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The Association between Self-Perceived Ageing and Motoric Cognitive Risk Syndrome in Community-Dwelling Older People

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Abstract

Background: Self-perceptions of aging (SPA)—multidimensional psychological constructs reflecting individuals' attitudes toward aging—are emerging predictors of dementia risk. However, their associations with motoric cognitive risk syndrome (MCR), a preclinical dementia marker combining subjective cognitive decline (SCC) and slow gait (SG), remain underexplored. This study aimed to identify specific SPA dimensions linked to MCR and its components in Chinese older adults. Methods: In this community-based cross-sectional study, 194 adults aged ≥ 60 years from Deyang City, China, completed the Brief Aging Perceptions Questionnaire (B-APQ) assessing five SPA dimensions. MCR was diagnosed per Verghese's criteria. Multivariable logistic regression with Benjamini-Hochberg correction examined associations between SPA dimensions and MCR/SCC/SG. Results: The prevalence of MCR was 11.34% (mean age = 69.26 ± 7.45 years). After multiple testing corrections, the total SPA score, negative consequences and control, and emotional representations remained significant with MCR. Only the total SPA score retained significance with SCC. Emotional representations were the sole significant predictor for SG. Conclusions: This study highlights the crucial associations of SPA with MCR and its components. SPA, particularly perceptions of dependency (negative consequences and control) and aging-related distress (emotional representations), independently predicts MCR. Interventions targeting these dimensions may delay dementia onset.

Keywords

Self-Perceptions of Aging, Motoric Cognitive Risk Syndrome, Community-Dwelling, Older Adults

1. Introduction

The accelerating aging population has led to a dramatic increase in dementia prevalence worldwide, with approximately 55 million individuals currently affected, a number projected to triple by 2050 [1]. There are approximately 15.07 million people living with dementia in China, seriously affecting the independence of older people in their daily lives and placing heavy care and financial burden on families, communities and the health service system [2]. To address this crisis, early identification of high-risk populations during the preclinical stage is critical. The preclinical phase of dementia includes subjective cognitive complaints (SCC) and mild cognitive impairment (MCI), with SCC manifesting up to 15 years before MCI and increasing the risk of dementia, while a decline in gait speed may occur as early as 12 years before MCI onset; notably, SCC and slow gait (SG) often co-occur, each being a strong independent predictor of cognitive decline and dementia [3]. These two harbingers of dementia have been integrated into a pre-dementia syndrome termed motoric cognitive risk (MCR) syndrome, a newly identified preclinical stage of dementia characterized by the coexistence of SCC and SG in older adults without dementia or disability [4].

Factors affecting MCR include not only biological factors, but also psychological and social aspects. However, only a few studies have explored the psychosocial factors associated with MCR, and psychological factors such as personality traits and purpose of life have been shown to be closely related to the occurrence of MCR in univariate studies. For example, higher neuroticism was linked to a higher risk of MCR [5], and openness was related to a lower risk of MCR [6]. Purpose in life and tangible social support were associated with lower MCR risks, respectively [7] [8]. Except for the factors mentioned above, other psychosocial factors such as self-perceptions of aging (SPA) might be involved, for abundant evidence has been reported SPA was linked to components of MCR.

Self-perception of aging (SPA), as a potential psychological factor, refers to the subjective perception and emotional response of the elderly when they are under the threat of physical, psychological and social aging, which has the characteristics of intervenability and adjustability [9]. SPA is involved in the genesis of MCR components. Evidence suggests a direct or indirect relationship between SPA, subjective cognitive complaints and objective cognitive functioning. For example, negative perceptions of ageing are associated with subjective cognitive complaints in adults aged 50 or over. Subjective cognitive symptoms are associated with adults aged 50 years or older [10], and the latter are further exacerbated by negative perceptions of aging [11]. Concerning the associations between SPA and gait speed, the cross-sectional analysis found all five domains of SPA including aging awareness (Timeline Chronic dimension), and positive control were directly associated with walking speed after adjusting confounders. However, longitudinal analyses demonstrated that merely negative control and consequences domain rather than positive control over social relationships were related to changes in walking speed [12], rendering an elusive gap about the associations between pos-

itive or negative control with MCR.

