Journal of Clinical and Nursing Research, 2026, Volume 10, Issue 7
http://ojs.bbwpublisher.com/index.php/JCNR
Online ISSN: 2208-3693
Print ISSN: 2208-3685

Diabetes Self-Management in Community-Dwelling Older Adults: Status Assessment and Targeted Intervention Strategies

Chunling Wu[1], Xuefeng Chen[1], Shixuan Deng[2], Yi Yang[1]*

[1]School of Chongqing College of International Business and Economics, Hechuan, Chongqing 401520, China
[2]School of Changzhi Medical College, Changzhi 046000, Shanxi, China

Author to whom correspondence should be addressed.

Abstract: *Objective*: To assess self-management behaviors and service needs among older adults with diabetes in Guojicun Community, Yuzhong District, Chongqing, and to provide empirical evidence for improving community-based diabetes care. *Methods*: A cross-sectional survey was conducted among eligible older community-dwelling adults with diabetes. Data were collected using a standardized self-management scale and a service-needs questionnaire, and analyzed descriptively with supply-demand matching. *Results*: Overall self-management was low to moderate and uneven across domains. Medication adherence and fruit and vegetable intake were relatively better, whereas exercise, prescribed blood glucose monitoring, and foot care remained weak. Patients reported substantial needs for home-based glucose monitoring and complication prevention, whereas community service coverage remained limited; psychological support was particularly underprovided. Health education relied mainly on offline lectures, with predominantly one-way delivery and limited interaction or individualized feedback. *Conclusion*: Older adults with diabetes in this community had relatively weak self-management capacity, and current service provision was structurally misaligned with actual needs. Primary care should adopt assessment-based, stratified interventions, prioritize home monitoring and psychological support, improve interactive and context-sensitive health education, and integrate family, community and policy resources to strengthen chronic disease management.

Keywords: Older adults with diabetes; Self-management; Community health interventions; Health service needs; Stratified care

Online publication: Jul 31, 2026

1. Introduction

Population aging and the growing burden of chronic disease are major challenges for China's public health system. Surveillance data indicate that over 75% of people aged 60 years or older have chronic multimorbidity, and chronic diseases account for 88.5% of deaths in this age group [1]. Diabetes is a

representative chronic metabolic disease: its prevalence among adults older than 65 years has exceeded 30.2%, with type 2 diabetes predominating [2]. Because of its long disease course, diverse complications and high risks of disability and death, diabetes reduces healthy life expectancy in older adults and imposes sustained pressure on family care and local health-care resources [3,4].

China's chronic disease policy has therefore shifted towards prevention-oriented management rooted in primary care. The Healthy China Action: Implementation Plan for Diabetes Prevention and Control, 2024–2030 prioritizes community grid-based management and integration of medical care with prevention, and sets a target of at least 70% standardized primary-care management by 2030 [5]. Yet achieving these policy targets depends critically on patients' self-management. Dietary regulation, regular physical activity, appropriate medication use, self-monitoring and complication prevention are closely related to glycaemic control, delayed target-organ damage and improved quality of life [6]. In practice, however, self-management among older adults with diabetes in Chinese communities remains suboptimal. Cross-sectional studies commonly report low-to-moderate scores, particularly for dynamic glucose monitoring, resistance exercise and foot-risk screening [7]. After patients return to the community, professional guidance may become fragmented, continuity of care weakened and social support limited [8]. Existing research has focused mainly on standardized follow-up in tertiary hospitals or the overall effects of digital management platforms. Less is known about the behavioral drivers, environmental constraints and locally adaptable interventions that shape self-management in community settings [9].

This study therefore assessed the current profile and structural weaknesses of self-management among older community-dwelling adults with diabetes, identified key constraints on adherence, and proposed tiered intervention strategies suited to primary care delivery. The findings may inform allocation of chronic disease resources, improve community-based prevention and control, and support more context-sensitive health education and family-community coordination, thereby contributing to better long-term outcomes and the primary-care implementation of Healthy China 2030.

2. Methods

2.1. Study participants

This study surveyed patients with type 2 diabetes aged 60 years or older in Guojicun Community, Yuzhong District, Chongqing. Eligible participants were recruited using a cluster-based convenience sampling approach.

