

Evaluation of Performance Indicators for Foodservice Operations in Senior Welfare Centers: Application of the Balanced Scorecard

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Abstract

This research uses the Balanced Scorecard framework to create comprehensive performance indicators for foodservice programs in senior welfare centers. The study evaluates these programs in South Korean senior welfare centers from financial, customer, learning and growth, and internal business process perspectives. Thirty-five evaluation indicators were developed and validated through the Delphi study used for the survey study nationwide, and 115 were collected. Thirty elderly welfare centers participated in on-site evaluation by the expert. The results of the survey study, 81.4, indicate overall favorable performance, with social workers scoring slightly lower than dietitians and directors. On-site evaluations showed better performance, 84.4, compared to the survey study. The learning and growth perspective showed a significantly higher score on on-site evaluation, and the score was 20.9, which was 3.1 points higher than 17.8 from the survey study ($p < 0.001$). However, there is room for improvement, including adopting nutrition management programs, defining roles for dietitians and cooks, enhancing food sanitation regulations, and providing financial support. Additional recommendations involve recruiting nutrition personnel, collaborating with local governments, and integrating centers for children's foodservice management at the local level. This research provides valuable insights into enhancing the foodservice in elderly welfare centers to improve the nutrition and well-being of the elderly population.

Keywords: balanced scorecard, foodservice, performance indicator, senior welfare center, elderly

Introduction

In the face of rapidly evolving societal changes and advancements in science and healthcare technology, the global demographic landscape is witnessing an unprecedented increase in the elderly population. South Korea, in particular, has experienced a remarkable surge in its elderly demographic, resulting in a profound transformation of its overall population structure. This demographic shift has occurred at an extraordinary pace, with projections indicating that by 2022, the elderly population in Korea will represent a substantial 17.5% of the total population, signifying the nation's transition into an "aged society". Furthermore, this trend is expected to accelerate, with estimates suggesting that by 2030, a remarkable 24.3% of the population will be elderly, marking Korea into a "super-aged society". This demographic transition is notable for its rapidity compared to other advanced nations such as the United States, the European Union, and Japan. The accelerated

aging of the Korean population can be primarily attributed to an increase in the elderly population alongside a persistently low birth rate. Life expectancy, which stood at 78.6 years in 2005, is projected to rise to 83.1 in 2030 and 86.0 in 2050 (Statistics Korea, 2015).

The expansion of the elderly population brings forth a multitude of physical, socio-psychological, and financial challenges within society. The traditional roles of the elderly within families have diminished, with nuclear family structures becoming more prevalent. This transformation has reduced the status and responsibilities of the elderly in the family unit (Lee et al., 2009). Additionally, the number of elderly couples and solitary elderly individuals living independently has been steadily increasing, with the latter group expected to account for 40.5% of all elderly households by 2035 (Statistics Korea, 2015). Among these, the number of elderly individuals living alone has surpassed the count of elderly couples living together since 2010. Consequently, ensuring access to adequate and hygienic nutrition has become a pressing concern for elderly couples and solitary elderly individuals.

In households where elderly couples or solitary elderly individuals reside, the responsibility for grocery shopping and meal preparation typically falls on the elderly themselves. Despite their best efforts, many face challenges related to

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food safety and sanitation (Lee et al., 2009). Solitary elderly individuals, in particular, are more vulnerable to financial difficulties and often struggle to maintain their health (Song, 2014). When confronted with financial, physical, psychological, and social challenges, these individuals experience an amplification of these issues, further compounded by poverty and illness. Despite their heightened vulnerability in nutrition and food safety, services and programs addressing their dietary needs have been inadequately provided to impact their health and overall quality of life positively. Given the rising healthcare costs and the burden of elderly care, addressing these concerns has become a societal imperative, focusing on preventing illnesses, maintaining health, and promoting healthy aging among the elderly (Kim, 2011).

The burgeoning elderly population has continuously expanded related facilities, particularly senior welfare centers, which offer various services, including counseling, health promotion, cultural activities, leisure programs, sports activities, and foodservice programs. The foodservice program in senior welfare centers consists of institutional foodservice and serves local elderly people who can independently reach local welfare facilities. These foodservice programs, encompassing meal delivery and other meal-related service, are typically offered either free of charge or at a nominal fee in senior welfare centers across Korea. The primary purpose of foodservice in senior welfare centers is to provide one complete meal to the elderly per day, satisfying their nutritional requirements and promoting social and psychological interaction to help maintain their health and reintegrate them into society (Chang, 2008). These programs serve as a vital lifeline for elderly individuals who face financial and physical challenges in preparing their own meals, providing essential nutrition for their survival and overall well-being. The number of elderly people utilizing foodservice in welfare centers is gradually increasing, and the overall recipient count rises steeply when including paid meals, lunch box deliveries, and side dish deliveries (Kim, 2012).

Given the scale and prevalence of users, foodservice in elderly welfare centers significantly impacts elderly individual's diets, as managing both nutrition and food hygiene can affect the health status of the elderly. However, while essential, these programs have not been subject to comprehensive regulation and standardized evaluation, resulting in a lack of well-established performance indicators for assessing foodservice operations in senior welfare centers. Recently, discussions have arisen regarding the absence of foodservice support systems in this area, underlining the vulnerability of foodservice in elderly welfare centers (Kim, 2012). There is an urgent need to

prepare and disseminate guidelines and manuals on elderly welfare center foodservice operations (Korea Health Industry Development Institute, 2007). The absence of a robust evaluation framework has hindered efforts to maintain and enhance the quality of foodservice programs efficiently and effectively. Consequently, as foodservice expands in scale and size to meet users' needs and changes in the social environment, the quality of foodservice and the improvement of the quality level fall behind the quantitative growth.

The Balanced Scorecard (BSC), originally developed in the United States during the 1990s, emerged as a performance management system initially applied in the private sector. Subsequently, it found its way into the public sector and government organizations, both in the United States and, later, in Korea. Initially met with skepticism regarding its applicability to public sectors, BSC has since gained acceptance as a suitable methodology for evaluating private firms and public organizations. Government agencies, long criticized for inefficiency and ineffectiveness compared to private enterprises, have experienced considerable improvements following the implementing of management systems. In Korea, the operation of senior welfare centers, financially supported by the government, shares commonalities with the management of government organizations (Park, 2008). Therefore, applying the Balanced Scorecard to establish performance indicators for foodservice programs within senior welfare centers aligns with the broader trend of enhancing public sector efficiency and effectiveness.

As the scale and prevalence of senior welfare centers continue to expand in response to the growing elderly population, there is a mounting demand for unified and integrated evaluations and a desire to enhance the qualitative aspects of foodservice in these centers. This necessitates a scientific and objective evaluation framework that consistently assesses foodservice provision and provides valuable feedback for performance improvement across multiple dimensions. Consequently, this study aims to develop integrated and objective performance indicators based on the Balanced Scorecard framework for foodservice programs in senior welfare centers. These performance indicators will be used to comprehensively evaluate the financial, customer-focused, learning and growth, and internal business process aspects of foodservices in senior welfare centers across Korea. Ultimately, introducing these performance indicators seeks to improve foodservice program quality, enhance the well-being of elderly beneficiaries, and prevent the onset of diseases throughout their lifetimes.

Materials and Methods

Study design

This study aims to construct a set of operational performance indicators suitable for the elderly welfare centers based on BSC. Based on analyzing existing evaluation indicators, this study developed preliminary performance indicators and a conceptual reference framework according to BSC. The preliminary performance indicators were analyzed by two rounds of the Delphi study (Gang et al., In press). After the Delphi survey, the survey study was conducted by managers, social workers, and nutritionists in elderly welfare centers nationwide. Lastly, on-site evaluations were conducted at elderly welfare centers near Seoul and Gyeonggi Province by an expert. This study was approved by the Institutional Review Board (IRB) of the Yonsei University Bioethics Review Committee (7001988-201704-HR-165-02).