Recent studies have revealed for the first time a pro-activity relationship between SPA and MCR, *i.e.* a positive attitude towards ageing in older people reduces the risk of MCR and a negative perception of ageing increases the risk of MCR [13]. However, existing studies have only unfolded two dimensions of SPA, and the intrinsic links between other dimensions of SPA and MCR and its components remain to be explored in depth. Therefore, mining the high-risk factors for MCR and exploring the association between SPA and MCR will be of great value in identifying individuals with MCR who are most likely to benefit from early intervention.

2. Methods

2.1. Study Design

A multi-stage stratified sampling method was used, with Jing yang District, De yang City, as the sampling pool, which contains a total of six streets; two streets were randomly selected using the lottery method; and in the second stage: residential neighborhoods under the jurisdiction of the street offices were used as the sampling area, and two neighborhoods were randomly selected from each street. On the basis of informed consent, study participants who met the inclusion criteria were recruited into the group and the survey was implemented. Trained interviewers collected data by face to face.

2.2. Participants

Individuals were invited to participate in this study if they met the following inclusion criteria: 1) community-dwelling elderly people aged 60 or above; 2) clear conscious, with the ability to speak or read and communicate with the investigator without difficulty; 3) informed consent to the study and willingness to cooperate. Exclusion criteria included participants with: 1) non-resident population; 2) incomplete questionnaire with missing values.

2.3. Measurement

1) Measure of socio-demographic characteristics

Demographic factors included age, gender, marital status, education, occupation, place of residence, living arrangement, health insurance, and lifestyle including smoking, drinking history, history of falls, and fear of falling. Living arrangement was examined by a question "Who do you usually live with?" and responses included living with family (sprouse, children) and living alone.

2) Definition of MCR

MCR was defined as a syndrome that combined slow gait speed (GS) and subjective cognitive complaints (SCC) without dementia and mobility disability following the criteria proposed by Verghese [4]. The SCC was assessed by asking "Do you have more difficulty remembering things?" Concerning slow gait speed, participants were asked to walk through a 4-meters long walking route in an open

space. Participants were asked to have no strenuous exercise before the test, and after the tester shouted the exit order, participants were asked to walk to the specified distance according to the daily walking speed at the starting position, record the time, and calculate the walking speed according to the formula of speed = distance/time, and the final walking speed was averaged according to the walking speeds of the two times. According to the results of Shen Shanshan *et al.* [14], the critical values for defining slow walking speed in different age groups (60 - 74 years and ≥75 years) were 0.91 m/s and 0.69 m/s for men and 0.80 m/s and 0.66 m/s for women, respectively.

3) Measurement of SPA

The Brief Aging Perceptions Questionnaire (B-APQ), originally introduced and adapted for Chinese older adults by Hu *et al.* [15] through localized translation and validation, demonstrates robust reliability and validity (Cronbach's α = 0.834). This 17-item scale assesses five dimensions of self-perception of aging (SPA), categorized into two domains: Negative SPA (3 dimensions): Chronological Timeline (e.g., "I am constantly aware of my age in everything I do"). Negative Consequences and Control (e.g., "Aging makes me increasingly dependent, and the physical slowness caused by aging is beyond my control"). Emotional Representations (e.g., "I feel distressed when thinking about how aging limits my abilities"). Positive SPA (2 dimensions): Positive Consequences (e.g., "With aging, I have gained greater wisdom"). Positive Control (e.g., "Whether I can continue to live a fulfilling life depends on myself"). All items are rated on a 5-point Likert scale (1 = "strongly disagree" to 5 = "strongly agree"). For the two positive dimensions, scores are reverse-coded. Total scores range from 17 to 85, with higher scores indicating more negative self-perceptions of aging.

4) Assessment of social isolation

The Lubben Social Network Scale (LSNS-6), developed by Lubben *et al.* [16], assesses social isolation risk in older adults through two dimensions: family network and friend network. This 6-item instrument utilizes a 6-point Likert scale (0 = "none" to 5 = "nine or more"), with total scores ranging from 0 to 30. Higher scores indicate a lower risk of social isolation, while scores < 12 are classified as indicating social isolation. In this study, the scale demonstrated good internal consistency (Cronbach's α = 0.78).