The inclusion criteria were as follows: age 60 years or older; a confirmed diagnosis of type 2 diabetes made by a secondary-level or higher medical institution according to the WHO 1999 diagnostic criteria; continuous residence in the community for at least 6 months; clear consciousness and sufficient ability to communicate and understand the questionnaire; and provision of informed consent with voluntary participation.

The exclusion criteria were severe cognitive impairment, mental illness, aphasia or severe hearing impairment that limited communication; critical illness, including malignant tumors or end-stage cardiac, hepatic or renal failure, with an expected survival of less than 6 months; and inability to complete the full assessment during the survey period because of prolonged hospitalization, migrant work or other objective reasons. The study followed ethical principles for medical research, and all participants provided written informed consent.

2.2. Study instruments

A demographic and disease-characteristics questionnaire developed by the research team collected seven baseline variables: age, sex, educational attainment, marital status, living arrangement, average monthly income, and duration of diabetes. Self-management behavior was assessed using the Chinese revised Summary of Diabetes Self-Care Activities (SDSCA) scale for patients with type 2 diabetes, adapted by Li Yanfei et al [10]. The scale includes five domains: dietary control, physical activity, blood glucose monitoring, medication adherence, and foot care. Items are scored from 0 to 7 according to the frequency of behaviors in the previous week, with a total score of 0–77; higher scores indicate better self-management. Scores were classified as good (≥ 42), moderate (20–41), or poor (≤ 19). Community health service needs and utilization were assessed with a questionnaire covering service use, perceived accessibility, and future needs. Responses were coded as 1 for frequent use or clear need, 2 for infrequent or occasional use, and 3 for no use or no need; overlapping options were harmonized during the pilot survey to ensure consistent measurement.

2.3. Data collection and quality control

Paper questionnaires were administered through face-to-face interviews by community staff who had received standardized training. Item completeness and logical consistency were checked on site, and missing responses were completed immediately when identified. A total of 215 questionnaires were distributed, and all were returned. After double independent data entry and logical screening, 52 invalid questionnaires were excluded because of missing key information, patterned responses, or internal inconsistencies. The final valid sample included 163 participants, yielding an effective response rate of 75.8%.

2.4. Statistical analysis

Data were entered in Excel 2019, verified by two researchers, and analyzed using SPSS 26.0. One-way ANOVA was used for group comparisons; for two-group variables, ANOVA was employed (equivalent to the *t*-test), and *F*-values are reported. Statistical significance was set at $p < 0.05$.

3. Results

3.1. Demographic characteristics of participants

A total of 163 valid participants were included in this study. Their demographic and clinical baseline characteristics are presented in **Table 1**. Participants aged 60–69 years accounted for the largest proportion (46.6%), followed by those aged 70–79 years (34.4%) and those aged 80 years or older (19.0%). The sex distribution was broadly balanced, with women accounting for 50.9% and men for 49.1%. Educational attainment was generally low. More than half of the participants had completed primary school or below (52.8%), while 27.0% had junior secondary education, 11.7% had senior secondary or technical secondary education, and only 8.6% had college-level education or above. Regarding diabetes duration, 23.9% had been diagnosed for less than 1 year, 19.6% for 1–3 years, 33.1% for 3–5 years, and 23.3% for more than 5 years. Overall, 56.4% had a disease duration of 3 years or longer, indicating that most participants had lived with diabetes for a relatively long period. A family history of diabetes was reported by 58.9% of participants, suggesting a degree of familial clustering. See **Table 1**.

Table 1. Demographic and clinical baseline characteristics of participants

Variable	Category	Case number	Percentage (%)
Age (years)	60–69	76	46.6
	70–79	56	34.4
	≥80	31	19
Gender	Male	80	49.1
	Female	83	50.9
Educational level	Primary school and below	86	52.8
	Junior high school	44	27
	Senior high school / Technical secondary school	19	11.7
	College and above	14	8.6
Disease duration (years)	＜ 1	39	23.9
	1–3	32	19.6
	3–5	54	33.1
	＞ 5	38	23.3
Family history of diabetes	Yes	96	58.9
	No	67	41.1
Percentages are calculated based on total sample size N = 163.			

3.2. Current status of diabetes self-management behaviors

Self-management behaviors varied across domains. Medication adherence and some dietary control behaviors were relatively better established, whereas physical activity, prescribed blood glucose monitoring, and foot-care practices remained less consistent.

