ORIGINAL ARTICLE

A Community-Based Healthcare Model for Bedridden Elderly in Mae Jarao Sub-District, Mae Ramat District, Tak Province

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Background: The elderly population has been increasing, with more bedridden patients requiring quality care and collaboration from multiple sectors.

Objective: To develop and evaluate a community-based healthcare model for bedridden elderly in Mae Jarao Sub-district, Mae Ramat District, Tak Province.

Materials and Methods: The present study was a mixed-method research divided into four phases. 1) Problem Assessment: In-depth interviews were performed with elderly participants, caregivers, and public health officers to understand the current issues; 2) Evaluation of Healthcare Levels and Factors: Questionnaires were used to assess the 362 selected elderly participants; 3) Model Development: To create a healthcare model, a focused group discussion was conducted with stakeholders; 4) Evaluation: The developed model was validated by experts, and the questionnaire was used with the caregivers of the elderly. The instruments consisted of in-depth interviews, a questionnaire, a focused group discussion, and a knowledge test. Data were statistically analyzed in percentage, mean, standard deviation, and inferential statistics with chi-square and paired t-test at a significance level of 0.05.

Results: The research findings indicated that the elderly healthcare situation depends on personal factors, environmental factors, and social support factors. Healthcare and quality of life were found to be at the moderate level of 42.54% and 50%, respectively. The factors relating to quality of life were occupation, net income, income adequacy, participation in health promotion activities in the community, and behavior in giving care for the elderly. The developed healthcare model, referred to as the DIBE Model, encompasses four main activities including 1) participation in planning/decision-making, 2) implementation through local volunteer buddies, 3) benefit-sharing process, and 4) evaluation and improvement processes. The overall suitability of the model was assessed by experts at a high level. After implementing the healthcare model for the bedridden elderly, the results showed that the caregivers' average knowledge of elderly care increased significantly ($p<0.001$), and the elderly's quality of life improved to a high level.

Conclusion: Based on the study results, local administrative organizations should enhance management to address the aging society by promoting knowledge, training caregivers' skills, and building strong, sustainable networks.

Keywords: Elderly healthcare model; Quality of care improvement; Elderly; Caregivers

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At present, the global population is living longer, and a declining global birth rate is evident, while many countries are entering the "aging society". The world has a population of roughly one billion people aged 60 and older, accounting for 13.5% of the total population. The highest elderly rate is in Europe at 25.7%, followed by North America at 23.1%, and Asia at 13.1%[1].

In Thailand, the number of elderly is increasing continuously. In 2021, Thailand faced a complete aged society with 12,698,362 people termed as elderly (19.21% of the total population in the country), divided into 7,076,288 females and 5,622.074 males (55.73% and 44.27% of the total elderly population, respectively). When classified by age group, it was found that the age group of those between 60 and 69 years had the highest number of elderly people at

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7,120,271 (56.07% of the total elderly population), followed by the age group of those 70 to 79 years at 3,743,466 people, or 29.48% of the total elderly population, and the age group of those 80 years and over at 1,834,625 people (14.45% of the total elderly population). In addition, the elderly index was found to be 120.5, meaning that there were 120.5 elderly people per 100 children in the population[2].

Regarding the residency of the elderly, the proportion of the elderly living alone in households has increased continuously from 3.6% in 1664 to 12.0% in 2021. Moreover, 34.7% of the elderly are still working, and 44.6% of this elderly group gave the reason that they needed to earn income to support their families or themselves. In terms of elderly health, it was found that there were 1.3% bedridden elderly in 2021 as disabled or handicapped, unable to rely on or help themselves, 1.8% homebound elderly, as able to do self-care or self-help to some extent, and 96.9% social bound elderly as able to rely on themselves and help others, community, and society. For the bedridden elderly, caregivers are very necessary to provide continuous care. The present study found that 90.9% of the primary caregivers of the elderly were their children or family members, with only 7.4% being caregivers who lived nearby, and 11.7% being caregivers[3].

