Development and Psychometric Testing of the Health Literate Cancer Hospital Scale

Kannika Supachai, Chanuantong Tanasugarn, Sarunya Benjakul, Surachart Na Nongkhai*

Abstract: People with low health literacy experience difficulty understanding health information and using cancer services. Healthcare organizations are increasingly working to enhance patient understanding and their literacy of health information. However, no validated tools were available to measure a health literate cancer hospital until we developed and tested a self-assessment scale for this purpose.

Two study phases were organized: Phase I aimed to identify the core components of a health literate cancer hospital scale using the three-round Delphi technique with 18 experts in the fields of health literacy, hospital accreditation and health education. Thematic content analysis and measure of central tendency and dispersion were performed for consensus, yielding 4 attributes with 42 items. Phase II tested the scale. A multicenter cross-sectional survey was conducted in six cancer hospitals in Thailand, and a total of 306 healthcare providers completed a questionnaire. Exploratory factor analysis with factor loading in excess of .63 reduced the items from 42 to 22, including leader's vision (8 items), healthcare provider's competency (8 items), health education materials (3 items) and patient-friendly environment (3 items). The scale demonstrated high internal consistency reliability (Cronbach's alpha coefficient .94) and acceptable discrimination (corrected item-total correlation ranged from 0.44 to 0.74).

The final Health Literate Cancer Hospital Scale exhibited a reliable construct validity and internal consistency reliability. Nurses and other health professionals can use this scale as a guideline to provide care and improve their competencies. It can also be integrated in a hospital's quality assurance system so as to self-assess and improve the process of establishing a health literate cancer organization. However, the scale should be tested in other types of hospitals where cancer care is provided for broader generalization.

Pacific Rim Int J Nurs Res 2020; 24(4) 460-471

Keywords: Cancer care, Delphi technique, Health literacy, Healthcare organization, Psychometric testing, Self-assessment scale

Received 19 November 2019; Revised 20 January 2020; Accepted 11 February 2020

Kannika Supachai, *RN, DrPH(Candidate), Department of Health Education and Behavioral Sciences, Faculty of Public Health, Mahidol University, Thailand. E-mail: kannika.sup@pccms.ac.th*

Correspondence to: Chanuantong Tanasugarn*, *DrPH, Associate Professor, Department of Health Education and Behavioral Sciences, Faculty of Public Health, Mahidol University, Thailand. E-mail: chanuantong.tan@mahidol.ac.th*

Sarunya Benjakul, *PhD, Assistant Professor, Health Education and Behavioral Sciences, Faculty of Public Health, Thailand. E-mail: sarunya.ben@mahidol.ac.th*

Surachart Na Nongkhai, *PhD, Associate Professor, Department of Public Health Administration, Faculty of Public Health, Mahidol University, Thailand. E-mail: surachat.nan@mahidol.ac.th*

Introduction

People with cancers need continuous health information unassociated with the type and stage of cancers.[1-3] They are expected to share decisions [4-5] and engage in self-management for optimal health outcomes.[6-7] While making health decisions requires

skills to access and understand health information, self-management requires capabilities to appraise and apply health information appropriately to personal needs and resources. These skills and capabilities are the key concepts of health literacy.

Health literacy is acknowledged as a vital determinant of health worldwide.[8] Studies have demonstrated that low health literacy contributes to poor health outcomes and high healthcare costs.[9, 10] In cancer care, people with low health literacy are less likely to understand their diseases and treatment options, to convey their concerns to healthcare providers, and to cope with cancers.[11, 12] On the contrary, creating a convenient and friendly-environment and using effective simple communication strategies could reduce the barriers of healthcare use and empower people to improve health outcomes.[13] Therefore, health literacy is a combination of individuals' capacities and health care environment.

The health care environment plays a significant role in empowering patients' abilities and motivation to make sense of the given information and apply the information accordingly to improve health outcomes.[14, 15] It has been defined as "The infrastructure, policies, processes, materials, people, and relationships that make up the health system having an impact on the way in which people access, understand, appraise and apply health-related information and services".[16 p.5]

Institutes that create a health literate environment make it easier for people to navigate, understand, and use information and services, and are called health literate healthcare organizations.[17]

For more than a decade, enhancing people's health literacy has shifted the lens from the individual's attributes to the responsibility of healthcare organizations. Guidelines to assist hospitals in self-assessing and improving people's health literacy have been proposed.[16-18] For instance, the Harvard School of Public Health provided a guide to assist healthcare workers improving the health literacy environment in five areas including navigation, print communication, oral exchange, technology and policy and protocols.[18] In addition, Brach and colleagues introduced ten attributes of being a health literate healthcare organization (HLHO), including leadership, care process, workforce competency, patient involvement, target population's needs, effective communication, easy access to healthcare environment, comprehensive health education media and social media, high-risk group identification, and clear communication in health care plans and expenses.[17] Moreover, the Ministry of Health of New Zealand proposed six dimensions to build a HLHO including leadership and management, consumer involvement, workforce, the needs of populations, access and navigation, and communication.[19] Hence, the constructs of an HLHO consist of at least four core attributes, including leadership, competency of healthcare providers, health education materials, and hospital environment.

