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Research Article

Validation of the Turkish Version of Rapid Geriatric Assessment in Hospitalized Older Adults: A Preliminary Study

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What is already known on this topic?

- *Rapid Geriatric Assessment (RGA) tool was developed for community-dwelling older adults in primary care to screen for the most common geriatric syndromes and to increase the knowledge of carers and primary care providers, and RGA is a practical tool that can be administered by the patient or carer in less than four minutes.*
- *Studies on the use of RGA in hospitalized patients are scarce.*
- *The RGA consists of 4 scales and questions about constipation, incontinence, and advanced directives. Each RGA scale is a reliable and valid scale in Türkiye. However, the validity of RGA tool has not been performed in Türkiye.*

What this study adds on this topic?

- *This study performed the validity of RGA tool in hospitalized older patients.*

Abstract

AIM: Rapid Geriatric Assessment is a practical screening tool for common geriatric syndromes that can be administered in under five minutes, even by inexperienced healthcare professionals. The study aimed to validate the Turkish version of the Rapid Geriatric Assessment in hospitalized older adults.

METHODS: This cross-sectional study was conducted in the internal medicine inpatient unit of a university hospital among patients aged ≥65 years. 145 patients were evaluated. The Rapid Geriatric Assessment includes four brief instruments (FRAIL, SARC-F, Simplified Nutritional Appetite Questionnaire, and Rapid Cognitive Screen) plus two items on incontinence and constipation. Comparator measures included the Clinical Frailty Scale, Mini Nutritional Assessment–Short Form, Mini-Mental State Examination, handgrip strength, Activities of Daily Living, Instrumental Activities of Daily Living, Patient Health Questionnaire-2, and Generalized Anxiety Disorder-2 .

RESULTS: A total of 145 patients (57.9% women, 74.7 ± 7.9 years) were included. Rapid Cognitive Screen, Simplified Nutritional Appetite Questionnaire, and FRAIL showed strong significant positive correlations with Mini-Mental State Examination (0.822; $p < .001$), Mini Nutritional Assessment–Short Form (0.703; $p < .001$), and Clinical Frailty Scale (0.626; $p < .001$), respectively, while SARC-F correlated strongly and negatively with handgrip strength (−0.625; $p < .001$). Discriminant validity was demonstrated for the incontinence item, which was significantly associated with higher Patient Health Questionnaire-2 and Generalized Anxiety Disorder-2 scores and lower Activities of Daily Living and Instrumental Activities of Daily Living scores (all $p < .001$), constipation showed no associations. Convergent validity was supported by significant correlations of the frailty and sarcopenia domains with Instrumental Activities of Daily Living ($r = 0.614$ and $r = -0.753$, respectively; $p < .001$).

CONCLUSION: The Turkish version of the Rapid Geriatric Assessment is valid and feasible for hospitalized older adults, supporting its use as a rapid screening tool for geriatric syndromes.

Keywords: Cognitive dysfunction, frailty, geriatric assessment, hospitalization, malnutrition, sarcopenia, validity

Introduction

Comprehensive geriatric assessment (CGA) is essential for the identification of problems and capacities in different components of health in older adults, such as clinical, functional, emotional, mental, and social (Casanova-Muñoz et al., 2022). The CGA and CGA-tailored geriatric care have been shown to improve the post-discharge prognosis of older acutely hospitalized patients (Schippinger, 2022). The CGA can be performed by trained healthcare professionals

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and can take from 20 minutes to 3 hours, depending on the patient and the number of geriatric syndromes and complex comorbidities (Little, 2017; Merchant et al., 2020). To overcome this barrier for the widespread use of geriatric screening, Morley et al. developed a Rapid Geriatric Assessment (RGA) tool for community-dwelling older adults in primary care to screen for geriatric syndromes and to increase the knowledge of carers and primary care providers (Morley & Adams, 2015). The RGA is a practical tool that can be administered by the patient or carer in less than 4 minutes (Morley & Adams, 2015).

Rapid Geriatric Assessment screens patients for frailty, sarcopenia, malnutrition and cognitive impairment, as well as incontinence, constipation, and the presence of advanced directives. These geriatric syndromes in particular have a significant impact on functional impairment and an increase in dependency (Visser et al., 2023; Wan et al., 2023; Yüceler Kaçmaz et al., 2023). In a review that was conducted in older hospitalized adults, the prevalence of (pre)frailty was 84%, sarcopenia was 37%, and risk of malnutrition was 66% (Ligthart-Melis et al., 2020). In this review, there was a high association and overlap between frailty and malnutrition as well as sarcopenia and malnutrition (Ligthart-Melis et al., 2020). In hospitalized older adults, incontinence and functional dependency were found to be important factors related to frailty (Yüceler Kaçmaz et al., 2023). Older age, longer duration of bed rest, lower baseline body mass index, cognitive impairment, and functional disability were the risk factors for sarcopenia in hospitalized patients (Wan et al., 2023). Malnutrition is linked to negative clinical outcomes such as functional decline, hospital readmission, early death, reduced quality of life, and increased social and healthcare costs (Visser et al., 2023). Incontinence and constipation not only reduce the quality of life in older adults but also increase dependency and predispose them to various geriatric syndromes. As seen, these geriatric syndromes are interconnected, and when one of them is present, it becomes a risk factor for the others.

