Why Has the Purchase Intention for Originator Drugs Not Disappeared under the Centralised Volume-Based Procurement Policy? An Analysis of the Mechanisms of Health Insurance Policy Support, Medical Knowledge, and Purchase Confidence

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Abstract

Against the backdrop of the continuous deepening of China's National Centralized Volume-Based Procurement (VBP) policy for pharmaceuticals, both the institutional environment of the chronic disease medication market and patients' decision-making logic are undergoing profound restructuring. The persistent decline in patients' purchase intention for originator drugs has thus emerged as a critical practical issue requiring systematic investigation. This study focuses on patients with chronic diseases in mainland China who are dependent on long-term medication. It examines the mechanisms through which health insurance policy support intensity and patients' level of medical knowledge exert impacts on their intention to purchase originator drugs. Meanwhile, purchase confidence is introduced as a critical mediating variable to contextualize relationships. On this basis, an analytical framework of "institutional support–cognitive capacity-psychological trust-behavioural intention" is constructed and empirically tested. Using a cross-sectional questionnaire survey, 302 valid responses were collected and analysed through partial least squares structural equation modelling (PLS-SEM). The results indicate that both health insurance policy support intensity and medical knowledge level exert significant positive effects on chronic disease patients' intention to purchase originator drugs, with medical knowledge demonstrating a more pronounced impact. Moreover, purchase confidence plays a significant partial mediating role in the relationships between health insurance policy support, medical knowledge, and purchase intention. These findings suggest that patients' medication choices are not merely driven by price considerations or institutional constraints but are shaped by trust-based evaluations of payment sustainability, therapeutic stability, and long-term safety, through which institutional information and individual cognition are transformed into behavioural intentions. Theoretically, this study addresses an important gap in the existing literature on volume-based procurement by incorporating patients' psychological transmission mechanisms into the analytical framework. Practically, it offers empirically grounded insights for achieving a more refined balance between cost-containment objectives and patients' medication choice autonomy in health insurance policy design. Additionally, it provides guidance for optimising long-term chronic disease medication management through enhanced medical knowledge dissemination and stabilised policy expectations.

Keywords

National Centralised Volume-based Procurement, Health insurance policy support intensity, Medical knowledge level, Purchase confidence, Originator drug purchase intention, Chronic disease patients

Introduction

In recent years, with the accelerating pace of population ageing and the continuous rise in the prevalence of chronic diseases in China, the long-term medication burden, drug accessibility, and the sustainability of the health insurance fund have gradually become core issues in the operation of the national healthcare security system [1]. Against this backdrop, China officially launched the National Centralised Volume-Based Procurement (VBP) policy for pharmaceuticals in 2018, aiming to systematically restructure drug procurement, health insurance reimbursement, and price formation mechanisms through volume-for-price exchange and centralised bargaining [2]. Under this policy framework, generic drugs that have passed consistency evaluation serve as the primary procurement targets, substantially compressing drug prices while ensuring therapeutic equivalence and controllable quality. In contrast, originator drugs, characterised by original R&D investment and historically higher price levels, have gradually withdrawn from the priority reimbursement sequence within the institutional design of the policy [3]. From a macro perspective, volume-based procurement is not merely a cost-containment instrument but rather signifies a profound transformation of China's pharmaceutical system. This shift moves from a price regime centred on brands and patents to one oriented towards therapeutic equivalence and payment efficiency. Based on publicly accessible English-language policy documents and research reviews, the national volume-based procurement (VBP) programme has undergone continuous expansion and iterative implementation across successive rounds. These programme adjustments have resulted in substantial price reductions for commonly prescribed medications used in the management of chronic diseases. Particularly notable price cuts have been observed in drug categories with high levels of therapeutic substitutability. Meanwhile, English-language public reports citing official sources from the national healthcare insurance authority indicate that since 2018, national centralised drug procurement has cumulatively saved approximately RMB 440 billion, providing significant fiscal space for alleviating expenditure pressure on the health insurance fund and optimising its payment structure.

At the industry and patient levels, the sustained advancement of the VBP policy has profoundly reshaped the medication structure for chronic diseases and patients' drug purchasing choices. Its impact goes beyond a simple substitution of originator drugs by generics, instead exerting institutional pressure on both the market space of originator drugs and patients' freedom of choice [4]. On the one hand, through the coordinated operation of consistency evaluation and centralized procurement mechanisms, selected generic drugs have achieved rapid penetration within the public healthcare system. Meanwhile, institutional incentives at both the procurement and prescription levels have further consolidated the dominant position of these generic drugs in long-term treatment regimens. [5]. On the other hand, patients' intention to purchase originator drugs has not disappeared with the advancement of the VBP policy but instead exhibits increasingly distinct patterns of group differentiation. Studies on patients' attitudes towards VBP-selected drugs suggest that willingness to switch from originator drugs to selected generics is highly correlated with patients' understanding of efficacy and safety information, subjective risk perceptions, and reliance on institutional arrangements and physicians' recommendations [6]. Even when acknowledging the regulatory principle of therapeutic equivalence, some long-term medication users may continue to prefer originator drugs due to prior treatment experiences and concerns regarding batch consistency and uncertainty surrounding long-term efficacy [7]. Consequently, the practical significance of originator drugs in chronic disease management

extends beyond pharmacological efficacy to encompass support for treatment continuity and patients' psychological sense of security - mechanisms that are more likely to be amplified in contexts characterised by policy-driven substitution.

