



Research on the Development Challenges and Optimization Pathways of Hospital Shared Kitchens from the Perspective of Public Services

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Abstract. Hospital shared kitchens, as a new type of public service facility, aim to meet the personalized dietary needs of hospitalized patients and their families, alleviate the supply pressure of traditional hospital catering services, and convey humanistic care. Based on this, this article analyzes in depth the necessity and development challenges of shared kitchens in hospitals from the perspective of public services. Research has found that shared kitchens in hospitals currently face problems such as uneven resource allocation, poor connection of medical resources, lack of multi-party collaboration mechanisms, and weak security systems. Therefore, this article proposes an optimization path from four dimensions: optimizing resource allocation, strengthening service connection, building collaborative mechanisms, and improving security guarantees, in order to provide theoretical reference and practical guidance for the sustainable development of shared kitchens in hospitals.

Keywords: public services; Hospital shared kitchen; Resource allocation; collaboration mechanism

1 Introduction

In recent years, patients' demand for medical services has extended from disease treatment to comprehensive health services such as diet and psychology. Hospital shared kitchen, as a new type of public service facility, has emerged. It refers to a public service platform located within or around the hospital, open to patients and their families, providing cooking space, kitchenware, and basic ingredients. Its purpose is to meet personalized dietary needs, make up for the lack of standardized feeding in hospital canteens, and convey humanistic care. At present, hospitals in Shanghai, Guangdong, Beijing and other places have attempted to introduce the shared kitchen model. However, its development is still in its early stages, exposing problems such as uneven resource allocation, poor connection of medical resources, lack of multi-party collaboration mechanisms, and weak security guarantees. The public service theory emphasizes the public welfare, inclusiveness, and accessibility of services, which is highly consistent with the public welfare attributes of shared kitchens in hospitals.

Therefore, this article explores the necessity, development challenges, and optimization paths of public service from the perspective of public service.

At present, some scholars have conducted research on shared kitchens and formed a series of research results. In terms of the research on the operation mode of shared kitchens, Ye Xintong and Li Zhihong believe that its essence is to integrate idle cooking resources, meet user needs through time-sharing leasing, and rely mainly on venue fees and ingredient sales for profit^[1]; Li Liuye pointed out that although there is a strong demand for shared kitchens, they generally face difficulties in profitability and low standardization^[2]. In terms of specific scenario research, Yuan Chenlei and others emphasized that shared kitchens in universities should pay attention to the dynamic and static zoning and functional combination of space design^[3]; Xie Lishuang and others found through SWOT analysis that its advantage lies in clear demand, while its disadvantage lies in high safety pressure^[4]; Taking Nanchang Anti Cancer Love Kitchen as an example, Zhang Haoliang et al. proposed that medical shared kitchens should balance functionality and emotions, create a family atmosphere to alleviate patients' psychological pressure^[5]. In terms of service system design, Wu Chuan believes that hospital shared kitchens should include information modules such as appointment management, safety monitoring, and nutrition guidance^[6]. In summary, existing research mainly focuses on university scenarios, with a single perspective and a lack of systematic theoretical analysis on hospital shared kitchens. Therefore, it is particularly important to study hospital shared kitchens from the perspective of public services in this article.

2 The Necessity of Shared Kitchens in Hospitals

The emergence of shared kitchens in hospitals precisely meets the core dietary needs of patients and their families, and its existence has profound practical necessity. Firstly, hospital shared kitchens can complement hospital canteens to better meet the personalized dietary needs of patients' families. The hospital canteen is mainly standardized and mass produced, which cannot adapt to the special diet taboos of patients with diabetes, kidney disease and other diseases. The shared kitchen allows family members to cook on their own as needed to achieve customized diet; At the same time, the fixed operating hours of the cafeteria make it difficult to meet the needs of patients for multiple meals or night time meals. The long-term open mode of shared kitchens can effectively compensate for this deficiency. Secondly, shared kitchens in hospitals provide more diverse dining options for patients' families. The quality of restaurants around hospitals varies greatly, and the safety of takeaway food is difficult to guarantee. The emergence of shared kitchens provides a third path for patients' families to cook by themselves and with peace of mind, especially suitable for those who are hospitalized for a long time and have complex dietary taboos^[7]. Once again, shared kitchens in hospitals can convey humanistic care and alleviate patients' psychological pressure. For patients who have been hospitalized for a long time, diet carries emotions and memories. Family members cook home cooked meals for patients in a shared kitchen, conveying the "taste of home" and providing psychological comfort

to patients during difficult treatment periods. As shown in Table 1, compared with traditional catering methods, hospital shared kitchens have significant advantages in terms of personalization, adaptation to special diets, operating hours, price levels, and emotional value, which further confirms their necessary value.

