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A Study on Policy Documents of Combining Medical Care and Elderly Care Services in Guangzhou from the Perspective of Policy Instruments and the PMC Index Model

Yuhan Xie*

School of Medical Business, Guangdong Pharmaceutical University, Zhongshan 528453, China

**Corresponding author: Yuhan Xie.*

Abstract

Based on policy instrument theory and the PMC (Policy Modeling Consistency) index model, this study conducts a systematic quantitative analysis of policy documents on combining medical care and elderly care services issued in Guangzhou from 2017 to 2025. The results indicate that Guangzhou's policy framework is characterized by a dominance of environmental instruments, supplemented by supply-side instruments, while demand-side instruments remain relatively weak. In particular, regulatory and normative instruments are overrepresented, whereas demand-side incentives are insufficient. The PMC index evaluation shows that the overall policy performance is at a good level with strong internal consistency; however, notable imbalances persist in terms of policy timeliness, stakeholder coverage, and content innovation. The findings suggest that although Guangzhou has established a relatively comprehensive institutional framework for integrated medical and elderly care, further improvements are needed in stimulating market vitality, promoting social participation, and enhancing policy implementability. Accordingly, this study proposes policy recommendations, including optimizing the structure of policy instruments, strengthening demand-side incentives, broadening stakeholder participation, promoting the integration of traditional Chinese medicine with smart elderly care, and improving the policy evaluation mechanism, with the aim of enhancing the effectiveness of local integrated care policies.

Keywords

combining medical and elderly care, policy instruments, PMC index model, elderly care services, Guangzhou

1. Introduction

China has now entered a moderately aging society, and actively responding to population aging has been elevated to a national strategy. According to data from the National Bureau of Statistics, by the end of 2024, the population aged 60 and above in China exceeded 310 million, accounting for 22% of the total population, while the population aged 65 and above exceeded 220 million, accounting for 15.6% of the total population. The old-age dependency ratio continues to rise, and the overlapping demand for medical and healthcare services and daily care among the elderly is becoming increasingly evident. Against this background, integrated medical and elderly care, as an important measure to optimize the supply of health and elderly care

services, has become a key pathway to address population aging [1]. This model integrates medical treatment, rehabilitation, health preservation, and elderly care services, with a focus on healthcare services for the elderly. It organically combines the functions of elderly care institutions and medical institutions, thereby realizing the integration of daily care and rehabilitation services. Since the issuance of the policy document *Several Opinions on Accelerating the Development of the Elderly Care Service Industry* by the General Office of the State Council in 2013, which first proposed the concept of integrated medical and elderly care, the National Health Commission and other departments have successively introduced a series of policy documents to continuously improve relevant policies and promote the high-quality development of integrated elderly care services.

In 2016, the state successively issued policy documents identifying the first and second batches of pilot units for integrated medical and elderly care, gradually promoting this model nationwide. Various provinces and cities, based on their local aging conditions, the actual needs of the elderly, and their levels of economic and social development, have formulated more detailed implementation guidelines and strategies, thereby forming a multi-level policy system for integrated medical and elderly care. Local-level policies serve not only as a key vehicle for implementing national policies, but also, to a certain extent, influence the overall quality of the national elderly care service system. At the same time, they provide direct decision-making references for policy improvement and resource allocation optimization. Therefore, conducting a systematic evaluation of local integrated care policies and identifying their characteristics in terms of policy instrument application and overall coordination is of great theoretical and practical significance for optimizing local policy supply and improving the quality of elderly care services.

Based on this, this study analyzes local policy documents on integrated medical and elderly care using policy instrument theory and the PMC index model, selecting Guangzhou as the case study. The reasons are as follows. First, Guangzhou is both a national pilot city and a national demonstration city for integrated medical and elderly care, and it is also a pilot city for long-term care insurance. It has accumulated rich policy documents and practical experience in local exploration and implementation. Second, from the perspective of population aging, Guangzhou has officially entered an aging society. Compared with the Sixth National Population Census in 2010, the average annual growth rate of its elderly population exceeds the national level of 6.0% [2]. The scale of the elderly population continues to expand, and the trend of advanced aging is becoming increasingly prominent, resulting in an urgent demand for integrated care services and providing a realistic demand-oriented context for policy research. In addition, although there are multiple pilot and demonstration cities for integrated care within Guangdong Province, Guangzhou, as the provincial capital and a national central city, has a higher level of economic and social development and more advantageous policy resource endowments. It demonstrates strong representativeness in terms of policy formulation systematization, implementation coordination, and policy innovation leadership. Its policy experience therefore provides important references for other cities within the province and similar cities nationwide.

2. Literature Review

In terms of the application of policy instrument theory, scholars generally adopt the three-dimensional classification framework of supply-side, demand-side, and environmental instruments proposed by Rothwell and Zegveld to conduct quantitative analyses of integrated medical and elderly care policies. Hu Xiaojie et al. [3], through coding analysis of national-level policy documents, found that environmental instruments account for an excessively high proportion (61.73%), while demand-side instruments are significantly underutilized (12.96%). Key support measures such as financial investment within supply-side instruments are also relatively weak. Feng Sisi [4] further pointed out that an excessive proportion of supply-side instruments may inhibit market vitality, whereas the lack of demand-side instruments makes it difficult to effectively stimulate market demand for elderly care services. Zhao Xiaofang [5] similarly emphasized that environmental instruments contain too many strategic measures but lack operational feasibility, and that supporting measures such as finance and taxation are insufficient. In addition, most scholars have noted the uneven distribution of policy instruments within the two-dimensional framework of "policy instruments—participating stakeholders," where the government plays a dominant role, while social organizations and market entities have relatively low participation. The lack of sound interdepartmental coordination mechanisms further affects overall policy effectiveness [6, 7].

