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Decision-making evolution and two-way concealment in active self-reduction of medication among older adults with multimorbidity and polypharmacy: a qualitative study

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Research Article

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Abstract

Background

Older adults with multimorbidity and polypharmacy sometimes reduce their prescribed medicines without professional authorisation, yet the hidden decision process behind this active self-reduction, and how patients simultaneously manage information towards clinicians and family, remain poorly understood, particularly in family-care settings. This study explored how older adults in China initiate, trial and conceal active self-reduction in order to inform patient-oriented, out-of-hospital medication-safety nursing.

Methods

A descriptive phenomenological qualitative study was conducted. Between January and March 2026, maximum-variation purposive sampling recruited 15 older adults with multimorbidity and polypharmacy from a tertiary hospital geriatric outpatient clinic and a community health service centre in eastern China. Face-to-face, semi-structured interviews (30–45 minutes) were analysed using Colaizzi's seven-step method, sensitised by the common-sense model of self-regulation and communication privacy management theory. Reporting follows the COREQ checklist.

Results

Three themes and nine sub-themes emerged: decision triggers (somatic symptoms and adverse reactions; traditional medication beliefs amplified by online information; cost and access constraints); the practice process and information management (reversible trials and trajectory divergence; two-way concealment from clinicians and family; reconciling perceived benefit with guilt); and medication-support needs (individualised guidance, non-judgemental communication and continuous primary care). Self-reduction followed a trigger–weighing–trial–judgement–divergence trajectory that ended in a retreat, oscillating or entrenched pattern. Two-way concealment created a dual blind spot for clinicians and families.

Conclusions

Active self-reduction is intentional self-regulation shaped by bodily perception, culturally rooted beliefs, economic burden and healthcare accessibility rather than simple non-adherence. Out-of-hospital medication nursing should shift from adherence supervision to supported self-regulation, extending nurse-led medication reconciliation and non-judgemental, continuous care into the community and engaging family caregivers.

Background

Population ageing has made multimorbidity—defined here as the coexistence of two or more clinically confirmed chronic conditions—and polypharmacy, conventionally defined as the daily use of five or more medicines, defining features of later-life clinical care worldwide [1, 2]. In China, polypharmacy has been reported in 21.8% of community-dwelling older people and in as many as 66.9% of hospitalised older patients [3]. Polypharmacy raises the risk of drug–drug interactions and cumulative adverse reactions [4] and is closely associated with falls, readmission and functional decline [5].

Adherence theory distinguishes unintentional non-adherence from intentional non-adherence, the latter denoting a conscious decision by patients to alter their regimen after weighing perceived treatment necessity against treatment-related concerns [6]. This distinction classifies behaviour but does not lay bare the internal decision process behind it.

International studies indicate that older patients commonly prefer to reduce medication, but such decisions are often reached through shared clinician–patient discussion [7], which differs from the private, undisclosed adjustment observed among Chinese patients. Domestic studies have examined medication confusion among older people with chronic disease and the medication self-management experience of patients with multimorbidity [8], yet self-adjustment has mostly been treated as one dimension of adherence rather than as a phenomenon in its own right, and the complete chain from the first emergence of the idea to its stabilisation in behaviour has rarely been reconstructed. Moreover, prior work has concentrated on one-way clinician–patient communication and has paid little attention to how patients simultaneously manage two information channels—clinicians and family—within the indigenous Chinese family context [9].

Three complementary bodies of work frame this study. The first is the common-sense model of self-regulation (CSM) [10], which holds that individuals develop coping strategies from their common-sense representations of illness and treatment and then adjust their behaviour through the continuous appraisal of feedback, forming a dynamic self-regulatory loop. The CSM allows active self-reduction to be examined not as a single act but as a continuous process that can be triggered, weighed, trialled and differentiated by feedback. The second is the Necessity–Concerns Framework [11], which predicts that patients lean towards active adjustment when concerns about adverse effects outweigh their belief in treatment necessity; a Chinese meta-analysis supports the framework's relevance in the Chinese medication-taking population [12]. The third is communication privacy management theory (CPM) [13], which posits that people own their private information, draw boundaries around it and, once information is disclosed, make the recipient a co-owner; intersecting boundaries create points at which information can leak. CPM offers a language for understanding why patients may need to manage disclosure towards more than one audience at once.

The Chinese setting shapes these processes in distinctive ways. First, traditional Chinese medicine culture carries the deeply shared belief that "every medicine carries three parts poison" and the therapeutic principle of stopping treatment once the illness is checked, which sit in tension with the modern goals of lifelong chronic-disease control. Second, health information now reaches older adults principally through short-video platforms such as Douyin and WeChat and through televised yangsheng (health cultivation) programmes, whose accessible language and algorithmic repetition reinforce credibility [14], even though older users often struggle to judge how such information applies to their own complex regimens [15]. Third, under China's familist care culture and filial-obligation norms, adult children routinely accompany visits, describe the patient's illness and collect medicines on the patient's behalf [9, 16], so that family is an active information channel rather than a passive backdrop. Finally, China's tiered diagnosis-and-treatment system and fragmented insurance schemes—urban employee insurance, urban–rural resident insurance and the former new rural cooperative scheme—structure both the cost of medicines and the accessibility of professional dose adjustment [17, 18].

