International Journal of Gerontology 15 (2021) 58–63
https://doi.org/10.6890/IJGE.202101_15(1).0012

International Journal of Gerontology

journal homepage: http://www.sgecm.org.tw/ijge/

Original Article

Development of an Age-Friendly Health Service Recognition Framework for Primary Health Centers in Taiwan

Chen-I Shih [a §], Yueh-Han Hsu [b,c,d §], Hui-Fei Yang [a], Hsi-Lung Hung [e], Shu-Li Chia [f], Ying-Wei Wang [f], Wei Chen [a *], Sheng-Yu Fan [g *]

[a] *Department of Community Health, Ditmanson Medical Foundation Chia-Yi Christian Hospital, Chia-Yi, Taiwan,* [b] *Department of Internal Medicine, Ditmanson Medical Foundation Chia-Yi Christian Hospital, Chia-Yi City, Taiwan,* [c] *Department of Medical Research, Ditmanson Medical Foundation Chia-Yi Christian Hospital, Chia-Yi City, Taiwan,* [d] *Department of Nursing, Min-Hwei College of Health Care Management, Tainan City, Taiwan,* [e] *Department of Long-term Care, Wufeng University, Taiwan,* [f] *Health Promotion Administration, Ministry of Health and Welfare, Taiwan,* [g] *Institute of Gerontology, College of Medicine, National Cheng Kung University, Tainan, Taiwan*

ARTICLE INFO

Accepted 12 October 2020

Keywords:
age-friendly,
age-friendly health service recognition,
primary care,
primary health centers

SUMMARY

Background: The proportion of older people is increasing rapidly, bringing tremendous challenges for health services. Primary health centers (PHCs) play a primary role in providing health care to older people. Developing an age-friendly health service recognition (AFHSR) framework for PHCs in Taiwan and evaluating the reliability and validity of this framework are essential.
Methods: Research was conducted in four stages. First, the initial AFHSR framework was developed based on the health promoting hospital standards. Second, experts (N = 33) including public health researchers, hospital and PHC directors, physical environment architects, and nongovernmental organization managers, modified the framework. Third, two rounds of content validity testing were conducted. Fourth, 25 PHC managers applied the AFSHR framework to evaluate performance.
Results: The AFHSR framework included two chapters, five standards, and eighteen items. The two chapters were organization management and care services. The five standards were management policy, information intervention and communication, friendly environments, health promotion, and community service and referral. The validity for the framework was 0.96 and for the two chapters was 0.98 and 0.93, respectively. The Cronbach's α of reliability for the whole framework was 0.91 and for the two chapters was 0.85 and 0.81, respectively.
Conclusions: The AFHSR framework for PHCs is reliable and valid for primary health care in Taiwan.

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1. Introduction

In the global population, the proportion of older people (aged 65 or more) was 8% in 1950 and increased to 13% by 2017.[1] Similarly, in Taiwan the proportion is estimated to reach 20% in 2025.[2] With this increase in the aged population, there is increasing need for adequate primary care for the older people.[3]

Health care system includes primary, secondary, and tertiary care.[4] Primary health centers (PHCs) are the basic units of primary health care,[5,6] and bring health care into communities.[7,8] In Taiwan, PHCs have multiple functions, not only health care but also health prevention and promotion, including disease treatments, chronic disease management, health screening, health education, and referral to hospitals, long-term care facilities, or day-care institutions when required.[9,10] The roles of PHCs may be different based on the characteristics of the communities, such as city versus rural area, or the popular diseases in the communities. PHCs also provide comprehensive primary care and preventive services to older people.[11]

However, numerous barriers impeded the implementation of services provided by PHCs for the older people. For example, health care providers lacked training, disregarded gender differences, or failed to use language appropriate for older people.[12] Systemic problems included fragmentation of services, lack of special clinics and consultation hours, and scarcity of barrier-free facilities.[12,13] The age-friendly health services meant PHC modified clinical services, staff training, and environments to meet older people's needs.[12] In 2004, the World Health Organization (WHO) developed Age-Friendly Principles to strive "towards age-friendly primary health care," including principles regarding information, education, communication, training, health care management systems, and the physical environment.[12]