2.4. Statistical Analysis

Data analysis was performed using SPSS 25.0. Categorical variables were described as frequency and percentage, with between-group comparisons conducted via the Chi-squared test. For continuous variables, normality was assessed using the Shapiro-Wilk test. Normally distributed data were presented as mean ± standard deviation (SD) and analyzed using the independent t-test; non-normally distributed data were described as median (interquartile range, IQR) and compared using the Mann-Whitney U test. Spearman's rank correlation analysis was employed to explore associations between self-perception of aging (SPA) and motoric cog-

nitive risk syndrome (MCR) or its components (subjective cognitive decline and slow gait). Variables showing statistical significance ($P < 0.05$) in univariate analyses were included as independent variables in a multivariate logistic regression model, with MCR status as the dependent variable. Statistical significance was set at $\alpha = 0.05$ (two-tailed), and $P < 0.05$ was considered statistically significant.

3. Results

3.1. Baseline Characteristics of the Study Population

Among the 194 participants included in the study, 83 (42.78%) were male and 111 (57.22%) were female, with a mean age of 69.26 ± 7.45 years. Based on MCR criteria, the cohort was stratified into the MCR group (n = 22, 11.34%) and the non-MCR group (n = 172). Compared to the non-MCR group, participants in the MCR group exhibited a higher prevalence of current alcohol consumption, a history of falls, elevated social isolation scores, and significantly higher total scores in self-perception of aging (SPA) and its negative subdomains ($P < 0.05$). However, no statistically significant differences were observed between the two groups in terms of gender, occupation, education level, marital status, or living arrangements ($P > 0.05$; see Table 1).

Table 1. Analysis of general information on older persons in the community.

Variables	Total (n = 194)	Non-MCR (n = 172)	MCR (n = 22)	Statistic	P
Age, Mean ± SD	69.26 ± 7.45	68.56 ± 7.25	74.73 ± 6.87	t = −3.78	**<0.001**
Sex, n (%)				$\chi^2 = 1.22$	0.270
Male	83 (42.78)	76 (44.19)	7 (31.82)		
Female	111 (57.22)	96 (55.81)	15 (68.18)		
Occupation, n (%)				$\chi^2 = 3.26$	0.071
Brainwork	48 (24.74)	46 (26.74)	2 (9.09)		
Manual Labor	146 (75.26)	126 (73.26)	20 (90.91)		
Place of Abode, n (%)				$\chi^2 = 0.64$	0.424
Urban	86 (44.33)	78 (45.35)	8 (36.36)		
Country	108 (55.67)	94 (54.65)	14 (63.64)		
Smoking History, n (%)				–	0.264
No Smoking	150 (77.32)	134 (77.91)	16 (72.73)		
Current Smoking	34 (17.53)	28 (16.28)	6 (27.27)		
Quit Smoking	10 (5.15)	10 (5.81)	0 (0.00)		
History of Alcohol Consumption, n (%)				$\chi^2 = 8.60$	**0.014**
No Drinking	136 (70.10)	125 (72.67)	11 (50.00)		
Drinking	49 (25.26)	38 (22.09)	11 (50.00)		
Quit Drinking	9 (4.64)	9 (5.23)	0 (0.00)		

