

UAI JOURNAL OF ARTS, HUMANITIES AND SOCIAL SCIENCES

(UAJAHSS)



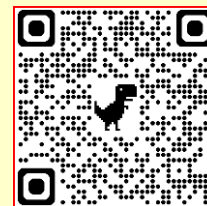
Abbreviated Key Title: UAI J Arts Humanit Soc Sci

ISSN: 3048-7692 (Online)

Journal Homepage: <https://uaipublisher.com/uaijahss/>

Volume- 2 Issue- 4 (April) 2025

Frequency: Monthly



Investigation on self-management ability of diabetic patients in community

Yamin Yuan¹, Jing Xiong², Yifan Zhang³, Xiao Liang⁴, Yong Lei⁵, Lulu Xu⁶, Guo Yuan⁷, Rongping Li⁸, Jiale Wang⁹, Min Zhang¹⁰, Xinjue Zu¹¹, Chen Chen¹², Zhou Xiaohuan¹³

^{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13} Dept: College of Nursing, Pingdingshan University

Corresponding Author: Yamin Yuan

Dept: College of Nursing, Pingdingshan University

ABSTRACT

Objective To understand the current situation of self-management ability of diabetic patients in community, analyze the reasons, and provide important basis for improving the self-management ability of diabetic patients in community and improving the quality of life of diabetic patients in community. **Methods** Convenience sampling method was used to study 235 residents with diabetes living in four communities in Zhongmou County by general data questionnaire and Chinese version of Diabetes Self-Management Behavior Scale (SDSCA). The results were analyzed by SPSS26.0 statistical software. **Results** The total score of self-management behavior scale for community diabetic patients was (38.46±22.09). Univariate analysis showed that age, marital status, education level, family per capita monthly income, disease course and health education were related to the self-management ability of diabetic patient, and the differences were statistically significant ($P < 0.05$). **Conclusions** The self-management ability of diabetic patients in community is at a medium level. Age, marital status, education level, family per capita monthly income, course of disease and health education affect the self-management ability of diabetic patients in community.

KEY WORDS: Diabetes; Self-management; Community

Introduction

Diabetes mellitus (DM) is a chronic metabolic disorder characterized by elevated blood glucose levels, requiring long-term self-management to control glycemic status and prevent complications. Its systemic complications may involve multiple organs and serve as primary etiologies for cardiovascular diseases, renal failure, and visual impairment [1]. With progressively increasing prevalence in recent decades, the global diabetes epidemic poses substantial challenges to public health systems. The 9th edition of the International Diabetes Federation report indicates that approximately 463 million adults aged 20-79 worldwide were

affected by DM in 2019, with China exhibiting the highest disease burden [2]. Self-management, initially conceptualized by Professor Creer and subsequently integrated into chronic disease management programs [3], refers to patients' autonomous responsibility in directing disease treatment and health maintenance. For diabetes—a chronic condition necessitating sustained care—effective self-management plays pivotal roles beyond clinical interventions. This process encompasses adopting health-promoting behaviors including dietary modifications aligned with professional guidance, regular physical activity, smoking cessation, and alcohol restriction. Such behavioral adaptations not only optimize glycemic control but also mitigate disease progression, reduce complication risks, and enhance

quality of life. Consequently, comprehensive understanding and enhancement of self-management capabilities are indispensable for holistic diabetes management.

International research on diabetes self-management has established foundational evidence. Hilal Alrabhi's evaluation of 266 DM patients utilizing the Diabetes Self-Management Support (DSMS) model revealed generally suboptimal self-management competencies [4]. Da Rocha et al. 's systematic review further confirmed inadequate self-management practices among most adults with type 2 diabetes [5], while Saghaee et al. 's investigation identified poor self-management performance in Iranian elderly populations with type 2 DM [6]. In contrast to international advancements, China's research in this domain remains comparatively underdeveloped.

