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Development Of A Community-Based Integrated Care Farm Model

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Abstract

This study proposes a community-based integrated care farm model (ICFM) in a community environment. The proposed community-based ICFM was evaluated based on the five service values. Participants of this study who had experience with older adult care services or facilities and who did not have such experience. 130 questionnaires were used for analysis. The five service values of ICFM showed significant mean differences between groups. The study results provide valuable insights regarding the community-based ICFM to government policymakers and professional experts. The community-based ICFM may be used to provide care services for elderly adults in the community.

Keywords: *A community-based integrated care farm model, Elderly population, Care service, Service value of care farms, Well-being.*

INTRODUCTION

The world's population is aging rapidly. By 2030, one in every six people in the world will be over 60 years old, and this population segment is expected to increase from 1 billion to 1.4 billion.1 Moreover, the number of people aged 80 years and over is estimated to triple between 2020 and 2050, reaching approximately 426 million.1 WHO1 also predicts that, by 2050, almost 67% of the world's population over 60 will reside in low- and middle-income countries. In addition, between 2015 and 2050, the percentage of the world's population aged 60 and older will nearly double, from 12% to 22%. Thus, care for older adults (e.g., healthcare, housing, and economic support) is the emerging national priority in almost every country. However, most countries encounter formidable obstacles in providing healthcare and social service systems for the older generation.[1,2]

At the individual level, older persons face difficulties due to changes in their economic, physical, psychological, and social conditions that result from aging.[3] For instance, despite their desire to remain independent in their own homes for as long as possible, they may not have family members available to help or may lack the resources or ability to provide the necessary care for themselves. Thus, it is essential to develop effective care models to assist people in leading healthy lives, such as mutual aid models at the national level. [2,3,4] In addition, a national response strategy is required since a super-aged nation may experience a variety of socioeconomic crises. For example, Statistics Korea5 reported that in 1998, 89.9% of respondents believed t[1]hat the family should be responsible for caring for older adults. By 2018, this number had dropped to 26% and 54 % indicated that care for elderly adults should be a social responsibility. As the care for older adults is becoming a national responsibility, it is time to develop an acceptable national integrated policy framework for care services.

Choosing an effective policy for caring the elderly population segment is not a simple matter, as it involves social, cultural, economic, and political considerations.[6,7] For example, South Korea adopted a system of facility-based long-term care services (e.g.,

care homes, assisted living facilities, nursing homes, and continuing care retirement communities). However, even with sufficient discussions with and support of family

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members, older persons typically do not desire or actively choose to reside in nursing facilities.[2,8] This is because out-of-home placement care occurs when family members cannot assist them or has the caregiving stress or burden of caring for them. In this situation, older adults are transferred to nursing homes regardless of their desires.[9] This study proposes an integrated care model to decrease dependents' mental and financial burden and allow older adults to live independently.

An integrated care service, known as the "care farm" model representing a community for treatment and healing, has been implemented in several advanced economies such as countries, [2,3] including Austria, Germany, Japan, South Korea, UK, and USA.[2,3,7,10,11,12] European governments provide institutional arrangements or support for care farms to help alleviate the beneficiaries' socioeconomic burdens. During the COVID-19 pandemic, community-integrated care services have been especially effective in promoting older adults' health, safety, and quality of life, considering group infections in nursing homes or hospitals.[13,14]

Due to the significant increase in the population of older individuals, it is required to divide them into several groups based on their age, family life, disease types or patterns, and health state. Such groupings will help determine whether they require financial assistance, special care services, or both. Thus, the government must adopt long-term policies for community or regional shared living facilities that may provide integrated care services for older individuals to engage in economic and community activities as such arrangements can lessen their loneliness.

Recent studies on care farms have focused on mental health and well-being, the need for and application of care farms,[15] the relationship between healing agriculture and care farms[2,16] and the effects of community activities on the older generation (De Bruin et al., 2020), Their findings identified critical needs for reduced depression and anxiety, improved quality of life for individuals with mental health conditions, and disease prevention and treatment for older adults. These studies demonstrate that the care farm model, through its healing and treatment programs, local communities, and the rural surroundings, can reduce social problems and enhance the quality of life for older adults. Care farms offer urbanites a place to unwind and experience rural living, where community life is possible.[2] De Boer et al17 argued that the environment of 'care farms' provides the user's needed and preferred services. Despite the results of previous studies, an integrated community-based care farm model (i.e., treatment, healing, and economic activities) is yet to be examined. An integrated community-based farm model ensures that older adults can receive the care and support to live comfortably, safely, and meaningfully. It can improve the quality of life, services, and health outcomes through support of family members while increasing the access and reducing the cost of services.[18]

In this study, we develop a community-based integrated care farm model (ICFM). First, through analyzing previous studies and cases of the care farm model, we propose a framework for community-based ICFM that can be implemented to provide services to direct and indirect users, such as the existing older adult care facilities. Second, we prove that the proposed community-based ICFM can improve the quality of life of older adults and the local community, through conducting a preference survey of potential future customers (currently 45 years of age or older) on the willingness to use this model.

This paper is organized as follows. Section 2 provides theoretical background of the study through reviewing the literature of previous studies on care farms. In Section 3, research design for developing the community-based ICFM is presented. Section 4 provides the research methodology. In Section 5, results of the study are reported and discussed. Section 6 provides the conclusion, significance, limitations, and future research directions.