Continued

History of Falls, n (%)				$\chi^2 = 28.61$	**<0.001**
No	170 (87.63)	159 (92.44)	11 (50.00)		
Yes	24 (12.37)	13 (7.56)	11 (50.00)		
Fear of Falling, n (%)				$\chi^2 = 2.69$	0.101
No	55 (28.50)	52 (30.41)	3 (13.64)		
Yes	138 (71.50)	119 (69.59)	19 (86.36)		
Education, n (%)				–	0.465
Primary School and below	123 (63.40)	107 (62.21)	16 (72.73)		
Junior High School	26 (13.40)	22 (12.79)	4 (18.18)		
Senior High School	25 (12.89)	24 (13.95)	1 (4.55)		
University and above	20 (10.31)	19 (11.05)	1 (4.55)		
Spouses, n (%)				$\chi^2 = 0.20$	0.653
Widowed	25 (12.89)	21 (12.21)	4 (18.18)		
Married	169 (87.11)	151 (87.79)	18 (81.82)		
Residence, n (%)				$\chi^2 = 0.10$	0.755
Living alone	35 (18.04)	30 (17.44)	5 (22.73)		
Sharing with Family	159 (81.96)	142 (82.56)	17 (77.27)		
SCC, n (%)					
No	100 (51.55)	100 (58.14)	0 (0.00)		
Yes	94 (48.45)	72 (41.86)	22 (100.00)		
SG, n (%)					
No	148 (76.29)	148 (86.05)	0 (0.00)		
Yes	46 (23.71)	24 (13.95)	22 (100.00)		
Social Isolation, (Q_1, Q_3)	18.00 (12.00, 19.75)	18.00 (12.00, 20.00)	12.00 (11.00, 15.50)	Z = −3.36	**<0.001**
Chronological Timeline, M (Q_1, Q_3)	8.00 (6.00, 10.00)	8.00 (6.00, 9.00)	9.00 (8.00, 10.00)	Z = −2.77	**0.006**
Positive Control, M (Q_1, Q_3)	10.00 (8.00, 12.00)	10.00 (9.00, 12.00)	8.50 (7.00, 10.00)	Z = −2.27	**0.023**
Positive Consequences, M (Q_1, Q_3)	7.50 (6.00, 9.00)	8.00 (6.00, 9.00)	6.50 (5.25, 8.00)	Z = −1.81	0.070
Negative Consequences and Control, M (Q_1, Q_3)	15.00 (12.00, 17.75)	15.00 (11.00, 17.00)	17.00 (17.00, 18.00)	Z = −3.89	**<.001**
Emotional Representations, M (Q_1, Q_3)	6.00 (6.00, 9.00)	6.00 (6.00, 9.00)	8.00 (7.00, 9.00)	Z = −2.92	**0.004**
Self-Perception of Aging, M (Q_1, Q_3)	49.00 (44.00, 51.00)	48.00 (43.75, 51.00)	50.00 (48.25, 51.00)	Z = −2.18	**0.029**

3.2. Scores of the Brief Aging Perceptions Questionnaire (B-APQ)

The total score of the B-APQ among the 194 participants was 49.00 (median; in-

terquartile range [IQR]: 44.00 - 51.00). Median scores for individual dimensions were as follows: Chronological Timeline 8.00 (IQR: 6.00 - 10.00), positive control 10.00 (IQR: 8.00 - 12.00), positive consequences 8.00 (IQR: 6.00 - 9.00), Negative Consequences and Control 15.00 (IQR: 12.00 - 18.00), and emotional representations 6.00 (IQR: 6.00 - 9.00). Compared to the non-MCR group, the MCR group demonstrated significantly higher scores in Chronological Timeline (9.00 [IQR: 8.00 - 10.00]), Negative Consequences and Control (17.00 [IQR: 17.00 - 18.00]), and Emotional Representations (8.00 [IQR: 7.00 - 9.00]), but lower scores in Positive Control (8.50 [IQR: 7.00 - 10.00]). The results of additional subgroup analyses based on gender, age and education showed that participants aged ≥ 70 years had significantly higher SPA total scores and chronological timeline scores than younger participants ($P < 0.05$). Individuals with higher education exhibited significantly lower chronological timeline scores than individuals with primary education ($P < 0.05$). There was no significant difference in SPA scores between males and females, see Table A1-A3.

3.3. Correlations between Self-Perception of Aging (SPA) and MCR or Its Components

The correlation patterns differed across MCR components: For MCR, stronger associations were observed with self-perceived aging total score, chronic time, negative outcome and control, and emotional representations ($r = 0.172$, 0.165, 0.229, 0.157, all $P < 0.05$), and negatively correlated with positive outcome. SG showed the broadest correlations, linking to all SPA dimensions except positive domains. SCC demonstrated the weakest associations, limited to total SPA and negative control perceptions (see Table 2).

Table 2. Correlation analysis between self-perceived ageing and MCR and its components among community-dwelling older people (n = 194, r-value).

