

Enhancing Psychosocial Wellbeing in Older Adults: The Impact of Long-Term Comprehensive Geriatric Assessment Programs

Mimi Rosiska

STIKES Bina Insani Sakti, Indonesia

Correspondent: mimiroosiska@ymail.com

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ABSTRACT: As global aging intensifies, improving quality of life (QoL) for older adults has become a central healthcare priority. This study evaluates the effectiveness of Comprehensive Geriatric Assessment (CGA) — a multidisciplinary intervention model — in enhancing QoL among frail inpatient older adults, drawing on a meta-analysis of eight randomized controlled trials comprising fifteen analyses. Using validated QoL instruments (SF-36 and EQ-5D) and Standardized Mean Differences (SMDs) computed via a random effects model, findings demonstrated a statistically significant overall QoL improvement (SMD = 0.09; 95% CI [0.01, 0.17]; $p = 0.03$) among those receiving CGA compared to usual care. Gains were most evident in vitality, social functioning, and mental health domains, while physical functioning showed limited improvement. Notably, long-term follow-ups exceeding three months produced more consistent and meaningful outcomes, underscoring the importance of follow-up duration in evaluating CGA effectiveness. The study further highlights that healthcare system integration, supportive policy frameworks, and contextual adaptation are critical to maximizing CGA impact. Key limitations include short study durations, methodological inconsistencies, and inadequate reporting of socioeconomic factors. Multidisciplinary CGA interventions yield measurable psychosocial benefits for older adults. Policymakers and healthcare providers are encouraged to standardize and scale CGA programs to advance eldercare quality. Future research should prioritize methodological rigor and explore the use of technology for real-time patient monitoring.

Keywords: Comprehensive Geriatric Assessment, Quality of Life, Older Adults, Meta-analysis, Multidisciplinary Care, Psychosocial Outcomes, Geriatric Healthcare.



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INTRODUCTION

The world is undergoing a profound demographic shift characterized by a rapidly aging population. According to global estimates, the number of individuals aged 65 and older is increasing

substantially, driven by declining fertility rates and improvements in life expectancy (Rudnicka et al., 2020). This transformation presents significant challenges and opportunities across healthcare, social, and economic sectors. In healthcare, older adults often require more complex, resource-intensive interventions due to multimorbidity, frailty, and functional decline. These demands necessitate adaptive strategies and policy reform, particularly in the delivery of integrated and sustainable elder care (McMaughan et al., 2020).

With aging populations comes a rise in chronic noncommunicable diseases (NCDs), significantly escalating global healthcare expenditures (Iuga et al., 2024). The costs associated with managing aging-related health conditions are compounded by socioeconomic disparities that limit access to healthcare services and diminish health outcomes (McMaughan et al., 2020). These systemic barriers make it imperative to reorient care delivery models to not only manage diseases but also preserve and enhance the quality of life (QoL) for older adults. Accordingly, there is a critical need for comprehensive, equitable, and patient-centered healthcare systems capable of addressing the multifaceted challenges of aging.

Frail older adults face disproportionately high burdens of disease, disability, and dependency. This subgroup frequently experiences multimorbidity the simultaneous occurrence of two or more chronic health conditions which increases their vulnerability to adverse outcomes (Ensrud et al., 2018). Common conditions such as cardiovascular disease, musculoskeletal disorders, and cognitive impairment exacerbate the risk of institutionalization and diminished QoL (Ghanem et al., 2023). Additionally, polypharmacy often a byproduct of multimorbidity can precipitate harmful drug interactions and contribute to further decline. This complex clinical picture demands person-centered, multidisciplinary approaches that incorporate both medical and psychosocial dimensions of health (Ghanem et al., 2023).

One such approach is the Comprehensive Geriatric Assessment (CGA), which has evolved to become a cornerstone in geriatric practice. Originally confined to hospital settings, CGA has expanded its application to encompass community-based and outpatient care, reflecting a broader shift towards holistic and integrated care models (Hu et al., 2021). The CGA is a multidimensional, interdisciplinary process that evaluates medical, psychological, and functional capacities, forming the basis for individualized treatment planning. Its adaptation across different healthcare systems underscores its flexibility and relevance in addressing the complexities of aging (Hu et al., 2021).