In terms of research methods, the PMC (Policy Modeling Consistency) index model has been widely applied in recent years due to its ability to conduct multidimensional and systematic quantitative evaluations of policy documents. By constructing a system of primary and secondary variables, the model assigns values and scores to various aspects such as policy nature, timeliness, content, instruments, and incentives, thereby visually presenting policy strengths, weaknesses, and internal consistency. Zhu Baokun and Zhao Yan [8] applied the PMC model to evaluate 12 national-level integrated care policies and found that although the overall policy performance is at a good level, there are significant shortcomings in timeliness, innovation, and incentive mechanisms. Yi Jiamou et al. [9] also found, through the evaluation of provincial-level policies, that there remains room for improvement in areas such as planning clarity, service model coverage, and safeguard measures. Jia Tingting et al. [10] analyzed the evolutionary stages of integrated care policies using the PMC index and pointed out that policies are relatively weak in long-term planning and regulatory mechanisms. These studies commonly employ methods such as text mining and high-frequency word analysis to assist in variable design, thereby enhancing the scientific rigor and relevance of the evaluation.

In studies on the content and regional practices of integrated medical and elderly care policies, scholars have not only focused on the construction of national-level policy systems but have also gradually extended their attention to differences in local policies and their implementation effectiveness. Tan Jinke and Li Xueying [11], in their study of Shanghai, found that supply-side instruments are overly dominant, while demand-side instruments are insufficiently applied, and policy coverage in the field of home-based elderly care is relatively weak. As a national pilot city for integrated care, Guangzhou has attracted considerable academic attention. Zhong Xi [12] examined the linkage between long-term care insurance and integrated care in Guangzhou and pointed out challenges in policy coordination, cross-departmental management, and the standardization of service provision. Yang Muxiu [13], focusing on rural areas of Guangzhou, revealed through empirical analysis that integrated care services have a positive effect on improving the physical health of the elderly, but their impact on mental health and healthcare utilization remains limited, reflecting imbalances in service provision between urban and rural areas and across regions. These regional studies highlight the necessity of aligning integrated care policies with local realities, particularly in terms of service model innovation, resource integration, and coverage of vulnerable groups.

In summary, existing studies provide a useful foundation for understanding the structure of policy instruments, evaluation methods, and regional practices in integrated medical and elderly care policies. However, several limitations remain. On the one hand, most studies focus on national or provincial levels, with a lack of systematic quantitative evaluation of local policy systems in first-tier cities, particularly representative cities such as Guangzhou. On the other hand, existing research tends to emphasize either policy instrument analysis or single-model evaluation, with relatively few studies integrating policy instrument theory and the PMC index model for multidimensional and multi-level analysis of policy coordination. Therefore, this study attempts to integrate policy instrument theory and the PMC index model, taking Guangzhou as a case, to conduct structural analysis and overall evaluation of local integrated care policy documents. The aim is to reveal their characteristics and shortcomings in terms of instrument allocation, internal consistency, and implementation effectiveness, thereby providing empirical references for optimizing local policy systems for integrated medical and elderly care.

3. Research Design

3.1 Policy Sources

This study takes 2017 as the starting point for policy collection, which marks the year when Guangzhou was officially designated as one of the second batch of national pilot cities for integrated medical and elderly care and first responded by issuing relevant policy documents. Using “integrated medical and elderly care” and “elderly care services” as keywords, policy documents were retrieved from the official website of the Guangzhou Municipal People’s Government, the official website of the Guangzhou Municipal Health Commission, and the PKU Law Database. Administrative regulations and official notices related to integrated medical and elderly care services issued between 2017 and 2025 were collected. Based on criteria including the authority of policy sources, the high relevance of policy content to the themes of integrated medical and elderly care and elderly care services, and the timeliness of policies [6], a full-text review was conducted to

screen and exclude irrelevant documents. Ultimately, seven policy documents were selected as the research sample, as shown in Table 1.

Table 1: Policy Document Database

No.	Full Title of Policy	Date of Issuance	Issuing Authority
P1	Implementation Opinions of the General Office of the Guangzhou Municipal People's Government on Promoting the Integration of Medical and Health Services with Elderly Care Services	February 2017	Guangzhou Municipal People's Government
P2	Notice of the General Office of the People's Government of Panyu District, Guangzhou on Issuing the Implementation Plan for Carrying Out Integrated Medical and Elderly Care in Panyu District	March 2018	People's Government of Panyu District, Guangzhou
P3	Notice of the Guangzhou Municipal Health Commission and Eight Other Departments on Issuing Several Measures to Further Promote the Integration of Medical and Elderly Care	March 2020	Guangzhou Municipal Health Commission et al.
P4	Notice of the Guangzhou Social Organization Administration on Issuing the Guidelines for Promoting and Regulating the Development of Social Organizations Providing Elderly Care Services in Guangzhou	November 2020	Guangzhou Social Organization Administration
P5	Notice of the Guangzhou Municipal Health Commission on Issuing the Work Plan for the Special Action on Service Quality Improvement of Integrated Medical and Elderly Care Institutions	January 2021	Guangzhou Municipal Health Commission
P6	Notice of the Guangzhou Municipal Health Commission, Guangzhou Municipal Civil Affairs Bureau, and Guangzhou Municipal Healthcare Security Administration on Issuing the Implementation Opinions on Contractual Cooperation Between Medical Institutions and Elderly Care Institutions in Guangzhou	March 2021	Guangzhou Municipal Health Commission; Guangzhou Municipal Civil Affairs Bureau; Guangzhou Municipal Healthcare Security Administration
P7	Notice of the Guangzhou Municipal Health Commission on Issuing the Service Standards for Integrated Medical and Elderly Care Institutions (Trial)	January 2025	Guangzhou Municipal Health Commission

3.2 Research Methods

This study adopts a combined approach of the policy instrument method and the PMC index model to conduct a systematic quantitative analysis of policy documents on integrated medical and elderly care services in Guangzhou. The policy instrument method is based on the three-dimensional classification framework proposed by Rothwell and Zegveld. By coding policy provisions and conducting frequency statistics, it reveals the structural characteristics and usage preferences of policy instruments, thereby identifying the focus and deficiencies of policies in terms of resource input, market guidance, and institutional support.

The PMC (Policy Modeling Consistency) index model is a multivariate quantitative evaluation method. By constructing an evaluation system covering dimensions such as policy nature, timeliness, content, field, instruments, evaluation, support, and key focus areas, it assigns scores to policy documents and ultimately calculates a composite consistency index. Furthermore, a three-dimensional surface graph is generated to visually reflect the overall coordination and internal consistency of policies. This approach compensates for the limitations of single-method analysis and provides a more operational basis for policy optimization.