Meanwhile, as the governance framework of China's health insurance system continues to improve, the role of health insurance policy in shaping chronic disease patients' medication decisions has become increasingly prominent, exerting a profound influence on the clinical use and eventual purchase outcomes of originator drugs. A substantial body of policy evaluation research indicates that under the combined pressures of VBP implementation and performance targets, the procurement and utilisation shares of selected drugs in public medical institutions have risen significantly, while the use of non-selected drugs and certain originator drugs has been correspondingly constrained [8]. At the reimbursement level, cumulative differences in patients' out-of-pocket payments generate substantial long-term financial pressure, leading to a structural divergence between "subjective recognition of originator drugs" and "the actual ability to sustain their purchase", particularly among populations requiring long-term medication for chronic conditions. Empirical studies have quantitatively documented shifts in medication structure following the implementation of volume-based procurement. These studies show that the utilization share of selected drugs can exceed 70% across multiple settings, while the market share of originator drugs has declined significantly. Accordingly, declining purchase rates of originator drugs do not necessarily imply a fundamental change in patients' value judgements regarding drug efficacy but are more likely the institutional outcome of combined procurement pressures and reimbursement structures under the VBP regime.

From the perspective of individual patients, the overall level of medical knowledge among chronic disease patients in China remains limited and highly heterogeneous, particularly with respect to specialised issues such as generic drug consistency evaluation, bioequivalence, and long-term efficacy stability. Research on patients' switching intentions indicates that acceptance of VBP-selected drugs is closely associated with their information comprehension capacity. Additionally, it shows that under conditions of heightened perceived uncertainty, patients are more inclined to rely on physicians' recommendations as a substitute decision-making heuristic. Under the joint influence of VBP policy orientation and institutional constraints within hospitals, physicians' prescribing behaviours are more likely to converge on selected generic drugs, rendering patients' non-selection of originator drugs in practice more reflective of "passive acceptance" rather than an active choice made on the basis of fully informed deliberation. Furthermore, multiple studies emphasise that the simultaneous expansion of selected generics' market share and the contraction of originator drugs' share are driven not only by cost considerations and institutional incentives, but also by patients' cognitive limitations and evolving trust structures. It is precisely this empirical context that underscores the necessity and practical significance of systematically examining chronic disease patients' purchase intention for originator drugs through the lenses of health insurance policy support, medical knowledge, and purchase confidence mechanisms.

Problem statement

Against the backdrop of the continued deepening of China's National Centralised Volume-Based Procurement (VBP) policy for pharmaceuticals, the chronic disease medication market is undergoing a profound structural transformation. Although the VBP system has achieved notable success in controlling drug prices, improving medication accessibility, and alleviating pressure on the health insurance fund, a series of unintended effects in the domain of long-term chronic disease treatment have gradually emerged. One of the most salient manifestations is the persistent weakening of patients' intention to purchase originator drugs, accompanied

by a marked decline in their actual utilisation. Systematic evaluations of nationwide policy implementation indicate that while centralised volume-based procurement has substantially reduced drug prices and health insurance expenditures, it has also fundamentally reshaped hospital-level procurement and prescribing structures, thereby altering the competitive landscape between originator and generic drugs. Within a medication environment dominated by VBP policies, many domestically produced generic drugs that have passed consistency evaluation have been rapidly introduced into frontline clinical use, resulting in a significant contraction of the prescribing space and market visibility of originator drugs in public medical institutions. Empirical analyses based on real-world medication data further demonstrate that following policy intervention, the utilisation share of selected generics in multiple categories of chronic disease treatment has increased substantially, while the prescription share of originator drugs has declined in parallel, revealing a clear pattern of structural substitution. Under these circumstances, originator drugs have gradually shifted from being routine options in chronic disease treatment to becoming niche choices for a limited subset of patients, with both purchase intention and actual usage exhibiting a synchronised downward trend. Existing studies suggest that such institutionally driven substitutions not only affect firms' market returns and R&D incentives, but may also, in the long run, constrain patients' access to treatment stability and personalised medication choices in chronic disease management [9].

A closer examination of the weakening of originator drug purchase intention reveals that this phenomenon does not stem from a general rejection of the efficacy or safety of originator drugs by patients, but rather from the combined effects of the institutional environment and patients' cognitive conditions. First, at the level of health insurance reimbursement and VBP implementation, public medical institutions operate within explicit procurement execution and performance management systems. These systems grant selected generics institutional advantages in both procurement and prescribing, which objectively reduces the clinical availability of originator drugs. Quantitative studies on changes in market concentration indicate that following the implementation of volume-based procurement, hospital pharmaceutical markets have become more concentrated, with selected manufacturers gaining significantly larger market shares in policy-related drug categories [10]. Second, from the perspective of individual patients, medical knowledge among Chinese chronic disease patients regarding specialised issues, such as generic drug consistency evaluation, bioequivalence, and long-term treatment stability, remains limited, leading medication decisions to rely heavily on physicians' recommendations rather than independent judgement. Mechanism-based research on generic substitution behaviour demonstrates that patients' understanding of drug equivalence, perceived uncertainty regarding risks, and trust in the healthcare system significantly shape their preferences between originator and generic drugs [11]. In a real-world context characterised by the convergence of VBP policy orientation and health insurance payment constraints, physician recommendations in favour of generics have increasingly become the default pathway, rendering patients' non-selection of originator drugs more reflective of passive acceptance than of rational trade-offs based on fully informed deliberation. Notably, while existing studies have systematically documented the macro-level effects of volume-based procurement on price control and medication structure adjustment, scholarly attention to the formation mechanisms of patients' purchase intention and the associated psychological transmission pathways remain relatively limited, constituting a significant gap in the current literature [12].

