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Insurance Plan Choice among Cancer Patients in China: A Structured Narrative Review and Research Agenda

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Abstract: Cancer patients in China navigate a complex and uneven insurance landscape, making plan choice critical for equitable financial protection. This study conducts a structured narrative review (2010–2025) of the Web of Science, PubMed, CNKI, and Wanfang databases, focusing on empirical research on insurance plan choice, enrollment, or switching among cancer patients and their households in China. Two reviewers independently screened studies and extracted information on key determinants and identification strategies. The evidence converges on five main determinants: insurance literacy, health knowledge, prior coverage, financial capability, and policy promotion intensity (PPI). However, most studies are cross-sectional and descriptive, with inconsistent operationalization of determinants, weak or absent mediation tests for PPI, and limited coverage of rural, elderly, and low-literacy populations. Building on these gaps, we synthesize an evidence map, propose an operational PPI index, and highlight quasi-experimental opportunities (such as staggered NRDL updates and variation in local publicity efforts) to identify mechanisms and inform more inclusive, patient-centered insurance design in China.

Keywords: Cancer patients; Insurance literacy; Financial capability; Policy promotion intensity; Plan selection; China; Review

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1. Introduction

Cancer care is increasingly recognized as a key driver of household financial hardship in low- and middle-income countries. Even where formal coverage is widespread, high co-payments, exclusions and non-medical costs can push families into debt or poverty [1,2]. China has expanded health insurance through the Urban Employee Basic Medical Insurance (UEBMI) and the Resident Basic Medical Insurance (RBMI), yet many cancer patients still experience catastrophic health spending and must navigate a complex mix of basic, critical-illness, and commercial products [3,4]. In this context, choosing an appropriate insurance plan is both a financial and

informational challenge. Patients need to understand coverage rules, anticipate treatment trajectories, and reconcile premiums with household budgets. The decision process is influenced not only by individual resources but also by how policies are communicated and implemented [5,6]. Existing literature points to several recurring determinants of plan choice: insurance literacy, health knowledge, prior coverage experience, financial capability, and policy promotion intensity (PPI) [7–11]. However, evidence is fragmented across different populations and designs, and few studies explicitly focus on cancer patients in China. This review, therefore, (1) sketches the institutional context of cancer-related insurance, (2) synthesizes empirical findings on the five determinants, (3) links them to established behavioural theories, and (4) outlines a future research agenda with a particular emphasis on China.

2. Historical and institutional context

Since the late 1990s, China has moved from a fragmented system towards near-universal insurance coverage, mainly through UEBMI and the integration of rural and urban resident schemes into RBMI [12,13]. To address catastrophic costs, high-priced oncology drugs have been progressively incorporated into the National Reimbursement Drug List (NRDL) and dedicated critical-illness schemes. Despite these reforms, benefit levels, reimbursement rates, and access to innovative cancer therapies vary across regions and insurance types [14,15]. Patients must decide whether to rely on basic coverage alone, purchase supplementary commercial or critical-illness products, or adjust coverage in response to changing health and financial conditions. These choices are shaped by the five determinants reviewed below and by the broader health system context [2,3].

3. Methods for the review

We adopted a structured narrative review approach. Searches were conducted in Web of Science, PubMed, CNKI, and Wanfang for 2010–2025 using combinations of terms related to cancer, insurance plan choice or enrollment, literacy, health knowledge, financial capability, prior coverage, policy promotion, and China. Detailed search strings can be reported in an appendix if required. Studies were eligible if they (1) focused on cancer patients or their households in China, and (2) reported outcomes related to plan choice, enrollment, switching behaviour or financial protection. The study excluded editorials, commentaries and purely theoretical papers. Two reviewers independently screened titles and abstracts, reviewed full texts, and extracted information on setting, population, determinants, study design, and identification strategy. Risk of bias was assessed with regard to sampling, measurement, and basic confounding control. In total, 34 studies were retained and organized into an evidence map around the five determinants. Records identified: 684 (CNKI 340; WOS 112; PubMed 90; Wanfang 142); after deduplication: 521; titles/abstracts screened: 521; records excluded at screening: 409; full-text assessed: 112; full-text excluded: 78 (wrong population 24; missing outcome 21; editorial/commentary 18; not empirical 15); studies included: 34.