Survey of senior welfare centers nationwide

A self-evaluation survey was conducted to verify the development of a foodservice evaluation tool for the elderly welfare centers and the performance of the elderly foodservice operations. Self-assessment questionnaires based on four perspectives were delivered to the nutritionists, social workers, and administrators in charge of the elderly foodservice in 270 nationwide elderly welfare centers, members of the Korean Association of Senior Welfare Centers, by mail, fax, and e-mail. The survey was conducted from April to the end of May 2017. The data were collected from 58 dietitians, 31 social workers, and 26 directors and used to analyze the results. The purpose of this study is to analyze the current level of operations of the elderly welfare centers and to compare the degree of performance of foodservice operations in the three different positions in the elderly welfare centers.

On-site evaluation in Seoul and Gyeonggi-do province

On-site evaluations generally involve reviewing documents and performance data and providing the assessors with detailed and supplementary information on diverse aspects of the operations of foodservice through the data they hold (Lawrenz et al., 2003). Among the elderly welfare centers participating in the survey study, 30 elderly welfare centers in Seoul and Gyeonggi Province were visited in May 2017. An objective evaluation of experts was conducted on the performance of the elderly welfare centers based on four perspectives. For each indicator related to the evaluation, the status of the preparation of required documents was confirmed, and the operational status and performance of the work were verified during on-

site evaluations. The evaluation indicators based on the four perspectives were calculated into scores according to the weight of each item. The evaluation score was quantified based on a total score of 100, which was compared with the survey study results.

Statistical analysis

Descriptive statistics were calculated for all variables, including the general information of the survey subjects and the survey results from each perspective. Differences in evaluation results by perspective according to occupation were compared using one-way analysis of variance, and the results of the survey study and on-site evaluation were compared using a *t*-test. Comparison of occupational groups according to evaluation score range and comparison of survey study and on-site evaluation results were conducted using the χ^2 test. All statistical values were analyzed at the significance level of $p < 0.05$, and statistical analysis was performed using IBM SPSS (Version 27.0, IBM Inc., NY, USA).

Results and Discussions

The items evaluated in both the survey study and the on-site evaluation were converted into scores based on the evaluation criteria. The details of the evaluation criteria for each evaluation item are summarized in Appendix 3, which shows the evaluation indicators derived from this study and the scores calculated on each performance indicator.

Survey study

The questionnaire was constructed using the evaluation indicators derived from the Delphi study in the previous study (Gang et al., In press). A total of 810 questionnaires were mailed, e-mailed, and faxed to 270 elderly welfare centers nationwide; 115 were collected, and the recovery rate was 14.2%. Participants in the survey study consisted of dietitians, social workers, and directors in charge of the operation of foodservice services in elderly welfare centers. Table 1 shows the demographic characteristics of participants on the questionnaire.

In the questionnaire, the opinions of dietitians, social workers, and directors were analyzed for each item, and the results were summarized for each perspective in Tables 2 to 5 below. It has been confirmed that most evaluation indicators performed well at relatively high levels in the survey study. The results of the questionnaire are summarized in Table 6 below.

The average score of all three groups regarding foodservice performance in elderly welfare centers was 81.4. The scores of

Table 1. Demographic characteristics of respondents

Variables	Item	Survey study (N = 115)		On-site evaluation (N = 30)	
		N	%	N	%
Gender	Male	29	25.2	0	0
	Female	86	74.8	30	100
Age	39 years ≤	63	54.9	13	43.3
	40-49 years	34	31.2	9	30.0
	50-59 years	15	13.1	8	26.7
	60 years ≥	1	0.9	0	0
Education	High school graduate	0	0	0	0
	Junior college graduate	21	18.3	6	20.0
	Four-year college graduate	71	61.7	20	66.7
	Graduate school graduate	20	17.4	3	10.0
	Other	1	0.9	0	0
Occupation	Dietitian	58	50.4	30	100
	Social workers	31	27.0	0	0
	Director	26	22.6	0	0
Occupational work experience	2 years ≤	15	13.0	3	10.0
	2-4 years	33	28.7	10	33.3
	5-9 years	23	20.0	7	23.3
	10-14 years	20	17.4	3	10.0
	15 years ≥	20	17.4	7	23.3
Report of foodservice installation	Yes	114	99.1	30	100
	No	0	0	0	0
	Other	1	0.9	0	0
Type of establishments	Government welfare establishment	2	1.7	0	0
	Religious organization	7	6.1	2	6.7
	Social welfare foundation	87	75.7	25	83.3
	Public organization	1	0.9	1	3.3
	Educational foundation	9	7.8	1	3.3
	Other	7	6.1	1	3.3
Operation period of foodservice	2 years ≤	3	2.6	1	3.3
	2-5 years	14	12.7	2	6.7
	5-9 years	24	20.8	8	26.7
	10-14 years	32	27.8	5	16.6
	15 years ≥	30	26.1	14	46.7
Number of people using each type of foodservice ¹⁾	Free meal service	92.9		94.0	
	Charged meal service	255.2		263.0	
	Lunch box delivery	42.8		34.3	
	Side dishes delivery	29.2		43.1	
	All other service	21.0		25.3	

¹⁾Average number of people using each type of foodservice per day

dietitians, social workers, and directors were similar. However, the social workers had the lowest overall score, and the director and dietitian had the same total score. As a result of analyzing by point of perspective, each score was similar between the groups, and the average score of all groups was 23.4 from the financial perspective. From the customer perspective, the social worker's score was the lowest at 18.3, and the dietitian's was the highest at 19.7. The score of learning and growth perspective, particularly, was lowest at

17.8 in all four perspectives, and the score of social worker was the lowest at 17.3 compared to dietitians at 17.9 and directors at 18.3. Lastly, the social worker's score was 21.3, while dietitians' 20.8 and directors' 20.5 were relatively low regarding the internal business process perspective.

Therefore, the perspective of high operating performance in the foodservice operation is the financial aspect, and the lowest is the learning and growth perspective. In the comparison between the groups, the score of the dietitian and director was