Considering the above realities and research gaps, this study centres on the persistent weakening of

originator drug purchase intention among Chinese chronic disease patients under the VBP regime, with the aim of systematically elucidating its underlying mechanisms through empirical analysis. Specifically, the study examines two key dimensions - health insurance policy support intensity and patients' medical knowledge level - to identify the direct determinants of originator drug purchase intention. Furthermore, purchase confidence is introduced as a mediating variable to explore whether institutional cognition and medical cognition indirectly influence purchase intention by shaping patients' trust-based judgements regarding the stability of therapeutic efficacy and long-term safety of originator drugs. This analytical approach not only addresses the insufficient attention paid to patient-level psychological mechanisms in existing research but also provides an empirically grounded basis for achieving a more balanced alignment between cost-containment objectives and patients' medication choice autonomy, without negating the overall effectiveness of the volume-based procurement policy.

Hypothesis development

Under the National Centralised Volume-Based Procurement (VBP) policy, chronic disease patients' intention to purchase originator drugs is not the result of a single determinant, but rather a behavioural response jointly shaped by the institutional environment and individual cognition. On the one hand, health insurance policies influence patients' economic expectations and choices set through reimbursement rules, payment restrictions, and prescribing environments. On the other hand, patients' level of medical knowledge determines their ability to understand differences among drugs, assess risks, and evaluate the long-term value of treatment. In this process, purchase confidence regarding originator drugs functions as a critical psychological mechanism linking external institutional information with internal cognitive judgement. Accordingly, this study develops research hypotheses from both direct-effect and mediating-effect perspectives.

Direct effect hypotheses

In the context of the normalisation of the VBP policy, health insurance policy has become a key institutional factor influencing medication decisions among chronic disease patients. Through formulary inclusion criteria, reimbursement rate arrangements, and payment mechanisms, health insurance policy directly alters patients' perceptions of the economic affordability and practical accessibility of originator drugs, thereby shaping their purchasing choices. This study posits that under the VBP system, differential policy support for generic and originator drugs operates simultaneously through reimbursement and prescribing channels, exerting a significant influence on chronic disease patients' intention to purchase originator drugs. Accordingly, the following hypothesis is proposed:

H_1: Health insurance policy support intensity has a significant effect on chronic disease patients' intention to purchase originator drugs.

At the same time, chronic disease patients are not entirely passive recipients of institutional arrangements in long-term medication decisions. Their ability to understand drug efficacy, safety, and long-term therapeutic value also plays an important role in shaping purchasing judgements. Patients with higher levels of medical knowledge are more likely to form relatively independent evaluations of different drugs based on their own health conditions and considerations of long-term treatment stability, rather than relying exclusively on external policy signals or physicians' recommendations. This study argues that improvements in medical knowledge enable patients to better recognise the potential advantages of originator drugs in long-term treatment, thereby strengthening their intention to purchase originator

drugs. Therefore, the following hypothesis is proposed:

H_2: Medical knowledge level has a significant positive effect on chronic disease patients' intention to purchase originator drugs.

Mediating effect hypotheses

Under the VBP policy regime, chronic disease patients' intention to purchase originator drugs is not determined solely by external institutional factors or individual cognition in a direct manner but often requires transformation through patients' subjective evaluations of treatment outcomes. Health insurance policy support intensity influences patients' perceptions of the payment feasibility and long-term financial burden associated with originator drugs through reimbursement rates, payment rules, and prescribing environments. Which in turn shapes their psychological judgement of whether choosing originator drugs is "worthwhile" and "sustainable". This study posits that health insurance policy support intensity first affects patients' purchase confidence in originator drugs, and that the strength of this confidence subsequently determines whether a clear purchase intention is formed. Accordingly, the following hypothesis is proposed:

H_3: Purchase confidence mediates the relationship between health insurance policy support intensity and chronic disease patients' intention to purchase originator drugs.

Similarly, patients' level of medical knowledge determines their ability to understand differences in drug efficacy, long-term safety, and risk-benefit trade-offs. When patients possess higher levels of medical knowledge, they are more likely to form clear judgements regarding the long-term value of using originator drugs, thereby enhancing their sense of certainty and psychological security concerning treatment outcomes. This study argues that medical knowledge level indirectly influences intention to purchase originator drugs by shaping patients' purchase confidence. Therefore, the following hypothesis is proposed:

H_4: Purchase confidence mediates the relationship between medical knowledge level and chronic disease patients' intention to purchase originator drugs.

Research methodology

This study adopts a quantitative research approach, employing descriptive research design and conducting empirical analysis based on cross-sectional data. The choice of a quantitative methodology is justified by two main considerations. First, the study focuses on examining the effects of latent constructs, such as health insurance policy support intensity and medical knowledge level, on chronic disease patients' intention to purchase originator drugs, which requires the systematic testing of structural relationships among multiple variables through statistical modelling. Second, a descriptive research design enables an objective depiction of patients' cognitive states and behavioural tendencies under the volume-based procurement (VBP) policy regime without intervening in the actual policy environment or decision-making processes. This design has been widely applied in studies on health insurance policy and patients' medication behaviour [13].