Recent research increasingly validates the positive impact of CGA on clinical and quality-of-life outcomes. Evidence suggests that CGA contributes to improved functional status, reduced hospitalizations, and lower mortality rates (Li et al., 2024). Importantly, CGA has also demonstrated effectiveness in enhancing psychosocial wellbeing an essential yet often underprioritized component of health in older populations (Haddad et al., 2024). These findings highlight CGA's dual role as a diagnostic and therapeutic intervention that aligns with person-centered care principles.

Measuring QoL in geriatric research requires robust, multidimensional tools. Instruments such as the SF-36 and EQ-5D have become standard for evaluating both physical and mental health domains in older adults (Hu et al., 2021). These tools not only facilitate clinical decision-making but also inform health policy by providing quantifiable outcomes. They are instrumental in

identifying disparities in care, monitoring the effectiveness of interventions, and ensuring that eldercare programs align with the needs and expectations of aging individuals (Li et al., 2024).

However, despite accumulating evidence supporting CGA and related models, there remain notable gaps in the literature. Specifically, limited attention has been paid to longitudinal QoL outcomes and the cultural adaptability of QoL measurement tools across diverse populations. Current research lacks a comprehensive examination of how CGA interventions affect specific QoL domains over time and in varying socioeconomic contexts (Li et al., 2024). Moreover, the predominance of quantitative measures limits deeper understanding of the lived experiences of older adults. Integrating qualitative assessments could enrich current knowledge and help shape more responsive, inclusive care models.

This study aims to assess the effectiveness of multidisciplinary CGA interventions on the QoL of older adults through a meta-analytic evaluation of randomized controlled trials. By quantifying the effects across mental, social, and physical domains, the study seeks to address existing gaps and support the development of more holistic and scalable care practices for the aging population. In doing so, it underscores the potential of CGA to not only extend life but to enhance its quality in meaningful and sustainable ways.

METHOD

This study synthesizes findings from a meta-analysis conducted by Chen et al. (2021), which evaluates the effectiveness of multidisciplinary Comprehensive Geriatric Assessment (CGA) interventions on quality of life (QoL) in frail older adults. The methodology adheres to best practices in meta-research design, incorporating evidence-based quality control mechanisms and methodological standards specific to geriatric clinical trials.

Meta-Analytic Design and Inclusion Criteria

The meta-analysis includes eight randomized controlled trials (RCTs) with a total of fifteen independent analyses. These studies were selected based on inclusion criteria that prioritized trials involving frail, inpatient older adults who received CGA compared to those receiving standard care. The synthesis follows PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines to ensure transparency, reproducibility, and comprehensive reporting (Ligthart-Melis et al., 2020).

Search Strategy and Study Selection

An exhaustive search was performed across multiple databases to identify RCTs meeting the defined criteria. Eligible studies were screened and selected by independent reviewers to minimize selection bias. Inclusion required the use of validated QoL instruments (e.g., SF-36, EQ-5D), standardized CGA protocols, and clearly reported outcomes.

Data Extraction and Synthesis

Data on sample size, participant characteristics, intervention details, and QoL outcomes were extracted using a predefined coding framework. Standardized mean differences (SMDs) were calculated as effect sizes, and a random effects model was applied due to expected heterogeneity among trials. Heterogeneity was quantified using the I^2 statistic, and 95% confidence intervals (CI) were reported for each pooled estimate.

Risk of Bias and Quality Assessment

The methodological quality of included RCTs was assessed using the Cochrane Risk of Bias tool. Key domains included sequence generation, allocation concealment, blinding, incomplete outcome data, and selective reporting. Trials were further evaluated for the appropriateness of their CGA implementation, personnel training, and data collection procedures (Ligthart-Melis et al., 2020).