Table 2. Descriptive analysis from the financial perspective

Evaluation indicator	Performance degree	Survey study				On-site evaluation
		Dietitian (N = 58)	Social worker (N = 31)	Director (N = 26)	Total (N = 115)	Dietitian (N = 30)
1. Conformity on execution of the budget	Yes	57(98.3) ¹⁾	30(96.8)	26(100)	113(98.3)	27(90.0)
	No	1(1.7)	0(0)	0(0)	1(0.9)	0(0.0)
	Partial Yes	0(0)	1(3.2)	0(0)	1(0.9)	3(10.0)
	N/A	0(0)	0(0)	0(0)	0(0)	0(0)
2. Rate of use except compilation of the budget	Yes	0(0)	0(0)	0(0)	0(0)	1(3.3)
	No	49(84.5)	26(83.9)	26(100)	101(87.8)	28(93.3)
	N/A	7(12.1)	3(9.7)	0(0)	10(8.7)	0(0)
	Partial Yes	2(3.4)	2(6.5)	0(0)	4(3.5)	1(3.3)
	(% used outside of purpose)	2%	8.5%	0%	4.6%	5.0%
3. Retention of documentary evidence and adequate documentation	Yes	57(98.3)	30(96.8)	26(100)	113(98.3)	30(100)
	No	0(0)	0(0)	0(0)	0(0)	0(0)
	Partial Yes	1(1.7)	1(3.2)	0(0)	2(1.7)	0(0)
	N/A	0(0)	0(0)	0(0)	0(0)	0(0)
4. Rate of expense on revenue	Yes	40(69.0)	20(64.5)	20(76.9)	80(69.6)	17(56.7)
	No	8(13.8)	2(6.5)	3(11.5)	13(11.3)	0(0)
	Partial Yes	6(10.3)	1(3.2)	2(7.7)	9(7.8)	10(33.3)
	N/A	3(5.2)	5(16.1)	1(3.8)	9(7.8)	3(10.0)
5. Rate of use except foodservice	Yes	2(3.4)	0(0)	2(7.7)	4(3.5)	0(0)
	No	42(72.4)	20(64.5)	21(80.8)	83(72.2)	20(66.7)
	N/A	9(15.5)	6(19.4)	0(0)	15(13.0)	3(10.0)
	Partial Yes	4(6.9)	3(9.7)	3(11.5)	10(8.7)	7(23.3)
	(% used outside of food)	6.3%	10%	6%	6.7%	14.0%
6. Appropriateness of the rate of ingredient costs out of actual expenses	Yes	54(93.1)	23(74.2)	24(92.3)	101(87.8)	27(90.0)
	(Food ingredient ratio)	87.7%	82.9%	83.9%	85.8%	85.3%
	No	1(1.7)	1(3.2)	1(3.8)	3(0)	3(10.0)
	N/A	1(1.7)	5(16.1)	1(3.8)	7(6.1)	0(0)

¹⁾Frequency (%)

comparatively high, while the social worker's score was low.

Table 7 below summarizes the total scores that evaluated the performance of each senior welfare center by the score range. Of the total score of 100, 18 people in elderly welfare centers were judged to perform well by obtaining a score of 91 or more, and 50 people scored between 81 and 90. Thirty-two persons with a score between 71 and 80, 16 persons with a score between 61 and 70, and one less than 60 were included. Based on a score of 80 or higher, 65.3% of the directors had excellent foodservice, only 60.3% of dietitians and 51.7% of social workers were operating foodservice satisfactorily. The social worker with a score below 70 was the highest, with 25.8%, and the nutritionist with the lowest score of 8.6%. Therefore, 85.3% of the people in the elderly welfare centers confirmed that the foodservice operation was excellent, or at least the normal level of operation.

On-site evaluation

Based on the questionnaire indicators used in the survey

study, 30 elderly welfare centers located around Seoul-si and Gyeonggi were visited in order to perform on-site evaluations from May 2017 to the first week of June 2017. Table 1 provides the demographic characteristics of respondents participating in the on-site evaluation. Tables 2 to 5 summarize the findings of the on-site evaluation from each point of perspective. Table 6 summarizes each perspective's foodservice performance scores of the on-site evaluation results. The average of the total scores obtained from the on-site evaluation was 84.4, slightly higher than the result of the survey study, 81.4.

When comparing the results for each perspective between the study, the financial perspective was 23.4, and the customer perspective was 19.1, and these scores were either the same or almost close to the survey study. However, the learning and growth perspective showed a significantly higher score on-site evaluation, and the score was 20.9, which was 3.1 points higher than 17.8 from the survey study ($p < 0.001$). Regarding the internal business process perspective, the survey and on-

Table 3. Descriptive analysis from the customer perspective

Evaluation indicator	Performance degree	Survey study				On-site evaluation
		Dietitian (N = 58)	Social worker (N = 31)	Director (N = 26)	Total (N = 115)	Total (N = 30)
1. Frequency of user's food satisfaction survey	More than twice a year	35(60.3) ¹⁾	17(54.8)	17(65.4)	69(69.0)	21(70.0)
	<i>(Satisfaction level: high</i>	43.1%	25.8%	38.5%	37.4%	73.3%
	<i>middle</i>	6.9%	6.5%	3.8%	6.1%	0%
	<i>Low)</i>	0%	0%	0%	0%	0%
	Once a year	22(37.9)	14(45.2)	9(34.6)	45(39.1)	8(26.6)
	<i>(Satisfaction level: high</i>	20.7%	22.6%	23.1%	21.7%	20.0%
<i>middle</i>	0%	3.2%	0%	0.9%	0%	
<i>Low)</i>	0(0)	0%	0%	0%	0%	
<i>None</i>	1(1.7)	0(0)	0(0)	1(0.9)	1(3.3)	
2. Management of leftover food	Yes	35(60.3)	21(67.7)	16(61.5)	72(62.6)	12(40.0)
	<i>(Rate of leftover)</i>	7.7%	15.8%	7.3%	10.0%	5.0%
	No	23(39.7)	8(25.8)	7(26.9)	38(33.0)	18(60.0)
3. Number of new menu items introduced yearly	Yes	56(96.6)	28(90.3)	23(88.5)	107(93.0)	27(66.7)
	<i>(Number of trials per year)</i>	12.1	9.7	10.5	11.3	13.0
	No	2(3.4)	2(6.5)	2(7.7)	6(5.2)	10(33.3)
4. Number of nutrition consultations	Yes	41(70.7)	23(74.2)	20(76.9)	84(73.0)	20(73.0)
	<i>(Number of trials per year)</i>	16.8	22.8	17.1	18.3	11.0
	No	17(29.3)	7(22.6)	6(23.1)	30(26.1)	30(26.1)
5. Amount of nutrition education	Yes	46(79.3)	19(61.3)	19(73.1)	84(73.0)	23(76.7)
	<i>(Number of trials per year)</i>	6.9	5.3	5.2	6.2	6.2
	No	12(20.7)	11(35.5)	6(23.1)	29(25.2)	7(23.3)
6. Providing foodservice/ nutrition/hygiene information and number	Provide only essential information (menu, calories)	6(10.3)	3(9.7)	2(7.7)	11(9.6)	1(3.3)
	<i>(Number of trials per year)</i>	141.5	10	52	113.9	52.0
	Both essential information & nutrition/hygiene/health information	50(86.2)	25(80.6)	21(80.8)	96(83.5)	29(96.7)
	<i>(Number of trials per year)</i>	26.4	41.8	57.1	36.7	14.0
	Provide nutrition/hygiene/health information only	2(3.4)	0(0)	1(3.8)	3(2.6)	0(0)
	<i>(Number of trials per year)</i>	12.0	0	12	12	.
	None	0(0)	2(6.5)	0(0)	2(1.7)	0(0)
7. Accepts and deals with user's claims	Yes	41(70.7)	17(54.8)	18(69.2)	76(66.1)	23(76.7)
	<i>(number of receipt)</i>	5.1	10.3	7.0	6.3	3.2
	<i>(number of handling)</i>	4.9	10.3	6.8	6.3	3.2
	No	15(25.9)	13(41.9)	7(26.9)	35(30.4)	7(23.3)

¹⁾Frequency (%)

site evaluation scores were 20.9 and 21.0, respectively, very similar.

