Social Support and Influencing Factors Among Family Caregivers of Patients with Mild Cognitive Impairment: A Postprint

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Abstract

Background Mild cognitive impairment (MCI) is an age-related chronic non-communicable disease, and its family caregivers face certain caregiving burdens. Currently, many studies focus on the caregiving burden and social support of patients with moderate to severe cognitive impairment, while research on the level of social support and its influencing factors for MCI family caregivers is relatively scarce. Objective To explore the level of social support and its influencing factors among MCI family caregivers, in order to provide social support for MCI family caregivers. Methods A total of 102 family caregivers of patients preliminarily diagnosed with MCI at Weifang Community Health Service Center in Pudong New Area, Shanghai, from April 2020 to August 2021 were selected as study subjects. A cognitive impairment management team was established to conduct general condition surveys and assessments using the Social Support Rating Scale (SSRS), Positive Aspects of Caregiving Scale (PAC), and Zarit Burden Interview (ZBI) among MCI family caregivers, analyzing the influencing factors of social support among MCI family caregivers. Results The average social support score of MCI family caregivers was (31.26$±6.87)*points*, *withobjectivesupportaveraging*(7.02±2.10)*points*, *subjectivesupportaveraging*(17.93±4. points. SSRS scores of MCI family caregivers with different marital status, monthly family income status, and level of understanding of MCI showed statistically significant differences ($P<0.05$). Multiple linear regression analysis results indicated that marital status, relationship with the patient, co-residence status, and PAC total score were influencing factors of objective support among MCI family caregivers ($P<0.05$); relationship with the patient, monthly family income, presence of religious belief, and PAC total score were influencing factors of subjective support among MCI family caregivers ($P<0.05$). Binary logistic regression analysis results showed that relationship with the patient, monthly family income, awareness of MCI, and total positive feeling score were influencing factors of social support among MCI family caregivers ($P<0.05$). Conclusion The overall social support level of MCI family caregivers is relatively low. Distant relationship between patient and caregiver, low monthly family income, low awareness of MCI, and low positive feelings of caregivers are independent influencing factors of social support for MCI family caregivers. Families, society, and community levels should provide support to caregivers in all aspects, thereby improving caregivers' well-being and facilitating community collaborative management of MCI.

Full Text

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Abstract

Background
Mild cognitive impairment (MCI) is an age-related chronic non-communicable disease that imposes a certain caregiving burden on family caregivers. While numerous studies have focused on the caregiving burden and social support for caregivers of patients with moderate-to-severe cognitive impairment, research on social support and its influencing factors among MCI family caregivers remains limited.

Objective
To explore the level of social support among MCI family caregivers and its influencing factors, in order to provide evidence-based social support for this population.

Methods
A total of 102 family caregivers of patients initially diagnosed with MCI at Weifang Community Health Service Center in Pudong New Area, Shanghai, between April 2020 and August 2021 were recruited. A cognitive impairment management team was established to conduct general surveys and assessments using the Social Support Rating Scale (SSRS), Positive Aspects of Caregiving Scale (PAC), and Zarit Caregiver Burden Interview (ZBI). Influencing factors of social support among MCI family caregivers were analyzed.

Results

The average SSRS score among MCI family caregivers was (31.26$±6.87), *comprisingobjectivesupport*(7.02±2.1
Statistically significant differences in SSRS scores were observed across different marital statuses, monthly household income levels, and degrees of MCI understanding (P<0.05). Multiple linear regression analysis revealed that marital status, relationship with the patient, co-residence status, and total PAC score were influencing factors of objective support (P<0.05), while relationship with the patient, monthly household income, religious belief, and total PAC score influenced subjective support (P<0.05). Binary logistic regression analysis showed that relationship with the patient, monthly household income, awareness of MCI, and total positive feelings score were influencing factors of overall social support (P<0.05).

Conclusion

MCI family caregivers have relatively low overall social support. A distant caregiver-patient relationship, low monthly household income, low awareness of MCI, and low positive feelings among caregivers are independent influencing factors. Support at the family, societal, and community levels should be provided to caregivers from multiple dimensions to enhance their well-being and facilitate collaborative community management of MCI.