3.3 Policy Text Processing and Coding

For the convenience of statistical analysis, the seven policy documents included in this study were organized according to the structure of "policy arrangement—text chapters (multi-level)—specific provisions," and manually coded into an Excel spreadsheet. For example, the code "3-1-1" refers to the first provision under

the first section, "Strengthening the Integration of Medical and Health Services with Elderly Care Services," in Policy No. 3 (*Notice of the Guangzhou Municipal Health Commission and Eight Other Departments on Issing Several Measures to Further Promote the Integration of Medical and Elderly Care*), specifically referring to the content of "encouraging the establishment of new integrated medical and elderly care institutions...".

4. Policy Text Analysis

4.1 Policy Instruments

4.1.1 Construction of the Analytical Framework

According to the classification method of Rothwell and Zegveld [14], policy instruments are divided into three categories: demand-side instruments, supply-side instruments, and environmental instruments. Supply-side policy instruments are reflected in the government's direct provision of resources and services to provide fundamental support and driving force for the development of integrated medical and elderly care. In this study, these specifically include financial investment, talent cultivation, infrastructure construction, information technology support, and service provision. Demand-side policy instruments aim to stimulate and stabilize the elderly care service market, thereby generating a pulling effect on innovation and development. These mainly include government procurement, price subsidies, pilot demonstrations, and exchange and cooperation initiatives. Environmental policy instruments focus on creating an institutional and market environment conducive to the development of integrated care service systems. Through macro-level guidance and regulatory measures, they provide external guarantees. These are specifically manifested in forms such as target planning, regulatory norms, financial support, medical insurance and long-term care insurance support, and public awareness promotion.

4.1.2 Text Analysis and Results

Based on the above analytical framework, the coded policy contents were categorized according to the classification criteria of policy instruments in the Excel spreadsheet, and the statistical results are shown in Table 2.

Table 2: Distribution of Policy Instruments in Integrated Medical and Elderly Care Policies in Guangzhou

Type of Policy Instrument	Specific Instrument	Number of Nodes	Proportion	Total
Supply-side	Financial investment	4	2.94%	33.82%
	Talent cultivation	6	4.41%	
	Infrastructure construction	8	5.88%	
	Information technology support	7	5.15%	
	Service provision	21	15.44%	
Demand-side	Government procurement	3	2.21%	12.50%
	Price subsidies	3	2.21%	
	Pilot demonstration	3	2.21%	
	Exchange and cooperation	8	5.88%	
Environmental	Target planning	5	3.68%	53.68%
	Regulatory norms	58	42.65%	
	Financial support	3	2.21%	
	Medical insurance and long-term care insurance support	4	2.94%	
	Public awareness promotion	3	2.21%	

Based on the coding and frequency statistics results under the policy instrument analytical framework, it can be observed that the use of policy instruments in Guangzhou's integrated medical and elderly care policies exhibits a significant structural imbalance. Environmental policy instruments account for the largest proportion, reaching 53.68%. Among them, regulatory and normative instruments are particularly prominent, with their node count accounting for 42.65% of the total. This indicates that the policy system places considerable emphasis on institutional construction, service standards, and industry regulation, focusing on creating an orderly external environment through normative guidance and institutional safeguards. Supply-side instruments account for 33.82%, with service provision (15.44%) as the main form, suggesting that the

government supports the operation of the integrated care service system to a certain extent through direct service provision, strengthening infrastructure and information technology development, and investing in financial and human resources. In contrast, demand-side policy instruments are significantly underutilized, accounting for only 12.50% of the total. Measures such as government procurement, price subsidies, and pilot demonstrations are relatively limited, indicating that the policies have not yet fully exerted their role in stimulating market vitality, guiding social participation, and forming stable and effective demand. Overall, Guangzhou's integrated medical and elderly care policies still exhibit a strong government-led and regulation-oriented tendency. The synergistic role of market mechanisms and social forces remains insufficient, and the structure of policy instruments needs further optimization to achieve a balanced coordination among supply-side, demand-side, and environmental instruments.

4.2 PMC Index Model Analysis

This study further applies the PMC (Policy Modeling Consistency) index model proposed by Estrada and M.A.R. in 2011 [15] to conduct a more in-depth quantitative analysis of policy documents. The construction of the PMC model mainly includes four steps. First, the identification and selection of primary and secondary variables based on the policy texts are conducted. Second, a multi-input–output table for comprehensive policy evaluation is established. Third, the PMC index is calculated. Finally, a three-dimensional PMC surface graph is generated to visually reflect the strengths and weaknesses of the policies.

4.2.1 Word Frequency Analysis of Policy Texts

First, the seven collected policy documents were organized into an Excel spreadsheet. After preprocessing, the texts were imported into ROCTCM 6.0 software for word segmentation and word frequency analysis, enabling content mining of the policy texts. The resulting word frequency statistics were obtained, and the top 40 high-frequency thematic words were extracted, as shown in Table 3. It can be observed that terms such as "service," "integrated medical and elderly care," "elderly," "medical and health services," "nursing," "elderly care services," and "elderly care institutions" appear with relatively high frequency. These high-frequency terms are highly consistent with the research theme, indicating that the policy texts collected in this study are reliable and accurately reflect the subject matter.

Table 3: Word Frequency Statistics of Thematic Terms

Thematic Term	Frequency	Thematic Term	Frequency
Service	291	Personnel	46
Combining medical care	169	System	44
Elderly	140	Elderly care	44
healthcare system	107	Development	43
Nursing	98	Regulation	39
Elderly care services	95	Implementation	38
Elderly care institutions	91	Home-based care	36
Medical institutions	88	Standards	33
Health	85	Medical and health services	32
Elderly care service institutions	84	Medicine	32
Medical care	83	Policy	31
Society	74	Planning	29
Hospitals	66	Integrated care services	29
Establishment	66	Provisions	28
Elderly population	61	Guangzhou	27
Rehabilitation	54	Doctors	27
Construction	53	Evaluation	27
Community	49	Improvement	27
Conditions	47	State	26
Family	46	Medical services	24

4.2.2 Variable Design and Parameter Setting

Based on the summarization of policy content and drawing on previous studies [9, 16–18], this study ultimately selects nine primary variables and thirty-eight secondary variables to construct the PMC index model for integrated medical and elderly care policies, as shown in Table 4. To ensure consistency in weighting,

a binary assignment method with values of [0,1] is adopted for the secondary variables. Specifically, a value of 1 is assigned if the condition is satisfied, and 0 otherwise [19].

