment outcomes (Macabasco-O'Connell & Fry-Bowers, 2011; Rudd, Groene, & Navarro-Rubio, 2013). Health care providers' ability to appropriately and adequately assess the health literacy of their patients is the basis of successful health education, health promotion and community health campaigns (Batterham et al., 2016). Using Nutbeam's (2008) three-tier definition of health literacy, nurses are expected, to function at the third and highest tier— "critical health literacy." This is the ability to critically analyze information, increase awareness and participate in activities to address barriers (Peerson & Saunders, 2009). Nurses play an essential role in the assessment of the patients' clinical conditions and need to provide education and disease management based on the patients' ability to understand. It is required that health care professionals have adequate awareness, knowledge, skills, and attitudes when treating patients with low health literacy (Institute of Medicine, 2004). However, research suggests that health care professionals have limited knowledge and skills about health literacy assessment and effective communication (Cafiero, 2013; Dickens, Lambert, Cromwell, & Piano, 2013; Mackert, Ball, & Lopez, 2011) and may overestimate patients' health literacy because of their own misunderstanding or limited understanding of health literacy (Dickens et al., 2013). They may themselves have mistaken health beliefs (e.g. false beliefs from personal experience, family, and mass media) which they pass on to patients (Guptarak et al., 2019; Stone et al., 2015).

The rapid rise in Thailand's economic development and improvements in health has contributed to an increase in the incidence and prevalence of non-communicable diseases (NCDs). The government at the national and provincial levels has mandated changes in public health policies and public health services to address the rapid rise of NCDs in the Thai community, which include policies to improve public health literacy through effective health communication strategies (Thai Steering Committee of Making the 12th National Health Development Plan, 2017). Efforts are being made by many professional organizations and government agencies to increase the awareness of health literacy among health care professionals (Thai National Reform Steering Assembly, 2016). In Thailand, community public hospitals deliver secondary care, which comprises three levels of secondary care level corresponding to bed numbers: low (30-bed capacity);

medium (30–60 bed capacity); and high (60–90 bed capacity). These hospitals offer both inpatient and outpatient services and serve a diverse Thai population, which varies by socioeconomic characteristics, ethnic heritages, and fluency in the Thai language. They also provide health care services to migrant workers from Myanmar, Laos, and Cambodia and minority Thai ethnic populations. Many ethnic minorities and migrant workers have limited abilities to speak Thai. The primary role of nurses in community hospitals is to provide treatment but it also offers education to patients and their families. These nurses often encounter the challenge of patients with limited health literacy.

The conceptual framework that guided the study was adapted from the Health Literacy Skills (HLS) conceptual framework (Squiers, Peinado, Berkman, Boudewyns, & McCormack, 2012). The HLS framework hypothesizes that individuals' health literacy and health-related outcomes have multiple levels of influences, including individual-level, system-level, and social-level factors, and that these influences interact across different levels (Squiers et al., 2012). At a system level, the hospital systems and health care providers support patients' health literacy education and implementation in terms of an individual's exposure to and cognitive processing and understanding of health-related information. At a societal level, community and cultural considerations affect patient and family functioning and influence patients' health literacy and self-care abilities. Literature reviews supported systemic and societal levels to influence individuals' health literacy (Paasche-Orlow & Wolf, 2008; Sørensen et al., 2012). The results of this study are empirical measures at the systemic level that support the use of the HLS.

Although there has been research into health literacy knowledge and communication skills of health care professionals (Cafiero, 2013; Dickens et al., 2013; Mackert et al., 2011), little is known about health literacy among nurses in Thailand. This study collected baseline data to assess nurses' general health literacy knowledge, nurses' perception of health literacy, nurses' communication techniques with patients, and the potential barriers to implementation of health literacy education and interventions in community hospital settings.