Dimension	SCC	SG	MCR
Chronological Timeline	0.063	0.159[a]	0.165[a]
Positive Consequences	−0.001	−0.040	−0.169[a]
Positive Control	−0.003	−0.074	−0.127
Negative Consequences and Control	0.150[a]	0.150[a]	0.229[a]
Emotional Representations	0.068	0.176[a]	0.157[a]
Self-Perception of Aging	0.152[a]	0.194[a]	0.172[a]

3.4. Multivariate Predictors of MCR and Its Components

A multivariate logistic regression analysis was performed with MCR status as the dependent variable and factors showing significance in univariate or correlation analyses as independent variables. The results identified age and total SPA score as independent predictors of MCR. Among SPA subdomains, negative consequences and control and emotional representations were significantly associated

with MCR. For SCD, significant predictors included total SPA score, negative consequences and control, and emotional representations. For SG, total SPA score, chronological timeline , and emotional representations emerged as significant factors (see Table 3). To control for potential Type I errors arising from multiple subdomain analyses, we applied the Benjamini-Hochberg (BH) false discovery rate (FDR) correction with a significance threshold of $\alpha = 0.05$. The BH critical values were calculated as $qi = i/m \times \alpha$, where i is the rank of the P-value (from smallest to largest) and m is the total number of comparisons ($m = 6$ for each outcome). After Benjamini-Hochberg correction for multiple comparisons, total SPA score (P = 0.008 < 0.0167), negative consequences and control (P = 0.002 < 0.0083), and emotional representations remained significantly associated with MCR. Only the total SPA score retained significance. Emotional representations remained significantly associated with SG, while chronological timeline lost significance after correction.

Table 3. Logistic regression analysis of factors influencing MCR in community-dwelling older adults.

Factors	MCR		SCC		SG	
	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P
Age	1.18 (1.02 - 1.36)	**0.027**	1.00 (0.93 - 1.07)	0.898	1.48 (1.23 - 1.79)	**<0.01**
Self-Perception of Aging	1.32 (1.08 - 1.62)	**0.007**	1.09 (1.03 - 1.16)	**0.003**	1.16 (1.00 - 1.34)	0.053
Chronological Timeline	1.31 (0.95 - 1.80)	1.100	1.05 (0.91 - 1.22)	0.507	1.25 (1.03 - 1.52)	**0.024**
Positive Consequences	0.86 (0.65 - 1.12)	0.262	0.99 (0.87 - 1.13)	0.926	0.96 (0.81 - 1.13)	0.442
Positive Control	1.00 (0.74 - 1.36)	0.976	1.07 (0.91 - 1.25)	0.428	1.08 (0.88 - 1.33)	0.606
Negative Consequences and Control	1.50 (1.16 - 1.93)	**0.002**	1.09 (1.01 - 1.18)	0.044	1.12 (1.00 - 1.26)	0.057
Emotional Representations	1.67 (1.30 - 2.15)	**<0.01**	1.09 (0.96 - 1.22)	0.176	1.33 (1.14 - 1.54)	**<0.01**

4. Discussion

The findings of this study demonstrate that community-dwelling older adults exhibited moderately high levels of self-perception of aging (SPA), with pronounced negative perceptions reflected in the chronological timeline and negative consequences and control dimensions. After Benjamini-Hochberg correction for multiple comparisons, three factors independently predicted motoric cognitive risk syndrome (MCR): total SPA Score, negative consequences and control, and emotional representations. For subjective cognitive decline (SCC), only total SPA score retained significance, while slow gait speed (SG) was uniquely associated with emotional representations. Notably, chronological timeline, initially linked

to SG in unadjusted models, lost significance after rigorous statistical correction.

This study identified a significant association between negative consequences and control, and emotional representations and MCR, suggesting that persistent perceptions of aging may exacerbate cognitive and motor dysfunction through accelerated neurodegenerative processes [17]. However, no independent protective effect of Positive Control on MCR was observed. This discrepancy may be attributed to two factors: First, the inclusion of social isolation as a covariate might have attenuated the direct effects of Positive Control. Second, participants' self-reported functional declines (e.g., "I depend on my children for tasks") reflect underlying sensory neuron degeneration, a process mechanistically linked to both motor-cognitive impairment and diminished capacity to enact perceived control. These behavioral manifestations--impaired balance, reduced coordination, and slowed gait--are mechanistically linked to sensory neuron degeneration [18]. The neurofibrillary lesion (NFL) framework posits that neurodegeneration creates a "double burden": it directly impairs function while simultaneously eroding psychological resources (e.g., control beliefs), thereby masking potential protective effects of positive SPA [19]. Furthermore, progressive sensory neuron degeneration may escalate into cognitive dysfunction, creating a bidirectional feedback loop between physiological decline and psychological perceptions of aging [18].