Table 4: Configuration of Policy Quantitative Evaluation Variables

Primary Variables	Secondary Variables
X1 Policy Nature	X1.1 Advisory
	X1.2 Guiding
	X1.3 Regulatory
	X1.4 Supportive
X2 Policy Effectiveness	X2.1 Short-term (<3 years)
	X2.2 Medium-term (3–5 years)
	X2.3 Long-term (>5 years)
X3 Policy Target	X3.1 Higher education institutions
	X3.2 Public institutions
	X3.3 Elderly care institutions
	X3.4 Medical institutions
	X3.5 Enterprises
X4 Policy Instruments	X4.1 Supply-side
	X4.2 Demand-side
	X4.3 Environmental
X5 Policy Content	X5.1 Establishment of integrated care institution system
	X5.2 Improvement of medical–elderly care contractual cooperation mechanisms
	X5.3 Promotion of traditional Chinese medicine-based elderly health services
	X5.4 Strengthening information technology and smart elderly care development
	X5.5 Improvement of policy support and guarantee mechanisms
X6 Policy Fields	X6.1 Economy
	X6.2 Society
	X6.3 Environment
	X6.4 Politics
	X6.5 Human resources
	X6.6 Science and technology
X7 Policy Functions	X7.1 Service-oriented
	X7.2 Incentive-based
	X7.3 Mandatory
X8 Policy Objectives	X8.1 Standardizing integrated care service management systems
	X8.2 Improving service capacity of integrated care
	X8.3 Meeting multi-level health service needs of the elderly
	X8.4 Building an integrated service system
	X8.5 Promoting sustainable development of integrated care
X9 Policy Evaluation	X9.1 Scientific planning
	X9.2 Clear objectives
	X9.3 Rational planning
	X9.4 Detailed content

4.2.3 Construction of the Multi-Input–Output Table

Based on the PMC index model constructed above, the secondary variables of the seven collected policy documents on integrated medical and elderly care services were assigned values using the binary assignment method. The results are presented in Table 5, forming the multi-input–output table.

Table 5: Multi-input–output Table

Primary Variables	Secondary Variables	P1	P2	P3	P4	P5	P6	P7
X1	X11	1	1	1	1	1	1	1
	X12	1	1	1	1	1	1	1
	X13	1	1	1	1	1	1	1
	X14	1	1	1	1	1	1	1
X2	X21	0	0	0	0	0	0	1
	X22	0	0	0	0	1	1	0
	X23	1	1	1	1	0	0	0

Primary Variables	Secondary Variables	P1	P2	P3	P4	P5	P6	P7
X3	X31	0	0	1	0	0	1	0
	X32	1	1	1	0	1	1	1
	X33	1	1	1	1	1	1	1
	X34	1	1	1	0	1	1	1
	X35	1	1	1	0	0	1	0
X4	X41	1	1	1	1	1	1	1
	X42	1	1	1	1	0	1	0
	X43	1	1	1	1	1	1	1
X5	X51	1	1	1	0	0	0	0
	X52	1	1	1	0	1	1	0
	X53	1	1	1	0	1	1	1
	X54	1	1	1	0	1	1	1
	X55	1	1	1	1	1	1	1
X6	X61	1	1	1	1	0	1	0
	X62	1	1	1	1	1	1	1
	X63	1	1	1	1	1	1	1
	X64	1	1	1	1	1	1	0
	X65	1	1	1	1	1	1	1
	X66	1	1	1	0	1	1	1
X7	X71	1	1	1	1	1	1	1
	X72	1	1	1	1	1	1	0
	X73	1	1	1	1	1	1	1
X8	X81	1	1	1	0	1	1	1
	X82	1	1	1	0	1	1	1
	X83	1	1	1	1	1	1	1
	X84	1	1	1	0	0	1	0
	X85	1	1	1	0	1	1	1
X9	X91	1	1	1	1	1	1	1
	X92	1	1	1	1	1	1	1
	X93	1	1	1	1	1	1	1
	X94	1	1	1	0	0	0	0

4.2.4 PMC Index Calculation

According to Estrada [15], the calculation of the PMC index includes the following steps. First, based on Equations (1) and (2), each secondary variable is assigned a binary value (1 if the condition is satisfied, otherwise 0) to ensure data standardization. Second, according to Equation (3), the score of each primary variable is calculated by summing the values of all its corresponding secondary variables and dividing by the total number of secondary variables under that primary variable, thereby obtaining a normalized score for each dimension. Finally, the composite PMC index is calculated based on Equation (4).

$$X \sim N[0,1] \tag{1}$$

$$X = \{XR: [0 \sim 1]\} \tag{2}$$

$$X_t = \left(\sum_{j=1}^{n} \frac{X_{tj}}{T(X_{tj})}\right) \mathrm{t} = 1, 2, 3 \cdots\cdots 9 \tag{3}$$

$$PMC = X_1\left(\sum_{i=1}^{4}\frac{X_{1i}}{4}\right) + X_2\left(\sum_{j=1}^{3}\frac{X_{2j}}{3}\right) + X_3\left(\sum_{k=1}^{5}\frac{X_{3k}}{5}\right) + X_4\left(\sum_{l=1}^{3}\frac{X_{4l}}{3}\right) + X_5\left(\sum_{m=1}^{5}\frac{X_{5m}}{5}\right) + X_6\left(\sum_{n=1}^{6}\frac{X_{6n}}{6}\right) + X_7\left(\sum_{o=1}^{3}\frac{X_{7o}}{3}\right) + X_8\left(\sum_{p=1}^{5}\frac{X_{8p}}{5}\right) + X_9\left(\sum_{q=1}^{4}\frac{X_{9q}}{4}\right) \tag{4}$$

Note: In the formulas, *t* represents the primary variables, *j* represents the secondary variables, and *T* denotes the number of secondary variables under each primary variable.