It was found that RGA could be easily applied by inexperienced healthcare professionals in long-term care settings and was found beneficial in increasing physical activity levels and preventing disability (Mena-Madrazo et al., 2017; Tuna et al., 2019). In a population-based study investigating the relationship between RGA and quality of life, it was shown that RGA components have an impact on older people's perception of quality of life (Doležalová et al., 2021). The RGA provides an important overview of geriatric syndromes that contribute to adverse outcomes in older adults.

Although RGA has mostly been studied in primary care, evidence in hospitalized patients is scarce. Implementing a RGA tool in medical wards beyond geriatrics may enable systematic screening for key syndromes and timely interventions. Therefore, the study aimed to validate the Turkish version of the RGA (RGA-TR) in patients aged ≥65 years hospitalized in an internal medicine ward.

Research Question

1. Is the RGA tool a valid tool to screen for geriatric syndromes among hospitalized older patients?

Methods

This was a methodological study.

Sample

This study was conducted in the internal medicine inpatient unit of a university hospital between January 3 and July 10, 2023. A total of 145 patients aged≥65 years were included. The inclu-sion and exclusion criteria are shown inFigure 1. Demographic data included age, sex, education, regular income, prehospital residence, and who the patient lived with. All assessments were administered in face-to-face interviews by sixth year medical students without prior geriatric training. A power analysis was conducted for correlation in a bivariate normal model. Assuming
95% power, two-sided $\alpha = 0.05$, and a correlation coefficient of 0.55 from the findings of Tuna et al. (Tuna et al., 2019), 31 participants would have been sufficient. A larger sample (n = 145) was intentionally recruited to increase robustness and allow subgroup analyses. The achieved power was 0.95, confirming adequacy.

The Adaptation of the Turkish Version of the Rapid Geriatric Assessment Form

Permission to use the RGA was obtained from Dr. Morley and from the original authors of the component scales. FRAIL, SARC-F, Simplified Nutritional Appetite Questionnaire (SNAQ), and Rapid Cognitive Screen (RCS) had previously been validated in Turkish using forward–back translation. For items not yet translated, the recommended steps were followed (Guillemin et al., 1993): forward translation, synthesis of translations, back-translation, and expert panel review for cultural adaptation.

Because there is no legal framework for "advance directives" in Türkiye, this item was excluded. A 20-item Turkish version of the RGA was created. The final RGA-TR is provided in Appendix 1.

Measurements

The RGA is a brief scale developed by the Geriatrics Department at Saint Louis University that consists of four questionnaires for frailty, sarcopenia, malnutrition, and cognitive impairment. These scales are the FRAIL scale, the SARC-F scale, the SNAQ, and the RCS. All four scales of the RGA have been shown to be valid and reliable in Turkish. There are also 2 additional questions on constipation and incontinence.

The FRAIL scale is a completely self-reported, device-free scale consisting of five simple questions about fatigue, resistance, ambulation, illness, and weight loss (Hymabaccus et al., 2023; Morley et al., 2013). The score ranges from 0 to 5, with 0 being robust, 1–2 being pre-frail, and 3 and over being frail. In this study, its internal consistency (KR-20) was 0.565, consistent with previous reports for short frailty screeners.

