



68° CONGRESSO NAZIONALE SIGG

Ritorno al futuro

FIRENZE, 13-16 DICEMBRE 2023
PALAZZO DEI CONGRESSI



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Medicina Interna e dell'invecchiamento

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SCREENING DELLA MALNUTRIZIONE NEL PAZIENTE ANZIANO
OSPEDALIZZATO: STRUMENTI E PROSPETTIVE

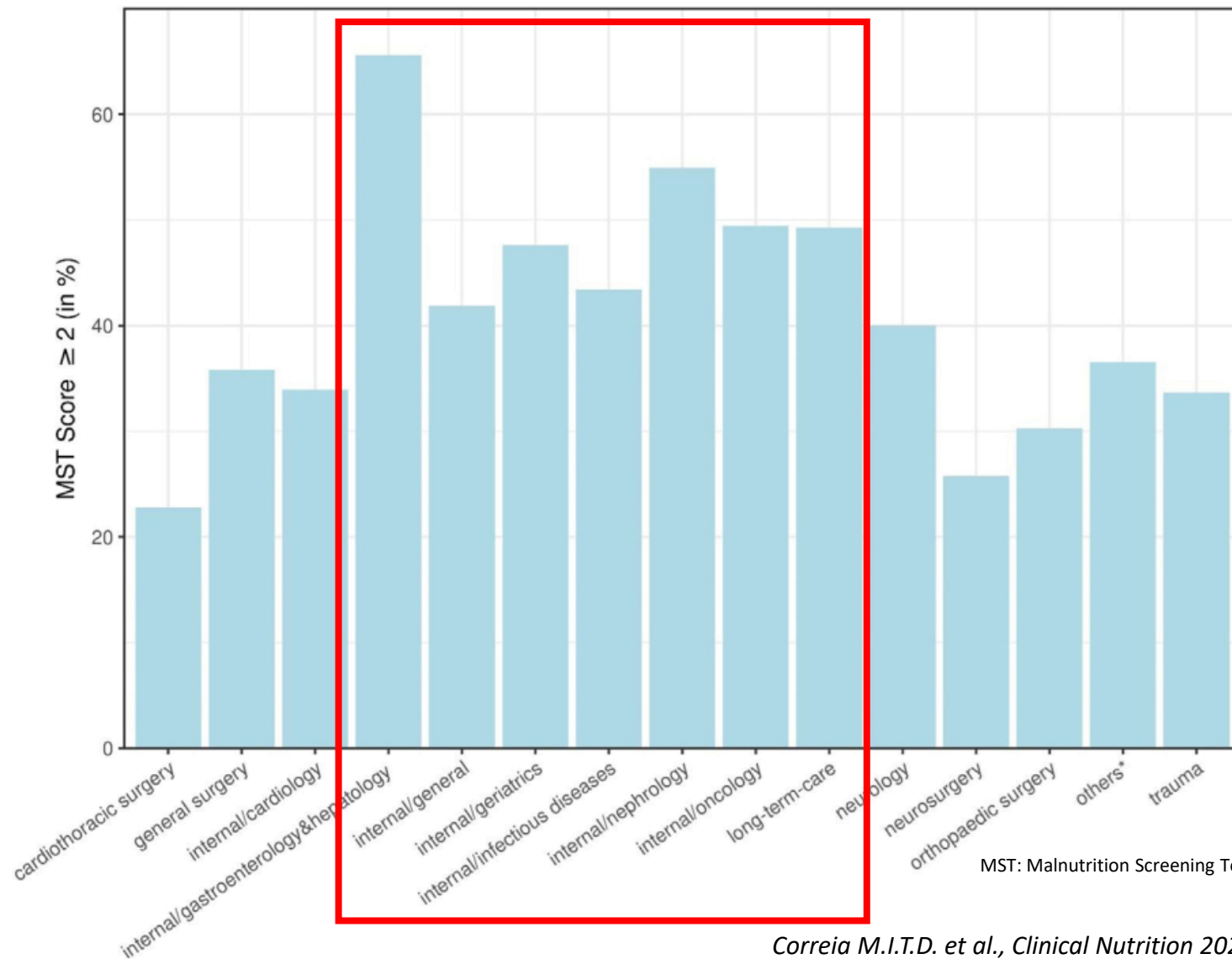


Prevalence of malnutrition risk and its association with mortality: nutritionDay Latin America survey results