In Mae Jarao Sub-district, Mae Ramat District, Tak Province, there are 1,340 elderly people, accounting for 28.86% of the population in all age groups. The homebound elderly are likely found to become bedridden at an increase of 12.24% based on the medical records of the Health Station in Honor of Her Majesty the Queen 60th Birthday Anniversary, Mae Jarao, which is the highest number in Mae Ramat District. Among this group, many elderly people are left to live alone without care, and they are at risk of health problems in terms of physical, mental, and spiritual aspects. One-third of the population is Pakakayo, some of whom live near the border of Thailand and Myanmar. Due to social complexity, many elderly people do not come for treatment as scheduled. The management of the healthcare service for the elderly is not comprehensive or continuous. Therefore, the researchers attempted to find solutions and possibilities in developing a community-based healthcare model for the elderly by using mixed-method research, both qualitative and quantitative, as a driver to create cooperation, joint decision-making, and implementation for the benefits of the elderly as well as to provide effective healthcare services for the elderly in the future.

Objective

1. To study the elderly healthcare situation in Mae Jarao Sub-district, Mae Ramat District, Tak Province.
2. To study the elderly healthcare levels and factors.
3. To develop a community-based healthcare model for the bedridden elderly in Mae Jarao Sub-district, Mae Ramat District, Tak Province.
4. To evaluate the model and outcomes of community-based healthcare for bedridden elderly people.

Materials and Methods

The procedures of this mixed-method research were as follows.

Phase 1: Study of the elderly healthcare situation in Mae Jarao Sub-district, Mae Ramat District, Tak Province

The qualitative research was conducted through in-depth interviews with seven key informants, seven elderly representatives, seven elderly caregivers, and two health officers from Mae Jarao Health Promotion Hospital, totaling 16 participants selected by the criterion sampling. The semi-structured interviews were used to find out the problem situations and needs of elderly caregivers. The interviews were divided into two parts, including Part 1 for demographic data of the caregivers for the elderly, and Part 2 for the problem situation of elderly healthcare in six items. The interview items were examined for content validity by three experts with an overall index of item congruence (IOC) and appropriateness of language use of 0.86.

Phase 2: Study of the elderly healthcare levels and factors affecting elderly healthcare

A cross-sectional quantitative study was conducted.

Population: The population consisted of 1,340 elderly people in Mae Jarao Sub-district, Ma Ramat District, Tak Province. The sample size was determined by using Krejcie & Morgan's Table to estimate the population proportion and determine the proportion of the population's characteristics at 0.5, acceptable error at 5%, and confidence level at 95%, resulting in 302. The sample size was adjusted to compensate for the estimated loss rate of 20% by adding more than 60 participants. Therefore, the sample size of the present study was increased to 362 participants.

Inclusion criteria: The selected elderly participants were able to perform daily living activities with score of 5 or over on the Barthel Activities of Daily Living (ADL) Index, healthy, literate, able to communicate in Thai, actually lived in the study area, and were listed in the house registration of Mae Jaroa Sub-district, Mae Ramat District, Tak Province.

Exclusion criteria: Excluded elderly people were those who had relocated from the study area during the data collection period, being disabled, mentally ill, or bedridden.

Instruments: 1) Questionnaire for the elderly's demographic data, 2) questionnaire for the elderly caregiving behaviors in the form of a 3-level rating scale for always, often, and never, 3) questionnaire for the elderly's quality of life such as the World Health Organization Quality of Life Brief - Thai (WHQOL-BREE-Thai) in a form of a 5-level rating scale. The quality of the questionnaire was examined for content validity by three experts, and the overall IOC and appropriateness of language use were 0.88. In addition, these questionnaires were trialed for internal consistency and reliability with another group of 30 participants who had similar characteristics to the sample group. Questionnaire reliability was calculated with Cronbach's alpha coefficient, resulting in 0.88.

Data collection: The collection of data was divided according to the elderly population in each village by using the instruments of the study.

Statistics for data analysis: Data were analyzed with descriptive analysis in mean and standard deviation. The factors relating to the quality of life for the elderly were analyzed with inferential statistics of chi-square at a statistical significance of 0.05 by using the IBM SPSS Statistics, version 28.0 (IBM Corp., Armonk, NY, USA).