Among many services offered at elderly welfare centers, foodservice is a very basic service needed to maintain life as a human being (Chang, 2008). Foodservice in elderly welfare centers means providing meals for the elderly living in home, not in nursing home, to prevent starvation and nutrient deficiency. The main purpose of foodservice in senior welfare

centers is to provide one complete meal to the elderly per day, so this satisfies their nutritional demands and promotes social and psychological exchange to help maintain their health by making them come out to society (Chang, 2008). According to Kim's study (2007), it is necessary to expand and apply the service in this order as the welfare centers are the most widely accessed facilities for the improvement of nutrition for the elderly, followed by health centers and elderly residential

Table 4. Descriptive analysis from the learning and growth perspective

Evaluation indicator	Performance degree	Survey study				On-site evaluation
		Dietitian (N = 58)	Social worker (N = 31)	Director (N = 26)	Total (N = 115)	Total (N=30)
1. Dietitian placement	Yes	58(100) ¹⁾	31(100)	25(96.2)	115(100)	30(100)
	<i>(number of dietitians)</i>	1	1	1	1	1
	No	0(0)	0(0)	0(0)	0(0)	0(0)
2. Cook placement	Yes	55(94.8)	28(90.3)	25(96.2)	108(93.9)	28(93.3)
	<i>(number of cooks)</i>	1.4	1.6	1.3	1.4	1.5
	No	3(5.2)	3(9.7)	1(3.8)	7(6.1)	2(6.7)
3. Placement of optimum employees per feeding number	Average number of meals per day	324.7	322	351.6	330.1	377
	Average number of apprentice cooks (not including cook)	3.9	3.4	3.7	3.7	3.5
4. Management of employee turnover rate/absence	Yes	19(32.8)	6(19.4)	9(34.6)	34(29.6)	23(76.7)
	<i>(Turnover rate)</i>	2.0%	1.7%	8.5%	3.9%	0.0%
	<i>(Absence rate)</i>	0.1%	0.1%	0.3%	0.2%	0.0%
	No	35(62.1)	22(71.0)	13(50.0)	71(61.7)	7(23.3)
5. Attendance of yearly education and training	Yes	57(98.3)	29(93.5)	26(100)	112(97.4)	28(93.3)
	<i>(Number of trials per year)</i>	8.2	9.6	6.4	8.2	12.0
	No	1(1.7)	0(0)	0(0)	1(0.9)	0(0)
6. Types of education and training (Select all)	On the job training	52(89.7)	28(90.3)	26(100)	106(92.2)	26(86.7)
	<i>(Number of trials per year)</i>	8.2	7.4	6.0	7.5	13.0
	Off-the-job-training	48(82.8)	2(6.5)	22(84.6)	93(80.9)	29(96.7)
	<i>(Number of trials per year)</i>	2.8	1.4	1.7	2.2	3.3
	Overseas training	13(22.4)	0(0)	5(19.2)	21(18.3)	18(60.0)
	<i>(Number of trials per year)</i>	0.9	2	1.3	1.1	1.1
7. Yearly education expense	Other	1(1.7)	0(0)	1(3.8)	2(1.7)	2(6.7)
	Yes	42(72.4)	22(71.0)	20(76.9)	84(73.0)	29(96.7)
	<i>(Annual cost)</i>	₩365,217	₩905,000	₩1,101,923	₩690,760	₩108,800
8. Job satisfaction survey	No	7(12.1)	6(19.4)	2(7.7)	15(13.0)	1(3.3)
	Yes	37(63.8)	21(67.7)	17(65.4)	75(65.2)	14(46.7)
9. Welfare benefits payment of foodservice staff	<i>(Satisfaction level: high</i>	31%	35.5%	34.6%	33.0%	20.0%
	middle	25.9%	19.4%	7.7%	20.0%	3.3%
	Low)	1.7%	0%	0%	0.9%	0.0%
	No	17(29.3)	8(25.8)	7(26.4)	32(27.8)	16(53.3)
	<i>(Annual cost)</i>	₩636,800	₩540,400	₩650,333	₩621,384	₩918,000
	No	26(44.8)	16(51.6)	14(53.8)	56(48.7)	5(16.7)

¹⁾Frequency (%)

facilities, which the least number of elderly people use.

The number of elderly people who use foodservice in welfare centers are gradually increasing, and the total number of users who receive the financial support for one meal per day came to about 104,000 in 2010, and the number of recipients overall would rise steeply when including paid meals, lunch

box deliveries and side dish deliveries (Kim, 2012).

From the customer perspective, the frequency of user's satisfaction surveys and management of leftover food were low in Table 3. Introducing new menus yearly, nutrition consultation and nutrition education were also relatively low in performance. As of 2003, dietitians worked in only 19% of the

Table 5. Descriptive analysis from the internal business process perspective

Evaluation indicator	Performance degree	Survey study				On-site evaluation
		Dietitian (N = 58)	Social worker (N = 31)	Director (N = 26)	Total (N = 115)	N (%)
1. Number of staff safety accidents	Yes	9(15.5) ¹⁾	4(12.9)	4(15.4)	17(14.8)	13(43.3)
	<i>(number of accident)</i>	2.0	0.7	1.5	1.6	1.8
	No	49(84.5)	27(87.1)	22(84.6)	98(85.2)	17(56.7)
2. Locating fire extinguishers	Yes	58(100)	31(100)	26(100)	115(100)	30(100)
	<i>(number of fire extinguisher)</i>	2.5	2.7	4.1	2.9	2.9
	No	0(0)	0(0)	0(0)	0(0)	0(0)
3. Implementing fire prevention & safety education	Yes	55(94.8)	31(100)	26(100)	112(97.4)	29(96.7)
	<i>(number of safety education)</i>	2.1	1.6	1.5	1.8	3.2
	No	2(3.4)	0(0)	0(0)	2(1.7)	1(3.3)
4. Hygiene and safety inspection by municipality (Number per year)	Ministry of Health and Welfare	1.3	0.9	1	1.0	0.7
	Food and Drug Administration	1.3	1	1.5	1.3	0.7
	Municipal Government	2.0	1.9	2.2	2.0	2.1
	Public Health Center	1.7	2.2	1.9	1.9	1.6
	Other	2.0	2	1	2	2
5. Daily self-hygiene and safety check	Yes	58(100)	30(96.8)	26(100)	114(99.1)	30(100)
	No	0(0)	1(3.2)	0(0)	1(0.9)	0(0)
6. Number of food poisoning outbreaks	Yes	0(0)	0(0)	0(0)	0(0)	0(0)
	<i>(number of food poisoning outbreak)</i>	0	0	0	0	0
	No	58(100)	31(100)	26(100)	115(100)	30(100)
7. Making out of menus or consultation by a dietitian	Yes	56(96.6)	30(96.8)	25(96.2)	112(97.4)	30(100)
	No	0(0)	0(0)	0(0)	0(0)	0(0)
	N/A	2(3.4)	0(0)	0(0)	2(1.7)	0(0)
8. Evaluation of foodservice nutritional management	Yes	14(24.1)	17(54.8)	10(38.5)	41(35.7)	8(26.7)
	<i>(Annual evaluation on nutrition of foodservice)</i>	4.8	1.7	2.6	3.1	1.7
	Yes, but insufficient	15(25.9)	6(19.4)	8(30.8)	30(26.1)	0(0)
	No	24(41.4)	5(16.1)	6(23.1)	35(30.4)	22(73.3)
9. Food nutrition management items (Select all)	Yes	28(48.3)	14(45.2)	7(26.9)	49(42.6)	10(33.3)
	Carb.:Protein:Fat	58.5:24.8:16.2	56.2:27.4:17.1	63:22:17	58.7:24.9:16.6	61.7:26.8:17.5
	Yes	50(86.2)	19(61.3)	16(61.5)	85(73.9)	27(90.0)
	Calories	712.7	734.3	738.9	721.5	699
	Yes	27(46.6)	10(32.3)	5(19.2)	42(36.5)	23(76.7)
	Salinity	0.6	0.5	0.7	0.6	0.6
	Other	3(5.2)	1(3.2)	1(3.8)	5(4.3)	9(30.0)
		Ca, Protein, Vegetable	.	Ca	Ca, Protein, Vegetable	Ca, Protein, Vegetable
10. Compliance with the operation guidelines for free meal service for elderly	Yes	51(87.9)	29(93.5)	22(84.6)	102(88.7)	30(100)
	Yes, but insufficient	5(8.6)	1(3.2)	2(7.7)	8(7.0)	0(0)
	No	2(3.4)	1(3.2)	2(7.7)	5(4.3)	0(0)
11. Making a list of free meal services for elderly	Always	53(91.4)	29(93.5)	21(80.8)	103(89.6)	28(93.3)
	Occasionally	2(3.4)	0(0)	1(3.8)	3(2.6)	1(3.3)
	No	3(5.2)	2(6.5)	4(15.4)	9(7.8)	1(3.3)