The study utilises cross-sectional survey data, primarily because the VBP policy has entered a stage of normalised implementation, during which patients' perceptions of reimbursement rules, medication accessibility, and treatment choices tend to remain relatively stable in the short term. Cross-sectional data are therefore well suited to capturing patients' decision-making characteristics at a specific stage of policy implementation [14]. The target population is defined as chronic disease patients in mainland China who have been clinically diagnosed and require long-term continuous medication, covering common conditions such as hypertension, diabetes, and coronary heart disease. All latent variables are measured using established scales that have been semantically adapted to the Chinese healthcare context. Specifically, health insurance policy support intensity is measured based on prior scale designs

examining patients' perceptions of reimbursement policies and their relationship with healthcare behaviours, focusing on perceived reimbursement rates, understanding of payment restrictions, and perceived policy accessibility [15]. Medical knowledge level is measured within the framework of health literacy theory, drawing on the conceptualisations proposed by Nutbeam and Sørensen, with particular attention to patients' understanding of generic drug consistency evaluation, bioequivalence, and long-term medication safety. Purchase confidence is measured by adapting the classic trust and transaction confidence scale developed by Pavlou and Gefen, emphasising patients' subjective certainty regarding the efficacy reliability and safety of originator drugs. Intention to purchase originator drugs follows the purchase intention measurement paradigm proposed by Dodds and so on in consumer decision-making research, with appropriate adjustments to fit the pharmaceutical consumption context. Based on these scales, a structured questionnaire was developed for data collection. Screening questions were included at the beginning of the questionnaire to ensure that respondents had a confirmed diagnosis of a chronic disease and a record of continuous medication use within the past year, thereby ensuring a high degree of alignment between the sample and the target population.

About sample design, the overall population is defined as chronic disease patients in mainland China who require long-term medication. According to statistics released by the National Health Commission and related sources, the number of chronic disease patients in China exceeds 300 million, providing a stable and practically meaningful population base. In the sampling process, given the wide geographical distribution of chronic disease patients, the heightened requirements for personal privacy protection, and the absence of a comprehensive and operable sampling frame, a non-probability convenience sampling method was adopted. Questionnaires were distributed through online patient communities, chronic disease mutual-aid platforms, and with the assistance of primary healthcare institutions. Convenience sampling has demonstrated high feasibility in healthcare policy and patient behaviour research, particularly in contexts where target populations are difficult to identify and sample access costs are high. Moreover, it has been shown not to significantly compromise the stability of path estimation in structural equation modelling studies. Sample size determination followed the basic statistical requirements of structural equation modelling. Drawing on the minimum sample size recommendation proposed by Hair and so on. Namely, that the sample size should be at least ten times the maximum number of structural paths in the model and incorporating the statistical power analysis framework proposed by Cohen, the minimum required sample size for this study is approximately 200 observations, assuming a medium effect size and a statistical power level of 0.80. To account for invalid responses and potential missing data, approximately 350 questionnaires were distributed during the formal survey stage, with an expected yield of around 330 valid responses, sufficient to meet the requirements for subsequent model estimation and mediation effect testing.

For data analysis, this study employs SmartPLS software to conduct structural equation modelling. The partial least squares structural equation modelling (PLS-SEM) approach was chosen because the proposed research model includes multiple direct and mediating paths and is explicitly prediction-oriented. Compared with covariance-based SEM, PLS-SEM demonstrates greater robustness and suitability when dealing with small to medium sample sizes, non-normally distributed data, and complex structural relationships. The analytical procedure includes data screening and preprocessing, identification of outliers and missing values, assessment of measurement model reliability and validity, confirmatory factor analysis, structural model path estimation, evaluation

of model explanatory power and predictive relevance, and Bootstrap testing of mediation effects. Reliability assessment is conducted using Cronbach's alpha and composite reliability to evaluate internal consistency. Meanwhile, convergent and discriminant validity are examined through average variance extracted (AVE) and cross-loading criteria. For mediation analysis, a bias-corrected Bootstrap method is applied to test the mediating role of purchase confidence, thereby enhancing the robustness of statistical inference. In addition, the study strictly adheres to academic ethical standards throughout the research process. The survey was conducted anonymously, all respondents participated voluntarily with full informed consent, and the data was used solely for academic research purposes. No personally identifiable information was collected, thereby minimising potential ethical risks to the greatest extent possible.

Empirical results

Descriptive statistical analysis

A total of 350 questionnaires were distributed in this study, of which 328 were returned. After excluding questionnaires with incomplete responses, abnormal response times, or failure to meet the screening criteria, 302 valid questionnaires were retained for analysis, yielding an effective response rate of 86.29%. The final sample size substantially exceeds the minimum requirements for structural equation modelling, thereby providing sufficient statistical power for subsequent path estimation and mediation effect testing. Moreover, all survey respondents successfully passed the preliminary screening questions, which included items such as "whether diagnosed with a chronic disease by a physician" and "whether long-term and continuous medication is required." These criteria were implemented to strictly ensure that the final sample consisted exclusively of genuine chronic disease patients with sustained medication needs, thereby effectively excluding non-target populations or cases involving only temporary medication use. This rigorous participant filtering process significantly enhances the reliability and applicability of the empirical findings from a data-source perspective, as it aligns the sample closely with the study's objective of examining medication behaviors among true chronic disease patients.

In terms of demographic characteristics, the sample exhibits a relatively balanced structure and closely aligns with the general profile of chronic disease patients in China. Regarding gender distribution, 162 respondents were male (53.64%) and 140 were female (46.36%) (as shown in Table 1). With respect to age composition, respondents aged under 30 accounted for 9.27% (n=28), those aged 31-40 accounted for 21.19% (n=64), those aged 41-50 accounted for 30.46% (n=92), those aged 51-60 accounted for 24.50% (n=74), and those aged over 60 accounted for 14.58% (n=44). In terms of educational attainment, 15.89% (n=48) had junior secondary education or below, 28.48% (n=86) had completed senior secondary or vocational education, 25.83% (n=78) held a junior college diploma, and 29.80% (n=90) possessed a bachelor's degree or above.