To assess an HLHO, a few tools have been developed and validated. For instance, one tool was developed from ten attributes of an HLHO and validated through the perspectives of people with breast cancer.[20] Another tool is the health literacy-sensitive of communication (HL-COM). It was developed by a group of experts based on a literature review of specific communication and validated by the perspective of people with cancers.[21] However, these tools were validated in cancer care in a western country where healthcare system and culture differ from Thailand. As such, the tools may not be appropriate for the Thai healthcare environment. Furthermore, no tool has been developed from the Thai context, while tool development remains necessary for the ongoing evolution of healthcare improvement.[22] Therefore, this study aimed to develop a health literate cancer hospital scale (HLCHS) based on experts' consensus and validated by the perspectives of healthcare providers.

Methods

Study design

The Delphi technique was employed to initiate the components of HLCHS self-assessment scale, while a multicenter cross-sectional survey was conducted

to validate the scale. This study was carried out between March 2017 and January 2018.

Study setting and sample

This study was divided in two phases. Participants of phase I were experts in the fields of health accreditation, health literacy and health education, while participants of phase II comprised healthcare providers in six cancer hospitals, representative of each region in Thailand.

Ethical considerations

The study was approved by the Research Ethics Committee of Mahidol University in Phase I (No. MUPH 2017-108) and the Research Ethics Committee of six cancer hospitals in Phase II including National Cancer Institute (No. 188_2017T_OUT518), Maha Vajiralongkorn Thanyaburi Hospital (No. MTU 2017-17), Chonburi Cancer Hospital (No. 2017-10), Lampang Cancer Hospital (No. 2017-009), Udonthani Cancer Hospital (No. UCH 2017-14), and Suratthani Cancer Hospital based on the National Cancer Institute. Participants were individually informed of the objectives, procedures, protection of confidentiality and the right to withdraw from the study.

Procedure and data analysis

Details of the research procedure for each phase including participant enrollment, data collection and data analysis are described below. Predictive Analytics Software (PASW) statistics program, version 18.0 was used to analyze the quantitative data, while thematic content analysis was used to approach the qualitative data.

Phase I: Identify the core components of the HLCHS

The Delphi technique was conducted to identify the core components of the HLCHS. It is a method used to systematically collect and aggregate the judgments of a group of experts on specific questions for particular issues.[23-27] The significance of this method includes a number of experts who can give anonymous responses, the use of an iterative process or a number of rounds of data collection, and the statistical group response is used to reach a consensus. The Delphi technique used in this study is as follows:

The numbers of experts employed in such a study relate to data deviation, and 17 to 21 experts reduce the deviation of data to the lowest point.[23] In graduate research studies using the numbers of related experts vary from 8 to 144.[26] Additionally, anonymous responses refine data without the effects of distinguished experts.[23]

The iterative process is commonly used to generate quantitative means, which has been conducted in a wide variety of health-related research studies including health literacy practices.[24, 25] In graduate research studies, the numbers of rounds vary from 1 to 6, however, a three-round is typically used.[26] The consensus is based on the degree of experts' agreement, and statistical group response is a way to assure that the opinion of experts is analyzed and interpreted. In general, measure of central tendency (mean, median, and mode) and central dispersion (range, interquartile range, and standard deviation) are the appropriate statistical used for the Delphi data. Especially, the interquartile range (IQR) is often used to describe the difference between the 3rd and 1st quartile in which 50% of observed data lie.[28]

Thus, this first phase of our study, the three iterative rounds with 18 experts was conducted, and the features of anonymous and statistical group response were performed to attain consensus of the core components of the HLCHS.

The inclusion criteria to select well-known experts included 1) at least three years' experience in the fields of hospital accreditation and/or health literacy and/or health education, 2) willingness to participate in the three-round Delphi technique using time controlled within one month of each round and 3) permission to interview. In this study, 18 experts met the criteria. The three rounds comprised initiation, insight and confirmation. The procedure and data analysis of each round are elucidated below:

Round 1: Initiation

Six experts working or researching at least two-field experiences were asked to join a face-to-face or telephone interview, 45 to 60 minutes. The main question for the interview was, "What are the core

attributes of a cancer hospital to enhance patients' health literacy?" Thematic content analysis was performed yielding 77 items, categorized in 4 attributes, leadership (32 items), competency of healthcare provider (29 items), health education materials (10 items), and hospital environment (6 items).