¹⁾Frequency (%)

Table 5. Continued

Evaluation indicator	Performance degree	Survey study				On-site evaluation
		Dietitian (N = 58)	Social worker (N = 31)	Director (N = 26)	Total (N = 115)	N (%)
12. Compliance with free meal service selection criteria	Yes	50(86.2)	28(90.3)	22(84.6)	100(87.0)	29(96.7)
	Yes, but insufficient	6(10.3)	0(0)	0(0)	6(5.2)	1(3.3)
	No	2(3.4)	2(6.5)	2(7.7)	6(5.2)	0(0)
13. Number of free meal service operated (Days per week)	Elderly restaurants	5.2	5.4	5.0	5.2	5.6
	Lunchbox deliveries	4.6	4.6	3.4	4.4	5.9
	Side dish deliveries	2.0	1.6	1.6	1.8	2.0
	Other	3.3	0.1	2	2.8	5.24
14. Status of agency designated by the government and approved beforehand	Yes	26(44.8)	21(67.7)	15(57.7)	62(53.9)	0(0)
	No	7(12.1)	0(0)	4(15.4)	11(9.6)	3(10.0)
	N/A	23(39.7)	8(25.8)	6(23.1)	37(32.2)	27(90.0)
15. External evaluation of foodservice	Yes	18(31.0)	11(35.5)	8(30.8)	37(32.2)	15(50.0)
	Rating agency	Ministry of Health and Welfare, Municipal Government	Ministry of Health and Welfare, Municipal Government	Ministry of Health and Welfare, Municipal Government	Ministry of Health and Welfare, Municipal Government	<i>Ministry of Health and Welfare, Municipal government</i>
	Annual number of evaluations	1.7	1.6	1.6	1.6	1.6
	Evaluation score: good	13(22.4)	6(19.4)	5(19.2)	24(20.9)	3(10.0)
	middle	1(1.7)	0(0)	0(0)	1(0.9)	0(0)
	low	0(0)	0(0)	0(0)	0(0)	0(0)
16. Computerization of business	No	34(58.6)	15(48.4)	12(46.2)	61(53.0)	15(50.0)
	Yes	42(72.4)	26(83.9)	20(76.9)	88(76.5)	23(76.5)
	Yes, but insufficient	13(22.4)	4(12.9)	5(19.2)	22(19.1)	5(16.7)
17. Area of computerization (Select all)	No	2(3.4)	0(0)	1(3.8)	3(2.6)	1(3.3)
	Menu planning	43(74.1)	26(83.9)	21(80.8)	90(78.3)	26(86.7)
	Purchase control	45(77.6)	25(80.6)	24(92.3)	94(81.7)	29(96.7)
	Storing management	10(17.2)	12(38.7)	11(42.3)	33(28.7)	6(20.0)
	Distribution management	14(24.1)	11(35.5)	9(34.6)	34(29.6)	3(10.0)
	Hygiene management	23(39.7)	15(48.4)	13(50.0)	51(44.3)	11(36.7)
	Human resource management	21(36.2)	18(58.1)	14(53.8)	53(46.1)	14(46.7)
	Sales management	31(53.4)	18(58.1)	18(69.2)	67(58.3)	25(83.3)
18. Performing proper handwashing & disinfection	Nutrition education and counseling management	28(48.3)	18(58.1)	16(61.5)	62(53.9)	19(63.3)
	Always	53(91.4)	30(96.8)	26(100)	109(97.8)	26(86.7)
	Occasionally	5(8.6)	1(3.2)	0(0)	6(5.2)	4(13.3)
	Never	0(0)	0(0)	0(0)	0(0)	0(0)
19. Annual medical examinations	N/A	0(0)	0(0)	0(0)	0(0)	0(0)
	Always	58(100)	31(100)	26(100)	115(100)	30(100)
	Occasionally	0(0)	0(0)	0(0)	0(0)	0(0)
	Never	0(0)	0(0)	0(0)	0(0)	0(0)
	N/A	0(0)	0(0)	0(0)	0(0)	0(0)

Table 5. Continued

Evaluation indicator	Performance degree	Survey study				On-site evaluation
		Dietitian (N = 58)	Social worker (N = 31)	Director (N = 26)	Total (N = 115)	N (%)
20. Personal hygiene of workers	Always	57(98.3)	31(100)	26(100)	114(99.1)	30(100)
	Occasionally	1(1.7)	0(0)	0(0)	1(0.9)	0(0)
	Never	0(0)	0(0)	0(0)	0(0)	0(0)
	N/A	0(0)	0(0)	0(0)	0(0)	0(0)
21. Regular hygiene training	Always	58(100)	31(100)	26(100)	115(100)	30(100)
	Occasionally	0(0)	0(0)	0(0)	0(0)	0(0)
	Never	0(0)	0(0)	0(0)	0(0)	0(0)
	N/A	0(0)	0(0)	0(0)	0(0)	0(0)
22. Maintaining cleanliness of restaurant, kitchen, storage room	Always	57(98.3)	31(100)	26(100)	114(99.1)	30(100)
	Occasionally	1(1.7)	0(0)	0(0)	1(0.9)	0(0)
	Never	0(0)	0(0)	0(0)	0(0)	0(0)
	N/A	0(0)	0(0)	0(0)	0(0)	0(0)
23. Proper storage of frozen, refrigerated foods and normal operation of machines	Always	57(98.3)	31(100)	26(100)	114(99.1)	29(96.7)
	Occasionally	1(1.7)	0(0)	0(0)	1(0.9)	1(3.3)
	Never	0(0)	0(0)	0(0)	0(0)	0(0)
	N/A	0(0)	0(0)	0(0)	0(0)	0(0)
24. Clean management of tableware and cookware	Always	58(100)	31(100)	26(100)	115(100)	28(93.3)
	Occasionally	0(0)	0(0)	0(0)	0(0)	2(6.7)
	Never	0(0)	0(0)	0(0)	0(0)	0(0)
	N/A	0(0)	0(0)	0(0)	0(0)	0(0)
25. Insect and rat prevention facilities	Always	54(93.1)	30(96.8)	26(100)	110(95.7)	27(90.0)
	Occasionally	4(6.9)	1(3.2)	0(0)	5(4.3)	3(10.0)
	Never	0(0)	0(0)	0(0)	0(0)	0(0)
	N/A	0(0)	0(0)	0(0)	0(0)	0(0)
26. Preserving food and making out records	Always	58(100)	31(100)	26(100)	115(100)	30(100)
	Occasionally	0(0)	0(0)	0(0)	0(0)	0(0)
	Never	0(0)	0(0)	0(0)	0(0)	0(0)
	N/A	0(0)	0(0)	0(0)	0(0)	0(0)
27. Observing shelf life of food ingredients	Always	57(98.3)	31(100)	26(100)	114(99.1)	30(100)
	Occasionally	1(1.7)	0(0)	0(0)	1(0.9)	0(0)
	Never	0(0)	0(0)	0(0)	0(0)	0(0)
	N/A	0(0)	0(0)	0(0)	0(0)	0(0)
28. Obeying hygiene instructions when preparing food ingredients	Always	55(94.8)	31(100)	26(100)	112(97.4)	27(90.0)
	Occasionally	3(5.2)	0(0)	0(0)	3(2.6)	3(10.0)
	Never	0(0)	0(0)	0(0)	0(0)	0(0)
	N/A	0(0)	0(0)	0(0)	0(0)	0(0)
29. Using useless and bad foods such as imported foods without notice	Always	0(0)	0(0)	0(0)	0(0)	0(0)
	Occasionally	0(0)	0(0)	0(0)	0(0)	1(3.3)
	Never	57(98.3)	28(90.3)	25(96.2)	110(95.7)	29(96.7)
	N/A	1(1.7)	3(9.7)	1(3.8)	5(4.3)	0(0)