Literature Review

Community Care Service

Community care or integrated care service is a concept established in 1983 as part of the United Kingdom's deinstitutionalization agenda, in which people with physical or mental disabilities are cared for at welfare facilities/centers or in their homes rather than in medical institutions.[19] Community care provides the right level of assistance or intervention so that older persons can live independently.19 This implies that the care policy model at the national level must be diversified with an expanded scope of care and services to meet the needs at the local (community) level. For older adults to get equal access, community care services should address diverse needs and preferences of the various population groups by providing culturally competent care, encouraging inclusivity, minimizing health disparities, and enhancing care service quality.[14] Consequently, it is necessary to develop a plan that the government can implement (e.g., benchmarking and introducing best practices) based on the characteristics of consumers and cultures (e.g., a culture that values family care) while benchmarking successfully implemented international cases.

The compelling needs for an integrated care model are as follows. First, the population structures in many countries are shifting fast due to low birth rates and rising average life expectancy rates, increasing the old population. These demographic shifts necessitate the development of housing, healthcare, and welfare service systems and infrastructures. Second, an integrated care model is required to address social issues associated with older adults, such as a rise in suicide, loneliness, poverty, despair, and interpersonal issues. For example, Korea has the highest suicide rate among older adults among Organization for Economic Cooperation and Development (OECD) members, primarily due to economic hardships.[20,21] According to the report, 27.7% of persons aged 65 and older who had suicidal thoughts reported 'living expenditures' as the leading cause, followed by 'health issues' (27.6%) and 'conflicts and disconnection with spouse/children/friends' (18.7%). Third, although country regulations regarding care for the elderly vary slightly, there are difficulties in establishing good management policies for the care of elderly. The central and local governments provide healthcare and welfare services, such as an insurance system for long-term care. However, the issues and limitations involved with these services for the elderly, the incidence of non-beneficiaries, and the polarization of facilities and inequality in nursing homes are increasing. In addition, there is a paucity of services and facilities that address the needs of older adults. Consequently, an integrated perspective on older adult care is necessary.

An ACFM can provide preventive activities that should alleviate the deterioration of physical, psychological, mental, and social functions due to chronic diseases and aging of the elderly, thus, delaying the admission of older adults into public facilities and thereby reducing the financial burden on governments. Development of services and facilities enables the creation of employment opportunities, formation of relationships with family and neighbors, maintenance of social relationships, improvement of health conditions, and fulfillment of the unique demands of older adults.

Care Farm Cases

To provide customized care for socially vulnerable people, the Korean government introduced care farms in rural areas. [22] The Rural Development Administration defines care farms as "the use of agriculture to provide healing." Braastad[23] defines it as the "therapeutic use of general agricultural activities," and Kim[24] defines it as "activities that promote health by utilizing agriculture and rural resources." Leck et al.[25] indicate the importance of care farm as it is "making use of everyday farming activities (relating to crops, animals, the farm environment and the natural landscape) to promote individual health and well-being."

In this paper, we define care farm, based on previous studies, as a combination of agricultural production, healthcare service, and social programs. In addition, we emphasize that care farm is known as "farming for health, green farming, care farming,

therapeutic farms, and social farming" based on previous studies.[2,9,11,23,26]

In South Korea, the care farm model was introduced as the foundation for building a treatment system that combines animal-assisted and horticulture therapy.[26] This idea is associated with a multifunctional treatment system that employs the productive function of

rural society and natural environmental factors to engender rural community regeneration, rural convergence, and complex industrial promotion initiatives.[22] It leverages the rural environment and farm life to enhance physical and mental health via daily activities on the farm. Thus, it is often referred to as 'farming for health,' 'social farms,' or 'green care farms,' among others.[22]

Care farms provide essential health and therapy services by enabling patients to engage in social recovery and educational activities. Modifications in the medical delivery system for the vulnerable over the past few decades might be considered as liberation from facilities, standardization, and socialization,[26] in other words, a shift in the treatment environment and deinstitutionalization. From this perspective, care farms share the responsibility for patient treatment with the local community, where a variety of challenges are involved in patient care.[14,22] As the agricultural economy declined, the concept of care farms first developed in Europe. As a result of the rural economic crisis in the United States, social welfare services were offered and cooperatives aiming at creating a new rural society emerged.[27] Similar to the US, many European nations experiencing a rural economic crisis have incorporated care farms into their policies. During the 1990s, when European nations began to offer social services to rural clients, this practice was on the rise.[27] there have been several innovative care farm models around the world.