The potential added value of this study is therefore more than a national gap-filling exercise. Theoretically, it uses the CSM to expose a structural defect in the self-regulatory loop—the absence of objective feedback—and extends CPM to explain the coordinated management of dual information boundaries towards clinicians and family. Practically, it identifies the support needed to channel older adults' informal self-regulation into professional care, which is relevant wherever ageing populations combine polypharmacy with family-based care. Using semi-structured in-depth interviews, this study examined how older adults with multimorbidity and polypharmacy come actively to reduce their medication, what they experience in doing so, and what nursing support they need. The research question was: how and why do these older adults initiate, trial, conceal and consolidate the active self-reduction of medication, and what trajectories and support needs follow from that process?

Methods

Study design

A descriptive phenomenological design was used to stay close to participants' lived experience, with Colaizzi's seven-step analytic method [19]. The CSM served as the primary sensitising framework for tracing the temporal decision process; the Necessity–Concerns Framework informed the analysis of treatment beliefs, and CPM informed the analysis of disclosure and concealment. The study is reported in accordance with the Consolidated Criteria for Reporting Qualitative Research (COREQ) 32-item checklist (Additional file 1); the semi-structured interview guide is provided as Additional file 2.

Setting and participants

Participants were recruited from the geriatric outpatient department of a tertiary Grade A hospital—Grade A denotes the highest tier in China's hospital grading system—and a community health service centre in a province of eastern China, between January and March 2026. Purposive sampling followed the principle of maximum variation: age, sex, education, living arrangement, insurance type, number of chronic conditions, number of daily medicines and the principal reason for reduction were deliberately varied to enrich the internal dimensions of the decision logic. Recruitment and analysis proceeded concurrently, and sampling stopped when no new themes emerged (data saturation). No new themes appeared in the principal disease-dimension categories by the 14th interview; one further interview confirmed saturation, yielding a final sample of 15, coded P1–P15.

Inclusion criteria were: (1) aged 60 years or older; (2) two or more clinically confirmed chronic conditions with regular oral use of five or more prescribed medicines; (3) within the previous three months, having actively reduced a dose, lowered dosing frequency or stopped at least one prescribed medicine without guidance from a doctor or pharmacist, while being able to recall the process and subjective experience clearly; (4) intact cognition, fluent verbal expression and no communication barrier; and (5) provision of informed consent and voluntary participation. Exclusion criteria were: (1) end-stage failure of the heart, liver, kidneys or other major organs; and (2) cognitive impairment or a history of mental disorder that precluded accurate recall or clear expression.

Data collection

Data were collected through semi-structured in-depth interviews. After a systematic review of domestic and international literature on polypharmacy and self-medication behaviour in older adults, an initial interview guide was drafted around the core research question and revised following expert consultation with two geriatric specialist nurses and one clinical pharmacist. Before formal sampling, two patients meeting the inclusion criteria undertook pilot interviews; pilot data were used only to refine the guide and were excluded from the final analysis. The pilots revealed defensiveness towards technical terms such as "non-adherence" and fragmented recall of distant events. Judgemental wording was therefore replaced by the neutral term "adjustment", and retrospective narration was anchored to each participant's most recent episode of active self-reduction to reduce recall bias. The final guide followed the logic of current medication use → reduction process → feelings and coping afterwards → disclosure behaviour and reasons → information sources → support needs, and asked seven core questions (Additional file 2).

The two interviewers were nursing postgraduate students trained in qualitative methods and interviewing skills; neither had taken part in participants' clinical treatment or care before the study, and neither had a care relationship or conflict of interest with them. Before each interview, participants were told the study purpose, methods and confidentiality rules; after informed consent was obtained, interviews were audio-recorded with simultaneous field notes. Guided retrospective narration centred on the most recent episode and probed triggers, in-the-moment thoughts, bodily sensations and subsequent coping; leading questions were avoided, and probing and clarifying techniques were used as appropriate, with emotion, tone and body language recorded in real time. Interviews took place in quiet, private teaching rooms at the community health service centre or in hospital consulting rooms and lasted 30–45 minutes. Within 24 hours of each

interview, two researchers independently produced verbatim transcripts and cross-checked them; all data were anonymised.

Ethical considerations

Ethics committee approval was obtained from the Medical Ethics Committee of The First Affiliated Hospital of Shandong First Medical University (Shandong Provincial Qianfoshan Hospital) (approval number (2026) No. 113). All participants took part voluntarily and signed written informed consent. Participants were informed that they could withdraw at any time without affecting their care. Audio recordings and transcripts were stored securely, participants were identified only by codes (P1–P15), and all identifying information was removed during transcription.

Data analysis

Within 24 hours of each interview, recordings were transcribed verbatim, cross-checked by two researchers, anonymised and imported into NVivo version 12 for management. A complete audit trail of raw statements–codes–categories–themes was retained. Analysis followed Colaizzi's seven steps [19]: (1) researchers read all transcripts carefully to grasp participants' true feelings and expressions as a whole; (2) statements relating to the decision process, risk experience and nursing needs of active self-reduction were extracted; (3) recurrent, meaningful statements were coded; (4) codes were clustered into preliminary categories; (5) the internal links between themes and the phenomenon were described in detail; (6) similar statements were distinguished and theme concepts refined; and (7) findings were returned to participants for member-checking to safeguard validity. Throughout, two researchers trained in qualitative methods coded independently; disagreements were resolved through research-team discussion and consultation with one geriatric nursing expert to ensure that the analysis faithfully matched the raw data.