M. Isabel T.D. Correia ^a, Suela Sulo ^{b,*}, Cory Brunton ^b, Isabella Sulz ^c, Dolores Rodriguez ^d, Gabriel Gomez ^e, Silvia Tarantino ^c, Michael Hiesmayr ^c



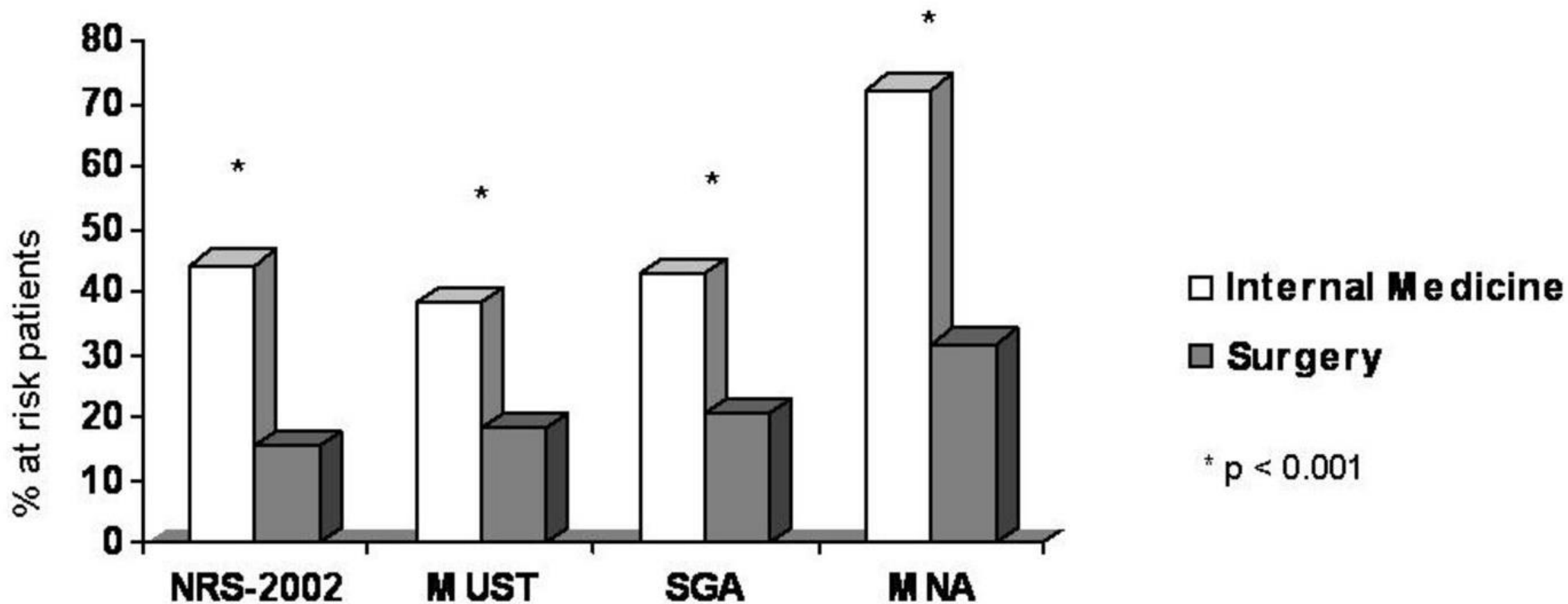
2 of every 5 hospitalized patients were at risk for malnutrition