The Netherlands has established combined medical and social service care farms. These farms utilized the rural environment and farm life to improve physical and mental health through healthy daily routines. They are known as 'farming for health,' 'social farms,' or 'green care farms,' among others.[22] Nevertheless, the goals of these farms are almost identical, and they have been based on the "multifaceted functional theory of agriculture," which not only focuses on generating agricultural products but also utilizes the multifaceted values of rural society for other purposes. [27] Care farms have spread in the Netherlands as a means of political and administrative reforms. The reforms included the transfer of government authority to the Federation of Care Farmers (the national organization representing and supporting 15 regional member organizations that represent 853 care farms in the Netherlands), easing government regulations, development of small-scale farming, and fostering the implementation of a new form of agriculture with healthcare and social services for the people of needs with a variety of disabilities.[17,27,28,29] Care farms in the Netherlands focus more on social value than profitability.[6] The initiative to foster interactions between rural and urban areas was essential to the development of care farms. An increasing number of city dwellers suffer from mental illnesses, drug dependence, dementia, and burnout; thus, the demand for healing, care, landscape preservation, and leisure in care farms is growing. In addition, care farms are tied to rural agricultural conservation and community revitalization.[28] Dutch care farms promote new values such as communication and trust through exchanges with city people and the relationship between agriculture and welfare.[22]

Belgium is one of the nations where the construction of care facilities has spread the quickest. The number of care farms expanded from 46 in 2003 to roughly 950 by 2018 as various local cooperatives participated in the Flanders.[22] Rural areas have been declining in Japan for many decades. Considering the decrease and structural changes in population, the Japanese Ministry of Health, Labour, and Welfare is contributing to the development of new products, social services, and other value-added services, as well as the job-creating projects in rural areas. The Japanese government introduced the European care farm model to develop agriculture–welfare linked projects.[27] According to the type of service offered by agricultural and forestry resources, care farms are classified as agricultural, horticultural, animal-mediated, or forest healing programs. Horticulturaltherapy is the most prevalent form of care farms in Japan and is distinguished by its application to welfare, education, rehabilitation treatment, and leisure

to preserve and restore the mental and physical functioning of disabled people and older

adults.[27]

In summary, in the Netherlands, agricultural management systems have been converted into care farms under a multifunctional strategy for agriculture. In Belgium, care farms are established through regional cooperatives, promoting their rapid and wide spread. Meanwhile, Japan pioneered the care farm model to create added value for farm households and job-offer service to mitigate the decline of rural areas. Moreover, the care farm model provides stabilizing and therapeutic benefits to the vulnerable groups. If a similar approach is implemented in other countries, it could also assist in providing mental and physical stability and therapeutic effects for the most vulnerable population segments, such as the elderly and those with physical/mental impairments. Moreover, similar to the situation in the Netherlands, diversification and revitalization of care farms might be anticipated with government funding. Therefore, since the care farm model can be regarded as an innovative community-based care service that can improve people's quality of life,[30] it is necessary to develop and spread models that are suitable for each country or region from a long-term perspective.

Research Design for the Development of Community-based ICFM

Concept of Community-Based ICFM

In this paper, we propose a community-based ICFM model, based on a thorough examination of changes in the demographic structure and social difficulties of older persons, as well as the current care policies, issues, and preventive strategies. However, community-based ICFM services differ from existing care programs or nursing facilities for older adults because they enable communal life in village units. In addition, ICFM provides a comprehensive and privately operated services that integrate public engagement. The community-based ICFM can delay old adults' entry into care service facilities and customize the preventive services available to them when they require assistance regarding the financial stability for long-term care insurance and the enhancement of their quality of life.

Table 1 summarizes the differences between the community-based ICFM and Korea's older adult care facilities (nursing homes) and assisted living (silver towns).

Table 1. Comparison of Existing Models and the Community-based ICFM

Division	Older adult care facility (Nursing home)	Assisted living (Silver Town)	Community-based ICFM
Facility type	Older adult medical welfare facility	Older adult living facility	✓ Older adult medical welfare facility ✓ Older adult living facility
Related regulations	Welfare of Senior Citizens Act	Welfare of Senior Citizens Act	Welfare of Senior Citizens Act
	Long-term care insurance		Long-term care insurance
Targets	Aged 65 or older or younger than 65 with geriatric diseases	Aged 60 or older	Older adults and persons with disabilities
Facility and service details	Older adult care facility-based	Paid nursing facility-based	Community-based
	✓ Housing services ✓ Meal services Physical activity services ✓ Other services	✓ Common housing facility ✓ Sports facility ✓ Leisure facilities ✓ Medical facilities, etc.	✓ Co-residential care services ✓ In-home services Job-offer services ✓ Emotional stability and healing services

			✓ Health and medical services, etc.

This study proposes a community-based care farm model for implementing an integrated care policy as shown in Figure 1. This model provides a care service that integrates housing, healthcare, nursing home care, job-offer service, and daily life by facilitating physical, mental, psychological, and social activities in a rural village setting. This model includes five service values: co-residential care, assistance with personal care in-home, job-offer, emotional stability and healing, and health and medical.