Round 2: Insights

A total of 77 items from the previous round were transformed to a structured questionnaire with 3 rating scales: 3 = agree, 2 = somewhat agree, and 1 = disagree. Space was also provided for experts' comments and suggestions. All 18 experts were asked to rate the components and give comments and suggestions. Measure of central tendency and dispersion using mode and IQR comprised the statistics used during this round. The items with mode ≥ 2 and IQR ≤ 1 were kept for the next round. Also, the comments and suggestions were considered to refine the components. From this round, 42 among 77 items were kept.

Round 3: Confirmation

In this final round, all 18 experts were asked to confirm their opinions. Forty-two items were confirmed and remained as consensus. Therefore, 42 items were incorporated in the first draft of the HLCHS, including attributes of leader's vision (14 items), healthcare provider's competency (17 items), health education materials (7 items), and patient-friendly environment (4 items) (**Table 1**).

Table 1 Consensus from the Delphi technique

Attributes	Items and statements
1. Leader's vision	LV1. Identify the enhancing of patients' health literacy as a hospital policy
	LV2. Allocation resources to support health literacy programs appropriately
	LV3. Set goals for training of all-level worker members who provide direct care services towards health literacy concepts
	LV4. Involve all professions in designing of care process and environment with necessary and comprehensive cancer information as needed
	LV5. Be a role model to enhance patients' health literacy
	LV6. Assign responsible teams to enhance patients' health literacy
	LV7. Assign responsible units to enhance patients' health literacy
	LV8. Use evidence-based development of health literacy programs
	LV9. Set guidelines to evaluate the effectiveness of health literacy programs
	LV10. Identify health literacy programs to cover cancer prevention, health promotion, health care, and health maintenance
	LV11. Include patients in the evaluation of health education materials as a policy
	LV12. Listen to the clients' needs, concerns, comments, and suggestions
	LV13. Support the social setting and community to promote patient's health literacy
	LV14. Support the social setting and community to promote health literacy in high-risk groups
2. Healthcare provider's competency	HPC1. Assess the needs of health information appropriate for each patient
	HPC2. Support patients' emotions to have good attitudes in living with cancer, receiving treatment and self-management
	HPC3. Build networks to promote patients' health literacy especially for specific cancer problems
	HPC4. Produce health education materials for patients' self-management
	HPC5. Create appropriate social media as channels for patients' self-management
	HPC6. Use appropriate health social media as education materials and channels to enhance patients' self-management
	HPC7. Provide factual health information for patients regarding products and services related to cancer prevention and treatment

Table 1 Consensus from the Delphi technique (cont.)

Attributes	Items and statements
	HPC8. Provide factual health information resources for high-risk groups in terms of products and services related to cancer prevention and treatment
	HPC9. Use 2-way communication any time when interacting with patients and their families
	HPC10. Confirm patients' understanding of health information at any time when interacting with patients
	HPC11. Provide necessary information, but not more than three topics each time when interacting with patients
	HPC12. Add more information for patients during the following interaction
	HPC13. Use plain language in general without jargon or technical terms
	HPC14. Choose health education materials as appropriate to provide each patient more understanding
	HPC15. Provide health information in which patients can monitor and evaluate their health outcomes
	HPC16. Provide health information within professional boundaries and transfer information to other related professionals
	HPC17. Communicate factual information without causing patients' panic to standard treatment
3. Health education materials	HEM1. Provide a variety of health education materials appropriate to patients' health literacy levels and needs
	HEM2. Include patients in designing and assessing health education materials before implementation
	HEM3. Test patients' understanding of health education materials before implementation
	HEM4. Design a website to help patients' preparation prior to their getting services
4. Patient-friendly environment	PFE1. Provide a map showing every point of contact at hospital hall
	PFE2. Provide directions with Thai which are clear and sufficiently visible for normal level of eyesight
	PFE3. Provide a comfortable zone for clients' relaxation
	PFE4. Provide an information center for clients to communicate on types of investigation, treatment options, and expenses
	PFE5. Use visible text size for normal people to see and understand about their self-service materials
	PFE6. Design the environment for learning in harmony with the hospital areas to avoid patients' overwhelming
	PFE7. Provide volunteers who understand the feelings of patients to help and support them

Abbreviations: *LV=leader's vision, HPC=healthcare provider's competency, HEM=health education materials, PFE=patient-friendly environment*

Phase II: Validating the HLCH scale

A multicenter cross-sectional survey was conducted to validate the scale. Sample sizes were determined from recommendations for factor analysis based on Comrey and Lee, 100 = poor, 200 = fair, 300 = good, 500 = very good, and 1000 or more = excellent.[29] As a general rule of thumb, at least 300 cases were investigated using factor analysis.[30] Considering the appropriateness for the existing number of healthcare providers in cancer hospitals providing direct care, 300 participants were determined, and 20% for missing data were added as the rule of thumb.[30] Therefore, a total of 360 healthcare providers of six cancer hospitals under the Thai Ministry of Public Health were enrolled

by purposive sampling with criteria, including 1) were doctors, nurses, pharmacists and medical technicians who directly interact with patients, 2) have worked in their hospitals for at least one year, and 3) had available time to complete the questionnaires.