About income distribution, 21.85% of respondents (n=66) reported a monthly personal disposable income below RMB 3,000, 31.13% (n=94) reported an income between RMB 3,001 and RMB 5,000, 27.15% (n=82) reported an income between RMB 5,001 and RMB 8,000, and 19.87% (n=60) reported an income above RMB 8,000. In terms of residential location, 198 respondents (65.56%) resided in urban areas, while 104 respondents (34.44%) were from rural areas or urban-rural fringe zones. Regarding health insurance coverage, 43.71% of respondents (n=132) were enrolled in Urban Employee Basic Medical Insurance, 48.34% (n=146) participated in Urban-Rural Resident Basic Medical Insurance, and 7.95% (n=24) were either not covered by basic medical insurance or relied primarily on commercial insurance or out-of-pocket payments.

In relation to chronic disease characteristics, 41.06% of respondents were diagnosed with hypertension, 33.11% with diabetes, and 25.83% with

cardiovascular diseases or other chronic conditions requiring long-term medication. With respect to monthly medication expenditures, 19.21% of respondents (n=58) reported average out-of-pocket expenses below RMB 200, 34.44% (n=104) reported expenditures between RMB 201 and RMB 500, 27.15% (n=82) reported expenditures between RMB 501 and RMB 1,000, and 19.21% (n=58) reported expenditures exceeding RMB 1,000. Overall, the demographic and disease-related characteristics of the sample display a reasonably dispersed and well-structured distribution across multiple key dimensions. This well-balanced distribution thereby provides a stable and robust empirical foundation for conducting subsequent structural model estimation and hypothesis testing.

Table 1. Sample profile and descriptive statistics (N=302).

Category	Variable	Frequency (N)	Percentage (%)
Gender	Male	162	53.64
	Female	140	46.36
Age (years old)	≤30	28	9.27
	31-40	64	21.19
	41-50	92	30.46
	51-60	74	24.50
	≥61	44	14.58
Education level	Junior high school or below	48	15.89
	High school/Technical secondary school	86	28.48
	College diploma	78	25.83
	Bachelor’s degree or above	90	29.80
Monthly personal income (RMB)	≤3,000	66	21.85
	3,001-5,000	94	31.13
	5,001-8,000	82	27.15
	≥8,001	60	19.87
Residential area	Urban	198	65.56
	Rural/Urban-rural fringe	104	34.44
Type of medical insurance	Urban employee basic medical insurance	132	43.71
	Urban-rural resident basic medical insurance	146	48.34
	Commercial insurance/Self-paid	24	7.95
Type of chronic disease	Hypertension	124	41.06
	Diabetes	100	33.11
	Cardiovascular and other chronic diseases	78	25.83
Monthly out-of-pocket medication expenditure (RMB)	≤200	58	19.21
	201-500	104	34.44
	501-1,000	82	27.15

Category	Variable	Frequency (N)	Percentage (%)
	≥1,001	58	19.21

Reliability and validity assessment

Prior to the structural model analysis, the reliability and validity of the measurement model were systematically assessed to ensure that all latent constructions were measured in a stable and effective manner. Based on the 302 valid responses, internal consistency reliability was evaluated for all latent variables using SmartPLS. The results show that the Cronbach's alpha for health insurance policy support intensity is 0.842, with a composite reliability (CR) of 0.873, while for medical knowledge level it is 0.876, with a CR of 0.896. The Cronbach's alpha for purchase confidence is 0.901, with a CR of 0.924, and for medical insurance policy support it is 0.889, with a CR of 0.907. All values substantially exceed the recommended threshold of 0.700, demonstrating satisfactory internal consistency and measurement stability for all constructions (as shown in Table 2).

Table 2. Reliability and convergent validity of measurement model (N=302).

Construct	Cronbach's α	Composite reliability (CR)	AVE
Health insurance policy support	0.842	0.873	0.574
Medical knowledge level	0.876	0.896	0.602
Purchase confidence	0.901	0.924	0.667
Purchase intention of originator drugs	0.889	0.907	0.641

With respect to convergent validity, the standardised factor loadings of the five measurement items for health insurance policy support intensity are 0.721, 0.748, 0.783, 0.806, and 0.829, respectively. The corresponding item loadings for medical knowledge level are 0.734, 0.762, 0.801, 0.825, and 0.847. Those for purchase confidence are 0.768, 0.804, 0.836, 0.858, and 0.881; and those for intention to purchase originator drugs are 0.742, 0.779, 0.812, 0.834, and 0.869. All factors loading are statistically significant and exceed the recommended threshold of 0.700. Consistently, the average variance extracted (AVE) values for health insurance policy support intensity, medical knowledge level, purchase confidence, and intention to purchase originator drugs are 0.574, 0.602, 0.667, and 0.641, respectively, all of which surpass the minimum criterion of 0.500, indicating adequate convergent validity (as shown in Table 3).

Table 3. Standardized factor loadings of measurement items.

Construct	Item	Standardised factor loadings
Health insurance policy support	MIPS1	0.721
	MIPS2	0.748
	MIPS3	0.783
	MIPS4	0.806
	MIPS5	0.829
	AVE	0.574

Construct	Item	Standardised factor loadings
Medical knowledge level	MKL1	0.734
	MKL2	0.762
	MKL3	0.801
	MKL4	0.825
	MKL5	0.847
	AVE	0.602
Purchase confidence	PC1	0.768
	PC2	0.804
	PC3	0.836
	PC4	0.858
	PC5	0.881
	AVE	0.677
Intention to purchase originator drugs	PI1	0.742
	PI2	0.779
	PI3	0.812
	PI4	0.834
	PI5	0.869
	AVE	0.641

Discriminant validity was assessed using both the Fornell-Larcker criterion and cross-loading analysis. The square roots of the AVE values for health insurance policy support intensity, medical knowledge level, purchase confidence, and purchase intention are 0.758, 0.776, 0.817, and 0.801. Respectively, all of which are higher than the corresponding inter-construct correlation coefficients. In addition, the cross-loading results show that each measurement item loads more strongly on its associated latent construct than on any other construct, further confirming satisfactory discriminant validity at the construct level. Taken together, the measurement model demonstrates adequate reliability and validity, thereby meeting the prerequisite conditions for subsequent structural model estimation and hypothesis testing (as shown in Table 4).