Phase 3: Model development

In this phase, a qualitative study was conducted.

Key informants (participants): The key informants consisted of four groups including 1) four officers from a sub-district administration organization who supervised elderly people, 2) four elderly representatives, 3) four health personnel, and 4) 16 elderly caregiving representatives, totaling 28 participants. The participants attended workshops for two days.

Instruments: 1) The focused group discussion was organized by process drivers on the following issues, elderly healthcare in the community, vision of elderly healthcare in the community, and guidelines or activities for developing elderly healthcare management in the community. 2) The workshop plan was developed by applying participation planning to develop elderly healthcare in the community. The instruments were validated by three experts, resulting in the overall IOC and appropriateness of language use at 0.88.

Data analysis: Content analysis was used for the data analysis.

Phase 4: Evaluation of model and model outcomes

The evaluation was performed in two steps as follows.

1. Evaluation by leaders and elderly caregiving representatives

The focused group discussion was organized for ten leaders and caregivers who were selected by purposive sampling according to the inclusion criteria.

Instruments: 1) Semi-structured interviews, and 2) questionnaire of opinions about the model in the form of a rating scale.

Data analysis: Content analysis was used descriptively in mean, percentage, and standard deviation.

2. Evaluation of model outcomes

The evaluation of model outcomes was performed in two steps as follows.

2.1 Knowledge test for the caregivers of the elderly on quality of life for bedridden elderly

Participants: The sample comprised 138 caregivers of elderly, which was the same group as the group of elderly caregivers in Phase 3).

Instrument: The knowledge test consisted of 15 items in a true-false format with two options, covering contents and consistent with the training objectives. The test was validated by experts before being tried out with 30 caregivers for the bedridden elderly, similar to the sample group. The reliability coefficient was calculated by using Kuder Richardson 20-KR-20, resulting in 0.80.

Statistics for data analysis: Data were analyzed in mean and standard deviation at a statistical significance level of 0.05. Knowledge of the caregivers for the bedridden elderly was tested on score differences with paired t-tests.

2.2 Evaluation of quality of life for bedridden elderly

Participants: Sixteen participants were purposively selected according to the inclusion criteria with the Barthel ADL Index (BAI) in the

range of 0 to 4 points.

Instrument: Questionnaire of the elderly's quality of life such as WHQOL-BREE-Thai in the form of a 5-level rating scale. The instrument reliability showed Cronbach's alpha coefficient at 0.8406, and reliability at 0.6515. The questionnaire consisted of 26 items comprising three negative questions, which were items 2, 9, and 11, and 23 positive questions. Each item was in the form of a 5-level rating scale.

Data analysis: Data were analyzed in frequency, percentage, mean and standard deviation (SD). The difference in pre-test and post-test scores on the quality of life of the same population group was compared with paired t-tests by using the IBM SPSS Statistics, version 28.0 (IBM Corp., Armonk, NY, USA).

Ethics and rights protection of the participants

The participants' rights were protected through the procedures of the research proposal submission and approval by the Human Research Ethics Office of Kamphaeng Phet Rajabhat University, Certification No. COA No. 002/2024 REC No. 021/66. The researchers explained the objectives of the present study and the rights of the informants before deciding to voluntarily give consent to join the study. The informants were provided with a chance to be ready to give data, and the researchers reported the study results in an overall presentation without disclosing the informants' names.

The data collection procedures were designed to ensure the participants did not feel pressured or uncomfortable, such as organizing private spaces for personal interviews and using simple language in all steps. Request for consent, all research participants were advised about the study's objectives, research procedures, and related risks and benefits. They had a chance to ask questions before signing the consent form. The research team confirmed that research participation was voluntary, and the participants were informed they could withdraw from the study at any time without any impact on their rights. The research team undertook measures to protect the personal data of the participants, such as using ID code instead of real names, and storing data in the system with strict access control, thus, ensuring the confidentiality of data.

Results

The results from developing the community-based healthcare model for the bedridden elderly in Mae Jarao Sub-district, Mae Ramat District, Tak Province were as follows.