Rigour and reflexivity

Trustworthiness was addressed in line with established qualitative criteria [20, 21]. Credibility was promoted through independent dual coding, member-checking in the seventh Colaizzi step, expert debriefing and maximum-variation sampling; dependability and confirmability through the retained raw-statement-to-theme audit trail and cross-checking of transcripts; and transferability through thick description and the detailed participant profile in Table 1, which links every quoted participant to demographic and clinical characteristics. Reflexively, the interviewers had no prior care relationship with participants, deliberately used neutral rather than judgemental language, and maintained a non-blaming stance during analysis so that participants' own categories were not overridden by clinical labels.

Table 1
Demographic and clinical characteristics of interviewees (n = 15).

ID	Sex	Age	Education	Living arrangement	Insurance[1]	Main chronic conditions	Meds (n)	Core self-reduction behaviour
P1	Male	62	Junior high school	Living with children	UEBMI	Hypertension; coronary heart disease; hyperlipidaemia	6	Actively halved the atorvastatin dose
P2	Female	68	Primary school	Living alone	URRBMI	Hypertension; type 2 diabetes; osteoporosis	7	Changed metformin to alternate-day dosing
P3	Male	75	Junior college	Living with children	UEBMI	Hypertension; coronary heart disease; chronic bronchitis; benign prostatic hyperplasia	8	Stopped valsartan on his own initiative
P4	Female	65	Junior college	Living with spouse only	UEBMI	Hypertension; type 2 diabetes; hypothyroidism; chronic gastritis	7	Reduced then stopped rabeprazole
P5	Male	70	Primary school	Living alone	URRBMI	Hypertension; sequelae of cerebral infarction; hyperlipidaemia	6	Changed aspirin to alternate-day dosing
P6	Female	72	No formal schooling	Living with children	URRBMI	Hypertension; coronary heart disease; type 2 diabetes; osteoarthritis	9	Took celecoxib on demand
P7	Male	67	Junior high school	Living with spouse only	UEBMI	Hypertension; type 2 diabetes; fatty liver	5	Actively halved the metformin dose
P8	Female	78	Primary school	Widowed; living alone	UEBMI	Hypertension; coronary heart disease; osteoporosis; chronic kidney disease	8	Actively halved the valsartan dose
P9	Male	80	Senior high school	Living with children	UEBMI	Hypertension; coronary heart disease; benign prostatic hyperplasia; constipation	7	Stopped terazosin on his own initiative

Note. Of the 15 participants, nine were men and six women; age ranged from 62 to 80 years (mean 70.9 ± 5.6); daily medicines numbered 5–9 (mean 7.1 ± 1.1). Cardiovascular and metabolic conditions predominated, which constitutes one limitation of the sample (see Strengths and limitations). [1]Insurance follows China's principal statutory medical insurance schemes: UEBMI, Urban Employee Basic Medical Insurance; URRBMI, Urban–Rural Resident Basic Medical Insurance (which incorporates the former new rural cooperative medical scheme).

ID	Sex	Age	Education	Living arrangement	Insurance[1]	Main chronic conditions	Meds (n)	Core self-reduction behaviour
P10	Female	64	Junior high school	Living with spouse only	URRBMI	Hypertension; type 2 diabetes; chronic gastritis; insomnia	6	Actively halved the estazolam dose
P11	Male	73	Primary school	Widowed; living alone	URRBMI	Hypertension; chronic obstructive pulmonary disease; hyperlipidaemia	7	Took sustained-release theophylline on demand
P12	Female	69	Senior high school	Living with children	UEBMI	Hypertension; coronary heart disease; rheumatoid arthritis	8	Actively reduced methotrexate
P13	Male	66	Junior college	Living with spouse only	UEBMI	Hypertension; type 2 diabetes; coronary heart disease; gout	7	Stopped febuxostat on his own initiative
P14	Female	76	Primary school	Living with children	URRBMI	Hypertension; recovery stage of cerebral infarction; osteoporosis; chronic gastritis	7	Stopped mecobalamin on her own initiative
P15	Male	79	Junior high school	Living alone	UEBMI	Hypertension; coronary heart disease; chronic renal insufficiency; benign prostatic hyperplasia	9	Stopped hydrochlorothiazide on his own initiative

Note. Of the 15 participants, nine were men and six women; age ranged from 62 to 80 years (mean 70.9 ± 5.6); daily medicines numbered 5–9 (mean 7.1 ± 1.1). Cardiovascular and metabolic conditions predominated, which constitutes one limitation of the sample (see Strengths and limitations). [1]Insurance follows China's principal statutory medical insurance schemes: UEBMI, Urban Employee Basic Medical Insurance; URRBMI, Urban–Rural Resident Basic Medical Insurance (which incorporates the former new rural cooperative medical scheme).

