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ORIGINAL RESEARCH

Exploring Expectations Regarding Aging and Related Influencing Factors in Older People with Type 2 Diabetes Mellitus: A Cross-Sectional Study

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Purpose: Improving the health behaviors of older type 2 diabetes mellitus (T2DM) patients is crucial for promoting healthy aging worldwide. Given the significant role of expectations regarding aging (ERA) in fostering healthy behaviors and improving disease outcomes, understanding its status and influencing factors in this population is essential.

Patients and Methods: The cross-sectional study was conducted from December 2023 to February 2024 at a tertiary hospital in China, where 289 elderly T2DM patients were surveyed. Self-reported questionnaires were used to assess sociodemographic and clinical data, ERA, depression, social support, diabetes self-efficacy. Data were analyzed using SPSS 26.0 software, employing Pearson correlation analysis, univariate analysis, and multiple stepwise linear regression.

Results: The ERA score in older T2DM patients was 39.72 ± 9.53, which was at a medium-low level. The level of ERA is negatively correlated with depression ($r = -0.549$, $p < 0.01$) and positively correlated with social support ($r = 0.625$, $p < 0.01$) and diabetes self-efficacy ($r = 0.514$, $p < 0.01$). Age, family monthly income, type of daily medication, number of sources for diabetes-related knowledge, as well as depression, social support, and diabetes self-efficacy are factors that influence ERA and can explain 59.2% of the total variance.

Conclusion: Efforts should be made to promote ERA in older patients with T2DM. Healthcare providers should develop intervention strategies based on identifying the factors that influence the ERA in elderly T2DM patients to improve their health outcomes and enhance their health management awareness, thereby improving the quality of their later years.

Keywords: expectations regarding aging, depression, social support, diabetes self-efficacy, older people, type 2 diabetes mellitus

Introduction

According to the World Health Organization (WHO), older adults are defined as individuals aged 60 years and over.[1] Currently, global population aging is accelerating, with the number of such individuals expected to rise from 727 million in 2020 to 1.5 billion by 2050.[2] Healthy aging, a global priority identified by the WHO, requires maintaining physical and mental well-being among older adults.[2] However, diabetes mellitus (DM) poses a significant threat to older adults' health, becoming a critical barrier to healthy aging.[3] The global prevalence of DM in adults aged ≥65 exceeds 20%, with China reaching nearly 30% among older adults, predominantly type 2 diabetes mellitus (T2DM).[4,5] T2DM substantially impacts individuals' quality of life and imposes heavy economic burdens on society.[6] Effective self-management behaviors are crucial in preventing complications and improving outcomes for elderly patients with T2DM. Yet, only 22.5% of older adults with T2DM currently engage in adequate self-management.[7] Identifying new strategies to improve their health behaviors is therefore essential.

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Expectations regarding aging (ERA) are essential in promoting healthy behaviors.[8–10] Sarkisian defined ERA as older adults' anticipated ability to maintain physical and mental functioning, reflecting their beliefs about aging healthily.[11] Individuals with higher ERA tend to adopt healthier lifestyles, such as engaging in regular physical activity and healthy eating behaviors.[9,12] A prospective study demonstrated that older adults with high ERA were more likely to establish new friendships and maintain good social networks over time.[13] Specifically, physical activity and healthy eating are integral to diabetes self-management among older adults with T2DM. Physical activity enhances insulin sensitivity, controls blood glucose, reduces cardiovascular risks, and improves overall quality of life.[14] Similarly, good social networks positively influence psychological well-being and chronic disease management.[15] In contrast, older adults with lower ERA often perceive reversible conditions, such as depression or cognitive impairment, as normal aspects of aging, thus delaying healthcare-seeking behavior.[11] For older T2DM patients, untreated depression or cognitive impairment can significantly impair daily disease management, leading to poor glycemic control and increased complications, severely reducing quality of life and life expectancy.[16] Thus, enhancing ERA could effectively improve diabetes self-management. However, healthcare providers must first understand factors influencing ERA among older adults with T2DM.

To our knowledge, existing studies on ERA have primarily focused on community-dwelling older adults,[10,11,13] with limited attention given specifically to those with T2DM. Understanding ERA in this group can help promote healthier behaviors, improve glycemic control, and enhance healthy aging. Therefore, this study conducted a cross-sectional survey to investigate the current status and influencing factors of ERA among older adults with T2DM.