Pioneering work by Gao Yanli et al. in 1988 first emphasized the criticality of self-management in diabetes care, marking the inception of related domestic studies [2]. Subsequent investigations, such as Wang Zongfang's exploration of elderly type 2 diabetic populations, demonstrated unsatisfactory self-management implementation [7]. Similarly, Li Yang et al. 's research identified substantial difficulties in executing self-management recommendations among older diabetic patients [8]. In summary, while substantial research has been conducted on self-management capacities in diabetic populations globally, investigations focusing on community-dwelling diabetic patients remain relatively limited.

This study employed a questionnaire-based approach to comprehensively assess the current status of self-management abilities among community-based diabetic patients and identify critical influencing factors, thereby providing an empirical foundation for enhancing self-management practices and improving patients' quality of life.

1. Materials and Methods

1.1 Study Participants

A convenience sampling method was utilized to recruit 235 diabetic residents from four communities in Zhongmou County between December 2023 and February 2024.

Inclusion criteria:

1. Voluntary participation with informed consent;
2. Confirmed diabetes diagnosis per WHO criteria [2];
3. Minimum disease duration of 6 months.

Exclusion criteria:

1. Patients with cognitive, psychiatric, or consciousness impairments;
2. Comorbid life-threatening conditions (e.g., malignancies).

1.2 Research Instruments

The study employed two validated tools:

Demographic Questionnaire: Captured age, gender, marital status, education level, monthly household income per capita, disease duration and health education exposure.

Diabetes Self-Management Behavior Scale (SDSCA): Developed by Toobert et al. [9], this instrument demonstrated satisfactory reliability (Cronbach's $\alpha=0.731$, test-retest reliability=0.854). The 11-item scale comprises five dimensions: Diet (4 items), Exercise (2 items), Blood Glucose Monitoring (2 items), Foot Care (2 items), and Smoking (1 item). Utilizing a Likert-scale scoring system (0–7 points per item; total range:0–77), higher scores indicate superior self-management capacity.

1.3 Data Collection

A cross-sectional survey was conducted across four Zhongmou County communities. Researchers first obtained administrative approval to access community chronic disease management systems. A purposive sample of 240 diabetic residents was identified, followed by informed consent procedures detailing study objectives and protocols. Ensuring Confidentiality and voluntary participation residents were assured of confidentiality upon completing the questionnaire to encourage voluntary participation. Questionnaires were distributed in printed form or via a QR code linked to Wenjuanxing (an online survey platform). Participants were instructed to answer truthfully to ensure validity, with a recommended completion time of at least 1 minute. A total of 240 questionnaires were distributed, and after screening, 235 valid questionnaires were collected, yielding an effective response rate of "97.92%".

1.4 Statistical Analysis

Data were analyzed using SPSS 26.0. Count data (e.g., demographics) were described using frequencies and percentages, while measurement data (e.g., scores) were expressed as mean $\pm$ standard deviation. Independent samples 't'-tests and one-way ANOVA were used to compare score differences among patients with different characteristics, with a statistical significance threshold of 'P'<0.05.

2. Research Results

2.1 General Characteristics of Community Diabetes Patients

In this study, the participants included 63 individuals (26.81%) aged <60 years, while the majority, 172 individuals (73.19%), were aged ≥ 60 years. Females constituted the majority, with 125 individuals (53.19%), compared to 110 males (46.81%). Most of the respondents were married, with 182 individuals (77.45%), while 53 individuals (22.55%) were without a spouse. In terms of education level, 27 individuals (11.49%) had primary school education or below, 111 individuals (47.23%) had junior high school education, 66 individuals (28.09%) had high school or vocational school education, and 31 individuals (13.19%) had college education or above. Regarding monthly household income per capita, 83 individuals (35.32%) had an income of <3000 CNY, while the majority, 152 individuals (64.68%), had an income of ≥ 3000 CNY. In terms of diabetes duration, 44 individuals (18.72%) had a duration of <5 years, while the majority, 191 individuals (81.28%), had a duration of ≥ 5 years. A total of 189 individuals (80.43%) had received diabetes education, while 46 individuals (19.57%) had not. For detailed information, please refer to Table.