Table 5. Continued

Evaluation indicator	Performance degree	Survey study				On-site evaluation
		Dietitian (N = 58)	Social worker (N = 31)	Director (N = 26)	Total (N = 115)	N (%)
30. Use of the product in violation of the marking	Always	0(0)	0(0)	0(0)	0(0)	0(0)
	Occasionally	1(1.7)	0(0)	0(0)	1(0.9)	1(3.3)
	Never	55(94.8)	28(90.3)	25(96.2)	108(93.9)	29(96.7)
	N/A	2(3.4)	3(9.7)	1(3.8)	6(5.2)	6(5.2)
31. Separate storage of ingredients to prevent cross-contamination	Always	48(82.8)	29(93.5)	24(92.3)	101(87.8)	101(87.8)
	Occasionally	9(15.5)	1(3.2)	1(3.8)	11(9.6)	24(80.0)
	Never	1(1.7)	1(3.2)	1(3.8)	3(2.6)	5(16.7)
	N/A	0(0)	0(0)	0(0)	0(0)	1(3.3)
32. Cooking water	Always	55(94.8)	29(93.5)	24(92.3)	108(93.9)	30(100)
	Occasionally	0(0)	1(3.2)	0(0)	1(0.9)	0(0)
	Never	0(0)	0(0)	1(3.8)	1(0.9)	0(0)
	N/A	2(3.4)	1(3.2)	1(3.8)	4(3.5)	0(0)
33. Food waste disposal	Always	58(100)	31(100)	26(100)	115(100)	30(100)
	Occasionally	0(0)	0(0)	0(0)	0(0)	0(0)
	Never	0(0)	0(0)	0(0)	0(0)	0(0)
	N/A	0(0)	0(0)	0(0)	0(0)	0(0)

Table 6. Evaluation score of foodservice operations according to four perspectives for senior welfare centers

Perspectives	Survey study					On-site evaluation (N = 30)	t-value
	Dietitian (N = 58)	Social worker (N = 31)	Director (N = 26)	F-value	Total (N = 115)		
Financial perspective	23.4±2.5 ¹⁾	23.2±2.8	23.8±1.9	0.383	23.4±2.5	23.4±1.7	0.004
Customer perspective	19.7±4.3	18.3±6.7	19.3±4.8	0.706	19.2±5.2	19.1±4.7	0.129
Learning and growth perspective	17.9±3.8	17.3±4.0	18.3±3.9	0.559	17.8±3.9	20.9±3.4	-3.942 ^{***}
Internal business process perspective	20.8±1.7	21.3±1.8	20.5±1.7	1.430	20.9±1.7	21.0±1.6	-0.378
Total	81.9±7.7	80.1±10.7	81.9±8.9	0.470	81.4±8.9	84.4±7.0	-1.738

¹⁾Mean±SD^{***}p<.001**Table 7. Evaluation score distribution of foodservice operations for senior welfare centers**

Evaluation score range	Survey study					On-site evaluation (N = 30)	χ^2
	Dietitian (N = 58)	Social worker (N = 31)	Director (N = 26)	χ^2	Total (N = 115)		
91-100	9(15.5) ¹⁾	6(19.4)	3(11.5)	8.869	18(15.7)	6(20.0)	2.402
81-90	26(44.8)	10(32.3)	14(53.8)		50(43.5)	16(53.3)	
71-80	18(31.0)	7(22.6)	5(19.2)		30(26.1)	6(20.0)	
61-70	5(8.6)	7(22.6)	4(15.4)		16(13.9)	2(6.7)	
0-60	0(0)	1(3.2)	0(0)		1(0.9)	0(0)	
Total	58(100)	31(100)	26(100)	-	115(100)	30(100)	-

¹⁾Frequency (%)

elderly welfare centers, and in 63.2% of them, social workers were engaged in food purchase even though dietitians also worked there (Korea Health Industry Development Institute, 2007). In some centers, qualified dietitians are not hired, so specialized knowledge of foodservice is lacking and the supervision of foodservice management has been neglected. Dietitians are generally overloaded and they usually lack time to do nutrition consultation and education during their business hours. Kim (2012) also pointed out that nutritionists are placed at senior welfare centers for the purpose operating foodservices, but the tasks nutritionists have to do are overloaded with many other jobs. Due to managing foodservices and welfare administrative works, they are pointed out as having limitations for foodservice management. In our study, dietitians provided essential information on menus, calories, nutrition, hygiene, health and the prevention of disease via information boards.

All the elderly welfare centers that carried out field visits regularly conducted event menus for the elderly, which requires that guidelines be followed more than 7 times according to the elderly free meal guidelines. According to Chang (2008), considering the diversity of elderly people who use welfare facilities for the elderly, it is expected that the demand for the meals they want will gradually be enhanced and diversified in the process of comparing their meals with the level experienced in the foodservice industry. The introduction of an optional menu for elderly meals and the diversification of meal services should meet the needs of the elderly who are also becoming more diverse their economic and social needs. Chung et al. (2002) also argued that it is necessary to design a system that can give pleasure to the customers through the development of the lunch event activities. The social loneliness felt by the elderly affects the nutritional needs of the elderly. The foodservice provided by elderly welfare facilities not only provides nutrition for the elderly but also provides social stability and emotional support. Events such as seasonal food events and foreign folk food events provide the elderly with pleasure in daily life.

As a result of examining nutritional management for elderly people, the calories and salinity were shown to be high in performance, but the nutritional balance was insufficient in Table 5. Only one-third of the dietitians were found to take calcium, protein, and vegetable intake into consideration when menu planning. Therefore, the project of foodservice for elderly as “providing nutritionally balanced meals”, “providing nutritional meals” or “providing meals according to diseases” by the Ministry of Health and Welfare and the local government are rarely observed in the field. As a result of analyzing the

menus of the restaurant provided in the Korean welfare centers, the amount of calories, protein, calcium and vitamin B2 were found insufficient (Han et al., 2005). A menu analysis of 22 months collected from 20 social welfare centers showed that calcium, riboflavin and vitamin A were lacking. As of 2006, approximately 100,000 elderly Koreans were using foodservice in welfare centers and cost ₩34.7 billion a year, but a nutritionally balanced diet and the nutritional quality of food were provided without much consideration. The elderly in Korea are more vulnerable in the area of nutrition than other age groups. In the foodservice realm, diet should be managed in consideration of the nutrients that are particularly scarce for the elderly. The Disease Control Center (2012) insisted that the elderly in Korea are more vulnerable in the area of nutrition than any other age group. In the foodservice area, diet should be managed in consideration of the nutrients that are particularly scarce for the elderly. The nutrients that are the most scarce among the elderly in Korea are calcium and riboflavin, and vitamin intake, such as vitamin A, vitamin C and thiamin. On the other hand, the nutrient that they are over-consuming is sodium. Recently, an analysis of the nutrient intake of the elderly focusing on the cafeterias in welfare centers showed that intake of calcium and potassium was insufficient but that sodium was too high. Therefore, dietary habits should provide a diet consisting of low-sodium foods with high nutrient density of various vitamins such as calcium and riboflavin (Food and Drug Administration, 2014).