Materials and Methods

Study Design and Participants

This study was designed as a cross-sectional study. Convenience sampling was used to recruit T2DM patients admitted to a tertiary hospital in Wuxi City from December 2023 to February 2024. Inclusion criteria were: (1) diagnosis of T2DM according to WHO 1999 criteria, (2) age ≥60 years, (3) disease duration ≥6 months, and (4) voluntary participation. Exclusion criteria included: (1) acute T2DM complications, severe systemic diseases, or malignancies, and (2) mental illness or cognitive and communication disorders.

Sample size estimation was conducted using G*Power 3.1. Based on multiple linear regression analysis requirements, parameters were set as effect size = 0.15, $\alpha = 0.05$, power = 0.90, and 18 predictor variables, yielding a required sample size of 183. To account for potential invalid responses, the sample size was increased by 20%, setting the minimum at 220. Ultimately, 289 older T2DM patients completed the questionnaire.

Measurements

Demographic Informatics Questionnaires

It was designed by the researcher on the basis of the literature review and the discussion in the group of experts and included sociodemographic characteristics as well as clinical characteristics. Sociodemographic characteristics included gender, age, education background, etc. Clinical characteristics included family history of diabetes, diabetes duration, treatment modalities, etc.

Social Support Rating Scale (SSRS)

The Social Support Scale was developed by Xiao in 1994 to evaluate the degree of social support felt by an individual.[17] This scale encompasses three dimensions: objective support, subjective support and utilization of support, with 10 items. Higher levels of social support are indicated by higher scores on the scale. A score of < 20 indicates low social support, 20–30 indicates moderate support, and > 30 indicates high social support.[18] The Cronbach's alpha coefficient for this scale in this study was 0.857.

Geriatric Depression Scale-15 (GDS-15)

The Geriatric Depression Scale-15, developed by Sheikh et al,[19] has been widely used clinically to measure depression in older adults. The scale has 15 items and scoring is dichotomous yes/no. Items 2, 3, 4, 6, 8, 9, 10, 12, 14 and 15 are scored as 1 point for a "yes" response and the remaining items are scored as 1 point for a "no" response. The total score ranges from 0 to 15, with

higher scores indicating more pronounced depressive symptoms and score ≥ 5 indicating the presence of depressive symptoms.[20] The GDS-15 showed good reliability and validity in older adults, with a Cronbach's α of 0.76.[21]

Stanford Self-Efficacy for Diabetes Management Scale (SEDMS)

This SEDMS was developed by Lorig.[22] It measures the self-efficacy of people with DM in relation to diet, exercise, blood glucose monitoring and disease control. It contains 8 entries, using a 10-point Likert scale, with scores from 1 (Completely lacking confidence) to 10 (Fully confident). The final score was the average of the eight entries, with higher scores indicating higher levels of self-efficacy. The Cronbach's α for this study was 0.805.

21-Item Expectations Regarding Aging Scale (ERA-21)

This study used the ERA-21, which is based on a revision of the ERA-38 scale developed by Sarkisian et al,[23] with a Cronbach's alpha value of 0.994. The scale has a total of 21 items comprising four dimensions: physical health (7 items), functional independence (4 items), cognitive functioning (4 items), and mental health (6 items). Responses are scored on a 4-point Likert scale ranging from 21 to 84, with higher scores reflecting higher ERA among respondents. The ERA-21 scale was selected for this study due to its brevity, high reliability, and previous validation within Chinese elderly populations. In this study, the scale had a Cronbach's alpha value of 0.889.

Data Collection

The researcher explained the study's purpose and questionnaire procedure to patients in the ward. After obtaining informed consent, paper questionnaires were distributed and self-completed. For illiterate patients, researchers assisted them in completing the questionnaires through a question-and-answer format. All researchers involved in the assistance received standardized training, with a focus on avoiding leading questions to ensure the objectivity and reliability of the data. After the questionnaires were completed, researchers conducted a completeness review of each one. If any missing items were found, they promptly reminded the patients to complete them. A total of 309 questionnaires were distributed, with 289 valid responses collected after excluding 20 incomplete ones, yielding a 93.5% validity rate.