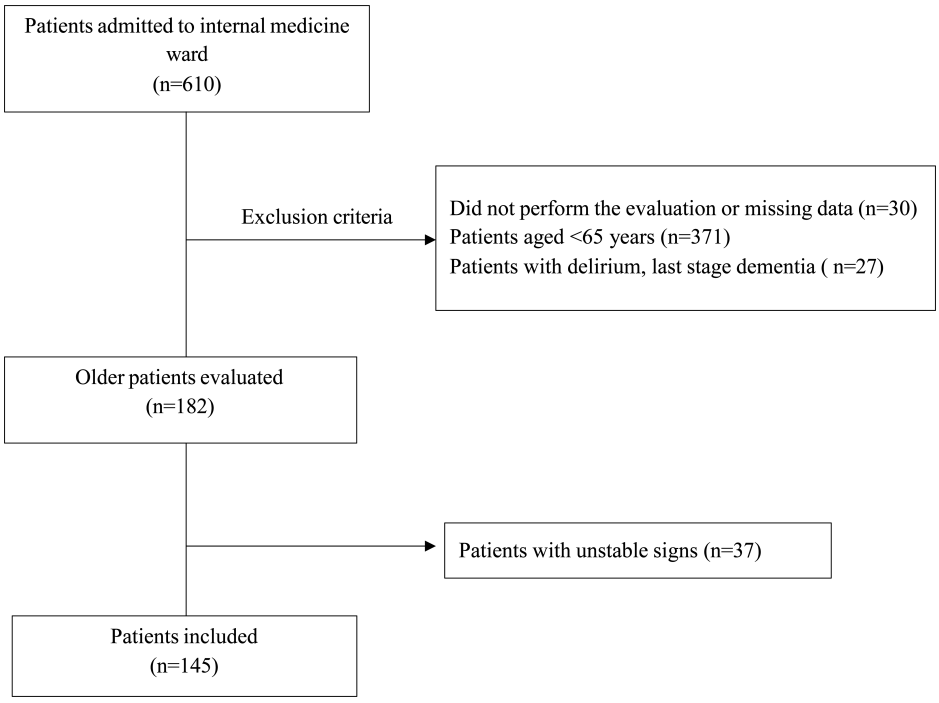

Figure 1..
Flow Diagram of Inclusion and Exclusion Criteria.

The RCS is a brief cognitive screening tool consisting of three items: word recall, clock drawing test, and story recall (Koc Okudur et al., 2019; Malmstrom et al., 2015). Scores range from 0 to 10, with RCS-Turkish cut-offs of ≤4 for dementia and ≤6 for mild cognitive impairment.

The SNAQ has been developed as a self-report screening tool that is quick and easy to administer without the need for trained raters or laboratory measurements, with four items assessing appetite, satiety, taste of food, and number of meals per day (İlhan et al., 2018; Wilson et al., 2005). The total score ranges from 4 to 20, with a recommended cut-off point of ≤14 to predict malnutrition.

The SARC-F questionnaire is a self-reported instrument consisting of the following five components: strength, assistance in walking, rising from a chair, climbing stairs, and falls (Bahat et al., 2018; Malmstrom & Morley, 2013). The total score ranges from 0 to 10, with a recommended cut-off point of ≥4 to predict sarcopenia. In this study, its internal consistency (KR-20) was 0.847, indicating acceptable internal consistency.

Functional status was assessed using the Katz Activities of Daily Living score (ADL) and the Lawton-Brody Instrumental ADL (IADL) score (Katz, 1983; Lawton & Brody, 1969). The Mini Nutritional Assessment-Short Form (MNA-SF) test is a screening tool to identify malnutrition and consists of six questions that can be completed in less than 5 minutes: anthropometric measurements (body mass index, weight loss), global assessment (mobility), and dietary questionnaire and subjective assessment (food intake, neuropsychological problems, acute illness) (Rubenstein et al., 2001; Sarikaya et al., 2015). A total score of MNA-SF <8, 8–11, and >11 indicates malnutrition, risk of malnutrition, and no malnutrition, respectively. The KR-20 coefficient for ADL, IADL, MNA-SF scale in the present study was 0.881, 0.910, 0.600 respectively, indicating acceptable internal consistency.

The standardized Mini-Mental State Examination (MMSE) is a cognitive assessment tool that assesses five areas of cognitive functioning (orientation, immediate memory, attention/concentration, delayed recall, language) (Molloy et al., 1991). A score of 24 or less indicates cognitive impairment. Generalized Anxiety Disorder 2-item (GAD-2) and Patient Health Questionnaire-2 (PHQ-2) were used to assess depression and anxiety.

Handgrip strength (HGS) was measured with a valid protocol using a Jamar digital dynamometer (Jamar Plus+ Dynamometer, Performance Health Supply, Inc, Cedarburg, WI. 90 kg capacity, 500 g weight). The Southampton protocol was applied for Jamar. Lower HGS <35 kg and <20 kg for men and women, respectively, was described as probable sarcopenia (Bahat et al., 2021).

Statistical Analysis

Statistical analyses were performed using IBM® SPSS® 25 (SPSS Inc., Chicago, IL, USA) software. The significance level adopted for the statistical tests was 5% (p value ≤ .05). Normality was assessed by the Kolmogorov–Smirnov test. Quantitative variables following a normal distribution were pre-sented as mean ± standard deviation (SD), while non-normally distributed variables were reported as median and minimum-maximum values. Categorical variables were analyzed using the Chi-Square ($\chi 2$) test and Fisher's exact test, with results expressed as frequencies and percentages. For quantitative variables, the t-test and Mann–Whitney U-test were applied where appropriate.