Quality Control Measures

RCTs included in the analysis employed several quality control strategies:

- Use of validated, age-appropriate assessment tools
- Standardized training for interventionists and assessors
- Centralized data management and audit trails
- Protocols to minimize and address missing data
- Randomization and blinding (where feasible) to reduce bias

Subgroup and Sensitivity Analyses

Subgroup analysis was conducted to explore the influence of follow-up duration on QoL outcomes. Results were stratified into short-term (≤ 3 months) and long-term (> 3 months) follow-up periods. Sensitivity analyses were conducted to evaluate the robustness of findings across different study designs and populations (Fried et al., 2021).

Ethical Considerations

All included studies received ethical approval from their respective institutions and obtained informed consent from participants, adhering to international ethical standards for human research.

RESULT AND DISCUSSION

This section presents findings from the meta-analysis conducted by Chen et al. (2021), which examined the impact of Comprehensive Geriatric Assessment (CGA) on the quality of life (QoL) of older adults. The results are organized by overall meta-analytic outcomes, domain-specific SF-36 measures, and subgroup analysis based on follow-up duration.

Overall Meta-Analysis

The synthesis of eight randomized controlled trials (RCTs) involving fifteen independent analyses yielded a small but statistically significant improvement in overall QoL:

- Standardized Mean Difference (SMD): 0.09
- 95% Confidence Interval (CI): [0.01, 0.17]
- p-value: 0.03
- Heterogeneity (I^2): 33%

These results reflect modest yet meaningful QoL improvements, consistent across several studies but varying in magnitude depending on intervention characteristics and study design (Wen et al., 2021).

Table 1. Meta-analysis Summary (Chen et al., 2021)

Indicator	Value
No. of RCTs	8
No. of analyses	15
Standardized Mean Difference (SMD)	0.09
95% Confidence Interval	[0.01, 0.17]
p-value	0.03
Heterogeneity (I^2)	33%

Domain-Specific QoL Outcomes

The SF-36 domains revealed differentiated sensitivity to CGA interventions:

- Improvements were consistently observed in Vitality, Social Functioning, and Mental Health, attributed to enhanced psychosocial support (Han et al., 2019).
- General Health showed mild improvement, likely due to increased health awareness and coordinated care.
- Physical Functioning and Role Physical showed limited change, potentially due to baseline frailty or lack of targeted physical rehabilitation (Kojima, 2016).

Table 2. SF-36 Domain-Level Effects

SF-36 Domain	Improvement	Statistical Significance
Vitality	Yes	$p < 0.05$
Social Functioning	Yes	$p < 0.05$
Mental Health	Yes	$p < 0.05$
General Health	Yes	$p = 0.045$
Physical Functioning	No	$p = 0.32$
Role Physical	No	Not reported

These results align with studies utilizing complementary instruments such as EQ-5D and Geriatric Depression Scale (GDS), which corroborate the QoL benefits of multidisciplinary geriatric interventions (Gilmore et al., 2021).

Subgroup Analysis by Follow-up Duration

The impact of CGA varied notably with follow-up length:

- Short-term follow-ups (≤ 3 months): Minimal or inconsistent QoL improvements, particularly in physical domains (Barba et al., 2023).
- Long-term follow-ups (> 3 months): Statistically significant and sustained improvements, especially in mental and social domains (Hoffmann et al., 2020).

Table 3. QoL Changes by Follow-Up Duration

Follow-Up Duration	Effect Size (SMD)	Significance
≤ 3 months	< 0.05	Not significant
> 3 months	> 0.09	Statistically significant

Longer follow-up durations allowed for better assessment of intervention durability, especially in managing chronic conditions and promoting behavioral change (Yoshida et al., 2022).

The findings underscore that while short-term gains may appear modest, extended CGA implementation yields meaningful, lasting QoL enhancements. These results advocate for integrating long-term CGA strategies within standard geriatric care protocols.