Statistical Analysis

Data analysis was performed using SPSS 26.0. Continuous variables were examined graphically and with the Shapiro–Wilk test to assess normality. Variables conforming to a normal or approximately normal distribution were presented as mean ± standard deviation (SD), while categorical data were presented as frequencies and percentages. Univariate analysis used independent samples *t*-tests for two-group comparisons. For multiple groups, variance homogeneity was assessed; one-way ANOVA was applied if homogeneous, otherwise, the Kruskal–Wallis *H*-test was used. Pearson correlation analysis evaluated variable relationships. Multivariate analysis incorporated significant variables from univariate analysis into a stepwise multiple linear regression model to identify independent influencing factors. Statistical significance was set at $p < 0.05$.

Ethical Approval

This study was approved by the Ethics Committee of the Affiliated Hospital of Jiangnan University (Approval No: LS2023079). Before the formal implementation of the study, all participants were informed of the purpose, methods of the study and the principle of voluntary participation, and signed the written informed consent form. This study was strictly conducted in accordance with the ethical principles of the Declaration of Helsinki.

Results

Common Method Variance Test

This study utilized Harman's single-factor test to assess potential common method bias. The exploratory factor analysis revealed that the variance explained by the first factor was 26.95% (< 40%), which indicates an absence of significant common method bias in this study.

Participant Characteristics

Among the 289 participants, 169 (58.5%) were male and 120 (41.5%) were female. The mean age of the participants was 68.44 ± 6.48 years. Specifically, 165 participants (57.1%) were aged between 60 and 69 years, 107 participants (37%) were aged between 70 and 79 years, and 17 participants (5.9%) were 80 years or older. Most respondents were junior high school graduates (N = 110, 38.1%), and 45.3% (N = 131) had a family monthly income of 3000–5000 CNY. Clinically, 86 (29.8%) had a family history of diabetes, while 79.5% had other chronic comorbidities. Additionally, 19% took more than five types of medication daily. See Table 1 for details.

Table 1 Participants' Characteristics and Univariate Analysis of ERA

Characteristics	N (%)	ERA		
		Mean ± SD	t/F/H	*p*
Gender			−1.481[a]	0.140
Female	120(41.5)	38.73 ± 9.39		
Male	169(58.5)	40.41 ± 9.59		
Age			18.881[b]	< 0.001
60–69	165(57.1)	42.45 ± 8.93		
70–79	107(37)	36.53 ± 9.14		
≥ 80	17(5.9)	33.18 ± 8.52		
Education background			21.632[b]	< 0.001
Primary school or below	78(27)	34.09 ± 7.72		
Junior high school	110(38.1)	39.30 ± 8.59		
High school or technical secondary school	70(24.1)	44.13 ± 9.86		
College or above	31(10.7)	45.39 ± 8.08		
Marital status			1.308[a]	0.192
Married	225(77.9)	40.11 ± 9.38		
Single	64(22.1)	38.34 ± 9.98		
Residence			−6.754[a]	< 0.001
Rural	57(19.7)	33.82 ± 6.69		
Towns	232(80.3)	41.16 ± 9.57		
Occupational status			38.503[c]	< 0.001
On the job	28(9.7)	46.00 ± 8.17		
Retirement	182(63)	40.95 ± 9.66		
Be unemployed	79(27.3)	34.65 ± 7.18		
Monthly household income (CNY)			60.895[c]	< 0.001
< 3000	82(28.4)	33.99 ± 6.89		
3000-5000	131(45.3)	39.57 ± 8.61		
> 5000	76(26.3)	46.14 ± 9.53		
Medical expenses payment			36.668[c]	< 0.001
Medical insurance for urban residents	37(12.8)	38.76 ± 9.82		
Medical insurance for urban employees	180(62.3)	41.92 ± 9.59		
The rural cooperative medical care	63(21.8)	33.75 ± 6.44		
Self-paid	9(3.1)	41.33 ± 7.40		
Family history of diabetes			2.695[a]	0.007
Yes	86(29.8)	42.01 ± 9.14		
No	203(70.2)	38.74 ± 9.54		
Diabetes duration (years)			3.208[b]	0.024
≤ 5	92(31.8)	40.79 ± 10.05		
6–10	51(17.6)	42.39 ± 8.57		
11–15	52(18)	38.25 ± 9.05		
> 15	94(32.5)	39.72 ± 9.53		

(*Continued*)

Table 1 (Continued).