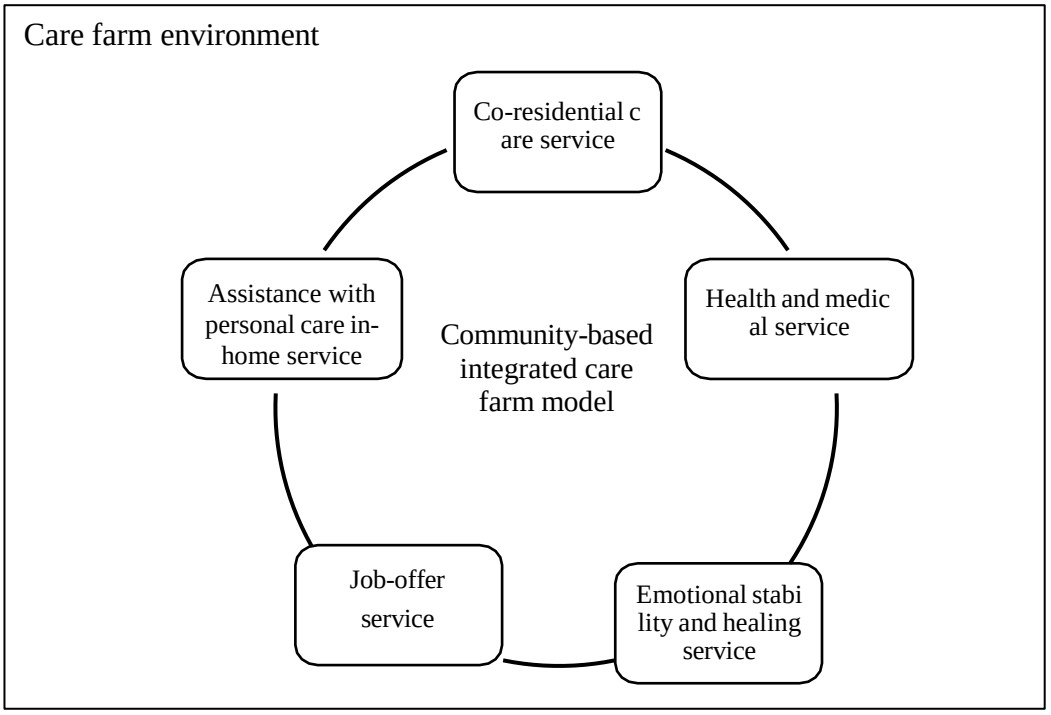

Figure 1. The Proposed a Community-based Integrated Care Farm Model

Concept and Configuration of Services in the Care Farm Model

The five service values are the core of ICFM. First, co-residential care services provide co-housing, meal and nutrition management, and care services to maintain daily life. Residents receive 24/7 care and immediate help if they are sick. Those with long-term care insurance receive community home care services. Second, personal care in-home services include long-term care insurance for older adults, day/night care, and visiting care services. Third, ICFM provides financial help through job-offer service, maintenance of strength, self-esteem, and a sense of accomplishment. Fourth, mental stability and healing services offer opportunities to develop relationships with residents in a rural village community environment, comprising various age groups and advocate programs for continuity with family. Lastly, systematic medical services are provided under the medical services system and by attending physicians in connection with hospitals.

Measurement Items

Based on previous research, measurement items for the service values were modified and supplemented to ensure the validity and reliability of this study's findings. We developed the measurement items focusing on the five service values in integrated care farm settings. Table 2 presents a list of measurement items for the constructs.

Table 2. Measurement Items for the Five Service Values

Service value	Measurement item
Co-residential care services	Co-residential care services that provide:
	C1: safety (such as getting help if you are sick) C2: 24/7 care services C3: meals C4: nutrition management to help maintain health C5: opportunities to associate with many people and provides a conversation partner
Assistance with personal care in-home service	Assistance with personal care in-home services that provide:
	S1: convenient home benefit service S2: comfortable in-home services as a familiar member S3: high-quality in-home services S4: personal time with family members through in- home care services
Job-offer service	Job-offer services that provide:
	W1: better health conditions W2: financial help W3: a job, which will increase self-esteem W4: a sense of accomplishment for work
Emotional stability and healing service	Emotional stability and healing services that provide:
	H1: mental peace in a natural environment of the countryside H2: emotional stability by being able to get along with people H3: a comfortable sharing-life environment with other similar people H4: healing from the natural environment
Health and medical service	Health and medical services that provide:
	M1: help with health maintenance and preventive management M2: quick action in case of an emergency M3: convenient disease treatment and prevention services M4: shared health maintenance M5: integrated healthcare services for comfortable life

Research Methodology

Data Collection

A survey questionnaire was designed by the authors to conduct this study. Since some of the measures used were from previous studies, we utilized the double translation protocol.[31] The initial questionnaire was developed in English by the authors who are all bilinguals. The English version was translated into Korean by two bilingual faculty members in the service operations field. The Korean version of the questionnaire was then translated back into English by two other bilingual faculty in the healthcare service field. Three bilingual faculty examined the two English versions and found no significant difference.

A total of 250 Korean version questionnaires were distributed to selected people in two groups: (1) those who had experience in using nursing facilities and services (experienced users), and (2) general public interested in services and/or facilities for older adult care and general public (inexperienced users). The data were collected from May 17 to 22, 2022 in South Korea. A total of 132 (52.8%) responses were received and 130 (52.0%) valid returned questionnaires were used for analysis, excluding those that were incomplete or missing items.

Table 3 summarizes the demographic features of the respondents. Approximately 49.2% of respondents had utilized services and/or facilities for older adult care, while 50.8% had no such experience. In the experience group, respondents' occupations include businessperson (31.25%), office worker (18.75%), and homemaker (28.13%). In the no-experience group, respondents' occupations include businessperson (34.85%), office worker (27.27%), homemaker (9.09%), and business owner-operator (9.09%).