4. Determinants of insurance plan choice

Insurance Literacy refers to the ability to understand policy terms, benefit structures and claims procedures. Low literacy is associated with under-insurance, higher out-of-pocket expenditure and delayed or forgone care [5,7]. In Chinese studies, limited awareness of entitlements and reimbursement rules is a recurrent theme, especially among rural and elderly patients [12,16]. However, most work relies on self-reported literacy scales and cross-sectional

designs, which makes it difficult to separate cause and effect or to analyze long-term coverage trajectories. Health knowledge encompasses awareness of disease risks, treatment pathways and long-term care needs. Patients with better knowledge are more likely to anticipate future medical expenses, seek early diagnosis and select more comprehensive coverage [8,17]. For cancer patients, understanding the likely duration and cost of treatment is particularly important for avoiding underinsurance. Existing evidence suggests that targeted education can improve decision quality, yet most studies focus on single hospitals or metropolitan areas and rarely examine rural or low-literacy populations. Prior Insurance Coverage acts as a learning mechanism. Negative experiences, such as denied claims or low reimbursement, encourage switching or the purchase of supplementary products, while positive experiences foster loyalty and renewal [18,19]. For cancer patients facing repeated hospitalizations, these experiences are especially salient. However, Chinese studies typically use small samples or local surveys and seldom follow patients over time to capture dynamic coverage paths. Financial capability, including income, assets, and financial literacy, strongly constrains or enables insurance choices [20,21]. Households with higher and more stable income are more likely to opt for plans with broader benefits and lower cost-sharing, while poorer households often face difficult trade-offs between premiums and immediate living expenses [9,22]. Few studies explicitly model how shocks, such as job loss or other family illnesses, affect plan choice among cancer patients, and financial capability is often proxied only by income. Policy promotion intensity (PPI) captures the scale and quality of communication about insurance options through government campaigns, community outreach, hospital counselling and digital platforms. Studies show that strong promotion improves awareness and enrolment in public schemes, particularly among disadvantaged groups [10,11]. Yet PPI is seldom operationalized as a quantitative index, and its mediating role between individual determinants (literacy, knowledge, capability) and actual plan choice has rarely been formally tested. This represents a major opportunity for research on cancer-related insurance in China.

5. Theoretical perspectives

The five determinants can be situated within three complementary behavioural frameworks. The HBM links insurance literacy and health knowledge to perceived susceptibility, severity, benefits, and barriers, while PPI serves as a cue to action that may trigger enrollment [23,24]. The TPB highlights attitudes, subjective norms, and perceived behavioural control; financial capability and prior coverage experiences shape perceived control, and promotion can shift attitudes and social expectations towards insurance uptake [25,26]. Insights from behavioural economics further suggest that plan choice occurs under bounded rationality, with framing, loss aversion and present bias making defaults, complexity and timing of information as important as the underlying benefit package [27]. Together, these perspectives provide a conceptual basis for interventions that target specific informational, financial, and behavioural barriers to optimal plan selection among cancer patients.

Table 1. Evidence matrix by determinant and study design

Determinant	Representative studies	Setting/Population	Design	Identification notes	Key effect direction
Insurance literacy	Adepoju 2021; selected CNKI studies (2016–2024)	China (urban/rural), mixed cancer	Cross-sectional	Self-report; reverse causality risk; measurement heterogeneity	↑ comprehensive plan uptake; ↓ OOP
Health knowledge	Selected CNKI studies; international education/counseling syntheses	China hospitals; oncology clinics	Cross-sectional; pilot interventions	Knowledge score validity; unmeasured confounding	↑ uptake of comprehensive coverage; ↑ preventive add-ons
Prior coverage/ experience	Administrative records & patient surveys (2015–2024)	Survivors & caregivers	Panel/quasi-experiment (where available)	Satisfaction & claim success drive switching; selection bias	→ switching to suitable plans; mixed effect sizes
Financial capability	Abrams et al. 2021; CNKI income/asset studies	Urban/rural households	Cross-sectional; multi-level	Endogeneity (income–health); consider instruments/shocks	↑ adequate plan choice with liquidity; ↓ lapses
PPI (policy promotion)	An et al. 2023; local campaigns; NRDL timing	China (city/county-year)	Natural experiments (limited)	Exposure measurement; parallel-trends diagnostics	↑ enrollment/ retention; ↑ supplemental uptake

Across the 34 included studies, three gaps stand out. First, there is a strong urban and eastern bias; evidence on rural, western, elderly and low-literacy populations remains limited, although these groups are most vulnerable to financial toxicity [2,3]. Second, causal identification is weak: cross-sectional surveys dominate, and only a few papers exploit policy variation such as NRDL updates or local pilot programmes [14,16]. Third, PPI has not been systematically measured, and its mediating or moderating roles are rarely quantified. Future work should develop an operational PPI index that combines local publicity budgets, community events, hospital counselling resources and online information metrics [10,11], and link this to patient-level data to test how promotion interacts with literacy, knowledge and financial capability in shaping insurance choices.

6. Conclusion

Insurance plan selection among cancer patients in China is shaped by a combination of individual capacities, insurance literacy, health knowledge, prior coverage experience, and financial capability, and systemic factors, especially policy promotion intensity. While existing studies provide valuable insights, they are uneven in coverage and limited in causal identification. By integrating behavioural theories with an evidence-based focus on these five determinants, and by improving measurement of PPI and use of quasi-experimental designs, future research can better inform reforms aimed at protecting cancer patients from financial catastrophe and promoting more equitable access to needed care [1,6].

Disclosure statement

The authors declare no conflict of interest.

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