The fourth formula essentially represents a weighted summation process. The scores of the nine primary variables are multiplied by their respective weights and then aggregated to obtain the overall policy consistency score, which ranges from 0 to 9. The results are shown in Table 6. Based on the total scores, the policies are evaluated according to the PMC index classification criteria: a score of 0–4.99 indicates a poor policy, 5–6.99 indicates a moderate policy, 7–8.99 indicates a good policy, and 9–10 indicates an excellent policy.

Table 6: Total PMC Index Scores of Policies

Policy No.	P1	P2	P3	P4	P5	P6	P7	Mean
X1	1	1	1	1	1	1	1	1
X2	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
X3	0.8	0.8	1	0.2	0.6	1	0.6	0.71
X4	1	1	1	1	0.67	1	0.67	0.91
X5	1	1	1	0.2	0.8	0.8	0.6	0.77
X6	1	1	1	0.83	0.83	1	0.67	0.9
X7	1	1	1	1	1	1	0.67	0.95
X8	1	1	1	0.2	0.8	1	0.8	0.83
X9	1	1	1	0.75	0.75	0.75	0.75	0.86
PMC Index	8.13	8.13	8.33	5.51	6.78	7.88	6.09	7.26
Ranking	2	2	1	5	4	3	6	—
Policy Level	Good	Good	Good	Moderate	Moderate	Good	Moderate	—

4.2.5 PMC Surface Plot Construction

To present more intuitively the strengths and weaknesses of Guangzhou's integrated medical and elderly care policies, a three-dimensional PMC surface plot is constructed based on the data in Table 6 according to the following formula:

$$PMCsurface = \begin{pmatrix} X_1 & X_2 & X_3 \\ X_4 & X_5 & X_6 \\ X_7 & X_8 & X_9 \end{pmatrix} \tag{5}$$

As shown in Figures 1–7, the X-axis represents the columns of the matrix, the Y-axis represents the rows, and the Z-axis represents the values of the matrix. In the plots, darker surface colors indicate higher scores for the corresponding dimensions.