Concurrent validity was assessed with Spearman's rank correlation between the RGA domains (FRAIL, SARC-F, SNAQ, and RCS) and established comparator measures (Clinical Frailty Scale (CFS), HGS, MNA-SF, and MMSE). Convergent and discriminant validity were examined by correlating RGA domains with GAD-2, PHQ-2, ADL, and IADL. The strength of correlations was interpreted using conventional thresholds (small = 0.3, medium = 0.5, large ≥ 0.6) and Levin and Fox's guidelines. Discriminant validity of the additional incontinence and constipation items was tested using the Mann–Whitney *U*-test.

Internal consistency of dichotomous items was assessed with the Kuder–Richardson Formula 20 (KR-20), where ≥0.70 was considered acceptable, ≥0.80 good, and ≥0.90 excellent. To provide preliminary evidence of construct validity, sampling adequacy was evaluated with the Kaiser–Meyer–Olkin (KMO) test, and Bartlett's test of sphericity was applied to assess the suitability of the data for factor analysis.

Ethical Considerations

Approval for the study was granted by Ege University Medical Research Ethical Committee (Date: January 2, 2023 no. 22-12.2T/17). All patients were informed about the study protocols in detail and their informed written consents were provided. Rapid geriatric assessment, SNAQ, RCS, and SARC-F were used with the permission and approval of the authors. Permission to use standardized MMSE was obtained from Molloy et al.

Results

Demographics of Population

A total of 145 hospitalized patients aged ≥65 years were included, comprising 84 women (57.9%) and 61 men (42.1%), with a mean age of 74.7± 7.9 years. Demographic and clinical characteristics are summarized in Table 1.

Reliability and Construct Validity

Internal consistency was evaluated using the KR-20. The ADL and IADL scales demonstrated excellent internal consistency (KR-20 = 0.881 and 0.910, respectively). The SARC-F scale showed good reliability (KR-20 = 0.847). The MNA-SF demonstrated moderate internal consistency (KR-20 = 0.600), which is acceptable given its brief structure and multidomain content. The FRAIL scale showed lower internal consistency (KR-20 = 0.565), consistent with previous reports for short frailty screeners composed of diverse items that do not always inter-correlate strongly. These findings align with the expected psy-chometric properties of rapid screening instruments.

Preliminary construct validity was assessed by examining data suitability for factor analysis. Sampling adequacy was acceptable (KMO = 0.700), and Bartlett's test of sphericity confirmed sufficient correlations between items ($\chi^2 = 164.16$, $df = 6$, $p < .001$).

Table 1..
Demographics and Clinical Characteristics of Study (N=145)

Variables	All (*n* = 145)
Age, years	74 (65–96)
Length of stay, day	11 (1–55)
Number of medications	5 (1–16)
Number of comorbidities	4 (1–10)
Gender, women, n (%)	84 (57.9)
Illiterate, n (%)	3 (2.1)
Regular income, n (%)	120 (82.8)
Living alone, n (%)	30 (20.7)
Presence of urinary incontinence	48 (33.1)
Presence of constipation	66 (45.5)
FRAIL score	3 (0–5)
RCS score	6 (0–10)
SNAQ score	14 (5–19)
SARC-F score	4 (0–10)
CFS	5 (4–7)
MMSE score	26 (10–30)
MNA-SF score	10 (0–14)
Handgrip strength, kg	16.2 (2–44.5)
GAD-2	2 (0–6)
PHQ-2	2 (0–6)
ADL	6 (0–6)
IADL	6 (0–8)

Quantitative variables were expressed by Median (min-max).
ADL, Activities Of Daily Living; CFS, Clinical Frailty Scale; GAD-2, Generalized Anxiety Disorder 2-item; IADL, Instrumental Activities of Daily Living; MMSE, Mini-Mental State Examination; MNA-SF, Mini Nutritional Assessment–Short Form; PHQ-2, Patient Health Questionnaire-2; RCS, Rapid Cognitive Screen; SNAQ, Simplified Nutritional Appetite Questionnaire.

Validity Findings of the Turkish Version of the Rapid Geriatric Assessment

The validity of the RGA-TR was evaluated through concurrent validity, discriminant validity, and convergent validity.

Concurrent Validity

Spearman correlation analyses demonstrated significant associations between the RGA domains and their respective comparator measures, as shown in Table 2. The cognitive and nutrition domains showed strong positive correlations with the MMSE ($r = 0.822$, $p < .001$) and MNA-SF ($r = 0.703$, $p < .001$), respectively. The frailty domain was strongly correlated with the CFS ($r = 0.626$, $p < .001$), while the sarcopenia domain was negatively correlated with HGS ($r = -0.625$, $p < .001$). These results support the concurrent validity of the RGA-TR.