Our finding that negative consequences and control lost significance for SCC after multiple testing correction contrasts with previous reports linking perceived dependency to subjective cognitive complaints [17]. This discrepancy may reflect overlapping variance with other SPA dimensions (e.g., emotional representations) or confounding by unmeasured factors (e.g., depressive symptoms). Studies with larger samples are needed to disentangle these effects. The null association between chronological timeline and SG after correction suggests that mere awareness of aging as a chronic process may not directly impair gait unless coupled with negative emotional responses (e.g., anxiety about decline). Notably, negative consequences and control and emotional representations emerged as robust predictors of MCR, even after Benjamini-Hochberg correction for multiple comparisons, which aligning with evidence that perceived dependency and aging-related distress amplify neurodegeneration through chronic stress pathways [18]. This reflected in older people's lack of confidence in their ability to control their ageing and its losses, and their difficulty in recognizing the positive impact of ageing on the life course. Lack of control and anticipation of negative events are associated with increased psychological and physiological stress responses [20] [21]. When older adults have more negative attitudes toward aging, depressive symptoms have greater intrinsic psychological significance, which will trigger MCR. Social participation had been identified as a factor that could enhance cognitive function through various mechanisms, including increased mental stimulation, improved synaptic density, and nerve growth [22]. Conversely, a lack of social participation can lead to feelings of loneliness and heightened stress response. This resulted in prolonged activation of the hypothalamic-pituitary-adrenal axis and sympathetic adrenal system, potentially leading to immune system dysregulation, elevated ox-

idative stress levels, and the overexpression of pro-inflammatory genes [23]. These factors collectively contributed to an increased risk of cognitive impairment.

This study reveals for the first time the influence of affective representations on MCR and its components, and finds that affective representations are an influential factor in SG and MCR. Previous studies have shown that a negative relationship was found between the dimension of emotional representations with inhibition processes, selective attention, and working memory maintenance, all of these factors have an effect on gait speed to some extent [24]. Another study showed that, negative emotions elicited by holding negative perceptions of aging would affect walking speed [25]. However, the emotional representations domain of the B-APQ was not statistically significantly associated with change in TUG in the longitudinal models， Possibly due to differences in measuring tools. Brown *et al.* [26] proposed that negative emotions aroused by the aging process could be better predictors for physical and mental health instead of cognition. Moreover, Robertson *et al.* [27] suggested that this dimension could be more related to negative mood in later life, and that the control element is more prominent for cognition. These interpretations are followed by previous research stating that negative emotional representations are linked to lower social contact and leisure activities, this explains, in part, the association between affective representations and MCR, as all of the above factors have been shown to be risk factors for MCR.

Stewart *et al.* [28] suggested that as aging is uncontrollable, those who blame their condition on old age also see their health as uncontrollable and thus do not act even when the action may be beneficial. Our results indicate that negative consequences and control affect SCC and MCR. Individuals with negative perceptions of their own ageing process have more negative expectations of their abilities and aging, may have less motivation to engage in social or cognitive activities, and are at higher risk of cognitive impairment. This process involves complex physiological, psychological and behavioural mechanisms: high levels of perceived ageing activate the autonomic nervous system, neuroendocrine system and immune system, with corresponding reductions in parasympathetic nervous system activity, leading to chronic inflammatory responses that increase the risk of cognitive decline [29] [30], while the effects of self-perceived ageing on cognitive functioning are influenced by a number of factors such as depression, loneliness, physical activity and other mediating effects [29]. Self-perceived aging is also strongly associated with the development of AD-related pathological changes. Siebert *et al.* [31] showed in follow-up data on 260 cognitively healthy older adults that high levels of negatively perceived aging at baseline predicted clinical diagnoses of mild cognitive impairment and AD 12 years later. This suggests that self-perceived aging is an important predictor of cognitive function in older adults, and that early attention should be paid to self-perceived aging in older adults to identify and delay their cognitive decline.

With the rapid advancement of population aging, the World Health Organization has proposed the Global Strategy and Action Plan on Ageing and Health, which provides a direction for promoting the health of older adults, and early

identification and intervention of factors leading to MCR at the psychological level by health managers not only helps to reduce the burden on the healthcare system but also facilitates the development of targeted intervention measures [32]. In addition, caregivers should pay attention to older persons with negative self-perceived ageing attitudes, realising that this may signal a decrease in the actual cognitive functioning of the older person's body, and provide timely screening and treatment. It should be noted that older people should not simply interpret physical health problems as the inevitable result of aging and ignore or avoid illness; caregivers should not directly attribute negative aging attitudes to psychological problems. In addition, actively helping the elderly to participate in social activities such as games can enhance their sense of control over their social life, lead them to deal with aging and health problems in a more positive way, avoid aging stereotypes, and detect cognitive disorders as early as possible so that they can receive treatment and slow down the progression of the disease.