Table 3. Respondents' Characteristics

Items		Total	Experienced users	Inexperienced users
		Frequency (%)	Frequency (%)	Frequency (%)
Gender	Male	41 (13.54)	10 (15.62)	31 (46.97)
	Female	89 (68.46)	54 (84.38)	35 (53.03)
	Sub-total	130 (100.0)	64 (100.0)	66 (100.0)
Age	45s–50s	55 (42.31)	29 (45.31)	26 (39.39)
	51s–60s	54 (41.54)	27 (42.19)	27 (40.91)
	61s–65s	10 (7.69)	4 (6.25)	6 (9.09)
	More than 66s	11 (8.46)	4 (6.25)	7 (10.61)
	Sub-total	130 (100.0)	64 (100.0)	66 (100.0)
Occupation	Business person	43 (33.08)	20 (31.25)	23 (34.85)
	Office worker	30 (23.08)	12 (18.75)	18 (27.27)
	Homemaker	24 (18.46)	18 (28.13)	6 (9.09)
	Owner-operator	13 (10.00)	7 (10.94)	6 (9.09)
	Student	7 (5.38)	5 (7.81)	2 (3.03)
	Public official	3 (2.31)	1 (1.56)	2 (3.03)
	Unemployed	10 (7.69)	1 (1.56)	9 (13.64)
	Sub-total	130 (100.0)	64 (100.0)	66 (100.0)

Variables

Analysis was conducted using SPSS 23.0. Service problems and improvements were analyzed through a group with experience in using existing nursing services and/or facilities to identify the preference for the community-based ICFM. The questionnaire utilized a 5-point Likert scale to measure the constructs.

Exploratory factor analysis (EFA) was performed to verify reliability and validity by measuring questionnaires through a multi-item measurement. Principal component analysis based on Varimax rotation was used to confirm the most significant basis and express similarities and contrasts in the collected data. Table 4 shows that all the measurement variables have an eigenvalue of more than 1, and the total variance for these factors is 83.781, satisfying the criteria for validity. However, the measurement items of C1, C2, M4, and M5 were excluded because these variables had factor loadings of less than .5 or an effect on other questions.

Table 4. Results of Principal Component Analysis

Factor	Variables	1	2	3	4	5
Co-residential care service	C3	.227	.124	.220	.053	.880
	C4	.108	.137	.235	.081	.891
	C5	-.077	.248	.330	.258	.619
Assistance with personal care in-home service	S1	.896	.146	.106	.235	.091
	S2	.891	.142	.132	.274	.075
	S3	.835	.169	.232	.308	.108
	S4	.820	.169	.190	.312	.094
Job-offer service	W1	.271	.745	.353	.040	.162
	W2	.137	.813	.253	.051	.145

	W3	.108	.920	.171	.070	.137
	W4	.112	.900	.230	.078	.088
Emotional stability and healing service	H1	.147	.292	.774	.145	.193
	H2	.087	.233	.792	.124	.224
	H3	.204	.267	.764	.094	.271
	H4	.221	.224	.834	.065	.164
Health and medical service	M1	.396	.040	.151	.824	.076
	M2	.299	.080	.104	.892	.094
	M3	.351	.077	.104	.849	.161
	Eigenvalue	8.254	3.013	1.679	1.107	1.027
	Percentage of variance (%)	45.854	16.742	9.327	6.151	5.708
	Cumulative percentage of variance (%)	45.854	62.595	71.923	78.073	83.781

To verify the reliability of the latent variable comprising multiple items, the reliability of the measured variable was verified through Cronbach's alpha value. All the coefficients of reliability measures for the constructs exceeded the threshold value of 0.7 for exploratory constructs in basic research.32 Table 5 shows that the reliability test for each variable exceeds .8.

Table 5. Results of the Reliability Test

Factor	Cronbach's α	Number of variables
Co-residential care service	.846	3
Assistance with personal care in-home service	.957	4
Job-offer service	.920	4
Emotional stability and healing service	.902	4
Health and medical service	.938	3

Results

T-tests and analysis of variance (ANOVA) were performed on the five service values: co-residential care service, assistance with personal care in-home service, job-offer service, emotional stability and healing service, and health and medical service, based on the care service and/or facility use experience, gender, and age of the respondents.

In South Korea, care facilities for older adults are typically not for the care of senior residents but for those who are immobile due to their physical or mental conditions. Thus, it is impossible to collect research data directly from these resident older adults. Most of the financial and placement arrangement for the residents are made by family members, usually adult children. The experienced users, thus, are the ones who are most knowledgeable about the care requirements and their priorities of ICFM. The inexperienced group included those who are 45 years of age or older, the potential future residents of care facilities. Therefore, this comparative study of these two groups (experienced vs. inexperienced) provides valuable insights for developing a community-based ICFM.

Community-based ICFM preference analysis

To perform a comparative analysis of the preference for a care farm model, respondents were divided into two groups: experienced users (64, 49.23% of the sample) and inexperienced users (66, 50.77% of the sample).

As a result of analyzing the preference for the care farm model, as shown in Table 6, 98.46% of respondents believed that ICFM was necessary, while 1.54% did not. Regarding

the willingness to use the community-based ICFM, 99.23% of respondents answered positively, and only 0.77% responded negatively. Regarding insurance coverage applications when using community-based ICFM, 94.62% responded positively, while 5.38% did not. Regarding the perceived reasonable price for the service value provided by ICFM, 28.46% of respondents answered $800-$1,200 per month (average preferred price =$1,603.5 per month). In terms of housing preference, 55.38% of respondents indicated that they wanted either a single-detached housing or private room arrangement, while the remaining preferred shared room arrangements.