Discriminant Validity

Table 3 presents the discriminant validity of the FRAIL, SARC-F, SNAQ, and RCS domains against their reference

Table 2..
Analysis of the Concurrent Validity Criterion of RGA Using Spearman Correlation Coefficients with Selected Tools

	FRAIL		RCS		SNAQ		SARC-F	
	*r**	*p*	*r**	*p*	*r**	*p*	*r**	*p*
CFS	0.626	<.001	−0.505	<.001	−0.395	<.001	0.743	<.001
MMSE	−0.308	<.001	0.822	<.001	0.328	<.001	−0.542	<.001
MNA-SF	−0.541	<.001	0.285	.001	0.703	<.001	−0.444	<.001
HGS	−0.443	<.001	0.432	<.001	0.327	<.001	−0.625	<.001

*Spearman correlation coefficients.
CFS, Clinical Frailty Scale; HGS, handgrip strength; MMSE, Mini-Mental State Examination; MNA-SF, Mini Nutritional Assessment–Short Form; RCS, Rapid Cognitive Screen; SNAQ, Simplified Nutritional Appetite Questionnaire.

Table 3..
Discriminant Validity Analysis of RGA Domains Compared with Standard Reference Measures

		FRAIL			
		Not Frail	**Frail**	**Total**	***p***
CFS	Not frail	34	18	52	**<.001**
	Frail	13	80	93	
	Total	47	98	145	
		SARC-F			***p***
		Without Sarcopenia	**With Sarcopenia**	**Total**	.03
HGS	Without sarcopenia	9	3	12	
	With sarcopenia	55	78	133	
	Total	64	81	145	
		SNAQ			***p***
		Without Risk of Losing Weight	**At Risk of Losing Weight**	**Total**	<.001
MNASF	Normal nutritional status	29	10	39	
	Risk of malnutrition/ malnourished	31	75	106	
	Total	60	85	145	
		RCS			***p***
		Without Cognitive Impairment	**With Cognitive Impairment**	**Total**	<.001*
MMSE	Without cognitive impairment	66	29	95	
	With cognitive impairment	0	50	50	
	Total	66	79	145	

*Fisher's exact test was applied.

measures. The FRAIL significantly differentiated between participants classified as frail or not frail by the CFS ($p < .001$). The SARC-F scores were significantly associated with sarcopenia defined by HGS ($p = .03$). The SNAQ domain significantly distinguished participants with normal nutritional status from those at risk or malnourished according to the MNA-SF ($p < .001$). The RCS scores significantly differentiated participants with and without cognitive impairment defined by the MMSE ($p < .001$, Fisher's exact test). This result reflected complete overlap between MMSE and RCS classifications in our cohort, which was re-checked for accuracy and confirmed; while unusual, it likely reflects the alignment of cut-offs in this inpatient population.

Discriminant validity of the additional items addressing urinary incontinence and constipation was assessed with the Mann–Whitney test (Table 4). Participants with incontinence had significantly higher GAD-2 and PHQ-2 scores and significantly lower ADL and IADL scores compared with those without incontinence (all $p < .001$). By contrast, constipation was not significantly associated with these measures (all $p > .05$). While incontinence showed discriminant validity, the lack of significant findings for constipation likely reflects characteristics of this inpatient cohort rather than invalidity of the item itself.

Convergent Validity

Table 5 shows the Spearman correlation coefficients between the RGA domains and GAD-2, PHQ-2, ADL, and IADL. Significant

Table 4..
Discriminant Validity of Additional RGA Items (Constipation and Incontinence) Using the Mann–Whitney Test

	Urinary Incontinence			Constipation		
	No (97)	Yes (48)	*p*	No (79)	Yes (66)	*p*
GAD-2	1 (0–6)	4 (0–6)	<.001	2 (0–6)	2 (0–6)	.99
PHQ-2	1 (0–6)	4 (0–6)	<.001	2 (0–6)	2 (0–6)	.99
ADL	6 (0–6)	4 (0–6)	<.001	6 (0–6)	5 (0–6)	.32
IADL	7 (0–8)	3 (0–8)	<.001	6 (0–8)	5 (0–8)	.26

Values are presented as median (minimum–maximum).
ADL, Activities Of Daily Living; GAD-2, Generalized Anxiety Disorder 2-item; IADL, instrumental activities of daily living; PHQ-2, Patient Health Questionnaire-2.

associations were observed across most domains, indicating convergent validity. Notably, the frailty and sarcopenia domains demonstrated moderate-to-strong associations with IADL ($r = 0.614$ and $r = -0.753$, respectively). These findings further support the construct validity of the RGA-TR in hospitalized older adults.