2 | METHODS

2.1 | Design and sample

This was a cross-sectional study. Stratified random sampling was used to select community hospitals with 30–90 beds around the country. A total of 104 community hospitals were selected (Figure 1). Simple sampling was used to randomly select 20–25 nurses who provided direct care for the patients in units. A sample size of 20 was chosen based on the minimum number of nurses employed in the selected community hospitals. Of 2080 questionnaires distributed, 1817 questionnaires (87.4%) were returned. The researcher checked for incomplete questionnaires, and 120 questionnaires had missing data. Therefore, 1697 questionnaires (81.6%) were used for data analysis.



FIGURE 1 Distribution of study hospitals

2.2 | Measurement

The Nursing Professional Health Literacy (NPHLS) instrument was used to measure nurses' health literacy. This questionnaire was developed by Macabasco-O'Connell and Fry-Bowers (2011). Permission was received from the authors to use and translate the instrument. The original NPHLS has 47 items grouped into five parts to collect information on the following: (i) demographic characteristics; (ii) general knowledge questions related to health literacy, which include dichotomous yes/no answers, Likert-scale responses including: often, always, sometimes, never, rarely, as well as open-ended questions; (iii) nurses' perceptions related to health literacy using Likert-scale responses, use of techniques for communicating with patients with low health literacy; and (iv) an assessment of barriers encountered when implementing such techniques which participants can rate with more than one answer. The questionnaire was translated using the backward-forward translation method following the WHO guideline (World Health Organization, 2015b). In this study, four parts of NPHLS were used besides the demographic characteristics part was adjusted to be appropriate to this study sample. The Cronbach's alpha for the nurse's perception related to health literacy was 0.81.

2.3 | Data collection

Before the data collection, ethics approval was obtained, and permission was obtained from hospital directors of study hospitals. The following permission, data collection took place between September to October 2018. The researcher contacted the nursing directors of each hospital and informed them about the details of the study and asked for a coordinator to distribute and collect the questionnaires. Prior to the distribution of the surveys, the researcher provided relevant information about the study including the research objectives, the participants' rights, and data collection methods. Coordinators distributed the questionnaire package. Participants were asked to respond to the questionnaires within 2 weeks and returned the completed questionnaires in a sealed envelope in a locked box provided in nursing departments. Participants were requested to separate consent forms and questionnaires before submitting them. The coordinator collected the completed questionnaires and returned them to the researcher.

2.4 | Data analysis

Descriptive statistics were performed to categorize demographic characteristics and the other attributes, such as knowledge, perception of health literacy, communication techniques, and barriers to health literacy assessment. All analyses were conducted using the SPSS statistical program (SPSS Inc., Chicago, IL).

2.5 | Ethical statement

The study was approved by the Ethical Committee of the Faculty of Nursing, Chiang Mai University, Thailand (approval-EXP043). A written informed consent form was obtained from participants. All participants were informed about the purpose and the methods of the study and that their participation in the study was voluntary, so they could refuse to participate or withdraw from the study at any time without being penalized. A statement was attached with a cover letter to guarantee confidentiality and anonymity of individual responses. Code numbers were used instead of names. Information provided by the participants was only used for the study purposed and kept confidential. Only aggregated results of the study were presented.

3 | RESULTS

In Table 1, the distribution of demographic characteristics of participants is presented. The mean age was 41 years (range 22–60 years); female nurses constituted the majority of the sample (96.3%). About 90.2% of the participants had baccalaureate nursing education, and 3.7% had completed education at the masters' level. One of the participants held a doctoral degree in nursing sciences. The mean years of professional experience were 18.3 years (range 1–40 years). About one-third of the participants ($n = 558$, 32.9%) worked in inpatient

TABLE 1 Frequency and percentage of respondents' demographic characteristics (1697)

Characteristics	N	%	x
Mean age (range 22–50)			41
22–30	293	17.3	
31–40	423	25.0	
41–50	689	40.6	
51–60	292	17.2	
Gender			
Female	1634	96.3	
Male	63	3.7	
Education			
Bachelor	1531	90.2	
Master	165	9.7	
Doctoral	1	0.6	
Mean years of practice as an RN (range 1–40)			18.3
Practice setting			
Out-patient department	480	28.3	
In-patient department	558	32.9	
Emergency room	388	22.9	
Labor room & operating room	271	16.0	

services, 28.3% ($n = 480$) in outpatient services, and 22.9% ($n = 388$) in the emergency department.