Overall, the findings indicate an uneven self-management profile among older adults with diabetes in this community, as shown in **Table 2**.

Table 2. Frequency and compliance of self-management behaviors

Evaluation item	Time frame	Low frequency	Medium frequency	High frequency
Dietary management	Adhere to diabetic diet in the past 7 days	38 (23.3)	56 (34.4)	69 (42.3)
	Average weekly adherence in the past month	11 (6.8)	106 (65.0)	46 (28.2)
	Intake ≥5 kinds of fruits and vegetables daily in the past 7 days	26 (16.0)	49 (30.1)	88 (53.9)
	Intake of high-fat foods in the past 7 days	17 (10.4)	91 (55.8)	55 (33.8)
Exercise management	Daily activity ≥30 minutes in the past 7 days	57 (35.0)	68 (41.7)	38 (23.3)
	Participate in special physical exercise in the past 7 days	53 (32.5)	81 (49.7)	29 (17.8)
Blood glucose monitoring & foot care	Self-monitor blood glucose in the past 7 days	24 (14.7)	78 (47.9)	61 (37.4)
	Monitor blood glucose as prescribed	25 (15.4)	120 (73.6)	18 (11.0)
	Self-examine feet in the past 7 days	29 (17.8)	77 (47.2)	57 (35.0)
	Inspect shoe interiors before wearing in the past 7 days	13 (8.0)	103 (63.2)	47 (28.8)
Medication adherence	Standard medication/insulin injection in the past 7 days	22 (13.5)	38 (23.3)	103 (63.2)

Note: Behavior frequency over the past 7 days was categorized as low (0–2 days), medium (3–4 days), and high (≥ 5 days); weekly items were categorized as 0–1, 2–3, and ≥ 4 times per week. For this item, a higher frequency indicates poorer dietary control.

The mean total self-management score was 38.41 ± 7.13, corresponding to a score rate of 49.9% and a low-to-moderate overall level. Score rates were similar across dietary management (49.6%), physical activity (50.1%), and disease monitoring (48.8%). Medication management had the highest score rate (55.0%) but the lowest raw mean score because it included only one item. These findings suggest an uneven self-management profile and support targeted primary care interventions based on domain-specific weaknesses, as shown in **Table 3**.

Table 3. Comparison of scores across self-management domains

Dimension	Number of items	Full score	Mean ± Standard deviation	Score rate (%)
Dietary management	4	28	13.88 ± 4.02	49.6
Exercise management	2	14	7.01 ± 2.15	50.1
Disease monitoring	4	28	13.67 ± 2.94	48.8
Medication management	1	7	3.85 ± 1.61	55.0
Total score	11	77	38.41 ± 7.13	49.9

3.3. Potential influencing factors of self-management

Self-management scores were compared across demographic and clinical subgroups to explore potential influencing factors. Age, sex, educational attainment, disease duration, complications, comorbid chronic diseases and family history of diabetes were not significantly associated with scores for dietary management, physical activity, disease monitoring or medication management ($p > 0.05$). Participants without complications showed a higher total self-management score than those with complications, but the difference was not statistically significant ($p = 0.070$). These findings suggest that conventional demographic and clinical characteristics did not clearly differentiate self-management levels in this sample, as shown in Supplementary **Table 1**.

3.4. Participation willingness and service engagement gaps

Participation willingness varied considerably across community diabetes intervention services. Basic services, including health education, lifestyle and health status assessment, health counseling, and routine health examinations, showed relatively high willingness, with rates above 60%. By contrast, psychological counseling, traditional Chinese medicine-based guidance, and physician follow-up showed lower willingness or accessibility. As shown in **Table 4**, the mean scores serve as composite indicators of service gaps: higher values indicate greater barriers, whether due to low participation willingness or insufficient service coverage. Among all services, psychological counseling exhibited the largest gap (mean 2.26 ± 0.68), followed by traditional Chinese medicine guidance (2.15 ± 0.70) and physician follow-up (2.01 ± 0.75), suggesting that these areas require prioritized strengthening in community-based diabetes care.