Discussion

The findings of this study support the validity of the Turkish version of the RGA in hospitalized older adults. Comprehensive geriatric assessment appears to be highly beneficial for various health outcomes in hospital medical settings, with strong supporting evidence (Veronese et al., 2022). Achieving better health outcomes for hospitalized older patients requires a fundamental change in approach and there is a need to develop CGA-based multidimensional interventions to establish a standardized protocol that helps older adults maintain functional capacity and enhances their chances of continuing to live independently at home (Choi et al., 2023). However, CGA is often time-consuming and resource-intensive. To disseminate geriatric screening, the RGA was developed as a brief, yet effective, screening tool for geriatric syndromes (Morley & Adams, 2015). The study suggests that the RGA-TR may be a practical screening tool for inpatient settings by effectively identifying frailty, sarcopenia, malnutrition, and cognitive impairment.

In this study, the Turkish versions of the FRAIL, SARC-F, MNA-SF, ADL, and IADL scales demonstrated acceptable to excellent reliability. The KR-20 coefficients indicated excellent internal consistency for ADL and IADL, good reliability for SARC-F, and moderate consistency for MNA-SF. The FRAIL scale showed lower reliability (KR-20 = 0.565), which is consistent with previous reports in the literature and reflects the heterogeneous and multidimensional nature of frailty, where individual items may capture distinct aspects of the construct rather than strongly intercorrelating. These findings are in line with the expected psychometric behavior of short, rapid screening instruments (Kruyen et al, 2013).

Construct validity analyses further supported the use of the Turkish RGA in the inpatient setting. The KMO value of 0.700 and the highly significant Bartlett's test of sphericity ($\chi^2 = 164.16$, $p < .001$) confirmed the adequacy of the data for factor analysis. These results indicate that the included scales share sufficient common variance to justify their use within a combined RGA framework. While more advanced psychometric approaches such as confirmatory factor analysis (CFA) and Average Variance Extracted (AVE) would further strengthen validity evidence (Williams et al., 2010), the present findings provide robust preliminary support for the reliability and construct validity of the RGA-TR in hospitalized older adults.

The concurrent validity analyses showed strong correlations between the RGA domains and standard assessment tools such as the CFS, MMSE, MNA-SF, and HGS measurements. Specifically, the cognitive and nutrition domains of the RGA-TR displayed strong correlations with MMSE and MNA-SF scores. These findings are consistent with previous study indicating that RGA is an effective tool (de Souza Orlandi et al., 2018). In the validation of RGA in the Brazilian population, Fried Frailty Phenotype, MNA, and Addenbrooke's Cognitive Exam—Revised

Table 5..
Convergent Validity Analyses of RGA Using the Spearman Correlation Coefficients

	FRAIL		RCS		SNAQ		SARC-F	
	*r**	*p*	*r**	*p*	*r**	*p*	*r**	*p*
GAD-2	0.319	<.001	−0.314	<.001	−0.401	<.001	0.390	<.001
PHQ-2	0.361	<.001	−0.431	<.001	−0.378	<.001	0.478	<.001
ADL	−0.494	<.001	0.417	<.001	0.335	<.001	−0.693	<.001
IADL	−0.614	<.001	0.540	<.001	0.384	<.001	−0.753	<.001

* Spearman Correlation Coefficients.
ADL, Activities Of Daily Living; GAD-2, Generalized Anxiety Disorder 2-item; IADL, instrumental activities of daily living; PHQ-2, Patient Health Questionnaire-2; RCS, Rapid Cognitive Screen; SNAQ, Simplified Nutritional Appetite Questionnaire.

Version and DEXA for sarcopenia component were used. The instruments demonstrated satisfactory concurrent validity when correlated with gold-standard measures used to assess the same constructs (de Souza Orlandi et al., 2018).

Frailty, sarcopenia, and malnutrition frequently co-exist in hospitalized older patients, contributing to adverse health outcomes such as functional decline, increased dependency, and higher mortality rates (Gortan Cappellari et al., 2025; Ligthart-Melis et al., 2020). Both cognitive and physical frailty were found to be associated with malnutrition in older adults, and cognitive impairment is an important risk factor for sarcopenia and frailty in hospitalized older patients (Gortan Cappellari et al., 2025; Kocyigit et al., 2024; Wan et al., 2023). In the study, frailty was highly prevalent among participants, reinforcing previous findings that hospitalized older patients exhibit high rates of geriatric syndromes (Yüceler Kaçmaz et al., 2023).

In the study, the incontinence item demonstrated discriminant validity by differentiating anxiety, depression, and functional outcomes, whereas the constipation item did not show significant associations. However, the absence of statistical significance in this cohort does not necessarily indicate a lack of validity. Constipation is a multifactorial symptom, influenced by comorbidities, medications, and hospitalization-related factors, and its impact may vary across settings (Liu et al., 2023; Salvi et al., 2024). Importantly, constipation is clinically relevant in geriatrics, as it can precipitate complications such as delirium, reduced quality of life, and hospitalization (Salvi et al., 2024). Therefore,the constipation item was retained in the RGA-TR, while acknowledging that its psychometric contribution may be limited in single-center samples. Future multicenter studies with larger and more heterogeneous populations are warranted to further assess the discriminant validity of this domain using additional outcomes (e.g., delirium incidence, hospitalization length, or quality-of-life measures).