Many developed countries, such as Australia,[14] Canada,[15–17] and the United States,[18] have established age-friendly hospital frameworks. The major concepts include care processes, communication and services, physical environment, community services, and referral of these networks.[14–18] Some Asian countries, including India,[19] Iran,[20] Korea,[21] and Hong Kong,[22] have also developed

* Corresponding author. Department of Community Health, Chiayi Christian Hospital and Department of Planning, Chiayi Christian Hospital, No. 539, Zhongxiao Rd., East Dist., Chiayi City 600, Taiwan.
E-mail address: peteralfa2004@gmail.com (W. Chen)
Institute of Gerontology, College of Medicine, National Cheng Kung University, No. 1, University Road, Tainan City 701, Taiwan.
E-mail address: shengyu@mail.ncku.edu.tw (S.-Y. Fan)
§ These authors contributed equally to the work as the first authors.
* These authors contributed equally to the work as the corresponding authors.

age-friendly hospital frameworks for the older people, and the important concepts of their frameworks include the care processes, communication and services, accessibility, and physical environment.

In Taiwan, The Framework of Age-Friendly Hospitals[13] was established in 2009 and modified from the WHO's Health Promoting Hospitals and Health Services.[23] It has four standards, including management policy, communication and services, physical environments, and care processes.[13] In 2015, the Ministry of Health and Welfare announced its *White Paper for an Aged Society*, which is intended to provide community-based prevention for the older people through primary care.[2]

The Framework of Age-Friendly Hospitals in Taiwan provides conceptual guidelines for hospitals; however, in primary care, there is a shortage of appropriate guidelines for health promotion and continuum of care. To fill the gap and enhance the health promotion capability of PHCs, it is imperative to develop an age-friendly framework applicable to PHCs in Taiwan. Therefore, this study developed a framework of age-friendly health service recognition (AFHSR) for PHCs and examined its validity in Taiwan.

2. Methods

2.1. Study design

This study described the development of AFSHR framework in qualitative study design, and implementation of the framework with reliability and validity analysis. A four-stage study was conducted that comprised a literature review, expert panels, content validation, and pilot study of the framework. This study was obtained the ethical approve form the institute review board of Ditmanson Medical Foundation Chia-Yi Christian Hospital before the beginning of the study (IRB number: CYCH-IRB2018037).

2.2. Expert panel

The initial framework and AFHSR items were identified from various international frameworks.[12–21,24,25] Experts with different expertise, including public health researchers, the medical director of hospitals, the director of PHCs, physical environment architects, and non-governmental organization managers were invited to join the expert panels. The experts' backgrounds are presented in Table 1. The panels met thrice; 6 experts participated in the first round, 12 participated in the second round, and 23 participated in the third round. Eight experts participated in all three rounds. The expert panels discussed the meaning of age-friendly institutions; established the chapters, definitions, and importance of each standard and item; and removed unclear and extraneous items. They addressed the community-based approaches, including administration, community collaboration, communication, education, and the physical environment, through which PHCs provide appropriate health services and promotion to the older people.

2.3. Content validity

In this stage, a group of experts with different backgrounds (a gerontologist, the medical director of a hospital, a physical environment architect, a PHC director, and a non-governmental organization manager, presented in Table 2) evaluated the validity of the content of the framework. Regarding the qualifications of the experts, we recruited the experts from health care fields, including hospitals and PHCs. These experts understood the responsibility of health and medical care, and some of them had experience to promote age-friendly hospitals. However, due to the unique role of PHC, some experts from communities, public heath, gerontology, and architecture, were also recruited. These experts can address the PHC functions in health promotion, community connection, as well as friendly environment.