Phase 1: Study results of the elderly healthcare situation in Mae Jarao Sub-district, Mae Ramat District, Tak Province

Thematic analysis was used to analyze the in-depth interview data to reflect the elderly healthcare situation in the real contexts of the key informants. It was found that elderly healthcare included three parts, 1) personal factors, 2) environmental factors in terms of society and geography, and 3) social support factors.

Phase 2: Study results about elderly healthcare levels and factors affecting elderly healthcare

It was found that the elderly's quality of life was at a moderate level of 62.88%, the elderly healthcare behaviors were at a moderate level of 42.52%, and the overall elderly healthcare behavior had a mean of 75.11 and a Standard Deviation of 6.61. The factors relating to the elderly's quality of life were occupations, net monthly income, income, and expense adequacy, participation in community health promotion activities, and the elderly's healthcare behavior concerning their quality of life ($p<0.001$).

Phase 3: Development of the community-based healthcare model for bedridden elderly in Mae Jarao Sub-district, Mae Ramat District, Tak Province

The principle of three steps and four main factors was used as components of the model to drive for quality of life for the bedridden elderly. The three steps included potential development of the caregivers of the elderly, skill training, and evaluation. The procedures were under four contributions in 1) decision-making to perceive problem situations and give importance, 2) planning to determine resources/activities, 3) intervention/co-ordination to implement plans according to the specified period with the support of the buddy to translate the Pakakayo language, and 4) evaluation to check the implementation outcomes for development and improvement, as shown in the DIBE Model in Figure 1.

Phase 4: Evaluation of the bedridden elderly's quality of life

The mixed-method study was used to evaluate the model as described below.

1. Evaluation by connoisseurship

The focused group discussion was organized

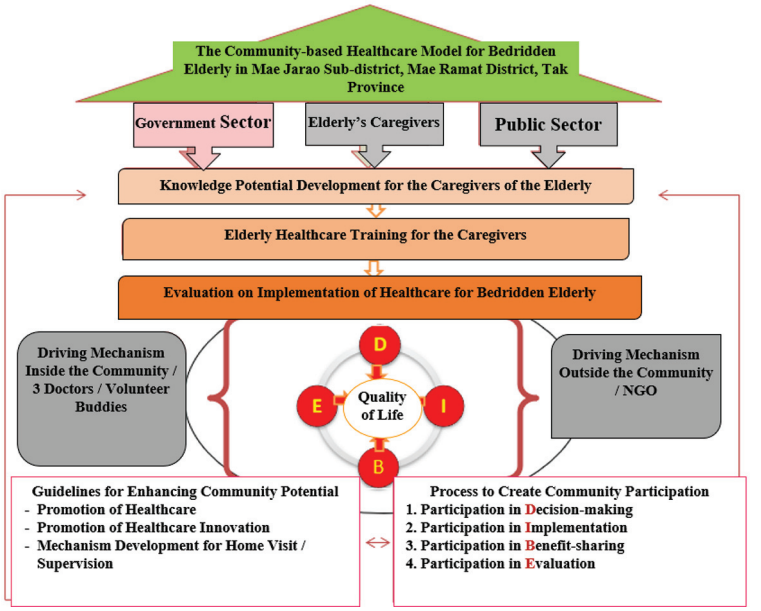

Figure 1. The DIBE Model.

on the issues of feasibility, utility, propriety, and accuracy. The evaluation showed the overall result at a very high level (mean 4.51, SD 0.61), divided into four parts comprising feasibility (mean 4.51, SD 0.53), utility (mean 4.35, SD 0.58), propriety (mean 4.56, SD 0.64), and accuracy (mean 4.62, SD 0.69).

2. Evaluation of the healthcare model for the bedridden elderly

2.1 Knowledge of caregivers for the elderly

According to the pre-test and post-test scores, the mean scores of the sample group showed that the caregivers' knowledge about healthcare for the bedridden elderly after training was higher than their knowledge before training at a statistical significance level of 0.05, as shown in Table 1.

The mean of knowledge about elderly healthcare (mean 18.67, SD 1.81) was higher than the pre-development of the model (mean 15.31, SD 1.40) at a statistical significance level of 0.05 ($t=7.19$; $p<0.05$), as shown in Table 1.