Table 4. Willingness to participate in community diabetes intervention services and corresponding service gap indicators

Service item	Willing to participate n (%)	Unwilling to participate n (%)	Mean ± Standard deviation
Health education (lectures, brochures)	127 (77.9)	36 (22.1)	1.89 ± 0.67
Lifestyle and health status assessment	115 (70.6)	48 (29.4)	1.82 ± 0.65
Health consultation and guidance	108 (66.3)	55 (33.7)	1.78 ± 0.62
Routine physical examination (blood pressure, blood glucose)	101 (62.0)	62 (38.0)	1.95 ± 0.71
Psychological counseling	93 (57.1)	70 (42.9)	2.26 ± 0.68
Traditional Chinese medicine health guidance	93 (57.1)	70 (42.9)	2.15 ± 0.70
Regular physician follow-up	86 (52.8)	77 (47.2)	2.01 ± 0.75

Notes: Score assignment: 1 = willing/covered, 2 = unwilling/not covered. Higher mean indicates a larger service gap—percentages based on N = 163.

3.5. Service needs and directions for targeted intervention

Service needs and preferences were concentrated in practical and home-based support. More than half of participants rated current community diabetes services as fair or below (57.1%). The most requested new services were home-based blood glucose monitoring (56.4%), complication-prevention education (53.4%) and individualized diet or exercise guidance (39.9%). Offline lectures remained the preferred channel for health information, while community bulletin boards, WeChat messages and home-based education were also acceptable. Participants also showed strong demand for low-cost testing devices, home guidance by professionals and peer-support platforms, as shown in **Table 5**.

Table 5. Demand and preference distribution of community diabetes intervention services

Assessment dimension	Option	Frequency	Percentage
Satisfaction with current service quality	Very poor	20	12.3
	Poor	18	11.0
	Moderate	55	33.7
	Good	39	23.9
	Very good	31	19.0
Most expected newly added services	One-on-one personalized dietary and exercise guidance	83	50.9
	Home-based blood glucose monitoring service	92	56.4
	Special lectures on complication prevention	87	53.4
	Free / discounted hypoglycemic drugs supply	58	35.6
	Family caregiver skill training	41	25.2
Preferred channels for health knowledge delivery	Offline lectures	96	58.9
	Community bulletin boards	78	47.9
	WeChat group push notification	72	44.2
	Home-based health propaganda	61	37.4
Expected activity frequency	Once per month	19	11.7
	Twice per month	45	27.6
	Once per week	42	25.8
	On-demand service	57	35.0

Most needed community support	Free or low-cost testing equipment	95	58.3
	Door-to-door guidance by professional medical staff	89	54.6
	Health management reminder service	70	43.0
	Convenient medical referral channel	52	31.9
Peer support group	Highly needed / Relatively needed	107	65.7
	Neutral	38	23.3
	Slightly needed / Not needed at all	18	11.1

Notes: Questions about newly added service demand, health knowledge delivery preference, and community support demand are multiple-choice questions. Percentages are calculated based on total sample size N = 163.

4. Discussion

The findings suggest that older adults with diabetes in International Village Community have some awareness of self-management, with relatively established practices in medication adherence, fruit and vegetable intake, and blood glucose monitoring. However, their self-management remains uneven, insufficiently standardized, and difficult to sustain, especially in regular exercise, prescribed glucose monitoring, and foot care. **Tables 1** to **5** suggest that these differences are not simply explained by age, sex, education, or common clinical characteristics, but may be related to limited health literacy, behavioral fatigue, insufficient family and professional support, and a mismatch between community services and actual needs. Although basic health education and consultation are available, patients need more practical support, including home-based glucose monitoring, complication prevention, individualized diet and exercise guidance, and peer support. Primary diabetes management should therefore move toward need-based, behavior-focused, and targeted support.

4.1. Implementing a stratified precision care framework

The mean self-management score was 38.41 ± 7.13, indicating a lower-middle level. Most patients were at a general level (66.3%), 33.7% were at a good level, and none were classified as poor. Basic self-management behaviors had formed in many patients, but standardized management was still insufficient. Patients aged 60–69 years accounted for 46.6%, those aged ≥ 80 years for 19.0%, and more than half had primary school education or below. Age and education may affect health information understanding and adherence to management requirements, so a single intervention model is unlikely to fit all patients. Patients can be classified by behavior level and risk: stable patients need reinforcement of diet, medication, and monitoring habits [11]. Those with unstable exercise, foot care, or monitoring need staged goals and telephone follow-up [12]. Older, less educated, or higher-risk patients need one-to-one guidance and home-based services [13]. Although the absolute mean score for medication management (3.85 ± 1.61) appeared low due to its smaller total score range, the high-frequency adherence rate reached 63.2% (**Table 2**), indicating that medication adherence was actually a relatively well-established practice among patients. By contrast, prescribed blood glucose monitoring had the lowest high-frequency rate (11.0%), making it the top priority for stratified interventions.