Table 6. Results of Community-based ICFM Preference Analysis

Community-based ICFM		Frequency (%)
Necessity of ICFM	Yes	128 (98.46)
	No	2 (1.54)
Intention to use	Yes	129 (99.23)
	No	1 (.77)
Insurance coverage	Yes	123 (94.62)
	No	7 (5.37)
Fees for facility use	$800–$1,200	37 (28.46)
	$1,201–$1,600	36 (27.69)
	$1,601–$2,000	24 (18.46)
	$2,001–$2,400	23 (17.69)
	$2,401–$2,800	6 (4.62)
	More than $2,801	4 (3.08)
Types of assisted living housing options	Single-detached house	24 (18.46)
	Private room	48 (36.92)
	Shared room with two people	33 (25.39)
	Shared room with three people	8 (6.15)
	Shared room with four people	15 (11.54)
	Shared room with more five people	2 (1.54)
Total		130 (100.0)

A questionnaire-based survey was conducted to ascertain the main purposes of choosing the community-based ICFM services (multiple responses were allowed). The analysis results are presented in Table 7. The results show that 64 respondents in the experienced group checked 290 times across 11 different purpose items, while 66 inexperienced users checked 274 times.

The most important purpose expressed by the sample (including both the experienced and inexperienced groups) was living in a community rather than living alone in old age, 15.6% (16.20% by the experienced group and 14.95% by the inexperienced user group); 14.72% chose for receiving various services in one place (13.79% by the experienced users and 15.69% by the inexperienced group). In addition, 13.83 % of respondents stated that they did not want to burden their family members (13.45 % of the experienced users and 14.23% of the inexperience group); 12.06% of respondents expressed the desire to maintain their daily life (12.76% - experienced users and 11.32% - inexperience users); 10.99% wished to live a comfortable life in old age with the assistance of others (9.61% - experienced users and 12.77% - inexperience users); 10.00% wished for convenient facility use (8.97% - experienced users and 11.32% - inexperience users).

Moreover, 6.56% desired to be provided with high-quality medical services (8.23% of

experienced users and 4.75% of inexperienced users); 6.38% answered that it was due to the natural environment in rural areas (6.55% of experienced users and 6.21% of inexperienced users); 4.61% answered that having a job is important (4.14% of the experienced group and 5.14% by the inexperienced group); and other purpose items were rated by around 3% or less in terms of their importance.

Table 7. Purpose of Using the Community-based ICFM (multiple responses)

Purpose of using	Total		Experienced users		Inexperienced users	
	Frequency (%)	Ranking	Frequency (%)	Ranking	Frequency (%)	Ranking
Because life in a community is more useful than living alone	88 (15.60)	1	47 (16.20)	1	1 (14.95)	2
To get a variety of services in one place	83 (14.72)	2	40 (13.79)	2	3 (15.69)	1
To avoid burdening the family member	78 (13.83)	3	39 (13.45)	3	9 (14.23)	3
To maintain my daily life	68 (12.06)	4	37 (12.76)	4	1 (11.32)	5
To live comfortably with others	62 (10.99)	5	27 (9.61)	5	5 (12.77)	4
Convenient facilities are available	57 (10.11)	6	26 (8.97)	6	1 (11.32)	5
To receive high-quality healthcare services	37 (6.56)	7	24 (8.28)	7	(4.75)	9
Like the rural environment	36 (6.38)	8	19 (6.55)	8	(6.21)	7
To have a job	26 (4.61)	9	12 (4.14)	9	(5.11)	8
Like living in a community	17 (3.01)	10	11 (3.79)	10	6 (2.19)	10
For delays in nursing facility admission	12 (2.13)	11	8 (2.76)	11	4 (1.46)	11
Total	564 (100.0)		290 (100.0)		(100.0)	

Table 8 presents a list of desired services that the respondents would like to have at the community-based ICFM. Insurance coverage was rated as the most important service needed in ICFM by 16.48% (15.31% by the experienced group and 17.55% by the inexperienced group). The second service selected was daily life maintenance by 14.52% of the total respondents (15.99% - experienced users and 13.17% - inexperienced users).

The third service rated was emotional stability and healing with 13.87% in the entire group (15.65% - the experienced group and 12.23% - inexperienced users). Regarding nutrition management, 12.40% of the sample responded that they needed this service from ICFM (10.20% - the experienced group and 14.42% - the inexperienced group). For the combined

health and medical service, 11.58% of respondents rated it as important (11.91% - experienced users and 11.28% - inexperienced users). The number of respondents who rated the need for co-residential housing was 62 (10.11%) in the entire group (9.86% - experienced users and 10.34% - inexperienced users).