The hygienic management of elderly foodservice facilities was relatively good, but it is necessary to specify each item in the elderly welfare facility evaluation. In order to increase the performance of food hygiene management, it is possible ultimately through the recruitment of trained cooking personnel.

The distribution of the total points for the performance evaluation of the elderly welfare centers is summarized in Table 7 below. 73.3% of the participants received good score of 81 or more on-site evaluation, and 59.2% of the survey study respondents got excellent foodservice. On the contrary, the score of less than 70 points was 14.8% in the survey study and only 6.7% in the on-site evaluation. Therefore, foodservice operation evaluation was higher in the on-site evaluation than the survey study. In the normal range between 71-80 points, the survey study was 26.1% and the on-site evaluation was 20.0%.

Conclusions

The overall operation of the elderly welfare center foodservice

was in good condition, and the performance of the social welfare workers was slightly lower than that of the dietitians and the directors. The overall on-site evaluation score for foodservice operations was higher than the survey study's. The on-site evaluation results showed that the rate of foodservice operation in the good performance range was higher than that of the survey study. However, the operation rate in the low-performance range was low compared to the survey study.

However, each aspect in four different perspectives has to be improved in detail. From a financial perspective, the operation performance is very successful because of compliance with government or regional municipalities' enforcement regulations for subsidy support. On the contrary, both the customer and learning and growth perspectives are relatively low in performance scores. In the elderly welfare centers, it is necessary to improve nutritional education and counseling for elderly people and evaluation of complaints by the users of centers. In addition, for the growth and learning of staff, the employment of dietitians and cook workers should be expanded, and the employment status should be improved soon. Also, it is required to motivate and expand education to improve the employees' competence. This will ultimately need to be improved to improve employee satisfaction and achieve hygienic and safe production in the foodservice operations.

As confirmed in the study, there is still room for improvement in customer satisfaction, employee learning, and growth. In order to improve the health of the elderly and prevent diseases, the expansion of nutritional counseling and nutrition education for the elderly is necessary. Thus, the employment of dietitians should be expanded, and the employment type should be improved in elderly welfare centers. In the same context, the recruitment rate and the cooking staff's employment type are also very poor. Therefore, it is considered necessary to increase the number of cooking staff and improve the employment type. This is because if this part is preceded, it is possible to carry out the employees' internal and external education smoothly and the employees' satisfaction level could also be increased.

The limitations of this study are as follows. The questionnaire for dietitians, social workers, and directors surveyed the whole country, but the number of samples for research analysis needed to be increased due to the low recovery rate. In addition, due to the difficulty of on-site evaluation visits, it was impossible to carry out the visit surveys nationwide. It was limited to the area near Seoul City and Gyeonggi-do. Therefore, in future

research, the number of research subjects could be increased in both survey study and on-site evaluation, and the reliability of the research results could be increased.

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Appendix 1. Evaluation criteria and credits for evaluation indicators in the survey questionnaire

1. Financial perspective: 25 points

Goals	Evaluation Indicators	Evaluation criteria	Distribution of mark
Transparency in subsidy execution (12 pt.)	1-1. Conformity on execution of the budget	• Ensure that budget execution is consistent.	4 pt.: Yes or N/A 2 pt.: Partially yes 0 pt.: No
	1-2. Rate of use except compilation of the budget	• Whether there is any used history other than budgeting purposes	4 pt.: No or N/A 2 pt.: Partially yes 0 pt.: Yes
	1-3. Retention of documentary evidence and adequate documentation (bank book, items inspection, purchase specifications)	• Whether there are supporting documents and related books	4 pt.: Yes or N/A 2 pt.: Partially yes 0 pt.: No
Soundness in execution of paid actual expenses (13 pt.)	1-4. Rate of expense on revenue	• Whether paid food expenses are consistent with income	4 pt.: Yes or N/A 2 pt.: Partially yes 0 pt.: No
	1-5. Rate of use except foodservice	• Whether paid foodservices have out-of-use expenses	5 pt.: No or N/A 3 pt.: Partially yes 0 pt.: Yes
	1-6. Appropriateness of the rate of ingredient costs out of actual expenses	• Whether the appropriate criteria for the ratio of food expenses to total costs are being met	4 pt.: Yes or N/A 0 pt.: No

2. Customer perspective: 25 points

Goals	Evaluation indicators	Evaluation criteria	Distribution of mark
Improvement in the satisfaction level of users (15 pt.)	2-1. Frequency of user’s food satisfaction survey	• Whether making efforts to improve the satisfaction by utilizing the regular feedback survey of the food users	4 pt.: At least twice 2 pt.: Once a year 0 pt.: No
	2-2. Management of leftover food	• Confirmation of food satisfaction by managing the user’s residual rate	3 pt.: Yes 0 pt.: No
	2-3. Number of introducing new menu yearly	• Whether new menu is developed and provided on meal planning	4 pt.: Yes 0 pt.: No
	2-4. Accepts and deals of user’s claims	• Degree of operation and reflection of opinion of users	4 pt.: Yes 0 pt.: No
Proper nutrition guidance (10 pt.)	2-5. Number of nutrition consultations	• Regular nutritional counseling is provided for the elderly	4 pt.: Yes 0 pt.: No
	2-6. Amount of nutrition education	• Continued enforcement of nutrition education for the elderly	3 pt.: Yes 0 pt.: No
	2-7. Occurrence and number of offering foodservice/nutrition/hygiene information	• Provide the origin and nutrition information of the ingredients used in the meals • Provide information on nutrition, diet, health, hygiene and disease prevention regularly	3 pt.: Both essential information & nutrition/hygiene/health information 1 pt.: Provide only essential information or Provide nutrition/hygiene/health information only 0 pt.: No

3. Learning and growth perspective: 25 points

Goals	Evaluation indicators	Evaluation criteria	Distribution of mark
Retention of specialized staff (10 pt.)	3-1. Dietitian placement	• A dietitian is employed	4 pt.: Yes 0 pt.: No
	3-2. Cook placement	• A cook is employed	3 pt.: Yes 0 pt.: No
	3-3. Placement of optimum employee per feeding number	• An adequate number of cooks are employed to perform the foodservice • Check the average number of meals per cooking staff	3 pt.: less than 100 2 pt.: 101-200 1 pt.: 201-300 0 pt.: more than 301
Maintaining Manpower (3 pt.)	3-4. Management of employee turnover rate/absence	• Managing employees' turnover and retention rate	3 pt.: Yes 0 pt.: No
Reinforcement of staff capability (6 pt.)	3-5&6. Attendance of yearly education and training (including conferences, workshops)	• Conducting education and training for employees	3 pt.: Yes 0 pt.: No
	7. Yearly education and training expense	• Employee education and training expenses, external education, overseas training, and tuition assistance	3 pt.: Yes 0 pt.: No
Enhancement of staff satisfaction (6 pt.)	8. Job satisfaction level of foodservice staff	• Investigate the job satisfaction of employees	3 pt.: Yes 0 pt.: No
	9. Fringe benefits of foodservice staff	• Whether supporting employee benefits	3 pt.: Yes 0 pt.: No