2.2 Quality of life for bedridden elderly

The researchers studied the quality of life for the bedridden elderly before and after receiving care through the community-based healthcare model in Mae Jarao Sub-district, Mae Ramat District, Tak Province. It was found that, after receiving care through the model, the bedridden elderly had better quality of life at a high level of 56.25% and a moderate level of 43.75%, as shown in Table 2.

Table 1. Results from comparing the pre-training and post-training knowledge about elderly healthcare (n=138)

Knowledge	Full scores	Mean	SD	Df	t	p-value
Pre-training	15	15.31	1.40	14	7.19	<0.000
Post-training	15	18.67	1.81			

SD=standard deviation
* $p<0.05$

Table 2. Score results in quality of life for bedridden elderly (n=16)

Quality of life level	n (%)
High (95.34 to 130 points)	9 (56.25)
Medium (60.67 to 95.33 points)	7 (43.75)
Low (26 to 60.66 points)	0 (0.00)
Total	16 (100)

Mean 92.19, SD 11.55

Discussion

Elderly healthcare situation in Mae Jarao Sub-district, Mae Ramat District, Tak Province

According to the data from the in-depth interviews, the elderly healthcare situation consisted of three parts comprising 1) personal factors in terms of physical and mental factors, 2) environmental factors in terms of society and geography, and 3) social support factors, as described below.

1. Physical and mental factors: Physical and mental factors are important in elderly healthcare. Elderly people likely have chronic health problems

and limited mobility. Regular health check-ups, taking medicine as prescribed by a doctor, and using assistive devices such as canes and wheelchairs can help the elderly have a better quality of life[4] In addition, mental factors such as anxiety, loneliness, and feeling like a burden to the family are factors that require care and mental support. Building a sense of self-esteem, building good relationships in the family and community, and doing activities useful for the mind, such as participating in community activities and doing art can help reduce stress and depression[5].

2. Social environmental factors: It was found that the elderly healthcare situation was highly related to social environmental factors[6]. These factors play an important role in the elderly's health promotion and quality of life in the community. Having good relationships with family and in the community helps the elderly feel they are still valuable and a part of society, and this reduces their loneliness while increasing happiness in daily life[7]. Good social support from family, neighbors, and the community has positive effects on the elderly's mental health. Giving help to do daily activities such as cooking, cleaning the body, or taking care of basic health can reduce the elderly's burden and stress, all of which help the elderly to have better quality of life[8].

3. Social support factors: It was found that social support factors are highly related to the elderly's health and quality of life in the community. Having social support from family, neighbors, and the community plays an important role in promoting the elderly's physical and mental health, as discussed below.

3.1 Family support: Having family support is the main factor affecting the elderly's mental health. Receiving care and attention from family members helps reduce loneliness and increase the sense of self-esteem in daily life. Having family members do daily activities such as taking care of basic health, cooking, or cleaning houses has positive effects on the elderly's mental health as it can help them reduce their stress and sense of burden[9].

3.2 Support from neighbors and the community: Having support from neighbors and the community is equally important. Participating in community activities such as religious activities, traditional activities, or meeting various social groups helps the elderly reduce loneliness and increase happiness in daily life. Having support from neighbors in terms of taking care of their health or giving help to do daily activities presents the elderly a sense of self-esteem and being a part of society[10].

3.3 Support from the Provincial Administration Organization: Receiving quality social support also promotes the elderly' physical and mental health. Facilities in the community such as drugstores, restaurants, and exercise areas enable the elderly to access medical and health services quickly and suitably. In addition, a good and convenient transportation system can help the elderly to see their doctors and receive necessary treatment in a timely manner[11].

Study of the elderly healthcare levels and factors

The study found that factors related to elderly healthcare consisted of 1) net income to adequacy of income and expense, 2) health of the elderly, 3) participation in the community health promotion activities, and 4) healthcare behavior of the elderly, as discussed below.

1. Net income to adequacy of income and expenses: This factor is important in managing the elderly's health as it affects the ability to access health services. Income adequacy enables the elderly to allocate a budget for medical treatment, such as buying medicine, receiving regular health check-ups, and using various medical services[12].