Results

The 15 participants comprised nine men and six women, aged 62–80 years (mean 70.9, standard deviation 5.6 years), taking 5–9 medicines daily (mean 7.1, standard deviation 1.1). Cardiovascular and metabolic conditions predominated; detailed characteristics appear in Table 1. Analysis generated three themes and nine sub-themes: triggers of reduction; the practice process and information management; and medication-support needs. Active self-reduction was not a single impulsive act but an evolving trajectory of trigger–weighing–trial–judgement–divergence, kept outside professional view throughout by two-way concealment from clinicians and family (Fig. 1).

Theme 1: Triggers of active self-reduction in older patients

Somatic changes and adverse drug reactions

Most participants said that changes in bodily symptoms directly triggered the idea of reduction, in two ways: when symptoms eased and the condition appeared stable, they commonly judged that a dose could be reduced or a medicine stopped; and when they could not tolerate adverse reactions such as gastrointestinal discomfort, dizziness or fatigue, they actively reduced the dose to relieve the discomfort rather than passively missing doses.

“After I took it my calves always ached and my whole body felt heavy; I had no strength even climbing the stairs. I reckoned it was that statin doing it.” (P1)

“It always gave me a stomach ache, and acid reflux after meals—a burning that kept me awake at night. I thought I'd take it every other day: that way it still clears the vessels but doesn't hurt the stomach.” (P5)

Traditional medication beliefs and online health information as cognitive support

Participants widely held the belief that “every medicine carries three parts poison,” linking long-term medication with liver and kidney damage and the accumulation of toxins, and were particularly inclined to reduce the bodily burden once symptoms eased.

“Every medicine carries three parts poison; taking it for years injures the liver and kidneys. Now that my lipids are normal I don't need to take so much.” (P3)

“Chronic bronchitis can't be cured; taking medicine all the time is useless and only harms the body. One medicine fewer is one less burden.” (P11)

Several participants also described learning about illness through Douyin and WeChat short videos and televised health programmes; their plain language and repeated algorithmic delivery kept reinforcing the credibility of the content, yet participants could rarely judge which disease and medication situation the information applied to. They often transferred individual experience drawn from a single-disease setting directly to their own complex multimorbidity regimen and invoked such information when the idea of reduction arose.

“My uric acid was normal three tests running—I'd hit target—so I felt there was no need to take it every day, and the experts on my phone also said you can stop once the indicator is normal.” (P13)

“I always felt the statin was optional—isn't it just for lowering lipids? Eat less meat and the lipids come down, don't they? And my phone said taking too much of it can even make my memory worse.” (P1)

High medication and healthcare-seeking costs

Family finances and the convenience of seeking care were important real-world constraints. Patients on low incomes or with less generous reimbursement preferentially stopped or reduced self-paid, more expensive medicines to ease the financial burden. Very old participants living alone or with limited mobility described the cumbersome round trip to a large hospital and the lack of a companion, which made professional dose adjustment hard to obtain and pushed them towards adjusting the regimen themselves.

“A box costs dozens of yuan. After the new rural cooperative reimbursement I still hand over quite a lot every month. Save a little where I can, and not add to the children's burden.” (P2)

“Getting to the hospital means taking a taxi and I can't get there by myself; the children are busy at work and I don't want to trouble them, so I try it on my own first.” (P8)

Theme 2: The practice process of active self-reduction and information management

Reversible trials and trajectory divergence

Participants rarely stopped a core medicine outright at one stroke. Most used gradual adjustments such as halving the dose, alternate-day dosing or symptom-contingent dosing, monitoring bodily responses as they went and assuming that, should discomfort appear, the dose could simply be added back; a degree of wishful thinking about distant disease risk was evident.

“I halved the midday metformin, cut half a tablet, to see whether it worked; if it went up I'd add it back.” (P7)

“From one tablet down to half; if I really couldn't sleep I'd take one, then ease off again after a couple of days. I couldn't just force myself to the point of dependence, could I?” (P10)

Horizontal comparison across the 15 interviews showed that behaviour after reduction diverged, classified by whether the original regimen was restored, how often this happened and the eventual extent of reduction: participants who restored the original dose when abnormal bodily signals appeared formed a retreat pattern; those who swung repeatedly between reduction and restoration as symptoms fluctuated formed an oscillating pattern; and those who, after several uneventful reductions, progressively widened the scope of reduction towards cessation formed an entrenched pattern. Because this was a cross-sectional retrospective study, the three patterns are preliminary classifications based on recall, some participants were in transition between patterns, and exact counts per pattern are therefore not assigned; the conditions of transition await longitudinal verification. The key mediator of divergence was the participant’s subjective bodily feeling, yet chronic conditions such as hypertension and diabetes are insidious in onset, so objective progression and subjective feeling are often out of step, and repeated “nothing-wrong” experiences further strengthened confidence in continued adjustment.

“I stopped [terazosin] for a few days and didn't feel anything; afterwards I dared to slowly cut the other medicines down too.” (P9) — statement approaching the entrenched pattern

“Once after I'd cut it down, a glucose reading was a little high; it frightened me so much that I hurried back to the original dose, and I haven't dared touch it since.” (P2) — retreat-pattern statement

Two-way concealment from clinicians and family

During reduction, participants commonly concealed the adjustment from both clinicians and family at the same time, but the two concealment paths followed different logics. Towards clinicians, patients feared that admitting self-reduction would attach a non-adherent label, attract criticism and damage future trust in care, and so deliberately maintained an appearance of regular medication use at follow-up visits.