Content validation was performed across two sessions; eight experts participated in the first, and 23 participated in the second. Four experts participated in both sessions. The experts rated the appropriateness of the items using a four-point scale: "4" indicated a very suitable and necessary item, "3" indicated a suitable item requiring partial modification, "2" indicted an unsuitable item requiring major modification, and "1" indicated a very unsuitable item that should be excluded.[26] Two kinds of content validity index (CVI) were calculated: (1) CVI for item (I-CVI) was the proportion of experts rating an item 3 or 4 score. (2) CVI for scale (S-CVI) was the average of the all I-CVI on the scale. The cutoff point of S-CVI should be higher than 0.8.[27] In addition, open-ended questions were used to collect the suggestions for item modification.

Table 2
Gender and expertise of content validity index experts.

Characteristics	First round		Second round	
	N	%	N	%
Gender				
Female	3	37.50	13	56.52
Male	5	62.50	10	43.48
Field of expertise				
Gerontologist	1	12.50	0	0.00
Medical directors of hospital	3	37.50	8	34.78
Physical environment architect	1	12.50	2	8.70
Directors of primary health centers	2	25.00	10	43.48
Managers of non-governmental organization	1	12.50	3	13.04

First round N = 8; Second round N = 23.

Table 1
Gender and expertise of panel experts.

Characteristics	First round		Second round		Third round	
	N	%	N	%	N	%
Gender						
Female	1	16.67	5	41.67	13	56.52
Male	5	83.33	7	58.33	10	43.48
Field of expertise						
Public health researchers	1	16.67	0	0.00	0	0.00
Medical directors of hospital	1	16.67	5	41.67	9	39.13
Physical environment architects	2	33.33	2	16.67	1	4.35
Directors of PHCs	2	33.33	5	41.67	10	43.48
Non-governmental organization managers	0	0.00	0	0	3	13.04

First round N = 6; Second round N = 12; Third round N = 23.

2.4. Pilot study

In the fourth stage, the framework was applied to evaluate the extent to which PHCs are age-friendly. Directors from 25 PHCs whose background were physicians and nurses were recruited. They used the framework to self-assess their institutions' implementation level on a 5-point Likert-type scale: "5" indicated 100% fulfilment of the criteria, "4" indicated 75% fulfilment of the criteria, "3" indicated 50% fulfilment of the criteria, "2" indicated 25% fulfilment of the criteria, and "1" indicated 0% fulfilment of the criteria.

The strategy of self-assessment is to encourage and assist health care organizations as they develop their continuous quality improvement processes. The purpose of the AFHSR framework is to provide a tool that supports PHCs in assessing and improving age-friendly activities. To assess the reliability of the questionnaire, Cronbach's α coefficient was used to determine internal consistency and should be higher than 0.7. In addition, directors provided qualitative suggestions and opinions about the framework for modification.

3. Result

3.1. AFHSR framework and expert panels

First, the research team developed the initial AFHSR framework, comprising 7 standards and 28 items. Second, the expert panels amended the framework to 2 chapters, 5 standards, and 18 items. Chapter one comprised "Organization Management", which included Standard 1 "Management Policy", Standard 2 "Information-based Intervention and Communication", and Standard 3 "Friendly Environment". Chapter two was composed of "Care services", which included Standard 4 "Health Promotion" and Standard 5 "Community Services and Referral" (See Table 3). The experts suggested simplifying the framework. For example, PHC functions, such as communication, education, and information delivery, could be integrated into the same chapter. In addition, PHC function was addressed, and the experts suggested using screening and referral instead of personalized health care methods because PHCs may play a more crucial role in prevention and health promotion than in treatment. Third, clear definitions and terms were suggested, including the use of the "physical and mental health characteristics of older adults" instead of "health aging."