3.1 | Nurses' health literacy knowledge

In Table 2 more than half of the study participants (55.3%) had heard the term “health literacy,” and 51.7% rated their level of health literacy knowledge as “moderate.” About 90.6% had not received formal training specific to dealing with patients with low health literacy. More than 85.7% rated the minimum grade level the average Thai read as elementary education. The majority perceived that 40–60% of the Thai population had difficulty understanding health care information or instructions. Most of the nurses believed that the health literacy level of patients they treated were affected by education levels (94.6%), socioeconomic status (80%), age (72.2%), and culture (57.6%). Approximately 12.9% stated that those with high levels of education were not at risk for low health literacy, and 16.3% reported that those who spoke Thai as a second language were not at risk for low health literacy (Tables 2–5).

3.2 | Nurse's perception of health literacy

In Table 3 nurses clarified the impact of low health literacy on their patients with no or limited ability to communicate in the Thai language. More than half of the participants responded that low health literacy among patients with no or limited ability to communicate in

TABLE 2 General health literacy knowledge

Items	N	%
Had ever heard the term “health literacy”		
Yes	939	55.3
No	758	44.7
Describe your knowledge level about “health literacy”		
None/A little	380	22.7
A moderate amount	865	51.7
Quite a bit/A great deal	428	25.6
Receive formal training specific to dealing with patients with low health literacy		
Yes	156	9.4
No	1511	90.6
The minimum grade level does the average Thai read		
Elementary education (G1-6)	1309	85.7
Lower secondary - upper secondary education (G7-12)	219	14.3
Percentage of the Thai population has difficulty understanding health care information or instruction		
0–30%	317	22.4
40–60%	762	53.9
70–100%	335	23.7
Factors associated with the level of		
Education level	1606	94.6
Socioeconomic status	1357	80.0
Age	1225	72.2
Culture	977	57.6
Ethnicity	826	48.7
Gender	580	34.2
Individuals with high levels of education at risk for low health literacy		
Often/Always	494	30.0
Sometimes	938	57.1
Never/Rarely	212	12.9
Individuals who speak Thai as a second language at risk for low health literacy		
Often/Always	669	39.5
Sometimes	749	44.2
Never/Rarely	277	16.3

Note: Participants could provide more than one answer; Participants could decline to answer any of the questions.

the Thai language, imposed restrictions on understanding health care information, obtaining appropriate health services, and adhere fully to recommended treatments. Most participants (74.9%) asked patients about their understanding of their health condition or whether they had additional questions to ask; while asking patients about whether they have difficulty in reading medical information or completing medical forms was the second most common (48.3%) applied method of learning reinforcement. One-fifth of the participants described using “gut feeling” to assess health literacy.

TABLE 4 Use of communication techniques and training

Techniques using ^a	Routine use	
	N	%
Describe medical conditions, treatments and instructions in layman's terms	1535	90.5
Orally review written instructions with patient	1452	85.6
Have patient repeat instructions back to you to check understanding	1287	75.8
Encourage patients to bring a family member or friend to appointments	1133	66.8
Have patient demonstrate instructions back to you to check understanding	889	52.4
Provide the patient with health education materials	873	51.4
Refer patient to other services such as patient educator	466	27.5
Provide the patient with health education materials designed specifically for patients with low health literacy	409	24.1
The practice site has a health literacy program or intervention in place		
Yes	532	31.5
No/I do not know	1157	68.5
The practice site provides patient with health education materials that designed especially for patients with low health literacy		
Yes	592	35.0
No /I do not know	1099	65.0
The practice site has an intensive, individualized health education session for patients with low health literacy		
Yes	914	54.1
No /I do not know	773	45.8
The practice site has a dedicated low health literacy specialist		
Yes	353	21.1
No /I do not know	1323	78.9

^aParticipants could provide more than one answer; Participants could decline to answer any of the questions.

knowledge among nurses and health care providers (Macabasco-O'Connell & Fry-Bowers, 2011). A lack of familiarity with the concept of health literacy and lack of formal training likely imposes considerable limitations in the implementation of effective health literacy interventions including ineffective communication; use of terminology that is not understood by the patient; provision of instructions that are not clear; and allowing inadequate time to check patient understanding or how they intend to enact the instructions (Cafiero, 2013; Coleman, Hudson, & Maine, 2013).