“At the check-up the doctor asks whether I've taken all the medicine on time. I always say I'm taking it. How could I bring myself to say I'd cut it down? The doctor would be sure to tell me off.” (P1)

Towards family, beyond sparing the younger generation worry, the deeper concern was that disclosure might trigger a chain reaction—adult children accompanying visits, taking over medication management or even rearranging daily life. Silence tended to preserve an autonomous image as an elder who can look after themselves.

“My daughter specially bought that medicine for me; she'd be sure to be angry if she knew. I stopped it in secret and didn't tell her.” (P14)

Self-reconciliation of perceived benefit and guilt

Two psychological pulls ran through the process. On one hand, participants found rationales that legitimised reduction—fewer side effects and a better quality of life—producing an immediate sense of benefit. On the other, going against

medical advice and concealing it produced mild guilt and unease, and a worry that reduction might destabilise the illness. When the two conflicted, participants mostly resolved the tension by selectively attending to benefit cues, actively monitoring indicators and avoiding follow-up occasions that might disconfirm their judgement, balancing self-affirmation against risk anxiety.

“All my indicators are on target and taking it for years harms the kidneys, so stopping should be fine—but I still worry the uric acid might climb, so I go to the community to test once a month.” (P13)

“After I stopped, I didn't get up as much at night, which was good; but before bed I always worry a little, afraid I'll be up several times and won't sleep soundly.” (P9)

“Cutting it myself made me uneasy too, so I measured my blood pressure more often; as long as the readings were all right, that little knot in my mind would pass.” (P5)

Theme 3: Older patients’ medication-nursing support needs

Clear, individualised medication guidance

Participants wanted explicit, concrete boundaries: plain-language clarification of which core medicines must be taken long term and which could be adjusted according to symptoms, the indications for dose adjustment and its safe range. They rejected vague “take your medicine on time”-style instruction.

“I wish they'd made it clear at discharge how long each medicine lasts and when it can be stopped, instead of saying ‘long-term use’ the moment a medicine is prescribed—you never know how long ‘long-term’ runs.” (P4)

“Just tell me which medicine absolutely cannot be stopped because stopping it would cause trouble, and which can be taken a little less. Speak plain language; don't use words I can't understand.” (P6)

Non-judgemental, egalitarian communication

Participants were sensitive to the tone of medication communication and widely said that, so long as communication was based on equal listening without blame or criticism, they would be willing to disclose their adjustments openly. Several rejected preachy or command-style education as unable to solve real problems.

“If only she had a kind manner and didn't criticise me, just chatted about why I cut it and how it felt—then I might tell her everything. Who wants to hide things away?” (P1)

“I stopped because I felt awful taking it, not out of mischief. If it's discussed properly it can all be talked through; if they start by blaming me, I certainly won't say.” (P15)

Accessible, continuous primary-level services

Participants described dose adjustment at tertiary hospitals as cumbersome and costly to reach, and expected medication consultation and fine dose adjustment to be brought down to community health service centres and village clinics. The very old and those living alone further asked for home visits, so that minor illness and minor adjustment could be handled without leaving the community.

“If only the village doctor could come round to the house now and then. I'm too old to make the trip to the county hospital; it would be wonderful to have dose adjustment and advice right in the village.” (P5)

“When the community nurse tests my glucose she could adjust the dose at the same time, instead of me always trekking to the big hospital—the queues are too long; older people like us can't stand the back-and-forth.” (P7)

Discussion

Multiple drivers of active self-reduction: bodily perception, cultural cognition and structural constraint

Active self-reduction arose from the interweaving of somatic perception, cultural cognition and real-world constraint. Somatic change and adverse reactions were the direct triggers: patients read symptom relief and normalised indicators as a signal to reduce or stop, or attributed gastrointestinal discomfort and muscle ache to the medicine itself and reduced the dose to 'avoid harm'. Both are active choices rather than passive missed doses, consistent with the Necessity–Concerns Framework, whereby patients move towards active adjustment when concerns about adverse effects outweigh perceived necessity [11]; symptom relief and intolerance of adverse effects have likewise been identified in Chinese work as the most direct inducements to self-adjustment in chronic disease [22]. In this sample, 12 of the 15 participants first entertained reduction because of stable symptoms or intolerable reactions, extending that conclusion to older people with multimorbidity and polypharmacy.

The indigenous cultural context is decisive. The belief that every medicine carries intrinsic toxicity commands high consensus among older Chinese adults, who readily connect long-term medication with liver and kidney injury. One plausible root is the traditional Chinese therapeutic idea of stopping once the illness is checked, whose plain logic of "recovery means stopping the medicine" is easier for older patients to accept than the modern objective of long-term chronic-disease control and prevention of acute events [22]. Crucially, this cognition is increasingly fed not by professional information but by life experience, short videos and televised health programmes: zero-threshold, plainly worded content whose credibility is amplified by algorithmic repetition, yet which usually rests on single-disease popularisation or individual experience ill-matched to the complexity of polypharmacy. Older adults find it hard to delimit the applicability of such information and apply peers' or online experience to themselves [14, 15]. The traditional toxicity belief is thus amplified and reconfirmed within the algorithmic information environment, becoming a hidden, stable cognitive foundation for reduction; health education aimed only at the individual patient, without engaging their information sources, is likely to have limited effect.