5. Limitation

This study is the first to identify SPA with pre-dementia syndrome MCR. There are also some limitations. First, a cross-sectional design cannot be inferred from causality, and longitudinal studies are needed to determine if SPA drives MCR progression. Second, while we collected data on sociodemographic and lifestyle factors, depression and chronic diseases (e.g., diabetes, hypertension) were not systematically assessed. Future studies should incorporate biomarkers (e.g., inflammatory markers) and clinical assessments of chronic conditions to refine the predictive models. Third, the absence of neuroimaging or inflammatory markers limits mechanistic insights into SPA-neurodegeneration pathways. Future studies should integrate gait kinematics, plasma neurofilament light chain, and fMRI to unravel SPA's biological underpinnings.

6. Conclusion

This study provides information on the prevalence of MCR among community-dwelling older adults in southern China. Future MCR prevention interventions should take into account the self-perceived aging of older adults.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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Appendix

Table A1. Differences in the distribution of SPA scores compared by gender.

Variable	Gender		Z	P
	Male	Female		
Score of Self-Perception of Aging	49.00 (45.00, 51.00)	50.00 (44.00, 51.00)	−0.409	0.683
Chronological Timeline	7.00 (6.00, 9.00)	9.00 (6.00, 10.00)	−1.918	0.055
Positive Control	9.00 (10.00, 12.00)	10.00 (8.00, 12.00)	−0.953	0.341
Positive Consequences	7.00 (6.00, 9.00)	8.00 (6.00, 9.00)	−1.201	0.230
Negative Consequences and Control	13.00 (15.00, 18.00)	15.00 (10.50, 17.00)	−1.535	0.125
Emotional Representations	6.00 (6.00, 9.00)	6.00 (6.00, 9.00)	−0.596	0.551

Table A2. Differences in the distribution of SPA scores compared by age.

Variable	Age		Z	P
	<70	≥70		
Score of Self-Perception of Aging	48.00 (41.00, 51.00)	50.00 (46.00, 51.00)	−2.048	**0.041**
Chronological Timeline	6.00 (6.00, 9.00)	9.00 (6.00, 10.00)	−3.478	**0.001**
Positive Control	10.00 (9.00, 12.00)	10.00 (8.00, 10.00)	−1.124	0.261
Positive Consequences	7.00 (6.00, 9.00)	8.00 (6.00, 9.00)	−0.114	0.909
Negative Consequences and Control	15.00 (10.00, 18.00)	15.00 (14.00, 17.00)	−1.119	0.263
Emotional Representations	6.00 (6.00, 9.00)	7.00 (6.00, 9.00)	−1.423	0.155

Table A3. Differences in the distribution of SPA scores compared by education.

Variable	Education				P
	Primary school and below	Junior high school	Senior high school	University and above	
Score of Self-Perception of Aging	49.00 (46.00, 51.00)	49.50 (45.00, 51.00)	49.00 (40.50, 50.50)	45.50 (38.50, 50.75)	**0.041**
Chronological Timeline	9.00 (6.00, 10.00)	8.50 (6.00, 9.00)	7.00 (6.00, 9.00)	6.00 (6.00, 8.75)	**0.001**
Positive Control	10.00 (8.00, 11.00)	9.00 (8.00, 12.00)	10.00 (9.00, 12.00)	10.00 (9.00, 12.00)	0.261
Positive Consequences	7.00 (6.00, 9.00)	8.00 (6.00, 9.00)	7.00 (6.00, 9.00)	6.50 (6.00, 9.00)	0.909
Negative Consequences and Control	15.00 (13.00, 17.00)	15.00 (12.00, 17.50)	15.00 (10.00, 18.50)	13.00 (10.00, 16.50)	0.263
Emotional Representations	6.00 (6.00, 9.00)	7.00 (6.00, 9.00)	6.00 (6.00, 9.00)	6.00 (6.00, 9.00)	0.155