Table 8. Needed Services for Community-based ICFM (multiple responses)

Necessary service	Total		Experienced users		Inexperienced users	
	Frequency (%)	Ranking	Frequency (%)	Ranking	Frequency (%)	Ranking
Insurance coverage	101 (16.48)	1	5 (15.31)	3	56 (17.55)	1
Maintenance of daily life	89 (14.52)	2	7 (15.99)	1	42 (13.17)	3
Mental stability and healing	85 (13.87)	3	6 (15.65)	2	39 (12.23)	4
Nutrition management	76 (12.40)	4	0 (10.20)	5	46 (14.42)	2
Emotional stability and healing service	71 (11.58)	5	5 (11.91)	4	36 (11.28)	5
Co-residential housing	62 (10.11)	6	(9.86)	6	33 (10.34)	6
Home benefit service	54 (8.80)	7	(8.50)	7	29 (9.09)	7
Job-offer service	40 (6.53)	8	(6.12)	9	22 (6.90)	8
Peaceful rural life	35 (5.71)	9	(6.46)	8	16 (5.02)	9
Total	613 (100.0)		(100.0)		319 (100.0)	

Difference Analysis

A mean difference analysis was conducted on the five service value items of the community-based ICFM: co-residential care service, assistance with personal care in-home service, job-offer service, emotional stability and healing service, and health and medical service. Table 9 presents the difference analysis, conducted by t-test, between the experienced user and inexperienced groups. For co-residential care service, the difference between the experienced group (4.56) and the inexperienced group (4.59) showed a t-test value of –.385 (p=.701), indicating no significant mean difference between the two groups. For assistance with personal care in-home service, a significant difference was confirmed at the 5% level, with t=2.176 (p =.031) between the two groups (4.49 vs. 4.20). The difference in job-offer service was t=2.295 (p =.023) between the experienced group (4.44) and the inexperienced group (4.15), showing a significant result at the 5% level. Emotional stability and healing service showed no difference between the two groups.

Considering the difference between the two groups for health and medical service, the t-test value was 2.072 (p=.040) between the two groups, indicating a statistically significant mean difference at the 5% level.

Table 9. T-test of Five Service Values between the Experienced and Inexperienced Groups

Variables	Group	N	Mean	t-value	p-value
	Experienced users	64	4.56	-.385	.701

Co-residential care service	Inexperienced users	66	4.59		
Assistance with personal care in-home service	Experienced users	64	4.49	2.176*	.031
	Inexperienced users	66	4.20		
Job-offer service	Experienced users	64	4.44	2.295*	.023
	Inexperienced users	66	4.15		
Emotional stability and healing service	Experienced users	64	4.46	.472	.637
	Inexperienced users	66	4.42		
Health and medical service	Experienced users	64	4.50	2.072*	.040
	Inexperienced users	66	4.25		
* p < .05; ** p < .01					

Table 10 shows the analysis results on gender differences in the community-based integrated care farm service. In the case of co-residential care services, the male group had 4.71 mean value, while the female group scored 4.51, with a t-test value of 2.10 (p=.038), indicating a significant difference at the 5% level. Regarding emotional stability and healing services, males had 4.70 points and females scored 4.32 points. The difference was found at the 1% significance level, with t = 3.577 (p=.000) between the two groups. No difference was observed between the male and female groups for the remaining value areas of assistance with personal care in-home services, job-offer services, and health and medical services.

Table 10. T-test of Five Service Values in Groups Differentiated by Gender

Variables	Group	**N**	Mean	t-value	p-value
Co-residential care service	Male	41	4.71	2.100*	.038
	Female	89	4.51		
Assistance with personal care in-home service	Male	41	4.49	1.503	.135
	Female	89	4.27		
Job-offer service	Male	41	4.41	1.264	.209
	Female	89	4.23		
Emotional stability and healing service	Male	41	4.70	3.577**	.000
	Female	89	4.32		
Health and medical service	Male	41	4.50	1.462	.146
	Female	89	4.31		
* p < .05; ** p < .01					

ANOVA was employed to examine the difference by age groups for community-based ICFM services. As shown in Table 11, the F-value for assistance with personal care in-home services was 4.626 (p=.004), indicating a difference among groups at the 1% significance level. For health and medical services, the F-value indicated 2.856 (p=.040), indicating a difference at the 5% significance level. However, co-residential care services (F=1.699, p =.171), job-offer services (F=2.366, p=.074), and emotional stability and

healing services (F = .523, p=.667) showed no significant mean difference among the four groups.

Table 11. ANOVA test of Five Service Values among Age Groups

Variables	Group	N	Mean	F-value	p-value
Co-residential care service	45s–50s	55	4.48	1.699	.171
	51s–60s	54	4.67		
	61s–65s	10	4.47		
	More than 66s	11	4.57		
Assistance with personal care in-home service	45s–50s	55	4.12	4.626**	.004
	51s–60s	54	4.58		
	61s–65s	10	4.63		
	More than 66s	11	4.00		
Job-offer service	45s–50s	55	4.386	2.366	.074
	51s–60s	54	4.500		
	61s-65s	10	4.550		
	More than 66s	11	4.364		
Emotional stability and healing service	45s–50s	55	4.206	.523	.667
	51s–60s	54	4.568		
	61s–65s	10	4.433		
	More than 66s	11	4.212		
Health and medical service	45s–50s	55	4.194	2.856*	.040
	51s–60s	54	4.475		
	61s–65s	10	4.267		
	More than 66s	11	3.939		
* p < .05; ** p < .01					

Conclusion and Discussion

In this study, we propose a community-based ICFM based on the analysis of preferences and needs of older adults to address the needs and improvements that are needed for older adult care services and/or facilities. The proposed ICFM includes five service values: co-residential care service, assistance with personal care in-home service, Job-offer service, emotional stability and healing service, and health and medical service. The study results are based on the analysis of 130 responses from a questionnaire-based field survey.