4. Internal business process perspective: 25 points

Goals	Evaluation indicators	Evaluation criteria	Distribution of mark
Securement of job safety (2 pt.)	4-1. Number of staff safety accidents	• Check whether a safety accident has occurred	1 pt.: No 0 pt.: Yes
	4-2. Locating fire extinguisher	• Have a fire extinguisher and check regularly for work	0.5 pt.: Yes 0 pt.: No
	4-3. Implementing fire prevention & safety education	• Fire prevention education and safety education for fire prevention are regularly carried out	0.5 pt.: Yes 0 pt.: No
Reinforcement of nutrition of foodservice (5 pt.)	4-7. Making out of menus or consultation by a dietitian	• Whether the dietary composition is done by a dietitian	1 pt.: Yes or N/A 0 pt.: No
	4-8. Evaluation on foodservice nutritional management	• Check whether the food nutrition management evaluation standard is prepared and the evaluation standard contents	2 pt.: Yes 1 pt.: Yes, but insufficient 0 pt.: No
	4-9. Food nutrition management item	• Calorie, calorie ratio of Carb.: protein: fat, salinity, recommended intake frequency by food group, nutrient intake standard, etc.	2 pt.: More than 2 items 1 pt.: At least 1 item 0 pt.: None
Soundness of managing free meal service (5 pt.)	4-10. Compliance rate on operation guidelines for free meal service for elderly	• Ensure compliance with the number of free meals served Elderly welfare center foodservice: 6 days a week (Alternative meals available once a week) • Meal delivery: 7 days a week (including 2 alternative meals on weekends) • Side dish delivery: 2 days a week	1 pt.: Yes 0.5 pt.: Yes, but insufficient 0 pt.: No
	4-11. Making a list of free meal services for elderly	• The list of free lunch recipients should be prepared and managed on a business-by-business basis (elderly foodservice, lunch delivery, and side dish delivery)	1 pt.: Always 0.5 pt.: Occasionally 0 pt.: No
	4-12. Compliance with free meal service selection criteria	• The selection criteria for free meals should be in accordance with the priority criteria, and the reasons for selection should be clearly described and managed	1 pt.: Yes 0.5 pt.: Yes, but insufficient 0 pt.: No

Goals	Evaluation indicators	Evaluation criteria	Distribution of mark
Soundness of managing free meal service (5 pt.)	4-15. External evaluation on foodservice	• Foodservice evaluation by an external organization proceeds.	1 pt.: Yes 0 pt.: No
	4-16. Computerization of business	• The operation of the foodservice operation is computerized.	1 pt.: Yes 0.5 pt.: Yes, but insufficient 0 pt.: No
Securement of food hygiene and safety (12 pt.)	4-4. Hygiene and safety inspection by municipality	• Sanitation and hygiene check by outside is regularly being conducted.	1 pt.: More than twice per year 0.5 pt.: Once a year 0 pt.: No
	4-5. Daily self-hygiene and safety check	• Conducting daily hygiene and safety checks at the welfare center.	0.5 pt.: Yes 0 pt.: No
	4-18. Performing proper handwashing & disinfection	• Cook workers are doing the right hand washing and hand disinfection.	0.5 pt.: Always 0.3 pt.: Occasionally 0 pt.: Never 0.5 pt.: N/A
	4-19. Annual medical examination	• Perform periodic health check-ups of employees and keep records.	0.5 pt.: Always 0.3 pt.: Occasionally 0 pt.: Never 0.5 pt.: N/A
	4-20. Personal hygiene of workers	• Check the personal hygiene status of the employees and whether they are in compliance. (Wearing hygiene clothes, wearing masks, cleaning hygiene clothes, etc.)	0.5 pt.: Always 0.3 pt.: Occasionally 0 pt.: Never 0.5 pt.: N/A
	4-22. Maintain cleanliness of restaurant, kitchen, storage room	• Maintain cleanliness of restaurants, kitchens and warehouses.	0.5 pt.: Always 0.3 pt.: Occasionally 0 pt.: Never 0.5 pt.: N/A
	4-23. Proper storage of frozen, refrigerated foods and normal operation of the machine	• Confirm proper storage of refrigerated and chilled food and normal operation of the machine.	0.5 pt.: Always 0.3 pt.: Occasionally 0 pt.: Never 0.5 pt.: N/A
	4-24. Clean management of tableware and cookware	• Check the cleanliness, disinfection and hygienic storage of dishes and utensils.	0.5 pt.: Always 0.3 pt.: Occasionally 0 pt.: Never 0.5 pt.: N/A
	4-25. Insect and rat prevention facilities	• Make sure that the insecticide / vending equipment and management status of the kitchen, food storage room, and restaurant are appropriate.	0.5 pt.: Always 0.3 pt.: Occasionally 0 pt.: Never 0.5 pt.: N/A
	4-27. Observing shelf life of food ingredients	• Do not display or store foods that have passed the expiration date for sale or for sale purposes.	0.5 pt.: Always 0.3 pt.: Occasionally 0 pt.: Never 0.5 pt.: N/A
	4-29. Using useless and bad foods such as imported food without notice	• During the inspection process, make sure that the food label is properly displayed.	0.5 pt.: Always 0.3 pt.: Occasionally 0 pt.: Never 0.5 pt.: N/A
	4-30. Use of the product in violation of the marking	• Check the food label and do not use the violation product.	0.5 pt.: Always 0.3 pt.: Occasionally 0 pt.: Never 0.5 pt.: N/A
	4-31. Separate storage of ingredients to prevent cross-contamination	<ul style="list-style-type: none"> • The cooked food is separated from the food before cooking to prevent cross contamination. • Disinfected food items should be stored with or without contaminated or contaminated equipment. • Manage all work hygiene processes that can cause cross-contamination. 	0.5 pt.: Always 0.3 pt.: Occasionally 0 pt.: Never 0.5 pt.: N/A

Goals	Evaluation indicators	Evaluation criteria	Distribution of mark
Securement of food hygiene and safety (12 pt.)	4-32. Cooking water	<ul style="list-style-type: none"> • Confirmation of the use of tap water for cooking water • When using underground water, check whether quarterly water quality test is appropriate, disinfection device installed, sterilized or sterilized and used as cooking water 	0.5 pt.: Always 0.3 pt.: Occasionally 0 pt.: Never 0.5 pt.: N/A
	4-33. Food waste disposal	<ul style="list-style-type: none"> • Ensure that the garbage inside and outside the galley is treated properly and that the surrounding areas are kept clean. 	0.5 pt.: Always 0.3 pt.: Occasionally 0 pt.: Never 0.5 pt.: N/A
	4-6. Food poisoning outbreak number	<ul style="list-style-type: none"> • Check whether a food poisoning accident has occurred. • Take appropriate measures in case of food poisoning and carry out ongoing management and prevention to prevent recurrence. 	1 pt.: No 0 pt.: Yes
	4-21. Regular hygiene training and education for dietitians and foodservice employees	<ul style="list-style-type: none"> • Regular hygiene training is held every two years for cook workers 	1 pt.: Always 0.5 pt.: Occasionally 0 pt.: Never 1 pt.: N/A
	4-26. Preserving food and making out records	<ul style="list-style-type: none"> • Preserved foods are kept, and the date, name of the food, collection time, and collector recorded on the label. 	1 pt.: Always 0.5 pt.: Occasionally 0 pt.: Never 1 pt.: N/A
	4-28. Obeying hygiene instruction when preparing food ingredients	<ul style="list-style-type: none"> • Ensure that cook workers are familiar with and comply with the hygiene guidelines when preparing and cooking food. 	1 pt.: Always 0.5 pt.: Occasionally 0 pt.: Never 1 pt.: N/A