Table1 General Characteristics of Community Diabetes Patients

Item	Category	Number (n)	Percentage (%)
Age (years)	<60	63	26.81
	≥ 60	172	73.19
Gender	Male	110	46.81
	Female	125	53.19
Marital Status	With spouse	182	77.45

Table1 General Characteristics of Community Diabetes Patients

Item	Group	Number (n)	Percentage (%)
Education Level	No Spouse	53	22.55
	Primary School and Below	27	11.49
	Junior High School	111	47.23
	High school/Vocational School	66	28.09
	College and above	31	13.19
Monthly Household Income	≤3000	83	35.32
	≥3000	152	64.68
Duration of Disease (Years)	<5	44	18.72
	≥5	191	81.28
Health Education	Received	189	80.43
	Not Received	46	19.57

2.2 Self-Management Ability Scores of Community Diabetic Patients

The total self-management ability score of community diabetic patients was (38.46 ± 22.09) points, with the following breakdown: diet (14.60 ± 7.63) points, exercise (7.06 ± 3.96) points, blood glucose self-monitoring (6.79 ± 4.07) points, foot care (6.69 ± 4.20) points, and smoking (3.32 ± 2.23) points. Detailed information is shown in Table 2.

Table 2 Self-Management Ability Scores of Community Diabetic Patients

Dimension	Number of Items	Score	Average Score per Item
Diet	4	14.60 ± 7.63	3.65 ± 1.91
Exercise	2	7.06 ± 3.96	3.53 ± 1.98
Blood Glucose Self-Monitoring	2	6.79 ± 4.07	3.40 ± 2.04
Foot Care	2	6.69 ± 4.20	3.34 ± 2.10
Smoking	1	3.32 ± 2.23	3.32 ± 2.23

2.3 Comparison of Self-Management Ability Scores Among Community Diabetic Patients Under Different Conditions

Using t-tests and one-way ANOVA to compare the general information of community diabetic patients, it was found that factors influencing self-management ability included age, marital status, education level, monthly household income per capita, duration of disease, and health education ($P < 0.05$). Gender did not have a significant impact on self-management ability ($P > 0.05$). See Table 3 for details.

3. Discussion

3.1 Analysis of the Current Status of Self-Management Ability in Community Diabetic Patients

As shown in Table 2, the total self-management ability score of community diabetic patients was (38.46 ± 22.09) points, indicating a moderate level of self-management ability. This result is consistent with the findings of Hao Yiti [10] and Zhao Wenjing [11]. This may be related to insufficient knowledge, poor lifestyle habits, and inadequate social support.

In terms of knowledge, many diabetic patients have limited understanding of their condition in the early stages, and some even hold misconceptions. This lack of accurate knowledge about diet, exercise, and other aspects of self-management negatively impacts their self-management ability. In terms of lifestyle habits, some diabetic patients may have unhealthy habits, such as irregular eating patterns, lack of exercise, and failure to monitor blood glucose regularly, which further hinder their self-management ability. In terms of social support, some patients may lack the necessary material and emotional support, making it difficult for them to adhere to self-management plans and resulting in lower self-management ability.

The results in Table 2 show that the average scores per item, from highest to lowest, are as follows: diet (3.65 ± 1.91) points, exercise (3.53 ± 1.98) points, blood glucose self-monitoring (3.40 ± 2.04) points, foot care (3.34 ± 2.10) points, and smoking (3.32 ± 2.23) points. The lowest score was for smoking, which may be because smokers often face greater psychological stress and anxiety, reducing their motivation for disease management. A negative mindset and emotional state can weaken patients' self-management ability, making it harder for them to maintain healthy lifestyles and treatment plans. Additionally, smoking behavior may lead to negative evaluations or social exclusion, reducing connections with family, friends, and the community. A lack of social support can make patients feel isolated and helpless, further diminishing their confidence and motivation for self-management. Moreover, smoking has physiological adverse effects on diabetic patients, including macrovascular and microvascular complications, increased risks of vascular hardening and embolism, and other issues. These physiological effects may require more medical attention and intervention, thereby reducing the effectiveness of self-management.