Some of the major findings of the study are as follows. First, 98.46% of the respondents stated that they need a community-based ICFM, and 99.23% were willing to use it. Thus, the necessity and feasibility of operating a community-based ICFM were proven. Second, the respondents as the entire sample rated “life in a community is more useful than living alone” as the most important purpose of community-based ICFM (15.60%), while the experienced group rated this purpose a bit higher (16.20%). However, the number one priority for the respondents of the inexperienced group was “because various services can be provided in one place” (15.69%). The item “to avoid burdening family members” was ranked third regardless of the respondents’ experience with old adults care services and facilities. Regarding the purpose of using community-based ICFM, the response results were the same for the entire sample and the group with experience (49.23%). However, the inexperienced group showed both some similarities and differences from the experienced group.

Regarding the five service values of ICFM, the mean difference between the experienced and inexperienced groups, assistance with personal care in-home services (t=2.176, p=.031), job-offer service (t=2.295, p=.023), and health and medical services (t=2.072, p=.040) were significantly different. However, no statistically significant differences were found between the two groups for co-residential care services (t=–.385, p=.701) and emotional stability and healing services (t=.472, p=.637). In the mean difference analysis by gender, a statistically significant difference was observed between male and female

groups in the care services for co-residential care (t=2.100, p=.038) and emotional stability and healing (t=3.577, p=.000). In the analysis of mean differences by age groups (45–50, 51–60, 61–65, and more than 66), a significant difference was observed only in assistance with personal care in-home services (F=4.626, p=.004) and health and medical services (F=2.856, p=.040).

Considering the global trend of the rapid growth of the healthcare sector, especially in the older adult population, an operational strategy to build a healthy community by strengthening and improving healthcare service capacity by governmental and private organizations is imperative (Yodsuban et al., 2023). In addition, the government, institutional operators, and individual participants must collaboratively develop a care farm model which can help create social value and build a healthy community to establish a virtuous financial cycle, even in today's uncertain environment of super-aged society.

Theoretical and Practical Implications

This study has both academic and practical implications. First, as a theoretical implication, this study makes new contributions to the literature by presenting the concept of a community-based ICFM. The community-based ICFM has not been researched from an integrated perspective. The model proposed in this study can be used as a theoretical basis for empirical research. Second, this study provides an academic significance as it applied an integrated approach that included both literature review and an empirical research based on a field survey targeting groups with and without experience in using older adult care services (current and potential future customers) to analyze the necessity of a community-based ICFM. This study found the overall results of the entire sample about the purpose, necessary services, and values of the community-based ICFM, as well as statistically significant differences between/among different demographic groups. The results of this study provide a solid basis upon which future studies can be conducted by expanding to other environments and industries.

This study also offers practical implications. The study results provide practical insights for implementing community-based ICFM. With a rapidly aging population in almost every country around the world, governments alone simply cannot finance the required welfare and insurance benefits for older adults. Therefore, it is necessary to develop an environment where older adults can maintain their health and well-being while being engaged in gainful economic activities in a community-level system. Therefore, the community-based ICFM presented in this study can be used as the primary framework by government policymakers and professional experts in developing effective care systems for older adults. Second, since this study explored the items that are required for a community-based ICFM, the primary data and information generated in the study can be used as a basis for developing community-based care farms. Furthermore, the proposed community-based model includes dual systems: regular fee-paying care programs and nursing facilities for older adults that provide gainful economic activity opportunities. Thus, the study results can be used by health planners, social policy administrators, policymakers, and facility managers when developing and managing community-based care farms.

Limitations and Future Research Directions

While this study analyzed important information for developing a much needed community-based ICFM, it also has several limitations. First, the study results are not generalizable because this study collected data from the respondents in Korea. In

particular, since the penal standards for nursing facilities for older adults differ from country to country, extensive interpretation of the results should be avoided. Therefore, future cross-country comparative studies are very much needed. Second, this study collected data from those who had experience with care facilities for senior citizens (mostly family members who visited relatives at such facilities) and potential future users of such facilities (inexperienced users). We could not collect data from actual users of nursing facilities (due to their lack of cognitive ability and difficulties in participating in the survey itself). Among the age groups of potential customers who participated in this study, the proportion (42.31%) of those aged between 45 and 50 years was relatively high; therefore,

it is necessary to subdivide the number of samples according to age. Third, in this study, we proposed five service values for the community-based ICFM based on existing research. However, an effective ICFM requires a reasonable consensus among the members of a society for such issues as long-term care insurance for older adults, integrated care policies, and case management. Lastly, since this study proposed a framework for the community-based ICFM, it is necessary to conduct more empirical studies to refine and supplement program details to establish a sustainable model. These limitations provide valuable insights for future research.

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Data Availability: The data presented in this study are available on request from the corresponding author.

Declarations

Conflict of Interest: The authors declare no conflict of interest.

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