4.2. Aligning services with patient needs

Service feedback showed some acceptance of basic care: 77.9% of patients were willing to attend health education, and 70.6% wanted lifestyle assessment. However, 57.1% rated current service quality as general or below, suggesting a gap between service provision and patient expectations. The most needed services

were home-based glucose monitoring (56.4%), complication prevention lectures (53.4%), and individualized diet and exercise guidance (39.9%), consistent with poor monitoring standardization and weak exercise adherence. Community services may prioritize home monitoring for older, mobility-limited, or unstable patients. Prevention education should include foot-check demonstrations, referral for fundus screening, and medication review [14]. Low-cost devices and professional home guidance also deserve priority.

4.3. Strengthening behavior-oriented health education

Patients showed some foundation in medication and diet: 63.2% reported high-frequency medication adherence, and 53.9% reported adequate fruit and vegetable intake in the past 7 days. Exercise and prescribed glucose monitoring were weaker, with high-frequency rates of only 17.8% and 11.0%. This suggests that the main problem is not lack of awareness, but poor behavior translation and persistence. Offline lectures were the preferred education format (58.9%), while bulletin boards, WeChat messages, and home visits were also accepted. Education should focus on practical behaviors, such as monitoring time, safe exercise, foot self-checks, and missed-dose management. Simple diagrams, demonstrations, repeated practice, follow-up feedback, and daily reminders may help turn education into behavior support [15].

4.4. Building a multilevel support network

Patients also needed informal support. A peer support platform was needed by 65.7% of patients, and 25.2% wanted caregiver training, suggesting that family and peer involvement may help maintain self-management. Poor persistence in exercise, foot care, and glucose monitoring may partly reflect limited reminders, supervision, and encouragement at home. Caregiver training should be brief and practical, lasting 20–30 minutes and covering meal preparation, medication reminders, hypoglycemia management, and foot observation. Peer groups can be organized in community activity rooms, with one or two monthly activities such as experience sharing, group walking, or healthy meal demonstrations. Peer support should complement, not replace, professional guidance. Its main role is to improve participation and persistence [16].

4.5. Strengthening policy and workforce capacity

Current community services include basic health education and consultation, but psychological support, home-based guidance, individualized care, and long-term follow-up remain weak. Fewer than 60% of patients were willing to receive psychological counseling, and this service had the highest mean score for limited coverage (2.26 ± 0.68), suggesting problems in both access and acceptance. The format may not fit older patients' needs. Physician follow-up also had the lowest acceptance rate (52.8%), which may reflect formalistic follow-up with limited response to practical management problems. Community staff should strengthen practical skills in glucose monitoring guidance, exercise risk assessment, medication adherence management, and foot care education. Performance evaluation may shift from process indicators, such as registration and follow-up counts, to outcomes such as behavior improvement and service satisfaction. Given a limited workforce, family doctor teams can divide tasks: physicians assess and plan care, nurses provide follow-up and education, and volunteers assist with daily reminders.

5. Conclusion

In summary, community-based diabetes management for older adults in this community falls short not

in service availability, but in relevance to daily self-management challenges. Adherence varied across domains: medication use was adequate, while exercise, glucose monitoring, and foot care were poor; dietary control showed mixed results. Service demand centered on practical, individualized support, such as home monitoring and complication prevention, rather than generic education, and low satisfaction highlighted a clear mismatch between current offerings and patient needs. These findings underscore the need to realign service content and delivery with real-life difficulties. Future research should expand sampling and evaluate interventions including stratified care, home-based monitoring, caregiver training, and peer support.