3.2. Content validity

After the first round of validation, the S-CVI score for the overall framework was 0.92, and those for Chapters 1 and 2 were 0.96 and 0.87, respectively. For the second round, the S-CVI score for the overall framework was 0.96, and those for Chapters 1 and 2 were 0.98 and 0.93, respectively (see Table 3).

Qualitative feedback involved mainly the correction of terms and phrasing. For example, the experts suggested adding a suitable space with communication aids to the organization to provide older adults, patients, and their families with information relating to the physical and mental health characteristics of older adults. Clearer descriptions enable PHCs to meet framework standards more effectively.

3.3. Pilot study

The Cronbach's α coefficients for Chapter 1, Chapter 2, and the entire framework were 0.85, 0.81, and 0.91, respectively, which were all higher than 0.7.

The directors also provided qualitative feedback. Most of the PHC directors commented that the AFHSR framework provided clear guidelines for improving age-friendly health service quality and team member cohesion. However, there were some challenges to meet the items. Lack of trainings and budgets were mentioned mostly. Without management training, the members of PHCs were unable to apply management methods to evaluate and improve the quality of age-friendly activities. In addition, environmental modification was limited by the old buildings and lack of budgets, and then it was hard to achieve the requirements of friendly environment.

4. Discussion

This study used multiple methods, including a literature review, expert panels, content validation, and a pilot study to develop an AFHSR framework for PHCs in Taiwan. Five AFHSR standards were identified: management policy, information-based intervention and communication, a friendly environment, health promotion, and community services and referral.

4.1. Management policy

Age-friendly policy and management-level support play critical roles in the development of age-friendly PHCs, such as in Canada and the United States.[15–18] International guidelines pertaining to age-friendly hospitals highlight the importance of relevant policy, such as identifying age-friendliness as one of the priority issues,[13,17,18,21] allocating resources,[13,17,18,21] and sustainable monitoring and improvement.[8,13,17,18,21]

The AFHSR framework addresses the management regulations required for PHCs to enable the implementation of relevant policies. PHCs should analyze older adults' needs and accordingly design and formulate age-friendly health care policies. PHCs should assign staff members to coordinate and implement age-friendly policies and should ensure that age-friendly affairs are a priority of operations. In addition, the budget assigned to updating software systems and improving physical facilities should be developed in accordance with the promotion and implementation of age-friendly policies. PHCs should apply appropriate quality management methods, such as the plan-do-check-act control cycle, to assess the quality of clinical care or management policy.

4.2. Information-based intervention and communication

The AFHSR framework also addresses the dignity and decision-making rights of the older people. Relevant content mandates that staff communicate with older people in a respectful manner[13,15,17–21] and be aware of and responsive to the specialized needs of older people;[13,14,17–19,21] that a PHC provide comprehensive health-status information;[13,15,17,18,20,21] that the organization respect older person's ability and right to make decisions;[13,16–18,21] that patient-centered care,[13,16–18] which adjusts its administrative procedures in response to the needs of older people,[13,19–21] be provided; that an organization have age-friendly signs;[13,16,19–21] and that staff receive age-friendly training.[13,15,16,18,20,21]

Various concerns regarding PHC service provision to the older people were identified, such as a lack of age-friendliness in the service process, unclear signage at the facility, poor caregiver communication skills, and ageism experienced by the older people.[25] PHCs should provide older people-centered health care services in accordance with older peoples' needs, which may include adjusted administrative procedures and simple, accessible signage. Staff members should complete age-friendly training to increase their awareness of needs and improve their communication skills.[25] These

Table 3
Mean (SD) scores and content validity of the AFHSR items.