2. Health of the elderly: The elderly's health has an impact on healthcare. It was found that the factors related to the elderly's healthcare consisted of the elderly's health and sickness, and such factors play an important role in giving healthcare. Healthy elderly people likely have a good quality of life and can rely on themselves better than those with health problems. Elderly people with chronic diseases need more care than those without. Therefore, giving the elderly healthcare requires appropriate assessment and management to enable them to have a good quality of life[13].

3. Participation in community health promotion activities: Participation in community health promotion activities also has an impact on elderly healthcare. Joining these activities is related to healthiness. Activities organized by the community or various organizations may include exercises, seminars about health, and annual check-ups. These activities have a positive effect on the elderly's health, and participating in such activities enables the elderly to have healthy bodies and minds[14].

4. Healthcare behavior of the elderly: According to the previous studies, the healthcare behavior of the elderly includes behaviors and guidelines that the elderly and caregivers choose to maintain healthiness, such as eating proper food, doing exercises regularly,

using medicine and treatments as suggested by doctor, and managing various risk factors that may negatively affect health. All of these factors have an impact on elderly healthcare[15].

Healthcare model development for bedridden elderly

The model was developed in three phases. Phase 1 comprised the potential development of caregivers for the elderly through situation analysis and brainstorming of related people in the training. Phase 2 included implementation consisting of activities to assess the elderly's conditions and organize volunteer buddies. Phase 3 involved evaluation consisting of activities for lessons-learned and the knowledge-sharing platform. These three phases included four types of participation as follows.

1. Participation in decision-making[16]

2. Participation in implementation: This participation consisted of implementing the plan by screening the elderly caregivers, assessing the group of caregivers for bedridden elderly, developing the potential of the caregivers through training, driving from internal and external organizations, and organizing local volunteer partners to collaborate work. Moreover, the team provided care according to the 3-doctor policy, in which a doctor, a nurse, and an officer of the sub-district health promoting hospital, referred to as the three doctors, visited the bedridden elderly to effectively give care based on their symptoms[17].

3. Participation in benefit-sharing: The elderly receiving comprehensive care from knowledgeable and experienced caregivers can improve the service system and directly affect their quality of life. Collaboration between all parties allows the elderly, their relatives, and the community to receive benefits and advantages. In addition, the development of community representatives to increase their potential and have the opportunity to help others create a sharing society, triggering happiness in daily life in the local society[18].

4. Participation in evaluation: Giving care for the bedridden elderly was reviewed and compared with the objectives for continuous development in the forms of feedback, lessons learned, knowledge-sharing, and regular evaluation between the caregivers and the network partners. It was found that caregiving by knowledgeable caregivers could significantly reduce complications in the bedridden elderly and increase their quality of life. Regular evaluation allowed adjustments to the care methods to suit the patient's current condition and environment[19].

Evaluation

1. Evaluation of the healthcare model for bedridden elderly: The evaluation was performed in the view of experts by collecting data through a focused group discussion on the issues of feasibility, utility, propriety, and accuracy in the implementation. The evaluation showed that the proposed model had high feasibility, healthcare showed high utility in completely responding to the elderly's basic needs, and the accuracy of implementation was complied with certified healthcare principles. The analysis from the expert's perspective reflects the advantages of the care model in terms of improving the quality of life of the bedridden elderly, including creating collaboration between the community and healthcare providers[20].

2. Knowledge of caregivers for the elderly: According to the pre-test and post-test scores, the mean scores of the sample group showed that the caregivers' knowledge about healthcare for the bedridden elderly after training was higher than their knowledge before training at a statistical significance level of 0.00, as shown in Table 1.The mean of knowledge about elderly healthcare (mean 18.67, SD 1.81) was higher than the pre-development of the model (mean 15.31, SD 1.40) at a statistical significance level of 0.000 ($t=14.35$, $p<0.05$), as shown in Table 2[21].

3. Quality of life for bedridden elderly: After receiving care through the community model in Mae Jarao Sub-district, Ma Ramat District, Tak Province the elderly's quality of life was found to be at a high level in terms of happiness, comfort, satisfaction, relaxation, living conditions, environment, and relationships. It can be explained that the researchers designed the process to create learning and confidence in caregiving for the bedridden elderly so it could respond to the caregivers' needs, leading to effective healthcare[22].