Nurses in this study reported that they had received little educational input about health literacy. This is similar to previous studies that found that the inclusion of health literacy in curricula is not widely reported in nursing education and other health professional programs (Coleman, 2011; Coleman & Appy, 2012). The results imply

TABLE 5 Barriers to implementation of health literacy education and intervention

Barriers to health literacy education for health care providers ^a	N	%
Too difficult to implement a health literacy program for many types of providers	806	47.5
Providers do not have time to take part in a health literacy training program	591	34.8
Health literacy is a low priority as compared to other problems	405	23.9
Health literacy is not a major problem with the specific population served at the place of practice	347	20.5
Health literacy program for providers and staff would not improve outcomes	274	16.6
Senior leadership is not supportive	271	16.0
Implementing a health literacy training program will cost too much money	221	13.0
Barriers to screening for low health literacy for patients^a		
Lack of knowledge about low health literacy among providers and other staff	927	54.6
Good health literacy assessment tools are not available	876	51.6
Assessment/screening takes too much time	546	32.2
Health literacy is a low priority as compared to other problems	409	24.1
Health literacy is not a major problem with the specific population served at the place of practice	342	20.2
Assessment/screening will embarrass or shame patients	268	15.8
Barriers to implementing a health literacy for patient^a		
Providers do not have time to implement a health literacy program	584	34.4
Too difficult to implement a health literacy program for patients who use many different languages	577	34.0
Too difficult to implement a culturally component health literacy program	570	33.6
Health literacy is a low priority as compared to other problems	361	21.3
Health literacy is not a major problem with the specific population served at the place of practice	358	21.1
Health literacy program for providers and staff would not improve outcomes	259	15.3
Senior leadership is not supportive	226	13.3
Implementing a health literacy training program will cost too much money	216	12.7

^aParticipants could provide more than one answer; Participants could decline to answer any of the questions.

that health literacy is not being adequately addressed in Thai Nursing schools. The health literacy education for nurses has been identified as a priority area. Therefore, improving and promoting health literacy education for nursing students will prepare their knowledge and experiences required to provide health care information to patients with low health literacy. More recent studies suggest that nursing education and training can benefit from courses in health literacy and how to effectively deploy health literacy concepts into practice (Coleman & Fromer, 2015; Hadden, 2015; Kaper et al., 2018). Additionally, training in identifying poor levels of health literacy and how to best teach patients to be health literate has been shown to assist health care professionals to better communicate with and support patients with low health literacy (Brach et al., 2012).

The evidence of this study suggests that nurses use a variety of communication techniques to assist patients who have low health literacy. These results are consistent with prior studies that investigated health literacy in other health care providers (Jukkala, Deupree, & Graham, 2009; Schlichting et al., 2007). It may be that even if nurses report that they do not understand the concept of health literacy that their teaching does take into account the patients understanding of their health. Nurse and the way their communication plays a major role in influencing an individual's ability to process health information. However, the evidence is consistent with other findings, which have shown that health literacy specialists and health education materials designed for patients with low health literacy were rarely used or provide at practice sites (Macabasco-O'Connell & Fry-Bowers, 2011). A previous study suggested the well-known guideline such as the Health Literacy Universal Precautions Toolkits would offer a method for systematic evaluation of clinical practices, educational resources for health care providers, and the techniques to communicate with patients in a clear and effective manner (DeWalt et al., 2011).