In the study, all the components of RGA were significantly correlated with PHQ2, GAD2, and ADL IADL. Morley et al. validated the FRAIL scale's convergent validity in a longitudinal study with African Americans in Saint Louis, USA. The scale showed significant correlations with difficulties in IADL and HGS. Based on these findings, the authors concluded that the five-question FRAIL scale is an effective screening tool for clinicians to identify individuals at risk of developing disability (Morley et al., 2012). In the Turkish translation and validation study, FRAIL was correlated with ADL, IADL, MMSE, MNA-SF, Yesavage geriatric depression scores, and HGS (Hymabaccus et al., 2023). The RCS-Turkish scores, SNAQ scores were positively correlated with ADL and the IADL scale scores in the translation study (İlhan et al., 2018; Koc Okudur et al., 2019).

A total of 11,344 older adults age of over 65 years were screened by the RGA tool in different settings (community, office-based, hospital, and nursing home care settings) and the prevalence of geriatric syndromes was high and RGA was suggested to be a part of yearly screening of the Medicare Annual Wellness Visit (Sanford et al., 2020). The high prevalence rates demonstrated in the study indicate the potential benefits of geriatric screening, as well as further assessment and interventions, for hospitalized patients. The key point is to increase awareness in this area and to promote the use of geriatric screenings more frequently in hospitalized patients through brief and practical assessments.

Study Limitations

Despite the promising results, this study has some limitations. First, it was conducted in a single-center university hospital setting, which may limit the generalizability of the findings. Second, although internal consistency was assessed and data suitability for factor analysis was tested using KMO and Bartlett's tests, a full exploratory factor analysis/CFA or advanced techniques such as AVE or Fornell–Larcker criteria were not performed. These methods would provide stronger evidence of construct validity and are recommended for future multicenter studies with larger and more diverse samples. Third, although the translation and adaptation of the RGA-TR followed established guidelines and included expert panel review, content validity index scores were not formally assessed, nor was patient feedback on face validity collected. These steps should be considered in future research to further strengthen cultural and clinical applicability. Fourth, in the discriminant validity analysis, the RCS showed perfect overlap with MMSE in identifying cognitive impairment; this finding was re-checked and confirmed, but may be sample-specific and should be interpreted with caution. Finally, as the RGA is a screening tool, further comprehensive assessments should be performed when necessary. Future studies should explore the implementation of RGA-TR in broader clinical settings and assess its impact on long-term patient outcomes.

Conclusion and Recommendations

The RGA-TR is a valid and feasible tool for screening geriatric syndromes in hospitalized older adults. Its strong correlation with established assessment tools and its ability to differentiate levels of impairment across multiple domains support its clinical utility. While discriminant validity was confirmed for incontinence, constipation did not show significant associations in this sample but remains clinically important and should be evaluated further in larger cohorts. Adoption of RGA-TR in hospital settings could facilitate systematic screening and timely referrals to geriatrics teams, ultimately improving patient care and outcomes.

The Turkish version of the RGA has been demonstrated to be a valid tool for hospitalized older patients and can be easily administered by inexperienced healthcare professionals. Geriatric assessment and related interventions improve patients' health and quality of life. Therefore, it is recommended that this rapid geriatric screening tool be utilized in hospitalized patients, and when necessary, collaboration with the geriatrics team should be sought for further assessment and intervention to improve patients' health.

Data Availability Statement: The data that support the findings of this study are available on request from the corresponding author.

Ethics Committee Approval: The research protocol was conducted in accordance with the Helsinki Declaration and was approved by Ege

University Medical Research Ethical Committee (Date: January 2, 2023, no. 22-12.2T/17).

Informed Consent: All patients were informed about the study protocols in detail and their informed written consents were provided.

Peer-review: Externally peer-reviewed.

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Appendix 1

Saint Louis Üniversitesi

Hızlı Geriatrik Değerlendirme*

* Bu tarama araçları üzerinde hiçbir telif hakkı yoktur ve bunlar izinsiz ve ücretsiz olarak elektronik sağlık kayıtlarına dahil edilebilir

FRAIL ölçeği

(3 veya üzeri = kırılganlık; 1 veya 2 = pre-kırılgan)

Yorgunluk: Son dört hafta içinde ne kadar sıklıkta yorgun hissettiniz?
Direnç: Dinlenmeden ve yardım almadan on basamak merdiven çıkarken güçlük yaşar mısınız?
Dolaşma: Dinlenmeden ve yardım almadan birkaç yüz metre yürümede güçlük yaşar mısınız?
Hastalık: 5ten fazla hastalığa sahip misiniz?
Kilo kaybı: Son 1 yıl içinde 4.5 kg (veya vücut ağırlığınızın %5'i) kaybınız oldu mu?

