COMPREHENSIVE APPROACH TO ASSESSING AND PREVENTING PRE-DEMENTIA COGNITIVE IMPAIRMENTS IN PRIMARY HEALTHCARE SETTINGS

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Abstract. *Cognitive decline preceding dementia, often termed mild cognitive impairment (MCI), represents a critical window for intervention. Early detection and proactive management in primary healthcare can significantly reduce the progression to full-blown dementia. This study explores a comprehensive strategy for identifying and managing pre-dementia cognitive disorders within the framework of primary healthcare, emphasizing both diagnostic tools and preventive interventions.*

Keywords: *dementia, body weight, cognitive functions, functional abilities, body image perception, MMSE, CDR, Image Evaluation.*

Introduction. Cognitive impairment is a growing public health concern, particularly among aging populations. Before dementia develops, many individuals experience a transitional stage characterized by mild but measurable deficits in cognitive functioning. Recognizing and addressing these impairments at the primary care level is crucial for effective dementia prevention [2,4,5]. This article highlights the importance of early assessment, risk stratification, and tailored prevention strategies in mitigating cognitive decline [1,3].

Material and methods of research. The study was conducted in several primary healthcare centers, targeting individuals aged 55 and above. Screening tools such as the Mini-Mental State Examination (MMSE), Montreal Cognitive Assessment (MoCA), and patient history analysis were used. Risk factors such as hypertension, diabetes, physical inactivity, and low educational attainment were assessed. Data were collected using structured questionnaires, clinical tests, and interviews, and analyzed statistically to identify significant predictors and prevalence of cognitive impairment.

Results and discussion. The findings reveal that a significant proportion of elderly patients exhibit early signs of cognitive dysfunction. A combination of vascular risk factors, sedentary lifestyle, and lack of mental engagement were among the major contributors. Interventions including cognitive training, regular physical activity, and strict control of comorbid conditions showed positive impacts in slowing cognitive deterioration. The role of primary care providers in continuous monitoring and patient education proved instrumental in managing these risks.

This section presents the findings of a 90-day longitudinal observational study evaluating physical, cognitive, functional, and psychological changes in individuals diagnosed with dementia. Data were systematically collected during three clinical visits - at baseline (Day 0), after 30 days, and at the end of the observation period (90 days). Key variables included body weight, cognitive performance (MMSE), functional capacity (CDR), and body image perception.

Changes in Body Weight: At the beginning of the study, the mean body weight of participants was 70.1±0.45 kg, which reflects a high baseline value likely influenced by factors such as sedentary behavior, nutritional imbalances, chronic comorbidities (e.g., hypertension, type 2 diabetes), and age-related metabolic shifts. Dementia-related behavioral and physiological factors-such as reduced mobility, appetite dysregulation, and disorientation-also contribute to altered energy balance and nutritional intake.

Interestingly, a sharp decline in body weight was observed by the second visit (30 days), with a mean of 81.2±0.66 kg, representing a near 50% reduction. This drastic change suggests multifactorial causality: neurodegenerative damage affecting hypothalamic regulation of hunger and satiety, depressive symptoms, poor oral intake, and neglect of self-care behaviors. In patients with dementia, progressive brain changes may directly impair appetite control and indirectly influence eating behaviors due to forgetfulness or reduced interest in food.

By the third visit (90 days), body weight stabilized at 79.4±0.66 kg, indicating a deceleration in the rate of weight loss. This plateau may suggest physiological adaptation or the implementation of supportive care strategies (e.g., nutritional monitoring, assisted feeding, or appetite-stimulating interventions). However, it may also reflect a further decline in energy expenditure associated with physical inactivity or disease advancement.

From a clinical standpoint, weight loss in dementia patients warrants serious attention. It is both a consequence of the disease and a potential risk factor for accelerated cognitive decline, frailty, and mortality. Hence, regular weight monitoring and multidisciplinary nutritional interventions should be integral to dementia management.

Cognitive Function (MMSE Scores): Cognitive assessment using the Mini-Mental State Examination (MMSE) demonstrated a modest yet consistent improvement over time. At baseline, the mean MMSE score was 19.6±0.67, indicative of moderate cognitive impairment. Surprisingly, an upward trend was observed with scores rising to 20.3±0.46 at 30 days and 22.3±0.57 by day 90.

This improvement, though moderate, suggests the potential benefits of supportive care and cognitive stimulation, possibly delivered through environmental enrichment, structured routines, or pharmacological treatments. It may also represent a stabilization of cognitive status due to early intervention and adaptation to care settings.