Figure 1: Three-Dimensional Surface Plot of Policy P1

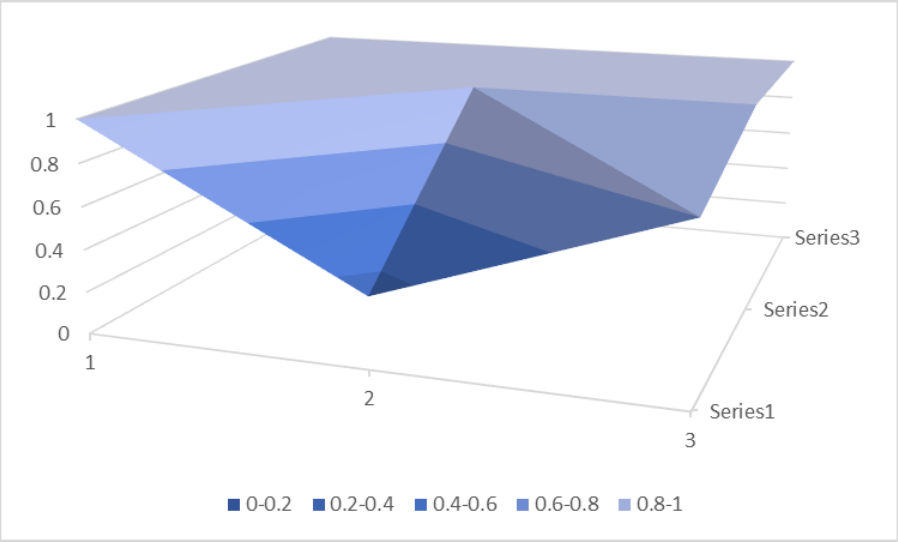


Figure 2: Three-Dimensional Surface Plot of Policy P2

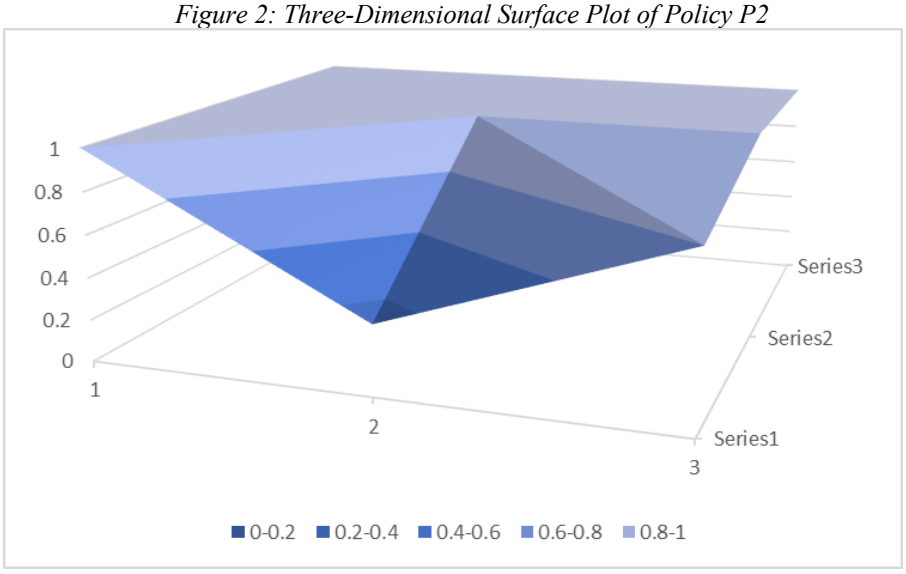


Figure 3: Three-Dimensional Surface Plot of Policy P3

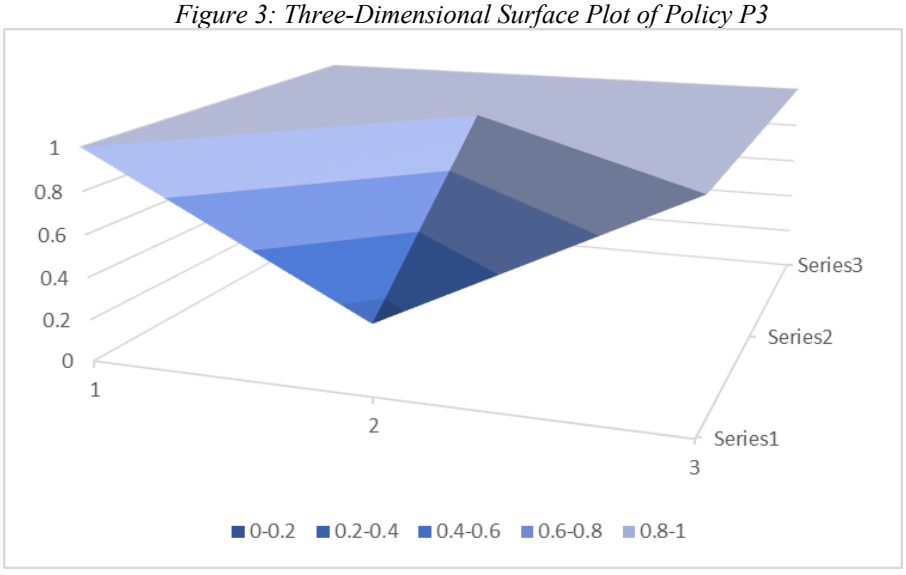


Figure 4: Three-Dimensional Surface Plot of Policy P4

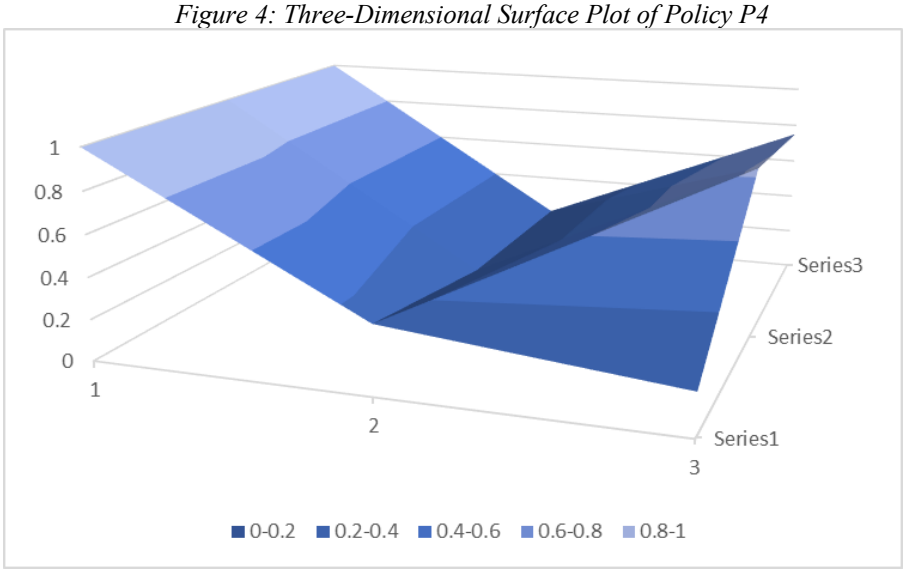


Figure 5: Three-Dimensional Surface Plot of Policy P5

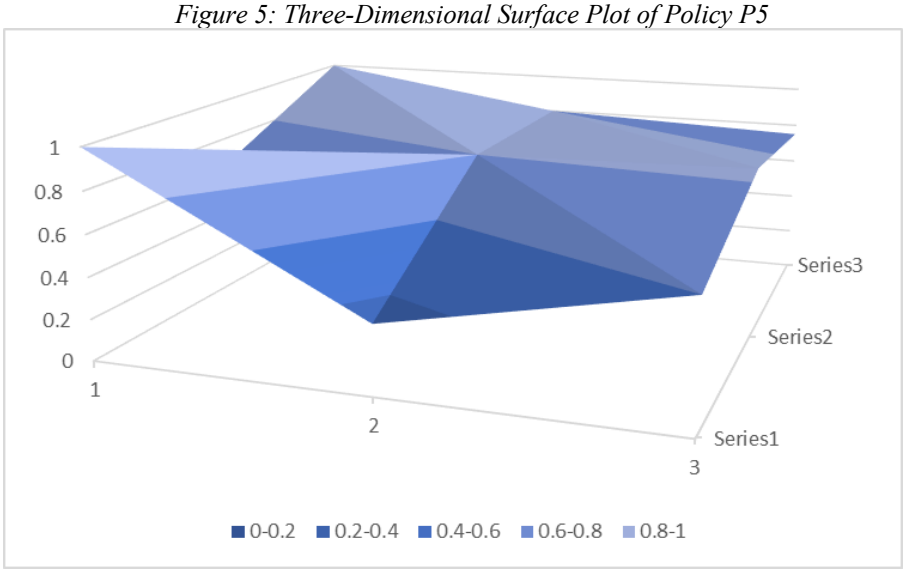


Figure 6: Three-Dimensional Surface Plot of Policy P6

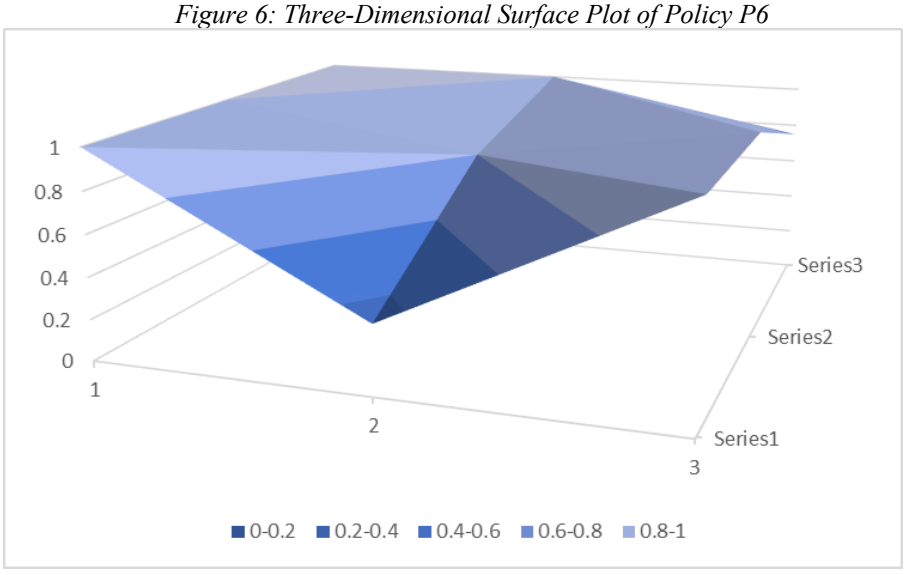
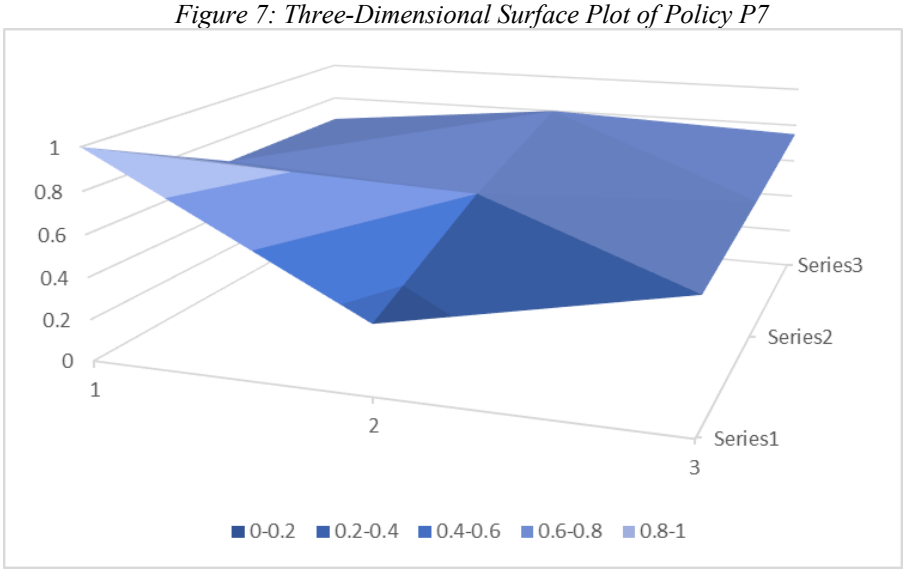


Figure 7: Three-Dimensional Surface Plot of Policy P7



4.2.6 Overall Analysis of PMC Index Results

The quantitative evaluation results of the seven integrated medical and elderly care policies in Guangzhou based on the PMC index model indicate that the overall PMC index values are at a good level. This reflects that Guangzhou has achieved a relatively high degree of systematization and internal consistency in constructing its integrated care policy system. From the perspectives of policy nature (X1) and policy objectives (X8), most policies perform well in terms of clarity of objectives, comprehensiveness of content, and rationality of planning, demonstrating a strong normative orientation and goal guidance in policy formulation. In particular, under the high-frequency use of environmental policy instruments, the policies have formed a relatively sound framework in areas such as regulatory norms and institutional construction, which contributes to creating a stable and orderly development environment for integrated care services.

However, the PMC surface plots further reveal differences in scores and structural characteristics across dimensions. From a temporal perspective, some policies place greater emphasis on medium- and long-term planning in terms of policy effectiveness (X2), while short-term operational measures are relatively insufficient. This may limit the responsiveness and flexibility of policy implementation. In terms of policy targets (X3), policies are mainly focused on traditional service providers such as elderly care institutions and medical institutions, while the coverage and incentives for diversified actors such as enterprises and social organizations remain insufficient. This finding corresponds with the structural issue identified in the policy instrument analysis, namely the underutilization of demand-side instruments. Regarding policy content (X5), although most policies cover aspects such as service system construction, contractual cooperation, and information support, the distribution of specific measures in specialized areas such as traditional Chinese medicine-based elderly care and smart integrated care is uneven. The level of innovation and specificity in some policies still needs improvement.