Keywords

Cognition disorders; Mild cognitive impairment; Caregivers; Social support; Positive feelings; Care burden; Root cause analysis

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Introduction

Mild cognitive impairment (MCI) represents a transitional state between normal cognition and dementia. As a chronic non-communicable disease associated with cognitive decline, MCI is closely linked to dementia, with over half of MCI patients progressing to dementia within five years [1]. When the condition advances to dementia, patients' ability to perform daily activities significantly deteriorates, eventually leading to complete dependence and imposing heavy caregiving and economic burdens on caregivers and society [2-3].

During the MCI stage, patients maintain independent basic daily living abilities but exhibit impaired complex instrumental activities. Research indicates that their caregivers experience mild to moderate caregiving burdens [4-6], which may arise from difficulties in shopping, driving, cooking, household maintenance, telephone use, medication management, and financial handling [7]. Additionally, neuropsychiatric symptoms such as apathy, depression, anxiety, irritability, and nocturnal behavioral disturbances in some MCI patients further contribute to caregiving and psychological burdens [8-9].

Social support for MCI family caregivers has gradually gained attention, as it benefits not only the caregivers' physical and mental health but also enhances their capacity to monitor disease progression and implement interventions, given their role as primary observers of patients' condition changes. A recent systematic review found that social support can alleviate caregiver burden and improve their ability to care for MCI patients [10-11]. However, domestic research on social support among MCI family caregivers remains scarce, with most studies focusing on dementia caregivers [12-13], leaving limited evidence on caregiving experiences and positive impacts of caregiving behaviors in the MCI context.

This study investigates the current status of social support among MCI family caregivers, examining subjective support, objective support, and overall support levels and their influencing factors. The aim is to provide a theoretical foundation for developing social support systems that enhance caregiver well-being and quality of life, ultimately achieving collaborative community management of MCI.

Methods

Study Subjects

Family caregivers of patients initially diagnosed with MCI at Weifang Community Health Service Center in Pudong New Area, Shanghai, were recruited between April 2020 and August 2021. MCI diagnosis followed the 2003 revised criteria from the National Working Group [14]: (1) cognitive impairment reported by patients, informants, or experienced clinicians; (2) objective evidence of impairment in one or more cognitive domains (assessed using the Montreal Cognitive Assessment Basic Scale, with optimal cutoff scores of $ $15 for illiterate subjects, $ $19 for those with $ $6 years of education, $ $22 for 7-12 years, and $ $24 for >12 years); (3) minimal impairment in complex instrumental activities but preserved independent daily living (assessed by the Activities of Daily Living scale, where scores $ $22 or $ $3 on two or more items indicate functional impairment; total score ranges from 14 [completely normal] to higher values indicating varying degrees of decline); and (4) not meeting dementia criteria (Clinical Dementia Rating [CDR] $ $0.5, where CDR=0 indicates normal, 0.5 questionable dementia, 1 mild dementia, 2 moderate dementia, and 3 severe dementia). Final MCI diagnosis was confirmed by neurologists from tertiary hospitals.

Inclusion criteria for MCI family caregivers: (1) primary caregivers (spouse, child, or other family member) providing $ $3 hours of daily care and assuming primary responsibility for tasks including daily supervision, financial management, and medication management; (2) aged $ $18 years and permanent residents of Weifang Community (residence duration $ $6 months); (3) voluntary participation with ability to complete questionnaires independently or with assistance.

Exclusion criteria: (1) hired caregivers; (2) individuals with psychiatric disorders affecting cognition or communication; (3) non-cooperative individuals.

Sampling method: Ten of 27 residential committees under Weifang Subdistrict' s jurisdiction were randomly selected using a random number table. Fifty individuals from each committee underwent MCI screening, yielding 102 eligible MCI family caregivers after excluding 2 who refused participation. All participants provided informed consent, and the study was approved by the Ethics Committee of Tongji University Affiliated Yangpu Hospital (Approval No. LL-2020-LW-006).