MST: Malnutrition Screening Tool



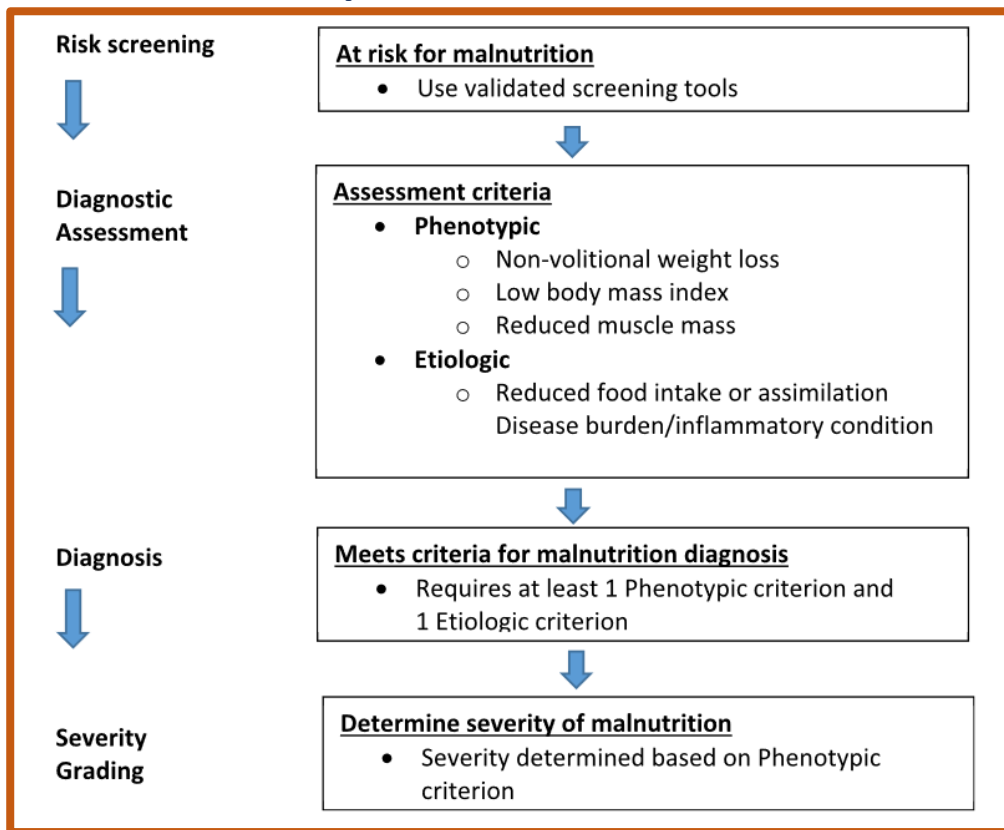
Comparison of 4 Nutritional Screening Tools to Detect Nutritional Risk in Hospitalized Patients. A Multicentre Study





GLIM: Global Leadership Initiative on Malnutrition

Cederholm T et al., Clinical Nutrition 2019



Phenotypic and etiologic criteria for the diagnosis of malnutrition.

Phenotypic Criteria ^g		
Weight loss (%)	Low body mass index (kg/m ²)	Reduced muscle mass ^a
>5% within past 6 months, or >10% beyond 6 months	<20 if < 70 years, or <22 if >70 years Asia: <18.5 if < 70 years, or <20 if >70 years	Reduced by validated body composition measuring techniques ^a

Etiologic Criteria ^g	
Reduced food intake or assimilation ^{b,c}	Inflammation ^{d-f}
≤50% of ER > 1 week, or any reduction for >2 weeks, or any chronic GI condition that adversely impacts food assimilation or absorption ^{b,c}	Acute disease/injury ^{d,f} or chronic disease-related ^{e,f}

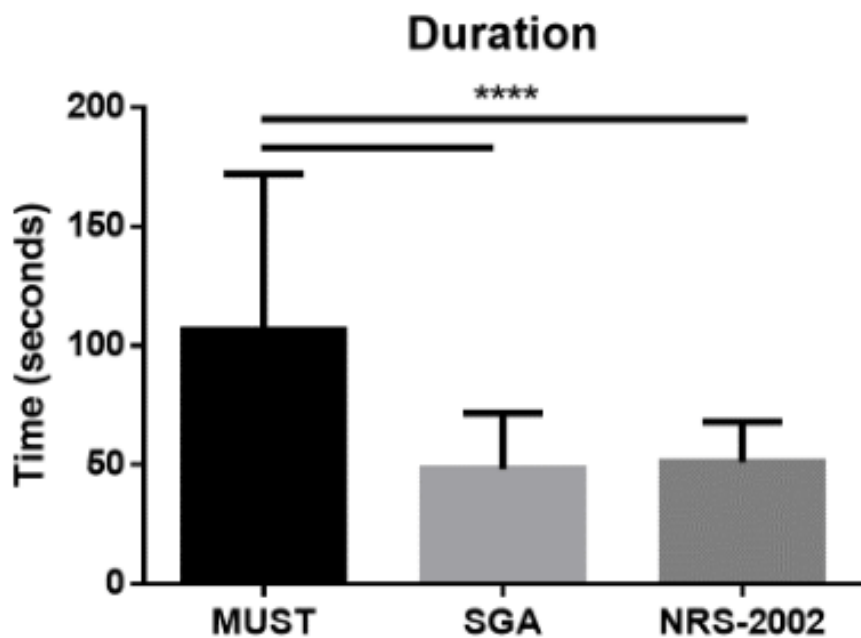
Thresholds for severity grading of malnutrition into Stage 1 (Moderate) and Stage 2 (Severe) malnutrition.