Table 1. Comparative analysis of traditional catering methods and hospital shared kitchens

Comparison Dimension	Hospital Canteen	Surrounding Restaurants/Stalls	Food Delivery Platforms	Hospital Shared Kitchen
Degree of Personalization	Low	Medium	Medium	High
Special Diet Adaptability	Difficult to meet	Difficult to control precisely	Difficult to guarantee	Fully customizable on demand
Operating Hours	Fixed periods	Irregular	around the clock	Extended hours
Price Level	Medium	Low to medium-high	Medium to high	Low
Safety Assurance	Relatively high	Inconsistent	Potential risks	Self-controlled
Emotional Value	None	None	None	Present

3 The Development Dilemma of Hospital Shared Kitchens from the Perspective of Public Services

3.1 Uneven Allocation of Resources

From the perspective of public services, there is a clear mismatch between supply and demand in resource allocation for hospital shared kitchens. In terms of time dimension, during peak dining hours, user demand is concentrated and explosive, kitchen space and equipment are in short supply, and users often need to queue for long periods of time; During non peak hours, a large number of facilities are idle and the resource utilization rate is significantly low. This "tidal" supply-demand contradiction leads to the inability to achieve efficient allocation of public resources. In terms of spatial dimension, existing shared kitchens often adopt fixed layouts, lacking flexibility and making it difficult to adapt to the differentiated needs of different user groups such as single person, small family, and multi person households. Using it alone can cause space waste, while using it with multiple people at the same time can appear cramped and crowded. In terms of food supply, patients' dietary needs often have special characteristics, such as low salt, low sugar, and liquid requirements, making it difficult

for kitchens to meet diverse food needs while controlling costs. If the types of inventory are increased, the operating costs will rise and the ability of patient families to bear them will be limited; If inventory is reduced, personalized needs cannot be met. This contradiction directly affects the inclusiveness and accessibility of public services.

3.2 Service Connection is Not Smooth

There is a significant gap in the service connection between the hospital shared kitchen and the hospital diagnosis and treatment system, which is another prominent problem that restricts its service efficiency. On the one hand, key medical information such as dietary taboos and nutritional needs of patients are mainly retained in the medical record system and cannot be effectively transmitted to the kitchen operator. Family members who lack professional nutritional guidance during the cooking process may create meals that do not match the patient's condition and even have adverse effects on treatment. On the other hand, it is difficult to effectively convey service information such as idle periods, available ingredients, and equipment status of the kitchen to potential users. Users can only obtain information through on-site understanding or verbal inquiries, which is inefficient. This bidirectional information asymmetry makes the shared kitchen a relatively isolated service node, which has not truly integrated into the hospital's diagnosis and treatment service system. From the perspective of public service requirements, various services should form an organic and coordinated overall network, but the current shared kitchen has clearly failed to achieve this goal, and its service efficiency has been greatly reduced as a result.

3.3 The Collaborative Mechanism is Not Sound

The operation of shared kitchens in hospitals involves multiple stakeholders, including hospital management, logistics departments, nutrition departments, patient families, community organizations, volunteer teams, food suppliers, etc. However, there is currently a lack of effective collaboration mechanisms among all parties, resulting in a state of 'going their own way' [8]. Hospital management often regards shared kitchens as the responsibility of the logistics department, while the logistics department considers them a public welfare project and should not intervene too much. The nutrition department focuses on clinical orders and has no time to attend to kitchen affairs. Patient families have needs but do not know who to report them to. The vague division of responsibilities and the lack of coordination platforms have led to many specific problems that are difficult to solve, such as unclear responsibility parties for equipment damage maintenance, the absence of regular inspection subjects for hygiene conditions, and the lack of established mechanisms for setting and adjusting charging standards. In addition, there is still a blank in the special policies and regulations for hospital shared kitchens, and it is difficult to define the responsibility attribution in case of safety accidents or disputes during operation. The uncertainty at the institutional level has led many hospitals to adopt a cautious attitude towards introducing shared kitchens, which has constrained the promotion and popularization of this service model.

3.4 Inadequate Security Measures

Security is the bottom line requirement for public service supply, but there are obvious shortcomings in hospital shared kitchens in this regard. In terms of food safety, the pots, pans, and utensils in the kitchen are reused by different users, and whether the cleaning and disinfection are in place mainly depends on the user's consciousness, lacking unified operating norms and supervision mechanisms. For hospitalized patients with low immunity, the hygiene risks caused by incomplete dishwashing are much higher than those of the general population. In terms of personal safety, the kitchen floor is prone to water and oil accumulation, making it difficult for people to walk during crowded periods and posing a risk of slipping and falling injuries; Frequent use of gas equipment and electrical appliances, if operated improperly or aged, may cause fire or burn accidents. At present, most hospitals have not established a systematic safety management system for shared kitchens, and lack regular equipment inspections and hidden danger investigation mechanisms. More importantly, there are no specific safety standards and operational norms for hospital shared kitchens at the national and local levels, and each region can only explore on its own in practice, with varying levels of safety. The lack of institutional norms not only undermines users' confidence in the safety of shared kitchens, but also poses significant legal risks to operations, fundamentally constraining the sustainable development of hospital shared kitchens.