This phase comprised three steps: pilot testing, construct validity testing and reliability testing.

Step 1: Pilot testing

The measurement of this step used the 42-item HLCHS, transformed to a structured questionnaire with 5-scales for healthcare providers to rate their perspectives, including 5 = well done, 4 = on process, 3 = plan to do, 2 = not done, and 1 = inappropriate. The rating scales were adapted from the health literacy environment of hospital and health centers assessment.[18] The questionnaire was pilot tested among 50 healthcare providers in cancer hospitals to determine internal consistency reliability of the scale. The results showed a Cronbach's alpha coefficient at .92.

Step 2: Construct validity testing

This step, exploratory factor analysis (EFA) by principal component analysis (PCA) and varimax rotation was performed to extract the relevant factors. A number of factors were determined by considering the scree-plot with the eigenvalues of factors >1 and factor loading >.63 (40% overlapping variance) as a cutoff score to identify the very good components of the Scale.[29]

Step 3: Reliability testing

Reliability refers to stability, internal consistency and equivalence of a scale which highlight the function of the measurement concerning the circumstances under the same condition.[31-32] In this study, internal consistency reliability was evaluated by testing the average correlation between construct items of the entire scale and subscales.

Results

Three hundred and six (85%) of all 360 healthcare providers completed the questionnaires. The questionnaires with missing data were discarded from the analysis. The majority of healthcare providers from the six cancer hospitals were female (86.3%), nurses (77.5%), with an average working time of 10.5 years (**Table 2**).

Table 2 Number and percentage of participants of EFA by characteristic (n= 306)

Characteristics	**n(%)**
Sex	
Male	42(13.7)
Female	264(86.3)
Profession	
Doctor	30(9.8)
Nurse	237(77.5)
Pharmacist	21(6.9)
Medical technician	18(5.9)
Working level	
Executive	52(17.0)
Practitioner	254(83.0)
Working years	
Min-Max	1-40
Mean ±SD	10.53 ±7.86

For factor analysis, the dataset was evaluated for factorability; the Kaiser-Meyer-Olkin (KMO) showed adequate samples (0.94) and Bartlett's test of sphericity was significant ($p<.001$). At factor loading in excess of .63, EFA extracted 22 items in 4 attributes, including attribute 1 leaders' vision (8 items), attribute 2 healthcare provider's competency (8 items), attribute 3 health education materials (3 items) and attribute 4 patient-friendly environment (3 items). Factor loading scores of components of the HLCHS ranged from .64 to .78 (**Table 3**)

The estimation of the internal consistency reliability of the 22-item HLCHS yielded a Cronbach's alpha coefficient of the entire scale at .94 and subscale at .93, .92, .88, and .73, respectively. Moreover, the scale demonstrated acceptable discrimination (corrected item-total correlation ranged from 0.44 to 0.74) to support internal reliability (**Table 3**).

Table 3 Attributes, items, factor loading, discriminant and internal consistency reliability (n=306)

Attribute	Item	Factor loading score	Corrected Item-Total Correlation	Cronbach's Alpha if item Deleted	Cronbach's Alpha
Leader's vision	LV1	.67	0.57	0.92	.93
	LV2	.71	0.64	0.92	
	LV3	.68	0.64	0.92	
	LV5	.66	0.71	0.92	
	LV6	.76	0.65	0.92	
	LV7	.78	0.67	0.91	
	LV8	.71	0.73	0.91	
	LV9	.73	0.74	0.91	
Healthcare provider's competency	HPC9	.69	0.73	0.91	.92
	HPC10	.72	0.69	0.91	
	HPC11	.67	0.57	0.91	
	HPC12	.72	0.63	0.91	
	HPC13	.77	0.63	0.91	
	HPC14	.69	0.72	0.91	
	HPC15	.69	0.70	0.91	
	HPC17	.70	0.65	0.91	
Health education materials	HEM1	.67	0.67	0.89	.88
	HEM2	.78	0.57	0.80	
	HEM3	.72	0.63	0.80	
Patient-friendly environment	PFE1	.64	0.44	0.67	.73
	PFE2	.67	0.50	0.60	
	PFE5	.67	0.57	0.68	

Cronbach's Alpha entire scale .94

Discussion

The HLCHS is intended to help cancer hospitals self-assess and improve their context for enhancing people's health literacy. It consists of 4 attributes with 22 items. Initiation of the scale, cutoff point of factor loading and components of each attribute are discussed below.