Characteristics	N (%)	ERA		
		Mean ± SD	t/F/H	*p*
Type of treatment			0.825[b]	0.481
Non-pharmacological treatment	21(7.3)	42.38 ± 10.13		
Oral hypoglycaemic	153(52.9)	39.80 ± 9.71		
Insulin	55(19)	39.69 ± 9.90		
Both oral and Insulin	60(20.8)	38.60 ± 8.49		
Number of sources for diabetes-related knowledge			47.775[b]	< 0.001
≤ 1	109(37.7)	34.34 ± 7.91		
2–3	143(49.5)	41.51 ± 8.12		
≥ 4	37(12.8)	48.62 ± 9.81		
Number of other chronic diseases			5.449[b]	0.005
0	59(20.4)	43.20 ± 10.18		
1–2	203(70.2)	39.00 ± 9.39		
≥ 3	27(9.3)	37.44 ± 7.29		
Type of daily medication			7.359[b]	< 0.001
0	18(6.2)	44.56 ± 10.18		
1–4	216(74.7)	40.28 ± 9.43		
≥ 5	55(19)	35.93 ± 8.59		

Notes: [a]independent samples *t*-test; [b]analysis of variance; [c]Kruskal–Wallis *H*-test.
Abbreviations: ERA, expectations regarding aging; SD, Standard deviation; CNY, Chinese Yuan.

The Score Related to Older Adults with T2DM' ERA

In this study, the total score of ERA was 39.72 ± 9.53, as shown in Table 2. At the item level, the mental health subscale score ranked first (2.53 ± 0.75), followed by functional independence (2.27 ± 0.64) and cognitive function (1.44 ± 0.51), while the physical health subscale had the lowest score (1.39 ± 0.40).

Differences in ERA by Characteristics

The results of univariate analysis showed that ERA was affected by age, education background, residence, occupational status, monthly household income, medical expenses payment, number of sources for diabetes-related knowledge, type of daily medication (all $P < 0.001$), and family history of diabetes, number of other chronic diseases (both $P < 0.01$), and diabetes duration ($P < 0.05$). For details in Table 1.

Relationship Between ERA and Related Variables

The results of correlation analysis showed that social support (r = 0.625, $P < 0.01$) and diabetes self-efficacy (r = 0.514, $P < 0.01$) were significantly and positively correlated with the level of ERA in elderly T2DM patients. In addition, depression (r = −0.549, $P < 0.01$) was significantly negatively associated with the level of ERA (Table 3).

Table 2 Dimensions and Total Score of Older Adults with T2DM' ERA

Variables	Domain Mean ± SD	Item Mean ± SD	Rank
Total score of ERA	39.72 ± 9.53	1.89 ± 0.45	
Physical health	9.72 ± 2.83	1.39 ± 0.40	4
Mental health	15.18 ± 4.48	2.53 ± 0.75	1
Cognitive function	5.74 ± 2.04	1.44 ± 0.51	3
Functional independence	9.07 ± 2.56	2.27 ± 0.64	2

Abbreviations: SD, standard deviation; ERA, expectations regarding aging.

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Table 3 Correlation Between ERA and Related Variables

Variables	ERA	Depression	Social Support	Diabetes Self-Efficacy
ERA	1			
Depression	−0.549**	1		
Social support	0.625**	−0.498**	1	
Diabetes self-efficacy	0.514**	−0.490**	0.519**	1

Note: **p< 0.01.
Abbreviation: ERA, expectations regarding aging.

Table 4 Multiple Stepwise Linear Regression Analysis of Factors Influencing ERA in Older T2DM Patients

Variables	B	SE	β	t	p
Constant	22.895	3.134		7.305	< 0.001
Age					
60–69	Reference				
70–79	−3.814	0.775	−0.194	−4.919	< 0.001
≥ 80	−8.482	1.633	−0.210	−5.193	< 0.001
Monthly household income (CNY)					
< 3000	Reference				
> 5000	2.340	0.990	0.108	2.364	0.019
Number of sources for diabetes-related knowledge					
≤ 1	Reference				
2–3	2.534	0.895	0.133	2.833	0.005
≥ 4	5.163	1.506	0.181	3.429	0.001
Type of daily medication					
0	Reference				
≥ 5	−2.389	0.934	−0.099	−2.556	0.011
Diabetes self-efficacy	0.816	0.365	0.112	2.235	0.026
Social support	0.355	0.067	0.266	5.289	< 0.001
Depression	−0.641	0.135	−0.221	−4.734	< 0.001

Notes: R^2 = 0.592, F = 42.741, p< 0.001.
Abbreviations: B, unstandardized coefficient; SE, standard error; β, standardized coefficient.