	Phenotypic Criteria ^a		
	Weight loss (%)	Low body mass index (kg/m ²) ^b	Reduced muscle mass ^c
Stage 1/Moderate Malnutrition (Requires 1 phenotypic criterion that meets this grade)	5–10% within the past 6 mo, or 10–20% beyond 6 mo	<20 if < 70 yr, <22 if ≥ 70 yr	Mild to moderate deficit (per validated assessment methods – see below)
Stage 2/Severe Malnutrition (Requires 1 phenotypic criterion that meets this grade)	>10% within the past 6 mo, or >20% beyond 6 mo	<18.5 if < 70 yr, <20 if ≥ 70 yr	Severe deficit (per validated assessment methods – see below)



Article
Comparison of Three Nutritional Screening Tools with the New Glim Criteria for Malnutrition and Association with Sarcopenia in Hospitalized Older Patients

Duration of the nutritional screening tools



MUST: Malnutrition Universal Screening Tool
SGA: Subjective Global Assessment (SGA)
NRS-2002: Nutritional Risk Screening 2002

Statistical comparison of nutritional diagnosis and screening tools values at hospital admission.

	MUST	SGA	NRS-2002
Sensitivity	64.3	95.7	47.2
Specificity	81.7	14.6	75.6
PPV	75	48.9	62.3
NPV	72.8	80.0	62.6
Accuracy	73.7	52.0	62.5
K	0.89	0.53	0.62

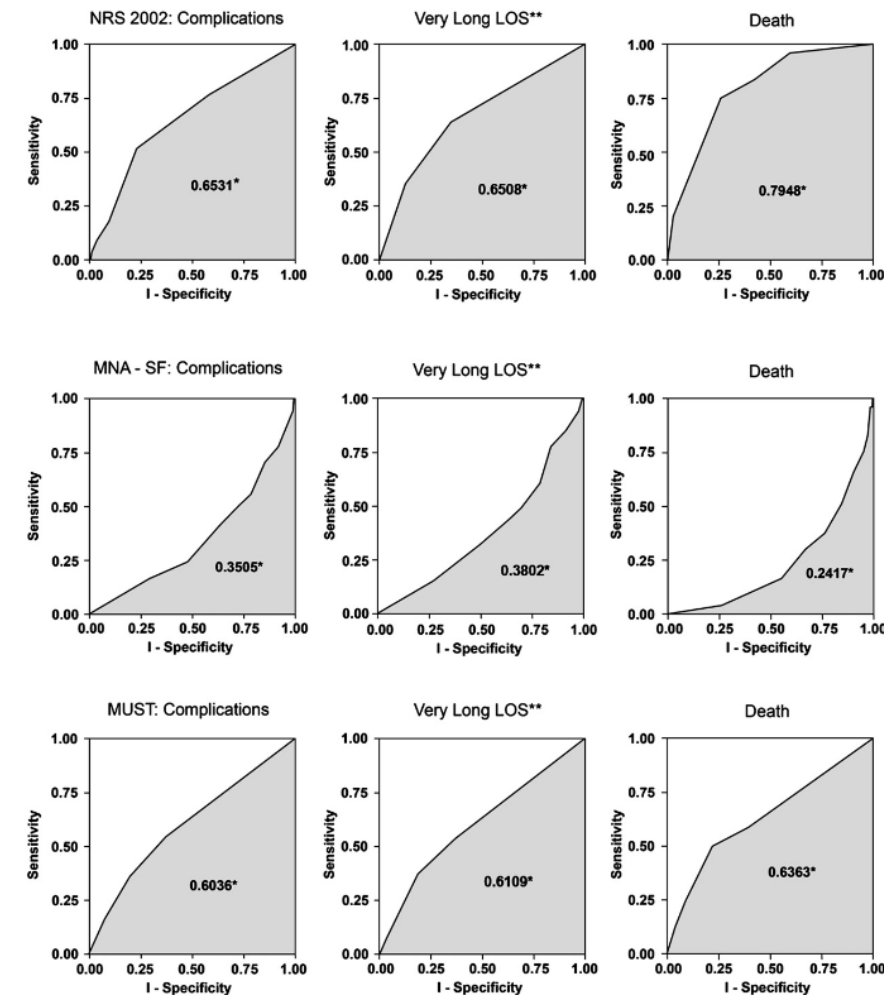


Comparison of nutritional risk screening tools for predicting clinical outcomes in hospitalized patients