4 Optimization Path of Hospital Shared Kitchen from the Perspective of Public Service

4.1 Optimize Resource Allocation and Enhance Service Accessibility

To address the issue of uneven resource allocation, optimization should be carried out from three dimensions: time, space, and materials. In terms of time configuration, it is recommended to introduce a time-sharing reservation management mechanism. Users can pre book their usage time slots through online platforms, and the operator can dynamically adjust the opening arrangements based on the reservation data, thereby smoothing out the demand pressure during peak hours and improving the utilization rate of facilities during off peak hours. In terms of spatial configuration, movable facilities and modular layout should be adopted instead of traditional fixed design, and the kitchen space structure should be flexibly adjusted according to the size and demand characteristics of the user group, achieving a flexible configuration of "large space can be divided, small space can be expanded". In terms of material allocation, a stable food supply chain system should be established, long-term cooperative relationships should be established with reputable suppliers in the surrounding areas, and a "small batch, high-frequency" distribution model should be adopted to ensure the freshness and diversity of ingredients while effectively controlling inventory costs. In addition, for families of patients facing economic difficulties, a price reduction or subsidy mechanism can be established to lower the threshold for their use and effectively reflect the principle of universal access to public services.

4.2 Strengthen Service Connectivity and Achieve Information Exchange and Sharing

To address the issue of poor service connectivity, efforts should be made to establish an information channel between the hospital diagnosis and treatment system and the shared kitchen. On the premise of protecting patient privacy, promote the moderate opening of key medical information such as dietary taboos and nutritional recommendations to kitchen operators, forming a closed-loop service chain of "medical advice issuance nutrition assessment ingredient recommendation cooking guidance". We can draw on the experience of constructing electronic health records to establish personalized dietary records for long-term hospitalized patients, recording changes in their dietary preferences and taboos, and achieving continuous tracking and dynamic adjustment of services. At the same time, a user oriented information publishing platform will be developed to display real-time information on the availability of kitchen resources at different times, the types and quantities of ingredients available on the day, and the operating status of equipment, making it convenient for users to plan and arrange their use in advance. In addition, encourage the nutrition department of hospitals to regularly dispatch nutritionists to the shared kitchen to provide on-site guidance, offer professional cooking advice to patients' families, and upgrade the shared kitchen from a single "cooking venue" to a comprehensive service platform that integrates cooking, nutrition education, and health management.

4.3 Building A Collaborative Mechanism to Promote the Participation of Multiple Stakeholders

To address the issue of inadequate collaborative mechanisms, a diversified collaborative governance framework covering government, hospitals, social forces, and users should be constructed^[9]. At the government level, it is recommended that relevant departments such as health and market supervision jointly issue construction standards and operational norms for hospital shared kitchens, clarify the rights and responsibilities of all parties, and provide institutional guarantees for their development. At the hospital level, an intra hospital coordination mechanism should be established, led by the logistics department and jointly participated by the nutrition department and nursing department, to clarify the specific responsibilities of each department in the operation of shared kitchens and avoid the situation of "everyone manages, but no one really manages". At the societal level, encourage charitable organizations, volunteer teams, community groups, and other social forces to participate in the daily operation and support of shared kitchens, such as organizing volunteers to assist in hygiene and cleaning, conducting cooking teaching activities, etc., to form a social synergy effect. At the user level, establish a feedback and satisfaction evaluation mechanism, regularly collect user suggestions and incorporate them into service improvement decisions, so that users can truly become participants and supervisors of public services.

4.4 Improve Security Measures and Strengthen Supervision of Service Quality

To address the issue of inadequate security measures, improvements should be made from three aspects: institutional construction, daily supervision, and safety education. In terms of institutional construction, it is recommended that the national and local levels quickly introduce special safety standards and operational guidelines for hospital shared kitchens, clarifying bottom line standards such as site conditions, equipment requirements, hygiene standards, and personnel qualifications. Hospitals should develop specific management systems and operational procedures based on this, implement a safety management responsibility system, and ensure that there are rules to follow and responsibilities are assigned to individuals. In terms of daily supervision, establish a joint supervision mechanism among multiple departments within the hospital, with logistics, nursing, hospital infection and other departments conducting regular safety inspections to promptly urge rectification of problems discovered. A food safety control system of "source control process supervision full traceability" should be established inside the kitchen, promoting the use of exclusive or disposable kitchen utensils, equipped with professional disinfection equipment, and establishing equipment maintenance and repair records. In terms of safety education, we will strengthen professional training for operation and cleaning personnel, provide safety information and operation guidance to first-time kitchen users, popularize safety knowledge through various channels such as bulletin boards and manuals, and comprehensively enhance the safety awareness and standardized operation ability of all parties^[10].

5 Conclusion

Shared kitchens in hospitals have important value in meeting patients' personalized dietary needs, compensating for insufficient supply in hospital canteens, and conveying humanistic care. However, they currently face challenges such as uneven resource allocation, poor service connectivity, lack of collaborative mechanisms, and weak safety guarantees, which are rooted in the imperfect public service supply mechanism. Based on the framework of public service theory, this article proposes four optimization paths: optimizing resource allocation, strengthening service connectivity, building collaborative mechanisms, and improving security guarantees. The sustainable development of shared kitchens in hospitals requires the collaborative efforts of the government, hospitals, and social forces to form a diverse and collaborative public service supply pattern, in order to truly become an important part of improving the medical service system and enhancing the patient's medical experience^[11-12].

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