Research Methods

A cognitive impairment management team comprising two intermediate-level general practitioners, two intermediate-level general nurses, and one senior neurologist was established. The team conducted general surveys, social support assessments, positive feelings assessments, and burden assessments. Team leaders provided initial training on study objectives, assessment procedures, and quality control, with neurologists overseeing assessment quality.

General survey: A self-designed questionnaire based on literature review and interviews collected sociodemographic data including caregiver gender, age, employment status, marital status, education level, relationship to patient, co-residence status, religious belief, hired assistance, monthly household income, and MCI knowledge level.

Social Support Rating Scale (SSRS): Developed by Xiao Shuiyuan [15] between 1986-1993, this 10-item scale comprises three dimensions: objective support (3 items), subjective support (4 items), and support utilization (3 items). Objective support refers to tangible, visible, or actual support including material aid and social network participation, independent of subjective perception. Subjective support refers to emotional experiences of being respected, supported, and understood. Validated by Liu Jiwen et al. [16], the scale demonstrates good reliability (Cronbach' s α 0.825-0.896). Scoring: items 1-4 and 8-10 are scored 1-4 points; item 5 (A-D) is summed with 1-4 points per sub-item; items 6-7 count sources of support. Higher total scores indicate greater social support, with <33 indicating low support, 33-45 moderate support, and >45 high support. This study used <33 as low support and $ $33 as high support.

Positive Aspects of Caregiving (PAC) Scale: Developed by Tarlow et al. [17] in 2004 through the REACH program for dementia caregivers (original Cronbach' s α=0.89), this self-rated scale includes two dimensions: self-affirmation and life outlook. The Chinese version was introduced by Zhang Rui et al. [18] in 2007, demonstrating good reliability (self-affirmation α=0.89, life outlook α=0.83, total α=0.90). The 9-item scale uses 5-point Likert responses (1=strongly disagree to 5=strongly agree), with higher total scores indicating more positive caregiving experiences.

Zarit Caregiver Burden Interview (ZBI): The Chinese version has a Cronbach' s α of 0.875 [19]. This 22-item scale scores 0-4 points per item (total 0-88), with higher scores indicating heavier burden: 0-20=minimal burden, 21-40=moderate burden, 41-88=severe burden.

Statistical Analysis

SPSS 20.0 was used for statistical analysis. Normally distributed continuous data are presented as (x̄±s), compared between two groups using independent t-tests and among multiple groups using one-way ANOVA. Categorical data are presented as frequencies and percentages, compared using ^{2} tests. Influencing factors were analyzed using multiple linear regression and binary logistic regression. Statistical significance was set at P<0.05.

Results

Demographic Characteristics and Social Support Levels

All 102 distributed questionnaires were returned (100% response rate). Among MCI family caregivers, 44.1% (45/102) were male and 55.9% (57/102) female, with mean age (66.6$±$10.3) years. Most caregivers (93.1%, 95/102) were spouses or children of patients; 89.2% (91/102) were retired; 82.4% (84/102) were married or cohabitating; 87.3% (89/102) lived with patients; and 95.1% (97/102) had no religious affiliation .

The average SSRS score was (31.26$±6.87), *withobjectivesupport*(7.02±2.10), *subjectivesupport*(17.93±4.62),
affirmationdimension(22.61±5.19)*andlifeoutlookdimension*(10.83±3.09).*High*−
supportcaregivershadsignificantlyhigherPACscores(36.55±6.51)*thanlow* −
supportcaregivers(31.09±7.91)(*t* = −3.72, *P* < 0.01).*TheaverageZBIscorewas*(34.24±$15.53), with 20.59% (21/102) experiencing minimal burden, 47.06% (48/102) moderate burden, and 32.35% (33/102) severe burden.

Significant differences in SSRS scores were found across marital status, monthly household income, and MCI knowledge level (P<0.05). No significant differences were observed by gender, age, employment status, education level, caregiver-patient relationship proximity, co-residence status, religious belief, or hired assistance (P>0.05) .