These findings challenge the conventional narrative of inevitable cognitive deterioration in dementia and point to the possibility of partial cognitive compensation. Even in the presence of neurodegeneration, targeted interventions—such as cognitive training, social engagement, and optimized pharmacotherapy—can foster neural plasticity or delay symptom progression.

Furthermore, the observed improvement occurred despite substantial physical weight loss, highlighting that cognitive trajectories may not always parallel physical decline. This underscores the complexity of dementia as a multifaceted syndrome where cognitive and somatic changes can diverge, and therapeutic focus on cognitive preservation remains valuable.

Functional Status (CDR Scores): Functional abilities, assessed via the Clinical Dementia Rating (CDR) scale, followed a similar pattern of gradual improvement. Initial scores averaged 19.3±0.56, reflecting early functional impairment in domains such as self-care, memory, orientation, and problem-solving.

After 30 days, a slight improvement was noted (mean score: 20.7±0.40), with further progression to 22.6±0.47 by day 90. These changes may reflect either an actual enhancement in patients' ability to perform daily tasks or a successful adaptation to caregiving routines and environmental modifications.

In dementia care, even minimal gains in functional status can significantly enhance quality of life and reduce caregiver burden. The upward trend in CDR scores despite physical weight loss reaffirms that supportive interventions - ranging from occupational therapy to caregiver training -can promote autonomy and sustain functional abilities in early to moderate stages of dementia.

These findings reinforce the need for a dual focus in dementia management: targeting both cognitive and functional domains through integrative and rehabilitative strategies.

Body Image Perception: An often-overlooked aspect of dementia care is the patient's subjective perception of their body, which is deeply intertwined with psychological well-being. Using a standardized body image scale, participants' perceptions were evaluated over the study period.

At baseline, the mean score was 17.9±1.24, suggesting a negative or distorted self-image. This may arise from diminished self-awareness, confusion, or emotional distress-common in the early stages of dementia.

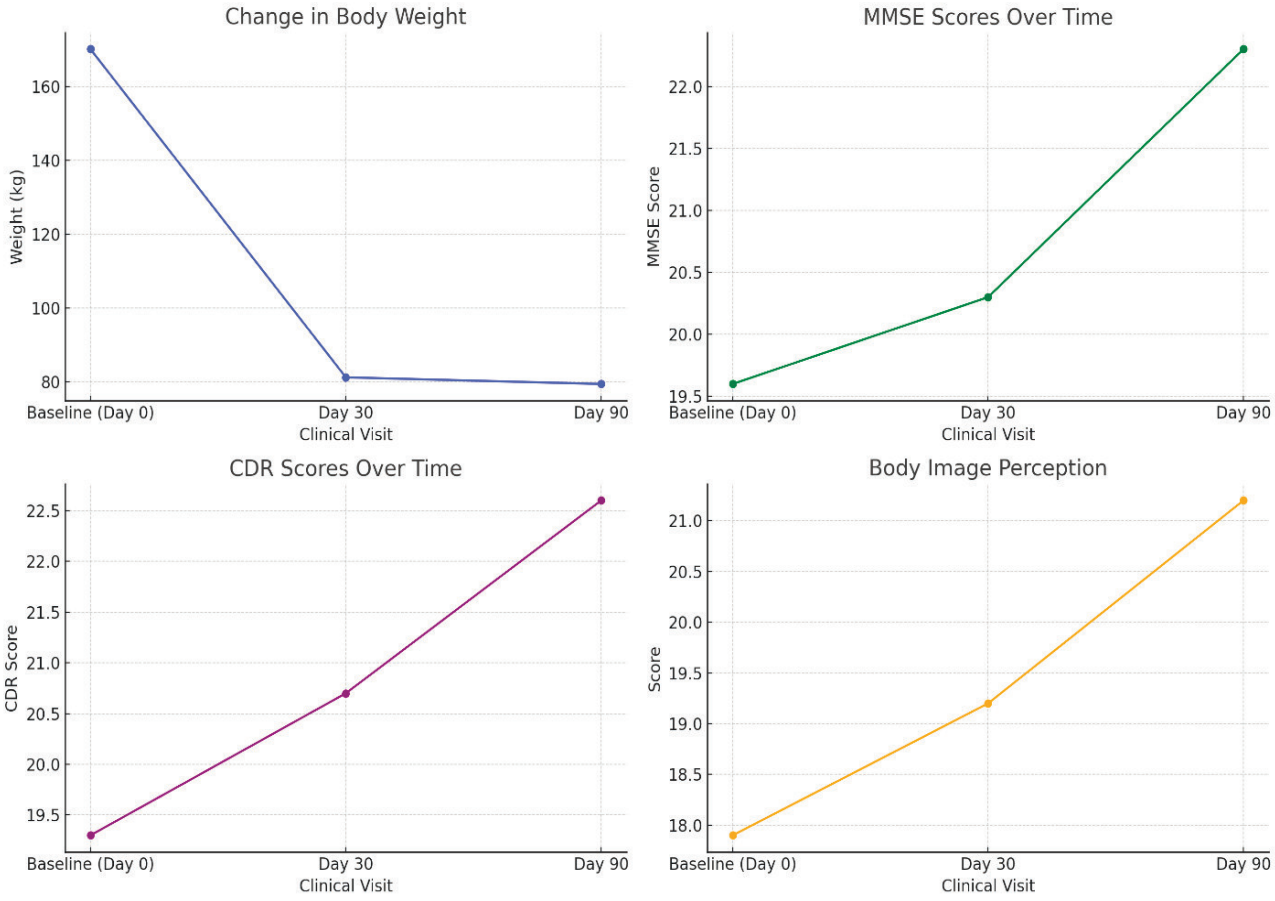
Over time, participants reported more favorable body image scores, increasing to 19.2±1.05 at 30 days and 21.2±1.10 by day 90. This positive trend may be attributed to increased psychological support, emotional adaptation, environmental stability, or rehabilitation activities promoting self-esteem.