The low score for foot care is consistent with the findings of Zhu Anrong et al. [12] and Cui Yi et al. [13]. This may be because diabetic foot complications often occur in the later stages of diabetes, and patients lack awareness of checking their feet and footwear. Studies suggest that using intuitive and vivid health education methods to explain diabetic foot-related knowledge and foot care techniques can increase patients' understanding and improve their foot care ability [14].

The highest score was for diet, which aligns with the findings of Yang Yuqing et al. [15]. This may be because a reasonable dietary plan helps diabetic patients more effectively control their condition.

This may be because a reasonable dietary plan helps diabetic patients control their blood glucose levels more effectively, maintain stability, and, to some extent, promote their self-management abilities. Secondly, a scientific dietary arrangement also contributes to improving the psychological state of patients. There is a close connection between diet and emotions; an unreasonable diet may lead to emotional fluctuations, anxiety, and depression, while a reasonable diet plan can help patients maintain emotional stability, boost self-confidence, and enhance self-management abilities.

thereby enabling them to better cope with the challenges of diabetes.

3.2 Comparative Analysis of Self-Management Abilities in Community Diabetic Patients under Different Conditions

The research results show that the total self-management score of community diabetic patients is (38.46±22.09), indicating a moderate level of self-management ability. Factors affecting the self-management abilities of community diabetic patients include age, marital status, educational level, monthly per capita family income, disease duration, and health education ($P<0.05$).

3.2.1 Age

The survey results indicate that age is related to the self-management abilities of community diabetic patients, with statistically significant differences ($P<0.05$). The older the age, the poorer the self-management abilities of community diabetic patients. This may be related to the decline in learning and memory abilities in elderly patients [16]. As age increases, elderly individuals may experience memory decline, cognitive impairment, and vision deterioration [17], which could affect their ability to manage the complex tasks necessary for proper blood glucose control, such as daily medication, dietary management, and exercise.

As age increases, there is a decline in certain physiological and cognitive functions, which may affect the self-management abilities of community diabetic patients. Additionally, older patients are likely to have more health issues, requiring more time and energy to manage these problems, thereby reducing their investment and effectiveness in diabetes self-management. Therefore, the older the age, the poorer the self-management abilities of community diabetic patients.

3.2.2 Marital Status

Survey results show that marital status is related to the self-management abilities of community diabetic patients, with statistically significant differences ($P<0.05$). Diabetic patients without a spouse have poorer self-management abilities, which is consistent with the findings of Ma Qian et al. [18]. This may be because diabetes is a chronic disease that requires long-term management and control, and patients may face stress from the disease. Patients without a spouse may lack emotional support and understanding, increasing their psychological stress and affecting their enthusiasm and motivation for disease management. When facing difficulties and challenges brought by the disease, a spouse can usually provide substantial help and support. Patients without a spouse may need to face these issues alone, which may reduce their ability to cope with difficulties and challenges, thereby affecting their self-management abilities. Moreover, patients without a spouse may lack daily supervision and reminders leading to inadequate execution of self-management behaviors.

3.2.3 Education Level

Survey results indicate that education level is related to the self-management abilities of community diabetic patients, with statistically significant differences ($P<0.05$). Diabetic patients with an education level of elementary school or below have the poorest self-management abilities. Patients with lower educational attainment may face greater socioeconomic pressures, such as lower income and unstable employment. These factors may prevent them from affording expensive medical costs, high-quality medical devices, and medications, or receiving adequate medical support and attention. Such economic pressures can weaken their self-management abilities, making it more difficult for them to control their condition. Additionally, patients with lower education levels

may have limited comprehension abilities and restricted access to information, relying more on community activities and health professionals for health education. However, the effectiveness of such health education is often difficult to ensure, increasing the risk that they neglect the importance of self-management [19].