Discussion on policy and practice: The findings of the present study can be used for developing strategies to support bedridden elderly in the community, especially for creating a support network through local organizations such as organizing training activities to increase the knowledge and skills of the caregivers, and for developing an assistive system such as the buddy system and mentor system.

Policy suggestions: Local decision-makers such as local administration organizations and health organizations should be encouraged to use the study

results as a framework for planning policies to allocate resources appropriately, such as increasing the rate of additional caregivers in cases of fatigue or lack of support.

Impact on stakeholders in the community: The study findings indicate the need for family and community participation in the process of giving healthcare to bedridden elderly. The practical suggestions can enhance their potential and reduce inequality in access to healthcare.

Suggestions for using the study results

The study results can be used as follows.

1. Review of resource management and planning: Local administration organizations should manage public health resources to effectively meet the needs of the elderly who are dependent.

2. Personnel training and development: Personnel training and development in terms of knowledge and skills should be increased, especially with the caregivers of the elderly and the medical personnel dealing with elderly healthcare.

3. Use of information technology: Information technology, such as Telemedical, should be used to follow up and provide healthcare to the elderly to increase convenience as well as reduce errors.

Suggestions for future research

1. Expansion of the study area: The study area should be expanded to cover more diverse and comprehensive data, especially for populations living in rural areas, marginalized communities, and communities with diverse cultures.

2. In-depth study of specific factors: In-depth studies should be conducted on the factors affecting elderly care to find specific solutions.

3. Action research: Action research should be conducted with a focus on experiments and improvement of elderly healthcare in real situations on issues of interest and emergencies such as the management of bloodstream infections.

Strengths of the study

1. Use of data from multiple sources: The use of data from multiple sources provides comprehensive and reliable data for both primary and secondary data. Moreover, the research was designed to undertake both qualitative and quantitative studies. Combining qualitative and quantitative studies enables researchers to obtain data with depth and breadth, enabling detailed and accurate analysis of various factors.

2. Community participation: Community participation in data collection and research provide data that is accurate to reality, especially the local volunteer partner activities that enabled quick communication and coordination to access patients and the community well.

3. Diverse data analysis: Analyzing data with various methods enables the making of clear and contextual conclusions for the research results.

4. Complete presentation of the research results: Complete presentation of the research results allows readers to understand the results correctly.

Weaknesses of the study

1. Limited study area: Limited study area makes the findings unable to be generalized to other areas, especially in terms of travel.

2. Use of instruments for data collection: Some instruments for data collection may have limitations in measuring results such as transcription from local dialects.

3. Lack of long-term impact study: This research may lack a long-term impact study, which makes it unable to assess the sustainability of the care approach such as political changes in elections of the local administration organization.

The above suggestions and research outcomes will be helpful in applying the results effectively as well as in developing future research studies continuously and sustainably.

Conclusion

Health care model for bedridden elderly patients

The model for caring for bedridden elderly patients was developed through the following activities. 1) Decision making and planning. 2) Implementation involving the creation of a local buddy system. 3) Participation in receiving benefits. 4) Engagement in evaluation and improvement.

The evaluation results from experts indicated that the overall appropriateness of the model was high. The application of this care model showed a statistically significant increase in caregivers' average knowledge about caregiving ($p<0.001$) compared to before the model was implemented. Additionally, the quality of life for elderly patients was found to be at a high level.

What is already known about this topic?

Factors affecting elderly health care situations include personal factors, environmental factors, social support, and the DIBE Model. It has been found

that caregivers have significantly improved average knowledge in caregiving compared to before the model was developed, and elderly individuals have a high level of quality of life.

What does this study add?

This study highlights the importance of participatory care by developing caregivers to improve the quality of life for bedridden elderly individuals. The findings can be utilized by local administrative organizations and communities, as well as government sectors, to ensure that care is provided with involvement at every stage.

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Conflicts of interest

The authors have declared no conflicts of interest.

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