Economic burden and healthcare accessibility form the structural constraint. Medicines outside reimbursement coverage were more readily reduced or stopped first, and economic calculation was more pronounced among rural-registered, low-income patients, echoing findings on the financial burden of medication in older Chinese adults [17]. The very old and those living alone treat obtaining professional adjustment at a tertiary hospital as high-cost care because of transport difficulty and the lack of a companion, often judging that a minor dose change does not justify a dedicated visit. This is, at root, a trade-off between the time and physical cost of seeking care and medication-safety risk, and it points to a clear supply gap in primary-level dose-adjustment services within the tiered health system [18], a gap that recent national policy to expand the range of medicines managed at primary level seeks to address [23].

Gradual trials and trajectory divergence: a self-regulatory loop with a structural defect

Once triggered, reduction was neither blind cessation nor a one-off impulse but a continuous process of gradual trial, feedback-based adjustment and eventual divergence, which resembles reported medication-adjustment behaviour in chronic disease [24] and which the CSM helps to unpack as a loop with an internal defect. Patients trialled stepwise through halved doses, alternate-day and on-demand dosing, monitored responses in parallel and pre-supposed that they would simply add the dose back if discomfort appeared, showing a degree of planning that maps onto the CSM cycle of representation, coping and appraisal [10]. The structural defect is that the sole feedback basis is subjective bodily feeling, whereas hypertension and diabetes are insidious [25] and objective pathology does not move in step with sensation; patients therefore mistake the temporary absence of discomfort for evidence that reduction is safe, and repeated

uneventful trials reinforce confidence in self-adjustment. The trigger–weighing–trial–judgement–divergence model proposed here (Fig. 1) further shows that patients are not a homogeneous group but diverge, by feedback outcome, into retreat, oscillating and entrenched patterns, suggesting that nursing assessment should identify the trajectory stage and intervene early where entrenchment is approaching.

Across the trials, perceived benefit and guilt were intertwined [26]. Participants resolved this cognitive dissonance not by restoring the dose but by magnifying benefit cues, self-monitoring indicators and avoiding disconfirming follow-up; because benefit is immediately perceptible whereas the risk of complications is distant and imperceptible, the psychological balance keeps tipping towards continued reduction [27]. Patients also tended to attribute "nothing went wrong after reduction" to their own skilful management [28], and event-free experience repeatedly reinforced a sense of control over medication. Such high self-efficacy, built on distorted feedback, is itself a risk and helps explain why knowledge provision alone rarely works: the intervention priority is to rebuild an accessible, professional feedback chain so that dose adjustment rests on objective test results rather than subjective sensation.

The indigenous mechanism of two-way concealment: coordinated management of dual information boundaries

Unlike the one-way concealment from clinicians emphasised in much previous work [29], these older patients concealed reduction from clinicians and family at the same time, which CPM helps explain [13]: people own private information and decide to whom they disclose by drawing boundaries; once disclosed, the recipient becomes a co-owner, and intersecting multiple boundaries create leakage risk. Active self-reduction here was private information bounded by two audiences. The boundary towards clinicians was closed because of clinician–patient power asymmetry and fear of the non-adherent label, anticipating criticism and weakened future trust [30]; P1's ritual reply at follow-up that everything was being taken on time was, in effect, maintenance of an adherent front in the medical encounter.

Closing the boundary to family went beyond sparing the younger generation worry. Under Chinese familism, the norm of filial piety (xiao) grants adult children moral legitimacy to intervene in a parent's medication, and disclosure tends to trigger accompanying visits, takeover of medication and even rearrangement of life. Silence lets patients avoid becoming a burden while defending medication autonomy and the identity of a self-caring elder, which resonates with the cultural logic of delayed care-seeking described in Chinese older patients [31]. Under China's family-care model, family members commonly accompany visits, narrate the illness on the patient's behalf and collect medicines [9, 16], objectively becoming the channel through which information flows from the domestic to the medical domain; the two boundaries intersect precisely in the 'accompanied visit', a leakage-risk node. Concealing from only one side is therefore insufficient to hide the behaviour, which is why concealment becomes two-way. This boundary-connecting mechanism is a theoretical interpretation developed by the researchers from the indigenous family-care setting and interview data; its micro-interactional process awaits multi-perspective studies involving patients, families and clinicians.

The clinical significance lies in risk amplification: when both boundaries close at once, reduction escapes professional supervision and loses family reminders, producing a dual blind spot in out-of-hospital safety. Breaking concealment therefore cannot rely on improving clinician–patient communication alone; family communication must be rebuilt in parallel, reserving private space for the patient to speak without family present during follow-up, lowering the threshold for disclosure through non-judgemental communication, and guiding family members to shift from supervisors to trusted supporters.