3.2.4 Monthly Per Capita Family Income

Survey results show that monthly per capita family income is related to the self-management abilities of community diabetic patients, with statistically significant differences ($P<0.05$). The lower the monthly per capita family income, the poorer the self-management abilities of community diabetic patients. Families with lower per capita income may face greater economic difficulties and pressures, which can affect their lifestyle and health management. In situations of economic instability, patients may be unable to afford the costs associated with treatment and care [20], making it more difficult to obtain professional medical advice and support, which in turn affects their ability to manage the disease. Conversely, patients with higher monthly per capita family income generally exhibit better self-management behaviors. This has also been confirmed in the study by Han Kaiyi, which found that the self-management abilities of high-income patients are superior to those of low-income patients [21]. Therefore, the economic level of a family may influence the self-management abilities of diabetic patients.

3.2.5 Duration of Illness

Survey results indicate that the duration of illness is related to the self-management abilities of community diabetic patients, with statistically significant differences ($P<0.05$). The shorter the duration of illness, the poorer the self-management abilities of community diabetic patients. Diabetic patients with a shorter duration of illness may not have fully adapted to the lifestyle changes and challenges brought by the disease and need time to accept and understand it. In the early stages of the disease, due to insufficient awareness of their condition, patients often have weaker self-care awareness and relatively poor self-management abilities. However, as the duration of illness extends and patients undergo multiple educational sessions on disease knowledge, their self-management abilities gradually improve [22]. Therefore, diabetic patients with a shorter duration of illness may require more support, training, and guidance to enhance their self-management abilities. Over time and with the accumulation of experience, patients may gradually improve their understanding and control of the disease.

3.2.6 Health Education

Survey results indicate that health education is related to the self-management abilities of community diabetic patients, with statistically significant differences ($P<0.05$). Diabetic patients who have not received relevant education have poorer self-management abilities. This may be because patients may miss or choose not to participate in community diabetes health education sessions, leading to a lack of necessary knowledge and skills to effectively manage their disease. For example, they may be unable to correctly recognize disease symptoms, understand what constitutes a reasonable diet and appropriate exercise, properly use medications, or monitor blood glucose levels, resulting in poorer self-management abilities. Through education, patients can learn to effectively manage their disease, reduce the risk of complications, and improve their quality of life.

4. Conclusion

The self-management abilities of community diabetic patients are at a moderate level. Influencing factors include age, marital status, education level, monthly per capita family income, duration of

illness, and health education. Community staff should focus on the methods and language used in health education, integrate it as much as possible into the daily lives of patients, and increase patient participation enthusiasm to improve their self-management levels.