It is noteworthy that Policy P4 scores significantly lower than other policies across multiple dimensions, particularly in policy content and policy objectives, indicating that some specialized policies still have room for improvement in terms of systematization and coordination. Overall, the PMC index analysis suggests that Guangzhou's integrated medical and elderly care policies are relatively strong in terms of "hard constraints" and institutional safeguards, but still have potential for improvement in "soft incentives" and the activation of market mechanisms. Future policy optimization should focus on strengthening short-term measures, expanding the coverage of participating entities, and enhancing the use of demand-side instruments, thereby promoting a transition from a "regulation-oriented" approach to a more balanced model combining regulation and incentives, and ultimately improving policy coordination and implementation effectiveness.

5. Conclusion

By integrating the results of policy instrument analysis and PMC index model evaluation, it can be observed that Guangzhou's integrated medical and elderly care policies exhibit a prominent characteristic of "institution-first and regulation-oriented" development. From the perspective of policy instrument structure, environmental instruments account for more than half of the total, with regulatory and normative instruments being particularly dominant. This reflects Guangzhou's strong emphasis on institutional construction, standard setting, and industry regulation in the development of integrated care services, providing a solid institutional foundation for the steady advancement of policies. Within supply-side instruments, service provision plays a leading role, indicating that the government supports integrated care services through direct resource input, infrastructure development, and professional talent cultivation. However, demand-side instruments are significantly insufficient, particularly in terms of government procurement, price subsidies, and pilot demonstration programs. This suggests that there remains substantial room for improvement in stimulating market vitality, guiding social participation, and forming sustained and effective demand.

The quantitative evaluation based on the PMC index model further confirms these structural characteristics. The overall PMC index of Guangzhou's policies remains at a good level, indicating strong performance in terms of goal clarity, content systematization, and planning rationality, as well as a high degree of internal consistency and coordination. High scores in dimensions such as policy nature, policy objectives, and policy instrument coverage demonstrate the standardization and comprehensiveness of policy design. However, the PMC surface plots also reveal imbalances in policy timeliness, target coverage, and content innovation. Some policies emphasize medium- and long-term planning while lacking sufficient short-term operational measures.