Factors Influencing ERA in Elderly T2DM Patients

In the multiple linear regression analyses using the stepwise method, statistically significant factors from the univariate analysis (including age, education background, residence, occupational status, monthly household income, medical expenses payment, family history of diabetes, diabetes duration, number of sources for diabetes-related knowledge, number of other chronic diseases and type of daily medication) as well as depression, social support, and diabetes self-efficacy were used as independent variables. ERA was employed as dependent variables. Variance inflation factors ranged from 1.049 to 1.974 (<5), indicating no multicollinearity. The findings indicated that age, monthly household income level, number of sources for diabetes-related knowledge, type of daily medication, depression, social support, and diabetes self-efficacy emerged as significant factors influencing ERA among older adults with T2DM, explaining 59.2% of its variance. The regression coefficients are detailed in Table 4.

Discussion

Overall, the ERA score for elderly T2DM patients was 39.72 ± 9.53, which was moderately low. The mean score for each item on the ERA-21 scale was 1.89 ± 0.45, which was significantly lower than the scores reported for the general elderly populations in the United States[13] (2.90) and Japan[24] (2.46 ± 1.20). This difference may be related to cultural background and the characteristics

of the study population. First, influenced by traditional cultural beliefs, some elderly people in China hold a "health fatalism" view.[25] A qualitative study showed that 53% of elderly chronic disease patients in Beijing's community believed that "one cannot fight fate" and "everyone has their own destiny".[26] Second, the study participants were elderly T2DM patients who bore the dual burden of diabetes-related physiological challenges and aging-related functional decline, which may have led to a more negative view of healthy aging. Nevertheless, participants scored relatively higher on the mental health dimension, which was consistent with previous research.[27] This may have been due to social and economic progress improving overall life satisfaction, which helps individuals maintain a positive mindset in the face of adversity,[28] thereby promoting mental health. However, participants scored relatively lower on the physical health and cognitive functioning dimensions. Ample evidence suggests that T2DM is an independent risk factor for physical frailty and cognitive dysfunction.[29] When individuals perceive threats to their physical and cognitive health, they often lower their expectations for good health.[8] Therefore, healthcare professionals should place greater emphasis on assessing the physical health and cognitive function expectations of elderly T2DM patients, enhance disease management, and focus on preventing physical frailty and cognitive decline, ultimately helping patients improve their expectations for physical health and cognitive functioning.

Multiple factors were identified as influencing ERA in this population. First, age was identified as a significant influencing factor, with ERA levels decreasing significantly with advancing age.[30] This may be explained by age-related physiological changes, such as reduced insulin sensitivity,[31] which complicate glycemic control and threaten quality of life. Aging is also accompanied by diminishing social roles, making older adults susceptible to negative psychological states like a sense of uselessness. These factors collectively contribute to the decreased level of ERA in older T2DM patients. Additionally, influenced by age stereotypes, many older people attribute disease problems to aging and believe preventive measures are futile. Sarkisian et al found that by teaching older adults to view sedentary behavior as a modifiable trait rather than an inevitable consequence of aging, their levels of ERA and walking behaviors were effectively enhanced.[32] Therefore, society should correct the misconceptions of aging in elderly T2DM patients and motivate them to hope for old age. We also found that participants taking more types of daily medications reported lower ERA. In general, patients on multiple medications often have multiple chronic diseases and may subconsciously perceive themselves as worse off, fostering negative psychology such as uselessness, which lowers the level of ERA.[33] Furthermore, polypharmacy can increase adverse drug reactions, leading to suboptimal glycemic control and higher risk of diabetes complications,[34] reinforcing negative beliefs about aging. Therefore, healthcare professionals should monitor polypharmacy closely and select simpler, safer medications based on treatment efficacy to reduce these risks.

Furthermore, socioeconomic factors and the number of sources for diabetes-related knowledge also significantly influence ERA levels. The results of this study showed that participants with a family monthly income above 5000 CNY had higher ERA than those earning less than 3000 CNY. This phenomenon may be attributed to the fact that elderly T2DM patients with higher income levels often have the financial means to cover the expenses associated with their condition and medication. Consequently, they are more inclined to undergo regular check-ups and promptly seek medical attention when their health deteriorates. Such behavior can slow diabetes progression and complications,[35] thereby enhancing their later-life quality and fostering positive beliefs about health in old age. Another factor that influences ERA in older T2DM patients is the number of sources for diabetes-related knowledge. Seeking diabetes-related information through multiple channels may suggest that participants have greater health awareness and health literacy. They tend to have better blood glucose control and self-confidence,[36] which contribute to a healthy lifestyle, enhanced self-management, and delayed health deterioration, thus raising ERA levels.