To initiate construction of the HLCHS, we obtained the consensus of 18 experts using a three-round Delphi

Technique commonly used in research[26, 27] and the number of experts was sufficient to reduce data deviation.[23]

The HLCHS determined high factor loading in excess of .63 as a cutoff point. Because of the interpretation of factors, variables with loadings of .32 and above were interpreted. Loading in excess of .71 (50% overlapping variance) was considered excellent, .63 (40% overlapping variance) very good, .55 (30% overlapping variance) good, .45 (20% overlapping variance) fair and .32 (10% overlapping variance) poor.[23] The lowest factor loading score among the components of the HLCHS was .64, while HL-COM tool was .50 [21], and 10-HLHO tool was .41. [20]

In addition, internal consistency reliability of the HLCHS was tested to measure the correlations between items. To interpret internal consistency reliability, Cronbach's alpha coefficient followed rule of thumb, that is, >.9 – excellent, >.8 – good, >.7 – acceptable, >.6 – questionable, >.5 – poor, and <.5 – unacceptable.[31, 32] The HLCHS yielded excellent internal consistency reliability with a Cronbach's alpha coefficient value close to 1. However, Cronbach's alpha coefficient value of attributes 3 and 4 were .88 and .73, respectively. When determining loading scores higher than .63 and based on Thai context, the components of the comprised four attributes with 22 items. The components of each attribute are relevant to related studies as discussed below.

Attribute 1 represents the vision and action of leadership to support and facilitate an organization promoting a high-performance standard for patient safety and organization quality. Leadership behaviors embodied the core values and concepts of an organization and guided healthcare workers within the care process to meet the needs of patients.[33, 34] This attribute showed the leaders' vision to set policy, allocate resources, serve as a role model, as well as assign responsible units and teams to enhance patients' health literacy and to improve the health literacy environment were crucial for being an HLCH. Moreover, the leaders' action to use evidence-based development of health literacy programs and set guidelines to evaluate the effectiveness of health literacy programs should be established for sustainable improvement.

Attribute 2 constitutes the healthcare providers' competency in providing effective communication to enhance patients' health literacy. Effective communication included two-way communication, confirming patients' understanding and providing necessary information on not more than three-topics each time using plain language. In addition, choosing appropriate health education materials to provide patients with greater understanding and providing health information, wherein patients could monitor and evaluate their health outcomes, constituted crucial competencies. The results of this study were concordant with previous studies[35, 36] that found competency of the healthcare workforce enhanced the quality of communication, and improved patients' health, and clear communication facilitated the healthcare workforce to provide information content for patients' comprehension and needs. Clear communication included using plain language, the ask me-3 strategy, open-ended approach, the teach-back technique, writing down important instructions, and educational materials.[36] Therefore, to constitute an HLCH, competency of the healthcare provider in providing effective communication is needed.

Attribute 3 considers the health educational materials to facilitate patients' understanding of health information. The HCLHS results showed that a variety of health education materials, including patients in designing and assessing health education materials and testing patient's understanding in health education materials before implementing are significant. Designing and distributing health educational materials and social media for patients easy to understand and act on are important, and improving the variety of health education materials appropriate to the variety of patients is also a key improvement to promote patients' health literacy.[37] Furthermore, using written materials at the grade 5 reading level with illustrations help patients better comprehend.[38] In addition, using picture-based health education increases the learning abilities of people with low health literacy.[39]

Attribute 4 comprises the patient-friendly environment to facilitate patients' health literacy. This study demonstrated that showing every point of contact and providing directions in Thai which are clear and visible for a normal level of eyesight are necessary. Moreover, an easily visible text size for normal people to see and understand their self-service materials is needed to enhance patients' health literacy. Previous studies have been concerned with environmental improvement regarding navigation to facilitate patients to find their way by improving the directions and signs throughout the entire healthcare organization.[11, 18, 20]

Strength and limitation of the study

The strength of this study was using a high factor loading in excess of .63 as the cutoff score to ensure very good components of scale. However, the lack of construct validity by confirmation among different groups was a limitation.

Implications for Nursing Practice and Recommendations

Our HLCHS could be useful for nurses and hospital managers to reflect the opportunities to improve in four attributes, i.e., leaders' vision and action, competency of healthcare providers, a variety of health education materials, and a patient-friendly environment. The Scale can be integrated into a hospital's quality assurance system for continuous quality improvement or accreditation standards towards the hospital's self-assessment and improvement with contexts for patient safety and quality. For more generalization this Scale should be adapted and tested in other hospitals which provide cancer care.

In future studies, construct validity by confirmatory factor analysis of the HLCHS should be duplicated among healthcare providers of other types of hospital. The correlation between attributes of an HLCH and patients' health literacy levels needs to be measured, and patients' health outcomes should be considered as a gold standard to confirm the effectiveness of an HLCH.