Table 4. Discriminate validity (Fornell-Larcker criterion).

Construct	MIPS	MKL	PC	PI
Health insurance policy support (MIPS)	0.758	/	/	/
Medical knowledge level (MKL)	0.462	0.776	/	/
Purchase confidence (PC)	0.513	0.547	0.817	/
Purchase intention (PI)	0.489	0.521	0.603	0.801

Common method bias assessment

Given that this study employs cross-sectional, self-reported questionnaire data, potential common method bias (CMB) was carefully addressed at both the research design and data analysis stages. At the procedural level, the survey was administered anonymously, and respondents were explicitly informed in the introductory instructions that the study was conducted solely for academic purposes and did not involve any collection of personally identifiable information, thereby reducing social desirability bias. In addition, measurement items for different latent constructs were deliberately mixed rather than grouped by construct, avoiding the consecutive presentation of items measuring the same construction. The wording of the items was also carefully designed to minimise overt value judgements or strongly evaluative expressions, thereby reducing the likelihood of consistency motifs and response priming.

At the statistical level, following the partial least squares structural equation modelling (PLS-SEM) approach, a full collinearity assessment was conducted by examining the variance inflation factors (VIFs) of all latent variables in the model. The results show that the VIF value for health insurance policy support intensity is 1.87, for medical knowledge level is 2.14, for purchase confidence is 2.41, and for intention to purchase originator drugs is 1.32. All VIF values are well below the recommended threshold of 3.30, indicating the absence of serious collinearity problems attributable to common method variance. Taken together, the procedural remedies and statistical evidence suggest that the data in this study are not subject to significant systematic common method bias and are therefore suitable for subsequent structural path analysis and hypothesis testing.

Structural model assessment and hypothesis testing results

After confirming the adequacy of the measurement model and the reliability of the data, the structural model was subsequently evaluated. Path coefficients were estimated using SmartPLS, and their statistical significance was assessed through the Bootstrap resampling procedure with 5,000 subsamples (as shown in Figure 1).

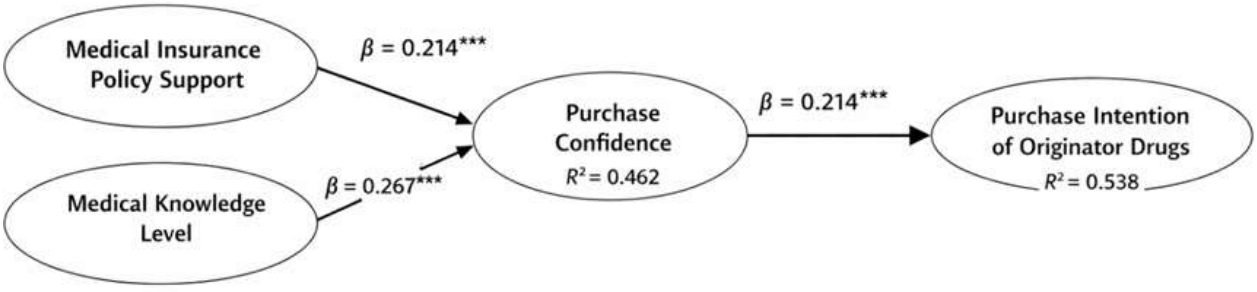

Figure 1. Structural model result.

The results indicate that health insurance policy support intensity has a significant positive effect on intention to purchase originator drugs, with a standardised path coefficient of 0.214 ($p<0.01$), providing support for H_1 (as shown in Table 5). Medical knowledge level also exerts a significant positive effect on intention to purchase originator drugs, with a standardised path coefficient of 0.267 ($p<0.001$), thus supporting H_2.

Regarding the mediating effects, health insurance policy support intensity shows a significant positive effect on purchase confidence ($\beta=0.301$, $p<0.001$),

and purchase confidence, in turn, significantly influences intention to purchase originator drugs (β=0.352, p<0.001). The Bootstrap confidence interval for the indirect effect does not include zero, indicating that purchase confidence plays a significant mediating role in the relationship between health insurance policy support intensity and intention to purchase originator drugs. Accordingly, H_3 is supported. Similarly, medical knowledge level exerts a significant indirect effect on intention to purchase originator drugs through purchase confidence (β=0.189), and the indirect effect is statistically significant, providing support for H_4. In terms of the overall explanatory power of the model, the coefficient of determination (R^2) for purchase confidence is 0.462, while the R^2 value for intention to purchase originator drugs is 0.538, indicating that the structural model explains a substantial proportion of variance in the core endogenous variables.

For clarity of presentation, all hypothesis testing results are summarised in Table 6, with standardised path coefficients, significance levels, and hypothesis support status explicitly reported. Overall, the empirical findings confirm that all proposed hypotheses are statistically supported by the data. The structural model demonstrates satisfactory explanatory performance and inferential validity.

Table 5. Structural model path coefficients and hypothesis testing results.

Hypothesis	Structural path	Standardized coefficient	t-value	p-value	Result
H_1	Health insurance policy support → Purchase intention	0.214	2.860	0.004	Supported
H_2	Medical knowledge level → Purchase intention	0.267	3.940	< 0.001	Supported
H_3	Health insurance policy support → Purchase confidence	0.301	4.780	< 0.001	Supported
H_4	Purchase confidence → Purchase intention	0.352	5.260	< 0.001	Supported

Table 6. Mediation effects of purchase confidence (Bootstrap results).