Raslan M et al., Nutrition 2010

Clinical outcomes and area under ROC curve values of the three nutritional screening tools according to evaluated outcomes

Screening tool	Clinical outcome (area under ROC curve)		
	Complications	Very long LOS*	Death
NRS 2002	0.6531 ^{††}	0.6508 ^{††}	0.7948 ^{††}
MUST	0.6036 [§]	0.6109 [§]	0.6363 [§]
MNA-SF	0.3505	0.3802	0.2417





CONUT: A tool for Controlling Nutritional Status. First validation in a hospital population

Table I
Assessment of undernutrition degree by CONUT

Parameter	Undernutrition Degree			
	Normal	Light	Moderate	Severe
➡ Serum Albumin (g/dl)	3.5 - 4.5	3.0 - 3.49	2.5 - 2.9	< 2.5
Score	0	2	4	6
➡ Total Lymphocytes/ml	> 1600	1200-1599	800-1199	< 800
Score	0	1	2	3
➡ Cholesterol (mg/dl)	> 180	140-180	100-139	< 100
Score	0	1	2	3
Screening Total Score	0 - 1	2 - 4	5 - 8	9 - 12

Table III
Degrees of undernutrition as evaluated by CONUT, SGA and FNA

Undernutrition degree	Number of cases (Percentage)		
	CONUT	SGA	FNA
Normal	9 (17)	30 (56.6)	26 (49.1)
Light undernutrition	28 (52.8)	–	14 (26.4)
Moderate undernutrition	13 (24.5)	19 (35.5)	10 (18.9)
Severe undernutrition	3 (5.7)	4 (7.5)	3 (5.7)

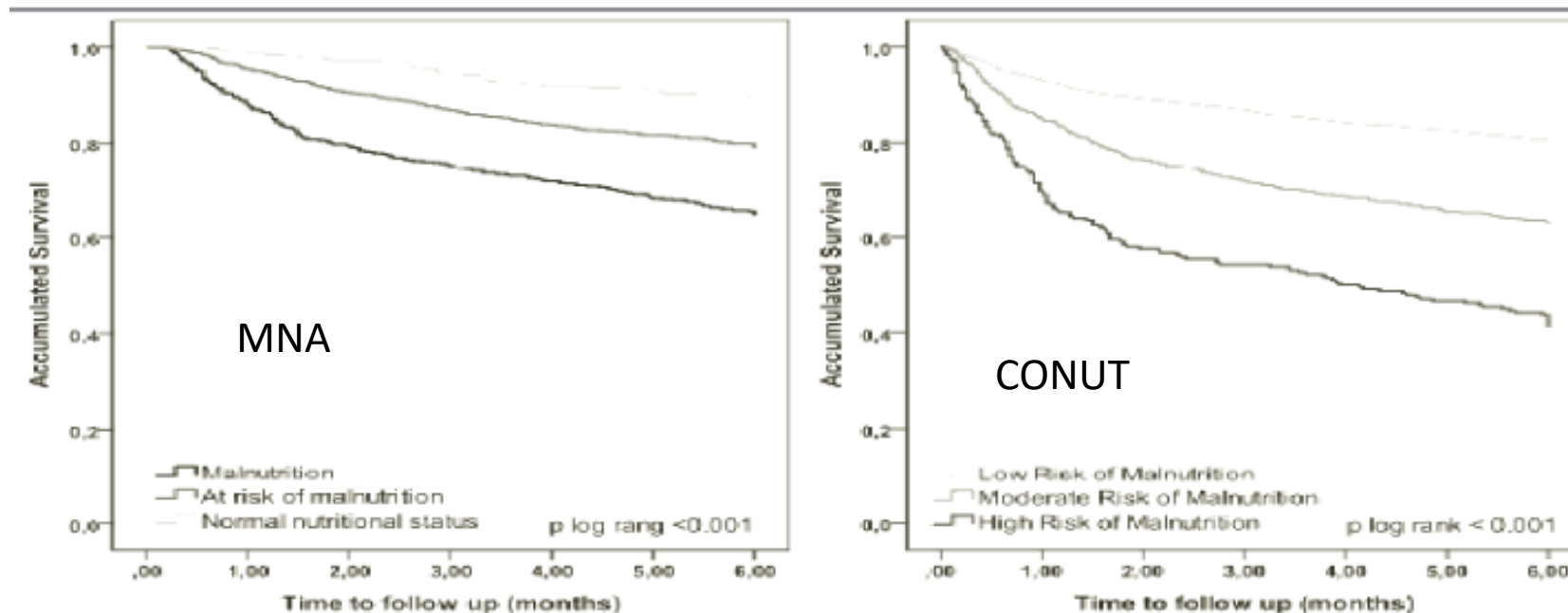
SGA: Subjective Global Assessment
FNA: Full Nutritional Assessment