Chapters/standards/items	First round				Second round			
	Mean	SD	I-CVI	S-CVI	Mean	SD	I-CVI	S-CVI
Chapter 1 Organization Management				0.96				0.98
1. Standard 1: Management Policy	3.63	0.48	1.00		3.87	0.34	1.00	
1.1 The organization analyzes the demands for age-friendly healthcare services in the region according to its community characteristics and develops organizational policies and implementation plans.								
1.2 Top management level supports the implementation of age-friendly plans by allocating personnel and resources.	3.75	0.43	1.00		3.70	0.46	1.00	
1.3 The organization has plans to assess age-friendly activities and mechanisms for sustainable monitoring and improvement.	3.50	1.00	0.87		3.70	0.46	1.00	
2. Standard 2: Information-Based Intervention and Communication	3.88	0.33	1.00		3.70	0.46	1.00	
2.1 The organization provides employees with knowledge and skill training regarding age-friendly issues.								
2.2 The organization provides older adults, patients, and their families with information that corresponds to the physical and mental health characteristics of older adults in a suitable space with communication aids.	3.63	0.48	1.00		3.74	0.44	1.00	
2.3 The organization adjusts its administrative procedures in response to the special needs of older adults.	3.50	1.00	0.87		3.70	0.55	0.96	
2.4 Through the creation of a favorable communication environment in which older adults and their families can easily obtain information, the organization ensures that older adults have the ability and right to make decisions concerning the healthcare services that they receive.	3.63	0.99	0.87		3.57	0.65	0.91	
3. Standard 3: Friendly Environment								
3.1 The organization provides a barrier-free environment to people with limited mobility.	4.00	0.00	1.00		3.70	0.55	0.96	
3.2 The organization follows the principle of a "universal design."	3.86	0.35	1.00		3.70	0.55	0.96	
3.3 The organization established a healthy environment in which all environmental factors that may impede the physical or mental health of older adults are excluded.	3.86	0.35	1.00		3.73	0.45	1.00	
Chapter 2 Care Services				0.87				0.93
4. Standard 4: Health Promotion								
4.1 The organization screens and assesses older adults with various symptoms and health requirements to ensure the implementation of appropriate health-promotion and disease-control methods and records the results in medical or care records.	3.38	0.70	0.87		3.65	0.48	1.00	
4.2 The organization establishes personalized healthcare methods for older adults with particular diseases or high health risks; otherwise, the organization uses clinical (care) guidelines to reassess the care requirements of older adults and record the results in medical or care records.	3.50	0.71	0.87		3.57	0.50	1.00	
5. Standard 5: Community Services and Referral	3.50	0.71	0.87		3.74	0.44	1.00	
5.1 The organization integrates local resources to arrange community activities and services while documenting the process and conducting follow-ups.								
5.2 After identifying older adults with financial difficulties, the organization assists or refers these individuals to facilities that can provide appropriate care services. The results are recorded and monitored.	3.50	0.71	0.87		3.43	0.71	0.87	
5.3 The organization creates and implements volunteer service programs to assist older adults.	3.25	0.97	0.87		3.73	0.45	1.00	
5.4 The organization has implemented mechanisms for cooperation with external facilities to integrate healthcare and social-care resources, thus enhancing the continuity of health care for older adults.	3.50	1.00	0.87		3.48	0.65	0.91	
5.5 Before and after each instance of referral, the organization provides older adults as well as their families and caregivers with clear and comprehensive health-status information and suggestions.	3.50	1.00	0.87		3.43	0.71	0.87	
5.6 The organization identifies appropriate facilities for older adults and provides complete records of patient referrals, including subsequent rehabilitation plans and care services.	3.38	0.99	0.87		3.39	0.77	0.83	
Total	3.60	0.68	0.92		3.64	0.53	0.96	

I-CVI = item-level CVI; S-CVI = scale-level CVI.

changes may enable older people to participate in health care or medical decisions and ensuring they feel fully respected.[17]

4.3. Friendly environment

A friendly environment includes both physical and service aspects. Designs should consider the needs of older people and encourage their active participation.[28] An age-friendly environment should prioritize structure, space, and equipment to provide a safe, comfortable, and functional environment. Although Canada has outlined the concept and spirit of friendly environment,[15–17] other countries have detailed the setting and standard conditions (such as provision of door handles and handrails) of a model friendly environment.[13,14,18–21]