Indirect path	Indirect effect (β)	Bootstrapped t-value	95% CI (Lower)	95% CI (Upper)	Mediation type	Result
Health insurance policy support → Purchase confidence → Purchase intention	0.106	3.67	0.058	0.168	Partial mediation	Supported
Medical knowledge level → Purchase confidence → Purchase intention	0.189	4.21	0.112	0.274	Partial mediation	Supported

Main findings

Based on the structural equation modelling results obtained from 302 valid samples, this study systematically examines the mechanisms through which health insurance policy support intensity and medical knowledge level influence Chinese chronic disease patients' intention to purchase originator drugs under the National Centralised Volume-Based Procurement (VBP) policy. The empirical results indicate that health insurance policy support intensity exerts a significant positive effect on patients' intention to purchase originator drugs, thereby supporting H_1. Medical knowledge level also has a significant positive impact on intention to purchase originator drugs, with a relatively stronger effect size, providing support for H_2. These findings suggest that even in a policy environment where the VBP system continuously compresses the market space for originator drugs and grants generics clear institutional advantages in reimbursement and prescribing processes, patients do not respond purely passively to institutional arrangements. Instead, their purchasing intentions are jointly shaped by external policy conditions and internal cognitive capacities.

On the one hand, health insurance policies directly influence patients' assessments of the economic affordability and practical feasibility of originator drugs through reimbursement rates, payment rules, and accessibility arrangements. On the other hand, patients with higher levels of medical knowledge are better able to understand drug differences and long-term treatment risks, thereby retaining a subjective preference for originator drugs in their medication decisions. This finding directly addresses the core research question of whether institutional and individual cognitive factors continue to influence originator drug purchase intention under the VBP regime and empirically confirms the independent explanatory power of both categories of factors.

Further mediation analysis reveals that purchase confidence plays a significant mediating role in the relationships between health insurance policy support intensity, medical knowledge level, and intention to purchase originator drugs, thus supporting H_3 and H_4. Specifically, health insurance policy support intensity not only directly affects patients' purchase intention, but also indirectly enhances it by strengthening patients' confidence in the payment sustainability and medication safety of originator drugs. Similarly, medical knowledge level significantly increases purchase confidence by shaping patients' judgements regarding the stability of therapeutic efficacy and the long-term value of originator drugs, which in turn translates into stronger purchase intention. From the overall model perspective, the structural model demonstrates strong explanatory power for both purchase confidence and intention to purchase originator drugs. This indicates that, within a medication environment dominated by the VBP system, patients' medication decisions are not determined solely by price or institutional constraints but are formed through a progressive transmission pathway of "institutional cognition-psychological trust-behavioural intention". These findings not only validate the theoretical positioning of purchase confidence as a key psychological mediating mechanism but also respond to the insufficient attention paid in existing studies to patient-level psychological processes. More importantly, they provide nuanced and empirically grounded evidence for understanding why patients' intention to purchase originator drugs has not completely disappeared under the VBP regime.

Research contributions

From an academic and theoretical perspective, this study offers targeted extensions to the existing literature on pharmaceutical policy and patient

behaviour. Prior research on the VBP system has predominantly focused on price mechanisms, market restructuring, or firm-level competitive dynamics, while patient-level analyses are often simplified as passive responses to price changes, implicitly if the VBP policy would compress or even eliminate patient preferences for originator drugs through institutional constraints. In contrast, the empirical findings of this study demonstrate that even after the VBP system has become deeply embedded in the medication environment, patients do not mechanically respond to institutional incentives. Their purchase intentions remain significantly influenced by both health insurance policy support intensity and individual medical knowledge level. More importantly, by introducing purchase confidence as a psychological mediating variable, this study reveals that institutional and cognitive factors do not translate directly into purchasing behaviour. Instead, they shape patients' purchase intention indirectly by influencing trust-based judgements regarding the stability of therapeutic efficacy, payment sustainability, and long-term medication safety of originator drugs. Theoretically, this finding moves beyond a narrow interpretation of VBP effects as purely "price suppression outcomes", repositioning patient medication decisions within a comprehensive analytical chain of "institutional environment-cognitive capacity-psychological mechanism-behavioural intention". In doing so, it addresses the long-standing neglect of patient-level psychological transmission mechanisms in the literature and provides a testable analytical pathway for future research at the intersection of behavioural medicine, health economics, and policy evaluation.

From an industry and practical perspective, the findings offer actionable insights into health insurance policy design, clinical medication management, and strategic adjustment within the pharmaceutical sector.

The results indicate that the implementation of the VBP system does not imply the natural disappearance of patient demand for originator drugs. Instead, the degree of refinement in health insurance policy support and patients' medical knowledge levels continue to exert substantial influence on the acceptance and selection of originator drugs. This suggests that policy practices relying solely on administrative and pricing instruments to promote generic substitution, while neglecting patients' psychological evaluations of medication safety and long-term efficacy, may generate new risks related to trust and adherence in chronic disease management. The mediating role of purchase confidence identified in this study implies that clearer reimbursement rules, more stable policy expectations, and systematic dissemination of medical knowledge can help alleviate patients' uncertainty under the VBP environment, thereby promoting more rational and stable medication decisions. For healthcare institutions, these findings underscore the importance of clinical communication and patient education under the VBP regime. For pharmaceutical firms, the results indicate that the competitive advantage of originator drugs no longer lies primarily in price or brand premiums but increasingly depends on their ability to strengthen patient trust and communicate long-term therapeutic value through compliant and transparent means. Overall, this study provides empirical evidence for understanding patients' "real responses" to the VBP system and offers practical reference points for achieving a more balanced development path between efficiency objectives and patient perceptions.