The findings of this study demonstrate that Comprehensive Geriatric Assessment (CGA) interventions result in modest yet statistically significant improvements in quality of life (QoL) among older adults, particularly in mental and social domains. These outcomes confirm the value of CGA as a multidimensional tool, although its effectiveness varies depending on healthcare system structure, policy support, and contextual factors.

The variability in CGA outcomes across healthcare systems is noteworthy. Integrated systems that support multidisciplinary collaboration, such as those in certain European countries, consistently report better results in reducing hospitalizations and enhancing functional status. In contrast, fragmented care environments with limited communication and coordination among professionals often experience diminished CGA benefits. This suggests that healthcare system integration is a

key determinant of CGA success (Lundqvist et al., 2018). Furthermore, socioeconomic disparities and resource availability significantly affect implementation quality and outcome equity, emphasizing the need for regional adaptation of CGA strategies (Klestil et al., 2018).

At the policy level, frameworks such as the WHO Global Strategy on Ageing and Health advocate for holistic, multidisciplinary care. National strategies that support CGA integration, professional training, and funding allocation have been instrumental in improving eldercare outcomes (Ju et al., 2022). The growing recognition of ageism as a barrier to effective care has also driven policy innovations aimed at destigmatizing aging and prioritizing quality of life in health planning (Burnes et al., 2019).

Despite these advances, CGA research is limited by small sample sizes, short follow-up durations, and heterogeneous methodologies. These limitations hinder cross-study comparability and reduce the generalizability of findings. Many trials recruit participants from specialized centers, potentially skewing results and excluding broader elderly populations. Additionally, contextual factors such as socioeconomic status and environmental influences are frequently underreported, yet they critically impact intervention success (Armentaro et al., 2024; Normann et al., 2022).

To address these gaps, future CGA implementation should emphasize standardized protocols and rigorous training for interdisciplinary teams. Establishing unified procedures for assessment and outcome tracking will promote consistency and improve data quality. Encouraging patient-centered approaches that integrate the preferences and goals of older adults into care planning may also enhance intervention acceptance and effectiveness (Dinakrisma et al., 2022). Lastly, leveraging digital tools such as electronic health records and mobile applications can facilitate real-time monitoring and improve long-term outcome assessment, ensuring that CGA practices remain adaptive and scalable (Adler et al., 2024; Silva et al., 2018).

In summary, while CGA offers valuable psychosocial benefits for older adults, its full potential is best realized in supportive health systems, underpinned by comprehensive policy frameworks and informed by consistent methodological practices.

CONCLUSION

This study evaluated the impact of Comprehensive Geriatric Assessment (CGA) on the quality of life (QoL) of older adults using findings from a meta-analysis of randomized controlled trials. The results demonstrate that multidisciplinary CGA interventions lead to statistically significant but modest improvements in QoL, particularly in psychosocial domains such as vitality, mental health, and social functioning. These improvements were more pronounced in studies with longer follow-up durations, indicating that the benefits of CGA are cumulative and become more apparent over time.

The discussion highlighted several factors influencing the success of CGA implementations, including healthcare system integration, policy support, and contextual adaptation. Integrated systems and supportive policy frameworks consistently yielded better outcomes, while fragmented systems and resource constraints limited CGA's effectiveness. Limitations in current CGA

research such as small sample sizes, inconsistent methodologies, and short study durations underscore the need for more standardized and longitudinal research.

The main contribution of this study lies in reinforcing the evidence base for CGA as a viable and beneficial approach to elder care. It substantiates CGA's role in improving QoL outcomes beyond clinical measures, emphasizing its psychosocial value. The findings suggest that with appropriate implementation, CGA can enhance holistic wellbeing for older adults and should be considered a cornerstone of geriatric healthcare strategies.

Future research should prioritize the development of standardized CGA protocols, integration of patient-centered care frameworks, and the use of digital tools to facilitate continuous monitoring. Expanding CGA implementation across diverse healthcare settings and populations will further validate its utility and ensure broader, equitable access to its benefits.

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