To create a friendly environment, the AFHSR framework describes a friendly environment. Establishing a barrier-free environment would hopefully improve the most basic facilities by upgrading to barrier-free toilets and stairs. In addition, universal design emphasizes the design of products, environments, programs, and services to be usable by every individual to the greatest possible extent without the need for adaptation or specialized design.[29] It emphasizes a healthy environment, which focuses on influential health factors such as the pathological effects of various chemical and biological agents at the PHC.[30]

4.4. Health promotion

The provision of patient-centered health care is the most important mission of primary and secondary care.[10,31] International guidelines have standards for care processes and health promotion. Relevant standards require integrated care from multiple disciplines, needs assessments, care plans or practice guidelines, and promotion of evidence-based care[13,14,17] as well as preventive services and health promotion.[20,22]

PHCs recognized three categories of prevention for older people. Primary prevention aims to prevent chronic disease and extend a patient's healthy lifespan. This is carried out using lifestyle assessments, such as smoking behaviors, alcohol consumption, and exercise frequency.[22] Secondary prevention aims to reduce the effect of a disease. This is carried out by diagnosing a patient's disease and designing an appropriate health care plan.[22] Tertiary prevention aims to reduce the effect of an ongoing chronic illness. This is accomplished through the development of personalized rehabilitation programs to assist in chronic disease management as well as the maintenance of functional capacity.[22]

4.5. Community services and referral

Many countries emphasize continuity of care have also developed standards and items regarding community care services and referral. The concepts of community services and referral were addressed in Korea[21] about organizational support and continuum of care for the older people. These include fostering a partnership with community resources, community referral, written plans for collaboration with partners, discharge or rehabilitation plans, clear and comprehensive information before and after referral, and assistance with financial difficulties.[13,18,21] Hong Kong primary care framework emphasized systematic health assessment, formulation of a personal preventive care plan, and the monitoring and regular review of the preventive care plan.[22]

PHCs integrate community resources and establish cooperative relationships with external institutions. In addition, PHCs provide complete patient referral records, facilitating subsequent rehabilitation and care.[9] Our AFHSR framework considers PHCs to be the core organizations that connect primary, secondary, and tertiary care.[32] Therefore, the standard of community service and referral was developed independently.

5. Limitations

The PHCs studied exhibited considerable diversity in style. Urban and rural PHCs have different geographical characteristics, population compositions, economic structures, and health care statuses. The detail of criteria may be modified based on the characteristics of the areas and people's needs. No details regarding the implementation of the procedures of the AFHSR framework is provided. A lack of detail may lead some PHCs to fail to implement specifically age-friendly changes. It is necessary to produce a detailed instruction manual to guide PHCs in AFHSR implementation.

Furthermore, the positions of PHCs in public health and health care system in present and future periods have to be considered. Policy formulation has to take account of the specifics of PHCs in their own roles, jobs, missions, scheme, system and related convention; also cooperate PHCs with hospitals, clinics, social organizations, and government agencies. In the future study, the framework can be applied to all PHCs and collected quantitative and qualitative data to exam interrater reliability and construct validity. The process and outcomes also need to be examined whether AFHSR implementation can improve the quality of services for older people.

6. Conclusions

PHCs have important roles about health care and health promotion in communities, and the implementation of management policy, information intervention and communication, friendly environments, health promotion, and community service and referral can provide an age-friendly services in enabling healthy and active aging.

Declaration of interest

The authors stated there was no conflict of interests in this study.

Funding

This research was supported by a grant from an advanced authentication project for age-friendly health care institutions in Taiwan through the Health Promotion Administration, Ministry of Health and Welfare, Taiwan (technology number MOHW104-HPA-H-114-113406). The content of this research may not represent the opinion of the Health Promotion Administration, Ministry of Health and Welfare.

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