TOPLAM FRAIL PUAN:____

Morley JE, Vellas B, Abellan van Kan G, ve ark. J Am Med Dir Assoc 2013;14:392-397
Hymabaccus BAB ve ark Marmara Med J 2023: 36(2):149-156

Sarkopeni Tarama için SARC-F

(4 veya üzeri puan= Sarkopeni riski)

Bileşen	Soru	Puanlama
Kuvvet	Yaklaşık 5kg mı kaldırırken ve taşırken ne kadar zorlanırsınız?	Hiç zorlanmam=0 Biraz zorlanırım=1 Çok zorlanırım, yapamam=2
Yürümede Yardım	Odanın bir ucundan diğer ucuna yürürken ne kadar zorlanırsınız?	Hiç zorlanmam=0 Biraz zorlanırım=1 Çok zorlanırım, yardım alırım, yapamam=2
Sandalyeden Kalkm	Sandalye veya yataktan kalkarken ne kadar zorlanırsınız?	Hiç zorlanmam=0 Biraz zorlanırım=1 Çok zorlanırım, yardımsız yapamam=2
Merdiven Çıkma	10 basamağı çıkarken ne kadar zorlanırsınız?	Hiç zorlanmam=0 Biraz zorlanırım=1 Çok zorlanırım, yapamam=2
Düşme	Geçmiş yıllarda kaç kere düştünüz?	Hiç düşmedim=0 1-3 kere=1 4 veya daha fazla=2

TOPLAM SARC-F PUANI:____

Malmstrom TK, Morley JE, J Frailty and Aging 2013;2:55-6.
Bahat G ve ark J Nutr Health Aging . 2018;22(8):898-903.

SNAQ (Basitleştirilmiş Beslenme İştah Anketi)

(14 veya üzeri puan= 6 ay içinde en az %5 kilo kaybı risk varlığı)

İştahım :
a. Çok Kötü
b. Kötü
c. Orta
d. İyi
e. Çok İyi

Yemeklerin tadı :
a. Çok Kötü
b. Kötü
c. Orta
d. İyi
e. Çok İyi

Yemek yediğimde :
a. Birkaç lokma yiyince bile doyarım
b. Yemeğin yaklaşık ucte birini yiyince doyarım
c. Yemeğin yarısından fazlasını yiyince doyarım
d. Yemeğin tamamına yakınını yiyince doyarım
e. Hepsini yesem bile genellikle doymam

Normalde ben bir günde:
a. Bir öğünden az yerim
b. Bir öğün yerim
c. İki öğün yerim
d. Üç öğün yerim
e. Üç öğünden fazla yerim

Skorlama: a=1, b=2, c=3, d=4, e=5

TOPLAM SNAQ PUAN:____

Wilson ve ark. Am J clin Nutr 2005;82:1074-81.
İlhan B. ve ark J Nutr Health Aging . 2018;22(9):1039-1044

Hızlı Kognitif Tarama (RCS)

(7-10 puan= normal, 5-6 puan= hafif kognitif bozukluk, 0-4= Demans)

***Lütfen bu beş nesneyi aklınızda tutun. Sonra size bu nesneleri tekrar soracağım.**
Elma Kalem Top Ev Tren
***Bu şeklin bir saat olduğunu düşünün. Lütfen bu saatin içine akrep ve yelkovanı yerleştirin ve saat on bire on kalayı göstersin.**
(2 puan Akrep yelkovan olması; 2 puan zamanın doğru olması)
***Sizden hatırlamanızı istediğim o beş nesne neydi?** (Her bir doğru cevap için 1 puan)
***Şimdi size bir hikâye anlatacağım. Lütfen beni dikkatle dinleyin çünkü size bu hikâyeyle ilgili bazı sorular soracağım.**
Nil başarılı bir öğretmendi. Birçok kitabı ve sayısız ödülleri vardı. Bir gün oldukça yakışıklı olan Cenk ile tanıştı. Onunla evlendi ve üç çocukları oldu. İstanbul'da yaşadılar. Sonra çocuklarını büyütmek için çalışmaya ara verdi. Çocukları okul çağına geldiğinde tekrar çalışmaya başladı. O ve Cenk bir ömür boyu mutlu yaşadılar.
Hikâyedeki kadın hangi şehirde yaşıyordu? (1 puan)

TOPLAM RCS PUAN:____

Malmstrom TK ve ark The journal of nutrition, health & aging. 2015;19(7):741-4 19
Koc Okudur S ve ark The journal of nutrition, health & aging. 2019;23(1):68-72

Diğer

Kabızlık var mı? E /H
Rahatsız edici bir idrar kaçırma var mı? E/H