Influencing Factors of Objective and Subjective Support

Multiple linear regression analysis with objective support score as the dependent variable and demographic factors, PAC total score, and ZBI total score as independent variables (using stepwise method) revealed that marital status, relationship with patient, co-residence status, and PAC total score significantly influenced objective support (P<0.05) .

With subjective support score as the dependent variable and the same independent variables, analysis showed that relationship with patient, monthly household income, religious belief, and PAC total score significantly influenced subjective support ($P<0.05$) .

Influencing Factors of Overall Social Support

Binary logistic regression analysis with social support level as the dependent variable (low=0, high=1) and demographic factors, MCI awareness, PAC total score, and ZBI total score as independent variables revealed that relationship with patient, monthly household income, MCI awareness, and PAC total score were influencing factors of overall social support ($P<0.05$) .

Discussion

Current Status of Social Support Among MCI Family Caregivers

This study demonstrates that MCI family caregivers have relatively low overall social support, lower than that reported for caregivers of common chronic diseases like hypertension [20]. This may reflect insufficient public awareness of MCI as a disease state, as patients maintain basic self-care abilities and caregivers may not actively seek support without disease-specific education. Additionally, most caregivers are retired, experiencing changed social status, reduced activity radius, and decreased community participation. Notably, over half of caregivers were female, predominantly elderly and retired, reflecting China' s aging demographics where older adults increasingly care for very elderly family members.

Influencing Factors of Social Support

Caregiver-patient relationship: The relationship between caregiver and patient significantly impacts all dimensions of social support. Caregivers who are spouses or children receive lower objective support, possibly because stable marital relationships and immediate family ties create higher expectations of caregiving responsibility, reducing external support provision. These caregivers also report lower subjective support, likely due to heavier burden, disease stage variability, and fluctuating symptoms.

Marital status and co-residence: Being married or cohabitating, along with living with the patient, influences objective support. Stable marital status may reduce perceived need for external support, while co-residence increases caregiving demands but may not translate to higher support recognition.

Household income: Higher monthly household income correlates with greater social support and is an independent influencing factor. As MCI patients' cognitive decline progresses with age and associated costs increase, higher income alleviates financial burden and enables caregivers to access respite care when needed.

Paradoxically, caregivers from lower-income households reported higher subjective support, possibly due to greater access to formal support from government and community programs, such as Shanghai' s Dementia-Friendly Community Initiative [21].

MCI awareness: Awareness of MCI affects social support levels. Caregivers with partial understanding showed higher support than those with comprehensive knowledge, possibly because detailed knowledge of prognosis reduces expectations for recovery and motivation to seek support. However, this does not diminish the importance of health education, as studies show low disease awareness among patients and families hinders active intervention [22]. Expert consultations identify social and family awareness of MCI as essential for successful screening and intervention [23]. SERRA et al. [24] demonstrated that social support protects against abuse of dementia patients, highlighting its importance for patient quality of life.

Positive caregiving feelings: PAC total score independently influenced objective support, subjective support, and overall social support—higher positive feelings correlated with greater support. Despite caregiving pressures affecting health, caregivers experience satisfaction from fulfilling responsibilities and feeling needed [17]. This positive experience strengthens when caring for relatives, enhancing self-worth and social connections. Thus, caregivers with higher positive feelings obtain more support.

Religious belief: Having a religious belief influenced subjective support, likely providing emotional comfort and a sense of community.

Implications

MCI family caregivers require comprehensive support from families, society, and communities to enhance their well-being and facilitate collaborative MCI management. Future efforts should strengthen formal support (government, social organizations, community programs) and informal support (family, networks, neighbors); improve MCI awareness through community health promotion; and involve psychological counseling professionals to help caregivers adjust attitudes and improve caregiving positivity. Caregivers contribute substantial unpaid labor and deserve greater recognition, regular psychological assessment, and both subjective and objective support from communities and governments.

Innovation and Limitations

This study' s innovation lies in focusing on MCI family caregivers during the early stage, exploring their burden and providing evidence for community-based interventions. However, limitations include: (1) small sample size, warranting multi-center, regional comparative studies; (2) analysis limited to caregiver and family factors, without examining patient-level factors such as comorbidities or neuropsychiatric symptoms.

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