Policy implications

The empirical findings of this study suggest that under the continued implementation of the National Centralised Volume-Based Procurement policy,

chronic disease patients' intention to purchase originator drugs has not been fully replaced by institutional arrangements but is gradually shaped through the combined effects of health insurance policy support mechanisms and patients' medical knowledge levels. This conclusion offers important implications for current health insurance policy practices that prioritise cost containment and efficiency. First, while maintaining the overall direction of the VBP system, health insurance policy design should move beyond a uniform substitution logic toward more refined support mechanisms, particularly in the context of long-term chronic disease treatment, where patients' needs for treatment continuity and psychological security must be carefully considered. The results show that health insurance policy support not only directly affects medication choices, but also indirectly influences behavioural intention by shaping purchase confidence. This indicates that policy transmission occurs not only at the price level, but also through patients' psychological expectations. Accordingly, health insurance authorities should strive to reduce uncertainty regarding long-term medication burden by providing clearer, more stable, and more predictable reimbursement arrangements, thereby preventing ambiguous policy interpretation or unstable expectations from undermining patients' confidence in rational medication decisions.

Second, the finding that medical knowledge level significantly affects intention to purchase originator drugs carries direct implications for chronic disease management and public health governance. The results indicate that patients with higher levels of medical knowledge are better able to understand differences among drugs under the VBP regime and to form relatively independent judgements in medication decisions. This suggests that reliance on institutional constraints and price signals alone is insufficient to achieve genuinely rational medication use. Consequently, policy practice should more closely integrate medical knowledge dissemination with long-term chronic disease management through systematic and accessible health education initiatives. Enhancing patients' understanding of generic drug consistency evaluation, bioequivalence, and long-term medication risks can reduce passivity and blind conformity in medication choices. For healthcare institutions, this implication highlights that physicians' roles under the VBP regime should extend beyond policy execution to include compliant communication and risk explanation, helping patients form reasonable expectations regarding treatment outcomes and thereby improving adherence and long-term management effectiveness.

Finally, from the perspective of pharmaceutical industry operations and market dynamics, the findings provide important reference points for originator drug manufacturers and related stakeholders. The study demonstrates that patients' intention to purchase originator drugs does not depend solely on price or reimbursement ratios but is highly contingent on trust-based judgements regarding therapeutic stability and long-term safety. This implies that under the normalised operation of the VBP system, the competitive advantage of originator drugs no longer rests on institutional protection or brand premiums alone, but increasingly on their ability to strengthen patient trust through compliant, transparent, and policy-aligned approaches. For firms, this suggests greater emphasis on real-world evidence generation, patient education support, and regulated collaboration with healthcare institutions, thereby maintaining a reasonable position in long-term chronic disease treatment without opposing the VBP policy framework. Overall, the study indicates that the

effective implementation of the VBP system depends not only on institutional instruments, but also on the coordinated functioning of patient trust and cognitive mechanisms. Only through a more balanced policy design that aligns efficiency objectives with patient perceptions can the long-term stability of the chronic disease medication system be ensured.

Conclusion

Research limitations and future research directions

Despite efforts to ensure rigour in theoretical construction and empirical analysis, this study is subject to several limitations. First, at the research design level, the use of cross-sectional survey data allows for effective capture of patients' cognitive and behavioural characteristics at a specific stage of VBP implementation but limits the ability to examine dynamic adjustments in medication decisions over time. As the VBP system continues to expand and its rules become more refined, health insurance payment mechanisms, clinical treatment pathways, and patients' cognitive structures may undergo phased changes. Cross-sectional data are inherently constrained in depicting such long-term evolutionary processes. Future research could adopt longitudinal designs or repeated surveys to examine temporal changes in patients' attitudes toward originator and generic drugs, thereby providing a more comprehensive assessment of the long-term behavioural effects of the VBP policy in chronic disease management.

Second, with respect to research methods and variable measurement, this study primarily relies on self-reported questionnaire data to assess psychological constructs such as perceived health insurance policy support, medical knowledge level, and purchase confidence. Although multiple procedural and statistical remedies were employed to mitigate common method bias, subjective perception measures may still be influenced by individual interpretation differences or situational factors. In addition, the measurement of medical knowledge in this study focuses primarily on patients' understanding of drug differences and medication risks, without further differentiating the heterogeneous effects of different types of medical knowledge on medication decisions. Future studies could complement quantitative approaches with interviews or experimental methods to achieve more granular measurement of patients' medical cognition, while incorporating real prescription data, medication records, or insurance settlement data to enhance the behavioural validity and explanatory power of the findings.

Finally, in terms of sample scope and contextual applicability, this study focuses on chronic disease patients in China and examines medication purchase intention under the National Centralised Volume-Based Procurement policy. Therefore, the findings are therefore embedded within China's specific health insurance system and procurement framework and may not be directly generalisable to other institutional contexts. Given the substantial cross-national differences in pharmaceutical payment mechanisms, physician prescribing authority, and patient decision-making models, future research could extend this framework through cross-regional or cross-system comparative studies. Such research would enable examination of the commonalities and divergences in patient medication behaviour across different institutional settings, thereby further testing the external validity of the proposed "institutional support-cognitive capacity-purchase confidence-behavioural intention" framework. In addition, future studies may incorporate contextual variables such as disease severity, treatment stage, or strength of physician recommendations to further enrich

understanding of the complexity underlying chronic disease patients' medication decision-making processes.

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Conflicts of Interest

The authors declare no conflicts of interest.

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