From adherence supervision to supported self-regulation: a transition pathway for out-of-hospital medication nursing

Participants' needs centred not on supervised pill-taking but on clear medication boundaries, egalitarian communication and accessible care, indicating that the single-minded, prescription-compliance orientation of current out-of-hospital medication nursing should move towards patient support. Patients experiment on their own and fall back on peers' experience and health content because they lack a routine, low-threshold channel for professional assessment; the support system should therefore be built from the supply side. A nurse-led medication-reconciliation model [32], currently concentrated in the inpatient transition period, can be extended into the community: trained community nurses would maintain management records for polypharmacy, review regimens regularly, actively elicit medication beliefs and information sources during assessment, and explain in plain language the boundary between core maintenance medicines and symptom-adjustable medicines, as well as how online information does or does not apply to the individual; such a model has been shown to reduce unintentional medication discrepancies and raise medication literacy and adherence in older patients with multimorbidity [33]. For very old, solo-living patients facing high care-seeking costs, internet hospitals and online pharmacist consultation can provide a low-threshold adjustment channel.

Intervention should be layered by trajectory. For the retreat pattern, which already possesses risk awareness and self-correction, the priority is an accessible primary-level consultation channel so that professional help, rather than solo trial, is the first resort when reduction is next contemplated. For the oscillating pattern, the core is building routine self-monitoring and recording of objective indicators such as blood pressure and glucose, replacing subjective sensation with objective data to reduce blind oscillation. For the entrenched pattern, closest to cessation and at highest risk, early identification followed by formal medication reconciliation by a community nurse or clinical pharmacist is needed, assessing the reduction indication and safe range of every medicine so that self-entrenchment is converted into supervised, standardised tapering.

Continuity services should then link assessment and communication into everyday support: for the care barriers facing the very old and those living alone, contracted family-doctor services can deliver home medication guidance, and remote medication-therapy-management experience involving clinical pharmacists, community pharmacists and community physicians can be drawn on [34], synchronising medication information between hospital and community to safeguard continuity when regimens change. Patients can also be guided to use medication diaries and pill organisers to record blood pressure, glucose and symptoms objectively, moving home management from reliance on sensation to evidence-based practice. Nursing would then aim not to eliminate patients' self-regulation but to guide it onto a track that is professionally accessible, family-coordinated and objectively feedback-driven—from isolated self-trial towards supported collaborative management.

Strengths and limitations

The study's strengths lie in its maximum-variation sample spanning hospital and community settings, its reconstruction of a complete decision chain anchored to the most recent episode, and the dual-boundary analysis that brings family as well as clinicians into view. Several limitations bound the findings. This was a single-centre qualitative study whose participants were drawn from one province and were concentrated in cardiovascular and metabolic disease, limiting representation and transferability across regions, insurance schemes and disease groups. The cross-sectional retrospective design means the three trajectories are preliminary recall-based classifications without fixed case counts, and transition between them could not be observed; self-report may also be subject to recall and social-desirability bias. Finally, the proposed boundary-connecting mechanism is a theoretical interpretation rather than a directly observed interaction, and no family members or clinicians were interviewed. Future multicentre studies should cover varied regions, insurance arrangements and disease profiles; longitudinal designs should verify the conditions under which trajectories transition and test whether early identification of the entrenched pattern prevents harm; and multi-perspective designs involving patients, family caregivers, nurses and pharmacists should examine the micro-processes of dual-boundary management and evaluate a community-based, nurse-led support programme matched to the three trajectories.

Implications for policy and practice

For practice, community and hospital nurses should routinely ask about undisclosed self-reduction in non-judgemental language, assess trajectory stage, document medication beliefs and online information sources, and reserve private consultation space away from family. For policy, the findings support extending nurse-led medication reconciliation and pharmacist access into community health service centres and village clinics, aligning with national efforts to expand primary-level medicine management, and building synchronised hospital–community medication information so that minor adjustment no longer requires a distant tertiary-hospital visit.

Conclusions

Active self-reduction among older adults with multimorbidity and polypharmacy is not simply poor adherence but intentional self-regulation shaped by the interplay of bodily perception, cognitive bias, economic burden and healthcare accessibility; it proceeds through gradual trial and two-way concealment, is accompanied by conflict between perceived benefit and guilt, and diverges by feedback outcome into retreat, oscillating and entrenched trajectories. The CSM proved a useful but incomplete guide: the data support its cyclical logic yet reveal a structural defect, in that subjective sensation replaces objective feedback, while CPM illuminated the culturally embedded dual-boundary work through which patients keep reduction invisible to both clinicians and family—a finding that extends prior work focused on one-way non-disclosure. Out-of-hospital medication nursing should shift from compliance supervision to patient support, extending nurse-led medication reconciliation into the community, pairing it with non-judgemental communication and continuity services, and channelling patients' self-regulation onto a professional track.

Abbreviations

COREQ
Consolidated Criteria for Reporting Qualitative Research
CPM
communication privacy management theory
CSM
common-sense model of self-regulation
UEBMI
Urban Employee Basic Medical Insurance
URRBMI
Urban–Rural Resident Basic Medical Insurance.

Declarations

Additional files

Additional file 1 (.docx/.pdf).

Consolidated Criteria for Reporting Qualitative Research (COREQ) 32-item checklist, with the manuscript section in which each item is reported.

Additional file 2 (.docx/.pdf).

Semi-structured interview guide used in the study (seven core questions and prompts).