Conclusions

This study produced a reliable 22-item instrument for appraising the health literacy environment of cancer hospitals. In the growing recognition of the need for health literacy in various health organizations, other types of hospitals could adapt this scale in their policies and practices to enhance patients' health literacy programs regarding health care.

Acknowledgments

We wholeheartedly thank all 18 experts for sharing their knowledge and experiences, as well as healthcare providers of six cancer hospitals for participating in the study.

References

1. Hsieh LY, Chou FJ, Guo SE. Information needs of patients with lung cancer from diagnosis until first treatment follow-up. PLoS One. 2018 13(6):1-13. doi: 10.1371/journal.pone.0199515.eCollection2018.
2. Blodt S, Kaiser M, Adam Y, Adami S, Schultze M, Muller Jacqueline. Understanding the role of health in patients' experiences: secondary analysis of qualitative narrative interviews with people diagnosed with cancer in Germany. BMJ Open. 2018 8:e019576. doi:10.1136/bmjopen-2017-019576.
3. Okuhara T, Ishikawa H, Urakubo A, Hayakawa M, Yamaki C, Takayama T, et al. Cancer information needs according to cancer type: a content analysis of data from Japan's largest cancer information website. Preventive Medicine Reports. 2018 12:245-52.
4. Thorne S, Oliffe JL, Stajduhar KI. Communicating shared decision-making: cancer patient perspectives. Patient Educ Couns. 2013 90(3):291-6. doi: 10.1016/j.pec.2012.02.018.

5. Katz SJ, Belkora J, Elwyn G. Shared decision making for treatment of cancer: challenges and opportunities. J Oncol Pract. 2014 10(3):206-8.
6. McCorkle R, Ercolano E, Lazenby M, Schuman-Green D, Schilling LS, Lazenby M. Self-management: enabling and empowering patients living with cancer as a chronic illness. CA Cancer J Clin. 2011 61(1):50-62.
7. Hammer MJ, Ercolano EA, Wright F, Dickson VV, Chyun D, Melkus GD, et al. Self-management for adult patients with cancer: an integrative review. Cancer Nurs. 2015 38(2):e10-26.
8. World Health Organization. Shanghai Declaration on Promoting Health in the 2030 Agenda for Sustainable Development. Health Promot Int. 2017 32(1):7-8.
9. Berkman ND, Sheridan SL, Donahue KE, Halpern DJ, Crotty K. Low health literacy and health outcomes: an updated systematic review. Ann Intern Med. 2011 155(2):97-107.
10. Halverson JL, Martinez-Donate AP, Palta M, Leal T, Lubner S, Walsh MC, et al. Health literacy and health-related quality of life among a population-bases sample of cancer patients. J Health Commun. 2015 20(11):1320-9.
11. Busch EL, Martin C, DeWalt DA, Sandler RS. Functional health literacy, chemotherapy decisions, and patient outcomes within a cohort of colorectal cancer patients. Cancer Control. 2015 22(1):95-101.
12. Koay K, Schofield P, Jefford M. Importance of health literacy in oncology. Asia Pac J Clin Oncol. 2012 8(1): 14-23.
13. Martinez-Donate AP, Halverson J, Simon NJ, Strickland JS, Trentham-Dietz A, Smith PD, et al. Identifying health literacy and health system navigation needs among rural cancer patients: finding from the rural oncology literacy enhancement study (ROLES). J Cancer Educ. 2013 28(3):573-81.
14. Castro EM, Regenmortel TV, VAnhaechet K, Sermeus W, Hecke AV. Patient empowerment, patient participation and patient-centeredness in hospital care: a concept analysis based on a literature review. Patient Educ Couns. 2016 99(12):1923-39. doi: 10.1016/j.pec.2016.07.026.
15. Hincapie A, Warholak T. The impact of health information exchange on health outcomes. Appl Clin Inform. 2011 2(4):499-507. doi:10.4338/ACI-2011-05-R-0027.
16. Australian Commission on Safety and Quality in Health Care. Consumers, the health system and health literacy: taking action to improve safety and quality. Consultation Paper. Sydney: ACSQHC; 2014.
17. Brach C, Keller D, Hernandez LM, Baur C, Parker R, Dreyer B, et al. Ten attributes of health literate health care organizations. Institute of Medicine of the National Academes; 2012, pp.1-27.
18. Rudd RE, Anderson GE. Health literacy environment of hospitals and health centers. Harvard School of Public Health Department of Society, Human Development, & Health; 2006, pp.1-152.
19. Ministry of Health. Health literacy review: A guide. Wellington, New Zealand; Ministry of Health; 2015.
20. Kowalski C, Lee SY, Schmidt A, Wesselmann S, Wirtz MA, Pfaff H, et al. The health literate health care organization 10-item questionnaire (HLHO-10): development and validation. BMC Health Serv Res. 2015 15:1-9.
21. Ernstmann N, Halbach S, Kowalski C, Pfaff H, Ansmann L. Measuring attributes of health literate health care organizations from the patients' perspective: development and validation of a questionnaire to assess health literacy-sensitive communication (HL-COM). Z. Evid. Fortbild. Qual. Gesundh. wesen (ZEFQ). 2017 121:58-63.
22. Ketefian S, Manojlovich M. Why do we need tools in nursing research. Pacific Rim Int J of Nurs Res. 2020; 24(1): 1-4.
23. Macmillan TT. The Delphi Technique. Paper presented at the Annual Meeting of the California Junior Colleges Associations Committee on Research and Development, Monterey, California; 1971.
24. Coleman CA1, Hudson S, Maine LL. Health literacy practices and educational competencies for health professionals: a consensus study. J Health Commun. 2013 18 Suppl 1:82-102. doi: 10.1080/10810730.2013. 829538.
25. Chang LC1, Chen YC2, Wu FL1, Liao LL3.Exploring health literacy competencies towards patient education programme for Chinese-speaking healthcare professionals: a Delphi study. BMJ Open. 2017 7(1):e011772.
26. Skulmoski GJ, Hartman FT, Krahn J. The Delphi Method for graduate research. Journal of Information Technology Education. 2007 6:1-21.