Funding

2025 Research Project of Hechuan District Bureau of Science and Technology, Chongqing, "Construction of Community Elderly Care Service Community Under Digital-Intelligent Transformation: Operating Mechanisms, Restricting Factors and Practical Pathways" (Project No.: HCKJ-2025-098); 2024 Major Science and Technology Research Project of Chongqing Municipal Education Commission, "Research on Mechanism and Application of Personal Sports Health Service Information Platform Driven by Digital-Intelligent Credit" (Project No.: KJZD-M202402001)

Disclosure statement

The authors declare no conflict of interest.

References

[1] National Health Commission of the People's Republic of China, Chinese Center for Disease Control and Prevention, 2025, Report on Nutrition and Chronic Diseases of Chinese Residents (2025). Beijing.

[2] National Center of Gerontology, Geriatrics Branch of Chinese Medical Association, Diabetes Professional Committee of China Elderly Health Care Association, 2021, Chinese Guideline for the Diagnosis and Treatment of Diabetes Mellitus in the Elderly (2021 Edition). Chinese Journal of Diabetes Mellitus, 13(1): 14–46.

[3] Li Z, Fang J, Lin K, 2024, Analysis and Prediction of the Disease Burden of Type 2 Diabetes Attributable to High Body Mass Index in China from 1990 to 2019. Chinese General Practice, 27(9): 1126–1133 + 1148.

[4] Zhou Y, Liu J, Zhao Z, et al., 2025, The National and Provincial Prevalence and Non-fatal Burdens of Diabetes in China from 2005 to 2023 with Projections of Prevalence to 2050. Military Medical Research, 12(1): 28.

[5] National Health Commission of the People's Republic of China, 2024, Healthy China Action: Implementation Plan for Diabetes Prevention and Control (2024–2030).

[6] Yu P, Xiao X, Wang L, et al., 2013, Correlation Between Self-Management Behaviors and Blood Glucose Control in Patients with Type 2 Diabetes Mellitus in the Community. Journal of Central South University (Medical Science), 38(4): 425–431.

[7] Chinese Diabetes Society, 2021, Guidelines for the Prevention and Treatment of Type 2 Diabetes in China (2020 Edition) (Part 2). Chinese Journal of Practical Internal Medicine, 41(9): 757–784.

[8] Wang J, Kong X, Wang L, et al., 2025, Qualitative Study on the Prevention and Treatment Experiences of Elderly Patients with Cardiovascular and Cerebrovascular Diseases and Primary Healthcare Workers in Mountainous Areas—Taking Two Counties in Yunnan and Guizhou as Examples. Journal of Nurses Training, 40(12): 1311–

1316.

[9] Xing J, Chen T, Mi Y, et al., 2024, Analysis of Factors Influencing the Vulnerability of Chronic Disease Self-Management System for the Elderly in Shandong Province. Chinese General Practice.

[10] Li Y, Chen W, Xu W, et al., 2011, Reliability and Validity Test of Revised Summary of Diabetes Self-care Activities Scale for Patients with Type 2 Diabetes. Modern Hospital, 11(3): 148–150.

[11] Yang N, He S, Song G, et al., 2021, Correlation of Self-management, Dietary Compliance and Psychological Burden with Glycemic Level in Patients with Type 2 Diabetes Mellitus. Practical Preventive Medicine, 28(7): 774–779.

[12] Huang S, 2025, Application of Continuous Nursing Based on ADOPT Problem-solving Model in Patients with Diabetic Foot. Medical Equipment, 38(7): 150–153.

[13] Li G, Zhou Y, Tian X, et al., 2026, Interpretation of the ACLM Clinical Practice Guideline: Lifestyle Interventions for the Treatment and Remission of Type 2 Diabetes and Prediabetes in Adults. Chinese General Practice, 29(22): 3086–3093.

[14] Yao N, Dong C, Yu F, 2023, Application of Triangle Stratified Management Combined with LEARNS Model in the Management of Diabetes Nursing Outpatient Service. Chinese Journal of Practical Nursing, 39(6): 401–405.

[15] Diabetes Prevention and Control Committee of Chinese Preventive Medicine Association, 2025, Chinese Diabetes Behavior and Lifestyle Intervention Guidelines (2024). Chinese General Practice, 28(7): 777–796.

[16] Haile K, Habte M, Fenta G, 2026, Effect of a Peer Support Group Intervention on Medication Adherence, Self-care Practices, and Diabetes Knowledge Among Patients with Diabetes in Northern Ethiopia: A Randomized Controlled Trial. BMC Primary Care.