References

- Swiatoniowska N, Sarzynska K, Szymanska-Chabowska A, et al. The role of education in 'type 2 diabetes treatment [J]Diabetes Res Clin Practice. 2019, 151:237-246.
- Zhou Jiayu. Research on the Effect of Collaborative Care Model on Self-management Ability of Elderly Patients with Type 2 Diabetes and Caregiver Burden [D]. Sichuan Province: North Sichuan Medical College, 2021.
- Wang Tiantian. Group Work Research on Improving Self-management Ability of Patients with Type 2 Diabetes from a Spiritual Perspective-Based on Practice in a Community in Chongqing [D]. Jiangxi Province: Jiangxi University of Finance and Economics, 2022.
- Ma Qian. Analysis of Influencing Factors of Self-management Behaviors in Diabetes Patients Based on the Health Belief Model [D]. Hebei Province: Hebei University, 2019.
- Da Rocha RB, Silva CS, Cardo VS. Self-care in Adults with Type 2 Diabetes: A Systematic Review [J]. Current Diabetes Reviews, 20, 16 (6) :589-607.
- Saghae A, Ghari S, Nasli-Esfahani E, et al. Evaluating the Effectiveness of Persian Diabetes Self-Management Education in Elderly Type 2 Diabetes Patients in a Diabetes Outpatient Clinic in Tehran: A Pilot Randomized Controlled Trial [J]. Diabetes & Metabolic Disorders, 20, 199 (2) :1491-1504.
- Wang Zongfang. Investigation of Sleep Quality in Elderly Diabetic Patients and Analysis of the Correlation with Their Self-Management Behaviors [J]. Nursing Practice and Research, 2019, 16 (24) :14-16.
- Li Yang, Li L, Cui D, et al. Effectiveness of Group Consultation for Elderly Patients with Type 2 Diabetes in Urban Communities in China [J]. New Journal of the Elderly, 2020, Vol. 41, No. 3, pp. 229-235.
- Bian Meirong. Study on the Correlation Between Health Information Acquisition Behavior and Self-Management Ability in Elderly Patients with Type 2 Diabetes [D]. Liaoning Province: China Medical University, 2022.
- Hao Yiti. Analysis of the Correlation Between Health Beliefs, Self-Management Ability, and Physical Activity in Patients with Type 2 Diabetes [D]. Henan Province: Henan University, 2021.
- Zhao Wenjing. Study on the Current Situation and Influencing Factors of Quality of Life of Elderly Patients with Type 2 Diabetes in Lanzhou Communities [D]. Gansu Province: Gansu University of Traditional Chinese Medicine, 2023.
- Zhu Anrong, Zhang Haixia, Zhang Yuesu. Current Status of Foot Care Behaviors and Influencing Factors in Patients with Type 2 Diabetes [J]. Zhejiang Medical Education, 2019, 18 (05) :42-45.
- Cui Yi, Chang Tiantian, Zhang Yinling. Current Status and Influencing Factors of Self-Management Behaviors in Adult Diabetic Patients [J]. Northwest National Defense Medical Journal, 2020, 41 (11) :694-698.
- Wei Yu. A Study on the Impact of Health Education Based on Health Quotient Theory on Self-Management Behaviors in Middle-Aged and Elderly Patients with Type 2 Diabetes [D]. Inner Mongolia Autonomous Region: Inner Mongolia Medical University, 2022.
- Yang Yuqing, Chen Quan, He Qile, et al. A Study on Self-Management Levels and Influencing Factors in Elderly Diabetic Patients in Dongcheng District, Beijing [J]. Journal of Medical Informatics, 2024, 45 (01) :59-63+88.
- Chen Huiling. The Impact of Nursing Interventions Based on the Health Belief Model on Self-Management in Hospitalized Young and Middle-Aged Patients with Type 2 Diabetes [D]. Henan Province: Zhengzhou University, 2022.
- Zeng Qifeng. A Study on Influencing Factors and Health Effects of Self-Management Behaviors in Elderly Patients with Type 2 Diabetes [D]. Guangxi Zhuang Autonomous Region: Guangxi University of Chinese Medicine, 2023.
- Ma Qian, Pu Mengmeng, Zhao Hui, et al. Research Status on Self-Management Behaviors and Influencing Factors in Diabetic Patients [J]. Hebei Medical Journal, 2019, 41 (01) :126-129.
- Peng Chunxia, Hong Yufen, Liang Chanbo, et al. Influencing Factors and Nursing Strategies for Self-Management Ability in Patients with Type 2 Diabetes [J]. Jilin Medical Journal, 2023, 44 (06) :1622-1624.
- Wang Qin, Liu Yun, Wang Li. Analysis of Self-Management Behaviors and Influencing Factors in Patients with Type 2 Diabetic Foot under the Health Ecology Model [J]. Journal of Bengbu Medical College, 2021, 46 (09) :1276-1279+1284.
- Zhang Lin, Liu Yanjin. Current Status and Correlation Analysis of Health Literacy and Self-Management in Diabetic Patients [J]. Chinese Clinical Nursing, 2022, 14 (05) :312-316.
- Hou Jingjing, Bai Guirong, Xiao Zixuan, et al. A Study on the Current Status and Influencing Factors of Knowledge, Attitudes, and Practices of Self-Management in Patients with Type 2 Diabetes in Ningxia Communities [J]. Journal of Ningxia Medical University, 2020, 42 (07) :732-736.