Mental health is another key factor influencing ERA. The present study observed that older patients with T2DM with higher depression scores had lower levels of ERA, a finding consistent with previous research.[37] From a biological perspective, depression causes dysregulation of the hypothalamic-pituitary-adrenal axis,[38] leading to higher blood glucose levels and increasing the patient's physical burden. Behaviorally, depression reduces the subjective motivation of the patient and affects future health and health behaviors. Patients with higher levels of depression were less likely to adhere to T2DM dietary guidelines, had low medication adherence, and lacked regular exercise,[39] according to a related study. Psychologically, depression fosters hopelessness and pessimism about the future,[37] further lowering expectations for healthy aging. These findings suggest that early screening and psychological intervention for depression are essential to improve ERA among elderly T2DM patients.

In addition to mental health, social support significantly contributes to ERA levels. This study found that older T2DM patients with greater social support exhibited higher ERA, echoing prior findings.[13] Given that T2DM is a chronic wasting disease, patients' need for social support typically increases throughout the disease course.[40] Previous studies have demonstrated that robust social support systems provide critical information, care, and emotional backing that alleviate both physical and psychological stress.[41] Such support greatly enhances quality of life and health expectations in elderly T2DM patients. Therefore, caregivers should deliver timely information and psychological assistance, while families are encouraged to foster harmonious environments to improve patients' well-being. Furthermore, community efforts to create supportive environments, organize regular group activities, and expand social networks are essential to further boost ERA levels.

Finally, diabetes self-efficacy was identified as a positive influence on ERA, consistent with the findings of Cao et al in community-dwelling older adults.[42] To adapt to the disease, T2DM patients with high self-efficacy tend to adopt positive coping strategies, such as improving their lifestyle, controlling blood glucose levels, and engaging in other health-promoting behaviors.[43] As their health improves, so do their expectations for their own well-being.[33] Therefore, the results of this study suggest that diabetes self-efficacy is an effective target for interventions aimed at improving ERA in older T2DM patients.

In summary, this study revealed that older adults with T2DM exhibited a moderately low overall level of ERA, with particularly low scores in the physical health and cognitive functioning dimensions. The analysis identified several factors associated with ERA, including age, monthly household income, number of sources for diabetes-related knowledge, type of daily medication, depression, social support, and diabetes self-efficacy. Cognitive Behavioral Therapy (CBT) shows significant potential in improving these factors, particularly in enhancing mental health, blood glucose control, and self-management, thereby contributing to higher ERA. For example, Abbas[44] and Li[45] demonstrated that CBT significantly improved blood glucose control, diabetes distress, depression symptoms, and medication adherence, while enhancing quality of life. The intervention included key components such as cognitive restructuring to help patients identify and correct negative thoughts like "diabetes is incurable" and "aging inevitably leads to complications", thus fostering a positive belief in "controllable health behaviors"; behavioral activation to encourage participation in enjoyable or empowering activities (eg, socializing and exercise) through daily activity scheduling, thereby reducing sedentary behavior and poor self-care; and emotion regulation, helping patients effectively manage stress and health anxiety through relaxation techniques. Additionally, Pinho[46] found that CBT-based metacognitive training significantly improved elderly individuals' perceptions of healthy aging, reduced depression symptoms, and enhanced self-esteem. These findings suggest that CBT is an effective intervention to improve the level of ERA in elderly T2DM patients and promote healthy aging.

However, despite these important findings, this study has some limitations. First, due to its cross-sectional design, causality cannot be established. Second, participants were recruited from a tertiary hospital in a specific region of China, which may limit the generalizability of the findings. Lastly, the study focused exclusively on older adults with T2DM, so the results may not be generalizable to other populations.

Conclusions

Older adults with T2DM exhibit moderately low expectations regarding aging, which are influenced by factors such as age, monthly household income level, number of sources for diabetes-related knowledge, type of daily medication, depression, social support, and diabetes self-efficacy. Based on these findings, it is crucial to design interventions targeting these factors. Additionally, incorporating ERA assessment into routine geriatric evaluations can help healthcare providers better understand patients' health expectations and develop more targeted intervention strategies, thereby improving self-management behaviors and promoting healthy aging.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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Disclosure

The author(s) report no conflicts of interest in this work.

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