The finding presented that one-fifth of nurses using "gut feeling" to assess health literacy. Either this finding is a disturbing indictment of nurses not using evidence-base practice - which is unlikely given the other responses - or perhaps nurses are describing an intuitive way of knowing. Benner (1982) described as being characteristic of an expert nurse where, because of extensive experience, the nurse has an intuitive grasp of the situation and as the nurses' level of expertise increases so did the use of intuition in their clinical judgments (Benner, 1984). "Gut feeling" is intuition, instinct, hunch, or a sixth sense encompasses the ability to understanding something instinctively, without the need for conscious reasoning (Gore & Sadler-Smith, 2011). Gut feeling or intuition in clinical practice is something that develops over time and is based on knowledge and experience of caring for patients (Ramezani-Badr, Nasrabadi, Yekta, & Taleghani, 2009) and nurses recognize them as a valuable component of decision-making. Research evidence would suggest that gut feeling or intuition occurs in response to knowledge, is a trigger for action or reflection and thus has a direct bearing on analytical processes inpatient/client care or as an important part of the nursing process (Melin-Johansson, Palmqvist, & Ronnberg, 2017). Therefore, it is likely that experienced nurses used "gut feeling" to assess health literacy. However, reliance on gut feeling alone may mean that nurses lack the

evidence to advocate effectively for resources or to implement contemporary culturally appropriate evidence-based care.

The reported lack of resources and the provider's time were barriers to the implementation of health literacy education and intervention. The absence of appropriate health literacy screening tools prevented nurses from implementing teaching and communication strategies adapted to each patient. Several tools have been used to measure health literacy and assess how well individuals understand health information, for instance, the Test of Functional Health Literacy in Adults (TOFHLA) (Parker, Baker, Williams, & Nurss, 1995), which assesses both reading skills and numeracy. The Information and Support for Health Actions Questionnaire (ISHA-Q) and Health Literacy Questionnaire (HLQ) are also being used to better understand the health literacy strengths and difficulties of people from a range of socioeconomic and ethnic backgrounds and of people living with a disability or with long-term health conditions (WHO, 2015a).

Our study showed that nurses perceived that language and cultural differences were obstacles to implementing effective health literacy education and interventions. Currently, educational pamphlets developed by hospitals are in a standard format and used for a broad spectrum of health conditions and are not adapted for non-Thai speaking or cultural minorities. This finding reflects prior studies which found that language and communication barriers were a significant impediment for minority groups, such as immigrants, to access and utilize health care (Britigan, Munan, & Rojas-Guyler, 2009; Kalengayi, Hurting, Ahlm, & Ahlberg, 2012; Priebe et al., 2011). The use of culturally appropriate and language-sensitive health literacy interventions is likely to encourage individuals to further engage with hospital-based health literacy initiatives (Tsai & Lee, 2016) and health promotion activities. The recommended tool is the use of professional interpreters when required to improve overall care and decrease health inequalities (Karliner, Jacobs, Chen, & Mutha, 2007). Education for health care providers should include health literacy training as well as cultural sensitivity training.

4.1 | Study limitations

Our study has strengths and limitations. Two strengths of our study include its sample size, and the fact that its data was collected from a representative sample of nurses across Thailand who provide health care services to diverse groups of patients. However, the nurses who contributed to our study were aware of study objectives, which could have biased their responses. Also, the questionnaire relied on self-reporting and therefore measured nurses' perceptions of health literacy rather than using an objective measure. The descriptive design limits our ability to make a conclusion about factors leading to these barriers in the implementation of health literacy.

4.2 | Conclusion

This is the first assessment of nurses' knowledge of health literacy, communication techniques, and barriers to the implementation of

health literacy programs in community hospitals in Thailand. The study found that nursing professionals' knowledge of health literacy was still limited, even though nurses applied a variety of communication techniques. Delivery of effective health literacy training was hampered by a lack of assessment tools, health literacy training and specialists, educational materials, and health provider time. Further studies using objective measures are needed about factors leading to poor health literacy implementation or how poor health literacy among patients impacts their outcomes. Hospital administrators, nurse managers, and health leaders should support the work environment and resources supporting the delivery of health literacy interventions.

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AUTHOR CONTRIBUTIONS

Study design: A.P., O.W., K.A., W.K., M.B.N., and L.P.

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