Declarations

Ethics approval and consent to participate

This study was approved by the Medical Ethics Committee of The First Affiliated Hospital of Shandong First Medical University (Shandong Provincial Qianfoshan Hospital) (approval number YXLL-KY-2026 (113)). All participants provided signed written informed consent and were informed that they could withdraw at any time without affecting their care. The study was conducted in accordance with the Declaration of Helsinki.

Consent for publication

Not applicable. The manuscript contains no individually identifiable data, images or videos; all participant quotations are anonymised and identified only by participant codes (P1–P15).

Competing interests

The authors declare that they have no competing interests.

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Author Contribution

X.W. conceived the study, conducted interviews, performed qualitative data analysis, drafted the manuscript. Q.S. participated in study design, assisted with data analysis and revised the manuscript. Y.L., L.Z. and X.Y. recruited participants, collected data and reviewed the manuscript. C.X. supervised the whole research, revised the manuscript critically, and approved the final version. All authors read and approved the final manuscript.

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Data Availability

The qualitative interview datasets generated and analysed during the current study are not publicly available due to participants' privacy and ethical restrictions. De-identified excerpts of the data are available from the corresponding author (Cuiping Xu, xucuiping775@sohu.com) on reasonable request and with approval from the relevant ethics committee.

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Figures

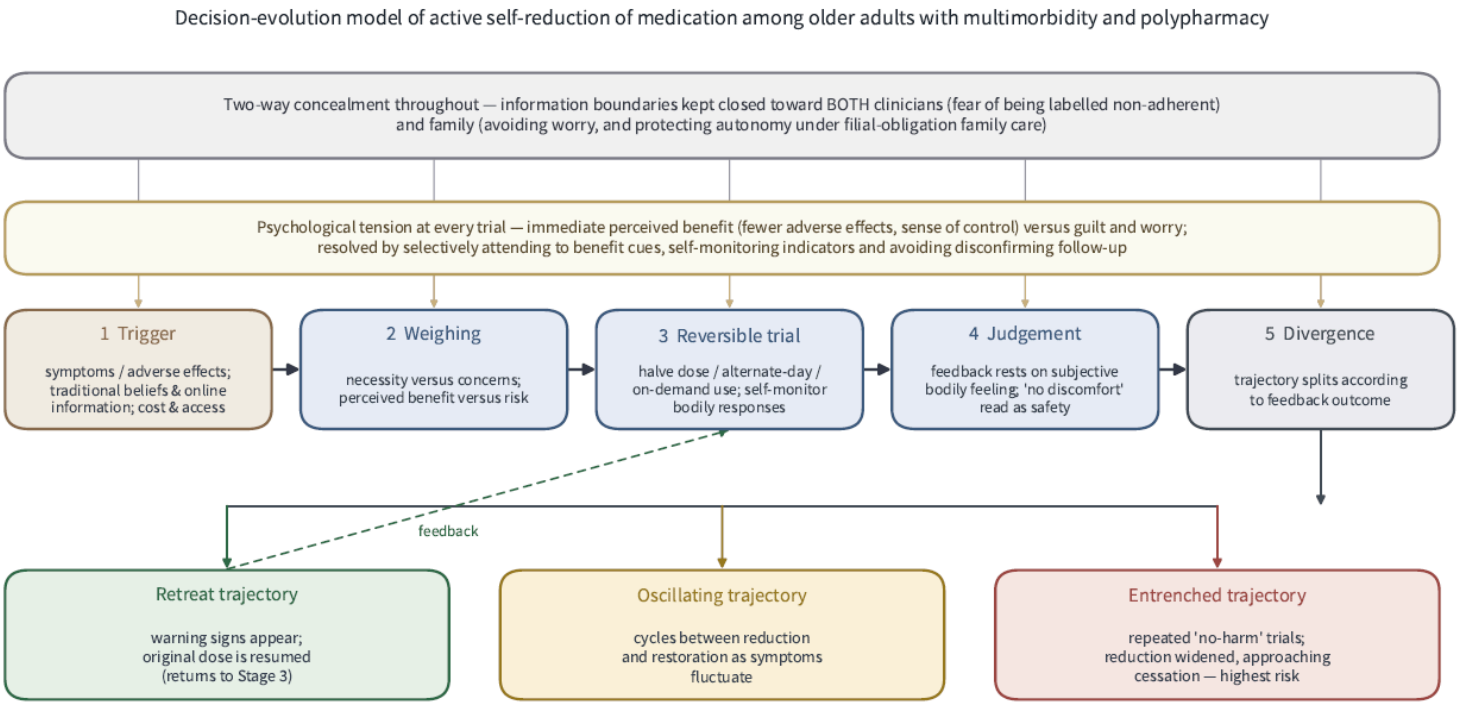


Figure 1

Decision-evolution model of active medication self-reduction in older adults with multimorbidity and polypharmacy. The five-stage chain (trigger–weighing–reversible trial–judgement–divergence) unfolds under two overarching conditions—two-way concealment from clinicians and family, and the tension between perceived benefit and guilt—and differentiates into retreat, oscillating and entrenched trajectories according to bodily feedback. The dashed arrow indicates the return to the trial stage after dose restoration in the retreat trajectory. The figure is supplied separately as a high-resolution file.