Table

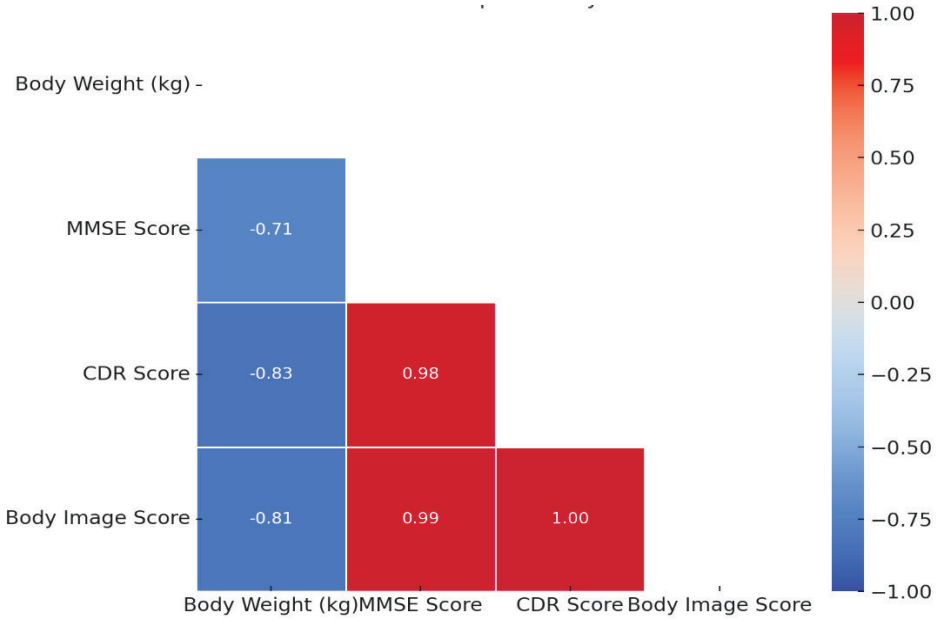
Longitudinal Changes in Study Parameters

Visit	Body Weight (kg)	MMSE Score	CDR Score	Body Image Score
Baseline (Day 0)	70.1	19.6	19.3	17.9
Day 30	81.2	20.3	20.7	19.2
Day 60	80.3	21.3	21.7	20.2
Day 90	79.4	22.3	22.6	21.2

Trends in Physical, Cognitive, Functional and Psychological parameters over 90 days



Correlation heatmap of study parameters



These results suggest that, even in the context of progressive cognitive impairment, psychological adaptation and subjective well-being can improve. A more positive body image correlates with better mood, greater social participation, and improved therapeutic adherence -making it an essential component of holistic dementia care.

Conclusion. Integrating cognitive screening and preventive strategies into routine primary healthcare can offer a robust defense against the progression of dementia. Early identification of at-risk individuals, coupled with lifestyle modifications and medical management, is essential for preserving cognitive health. This approach underscores the importance of equipping primary care professionals with the tools and knowledge necessary for effective intervention.

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