27. Hsu CC. The Delphi Technique: making sense of consensus. Practical Assessment, Research, and Evaluation. 2007 12(10):1-8.
28. Ramos D, Arezes P, Afonso P. Application of the Delphi Method for the inclusion of externalities in occupational safety and health analysis. DYNA. 2016 83(196): 14-20.
29. Comrey A, Lee H. A first course in factor analysis. Hillsdale, NJ: Erlbaum; 1992.
30. Tabachnick BG, Fidell LS. Using multivariate statistics (5th ed.). New York: Harper Collins; 2007.
31. George D, Mallery P. SPSS for Windows step by step: A simple guide and reference. 11.0 update (4th ed.). Boston: Allyn & Bacon; 2003.
32. Kwszei AP, Novak M, Streiner DL. Introduction to health measurement scales. J Psychosom Res. 2010 68(4):319-23. doi: 10.1016/j.jpsychores.2010.01.006.
33. The Joint Commission: Advancing Effective Communication, Cultural Competence, and Patient- and Family-Centered Care: A Roadmap for Hospitals. Oakbrook Terrace, IL: The Joint Commission; 2010.
34. Stikes R, Arterberry K, Logsdon MC. A nurse leadership project to improve health literacy on a maternal-infant unit. J Obstet Gynecol Neonatal Nurs. 2015 44(5):665-76. doi:10.1111/1552-6909.12742.
35. Doak CC, Doak LG, Friedell GH, Meade CD. Improving comprehension for cancer patients with low literacy skills: strategies for clinicians. CA Cancer J Clin. 1998 48(3): 151-62.
36. Kripalani S, Weiss BD. Teaching about health literacy and clear communication. J Gen Intern Med. 2006 21(8): 888-90.
37. Palumbo R, Annarumma C. The Importance of Being Health Literate: An Organizational Health Literacy Approach. 17th Toulon-Verona International Conference. Excellence in Services; 2014, pp. 247-62.
38. Mikhail D, Visscher KL, Chen N, Wang J, Emara BY, Hutnik CM. Patient-appropriate health literacy educational materials in ophthalmology. Can J Ophthalmol. 2015 50(1):19-25. doi: 10.1016/j.jcjo.2014.08.002.
39. Imoisili O, Levinsohn E, Pan C, Howell BA, Streiler S, Rosenbaum R. Discrepancy between patient health literacy levels and readability of patient education materials from an electronic health record. HLRP: Health Literacy Research and Practice. 2017 1(4):e203-7.

การพัฒนาและทดสอบคุณภาพเครื่องมือวัดโรงพยาบาลรอบรู้ด้านโรคมะเร็ง

กรรณิการ์ ศุภชัย ชะนวนทอง ธนสุกาญจน์ ศรัณญา เบญจกุล สุรชาติ ณ หนองคาย*

บทคัดย่อ: ผู้ที่มีความรอบรู้ด้านสุขภาพต่ำ มีความยากในการเข้าใจข้อมูลและใช้บริการด้านโรคมะเร็ง ขณะที่องค์กรรอบรู้ด้านสุขภาพได้รับการยอมรับเพิ่มขึ้นในการส่งเสริมให้ผู้ป่วยเข้าใจข้อมูลสุขภาพ อย่างไรก็ตามยังไม่มีเครื่องมือวัดองค์กรรอบรู้ด้านสุขภาพในบริบทของไทย ดังนั้นการวิจัยนี้มีวัตถุประสงค์เพื่อพัฒนาและตรวจสอบเครื่องมือประเมินตนเองสำหรับวัดโรงพยาบาลรอบรู้สุขภาพในการดูแลผู้ป่วยมะเร็ง