Policy targets remain concentrated on traditional elderly care and medical institutions, with insufficient incentives and integration mechanisms for diversified actors such as enterprises and social organizations. Furthermore, the distribution of specific measures in specialized fields such as traditional Chinese medicine-based elderly care and smart integrated care is uneven, and the level of policy innovation and targeting needs to be strengthened.

In summary, Guangzhou's integrated medical and elderly care policies have established a relatively comprehensive framework in terms of regulation and supply, laying a solid institutional foundation for the development of integrated care services. However, shortcomings remain in demand-side guidance and incentive mechanisms. The structure of policy instruments requires further optimization, and the participation of market and social actors needs to be strengthened. Future policy improvements should focus on enhancing the supporting role and executability of short-term measures, expanding the diversity of policy targets, and increasing the application of demand-side instruments, thereby promoting a coordinated development pattern and further improving the overall effectiveness and sustainability of integrated care policies.

6. Policy Recommendations

6.1 Optimizing the Structure of Policy Instruments and Strengthening Demand-Side Incentives and Market Guidance

At present, Guangzhou's integrated medical and elderly care policies are relatively well-developed in terms of environmental and supply-side instruments; however, the application of demand-side instruments remains insufficient, which constrains the full release of market vitality and social participation. In the future, efforts should be made to enhance both the proportion and effectiveness of demand-side policy instruments. First, the intensity of government procurement of services should be increased. Through methods such as open bidding and targeted commissioning, social capital and professional institutions should be guided to enter fields such as community-based elderly care, home-based care, and rehabilitation nursing, thereby forming a stable and sustainable service procurement mechanism. Second, the pricing subsidy and insurance payment mechanisms should be improved. The integration of long-term care insurance with basic medical insurance and commercial health insurance should be promoted, and differentiated subsidy models based on service items and levels of care should be explored, in order to reduce the financial burden of integrated care services for the elderly. Third, pilot demonstration and model promotion should be strengthened. Qualified subdistricts or institutions should be selected to carry out innovative pilot programs such as smart elderly care and integrated medical–elderly care consortia. Experiences should be summarized to form replicable and scalable local standards and operational guidelines, thereby stimulating grassroots innovation.

6.2 Enhancing Policy Timeliness and Operability to Promote the Implementation of Short-Term Measures

The PMC index analysis indicates that some policies emphasize medium- and long-term planning, while short-term operational measures are relatively weak, which affects the responsiveness and flexibility of policy implementation. It is recommended that in future policy formulation and revision: First, phased objectives and timelines should be clearly defined. For key tasks such as talent development, information platform construction, and service network coverage, annual or quarterly implementation plans should be established, along with dynamic monitoring and evaluation mechanisms. Second, supporting implementation rules should be further refined. In particular, clear guidelines should be issued regarding financial investment, land supply, and approval procedures, in order to reduce institutional costs in policy implementation. Third, a cross-departmental coordination mechanism should be established. Relevant departments such as health, civil affairs, medical insurance, and finance should jointly form special task forces and hold regular coordination meetings to address bottlenecks and challenges in policy implementation, thereby improving overall policy coordination.

6.3 Expanding the Coverage of Participating Entities and Building a Multi-Actor Collaborative Service Supply System

At present, policy targets are still mainly limited to traditional elderly care institutions and medical institutions, while incentives for and integration of diversified actors such as enterprises, social organizations,

and community volunteers remain insufficient. It is necessary to further expand policy coverage and promote the formation of a multi-level service system characterized by government guidance, market operation, and social participation. First, enterprises should be encouraged to participate in the development of the integrated care industry. Preferential support should be provided in terms of land use, taxation, and financing, guiding enterprises to develop age-friendly products, smart elderly care equipment, and health management services. Second, professional social organizations and volunteer teams should be cultivated. Through measures such as government service procurement, public welfare venture capital programs, and skills training, the service capacity of social organizations in areas such as psychological care, cultural and recreational activities, and legal assistance should be enhanced. Third, linkages among families, communities, and institutions should be strengthened. An integrated service model of "family doctor + community care + institutional referral" should be developed, and the construction of community-embedded elderly care facilities should be supported to enhance the accessibility and continuity of services.

6.4 Deepening Innovation in Specialized Fields and Promoting the Integration of Traditional Chinese Medicine and Smart Elderly Care

Guangzhou has unique advantages in traditional Chinese medicine resources and information technology, and these strengths should be further highlighted in policy design with a focus on regional characteristics and innovation. First, the development of a traditional Chinese medicine-based elderly health service system should be promoted. Cooperation between traditional Chinese medicine hospitals and elderly care institutions should be supported to provide characteristic services such as acupuncture, massage, and medicated diets, and appropriate TCM techniques should be incorporated into the payment scope of long-term care insurance. Second, the construction of smart integrated care platforms should be accelerated. Data resources from health, civil affairs, and medical insurance departments should be integrated to promote the extension of digital services—such as telemedicine, health monitoring, and emergency response systems—to communities and households, thereby improving service efficiency and precision. Third, talent cultivation and scientific research support in integrated care should be strengthened. Higher education institutions should be encouraged to offer relevant academic programs, and cooperation between medical institutions and elderly care institutions should be promoted to establish training bases, cultivating interdisciplinary professionals with competencies in medical care, nursing, and management.

6.5 Improving Evaluation and Feedback Mechanisms to Achieve Dynamic Optimization and Continuous Policy Improvement

It is recommended to establish a normalized policy evaluation and revision mechanism. With the support of quantitative tools such as the PMC index, the implementation effects of policies should be regularly monitored and evaluated. First, a multidimensional policy evaluation indicator system should be constructed, covering aspects such as service coverage, public satisfaction, operational efficiency of institutions, and the effectiveness of fiscal fund utilization. Second, third-party evaluation and social supervision should be introduced. Feedback from stakeholders should be collected through methods such as questionnaire surveys, field interviews, and big data analysis, in order to promptly identify problems and deficiencies in policy implementation. Third, a policy adjustment and exit mechanism should be established. Policy provisions that perform poorly or are misaligned with practical conditions should be revised or abolished in a timely manner, ensuring that the policy system remains aligned with the evolving trends of population aging and the actual needs of the elderly.

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Conflicts of Interest

The authors declare no conflict of interest.

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