การศึกษานี้แบ่งเป็น 2 ระยะ โดยระยที่ 1 เป็นการระบุองค์ประกอบที่สำคัญของเครื่องมือวัดโรงพยาบาลรอบรู้สุขภาพในการดูแลผู้ป่วยมะเร็ง ด้วยวิธีเดลฟาย 3 รอบ จากผู้เชี่ยวชาญ 18 ท่านที่มีความเชี่ยวชาญด้านความรอบรู้ด้านสุขภาพ ด้านการรับรองคุณภาพโรงพยาบาล และด้านสุขศึกษา วิเคราะห์ข้อมูลด้วยการวิเคราะห์เนื้อหาและการวัดแนวโน้มเข้าสู่ศูนย์กลางและการกระจาย ได้ฉันทามติประกอบด้วย 4 คุณลักษณะ 42 ข้อ และระยะที่ 2 เป็นการทดสอบคุณสมบัติของเครื่องมือ ด้วยการศึกษาแบบเชิงสำรวจภาคตัดขวาง ใน 6 โรงพยาบาลมะเร็ง มีผู้ให้บริการด้านการดูแลสุขภาพจำนวน 306 คนที่ตอบแบบสอบถามสมบูรณ์ วิเคราะห์ข้อมูลด้วยการวิเคราะห์องค์ประกอบที่ค่าน้ำหนักปัจจัยมากกว่า .63 ได้จำนวนองค์ประกอบของเครื่องมือ 22 ข้อ ประกอบด้วยคุณลักษณะด้านผู้นำ 8 ข้อ ด้านสมรรถนะของผู้ให้การดูแลด้านสุขภาพ 8 ข้อ ด้านสื่อสุขศึกษา 3 ข้อ และด้านการจัดการวิสิ่งแวดล้อมของโรงพยาบาล 3 ข้อ ซึ่งเครื่องมือนี้มีความสอดคล้องภายในสูง โดยมีค่าสัมประสิทธิแอลฟาของครอนบาคเท่ากับ .94 และมีค่าอำนาจจำแนกที่ยอมรับได้ระหว่าง 0.44 - 0.74

เครื่องมือประเมินโรงพยาบาลรอบรู้สุขภาพในการดูแลผู้ป่วยมะเร็งนี้มีความตรงเชิงโครงสร้างและความสอดคล้องภายในที่เชื่อถือได้ ที่พยาบาลสามารถใช้เป็นแนวทางในการให้การดูแลผู้รับบริการและบูรณาการเป็นส่วนหนึ่งของระบบประกันคุณภาพ เพื่อประเมินและปรับปรุงการเป็นองค์กรรอบรู้ด้านสุขภาพ อย่างไรก็ตาม เครื่องมือนี้ควรได้รับการทดสอบในโรงพยาบาลอื่นๆเพื่อการนำไปใช้ได้อย่างกว้างขวาง

Pacific Rim Int J Nurs Res 2020; 24(4) 460-471

คำสำคัญ: การดูแลด้านโรคมะเร็ง การประเมินคุณภาพเครื่องมือ เครื่องมือประเมินตนเอง ความรอบรู้สุขภาพ องค์กรสุขภาพ

กรรณิการ์ ศุภชัย *นักศึกษาหลักสูตรสาธารณสุขศาสตรดุษฎีบัณฑิต ภาควิชาสุขศึกษาและพฤติกรรมศาสตร์ คณะสาธารณสุขศาสตร์ มหาวิทยาลัยมหิดล E-mail: kannika.sup@pccms.ac.th*

ติดต่อที่ : ชะนวนทอง ธนสุกาญจน์*** *รองศาสตราจารย์ ภาควิชาสุขศึกษาและพฤติกรรมศาสตร์ คณะสาธารณสุขศาสตร์ มหาวิทยาลัยมหิดล E-mail: chanuantong.tan@mahidol.ac.th*

ศรัณญา เบญจกุล *ผู้ช่วยศาสตราจารย์ ภาควิชาสุขศึกษาและพฤติกรรมศาสตร์ คณะสาธารณสุขศาสตร์ มหาวิทยาลัยมหิดล E-mail: sarunya.ben@mahidol.ac.th*

สุรชาติ ณ หนองคาย *รองศาสตราจารย์ ภาควิชาบริหารงานสาธารณสุข คณะสาธารณสุขศาสตร์ มหาวิทยาลัยมหิดล E-mail: surachat.nan@mahidol.ac.th*