Cabré M et al., J Nutr Health Aging 2015

EVALUATION OF CONUT FOR CLINICAL MALNUTRITION DETECTION AND SHORT-TERM PROGNOSTIC ASSESSMENT IN HOSPITALIZED ELDERLY PEOPLE

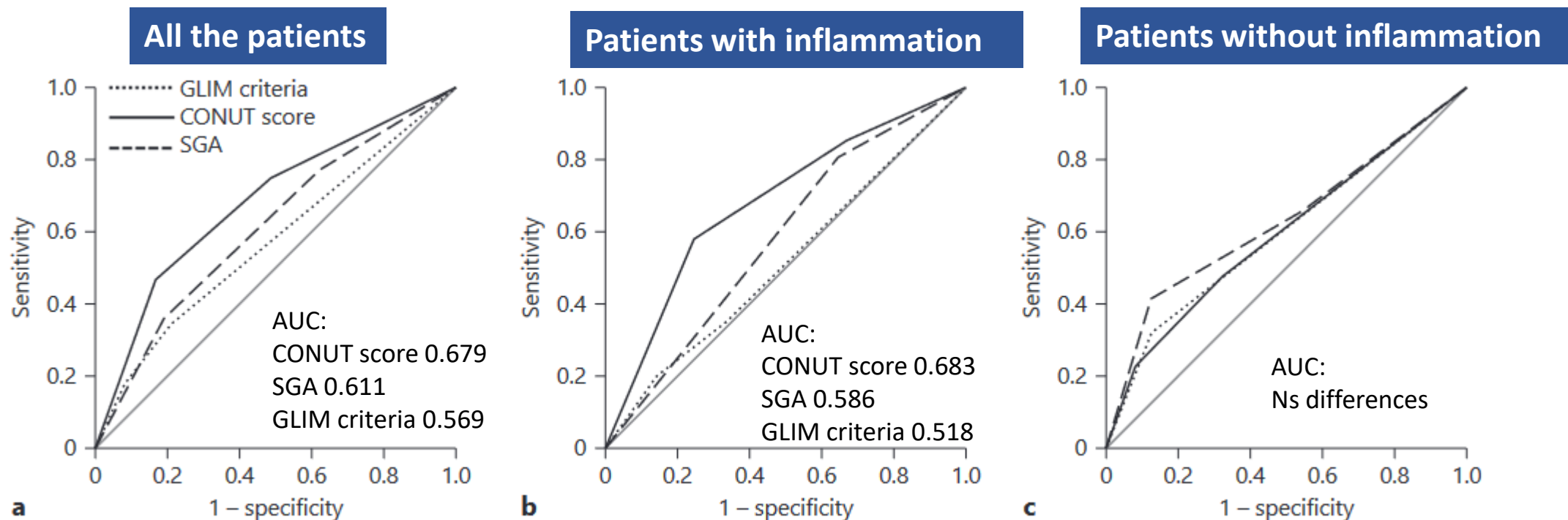
	Normal status, %	At risk, %	Malnourished, %
MNA	15.9	55.1	29
CONUT	59.3	33.4	7.3





The Combined Usage of the Global Leadership Initiative on Malnutrition Criteria and Controlling Nutrition Status Score in Acute Care Hospitals

Accuracy of the assessment of malnutrition severity against the clinical outcome





Article

Controlling Nutritional Status (CONUT) Score as a Potential Prognostic Indicator of In-Hospital Mortality, Sepsis and Length of Stay in an Internal Medicine Department

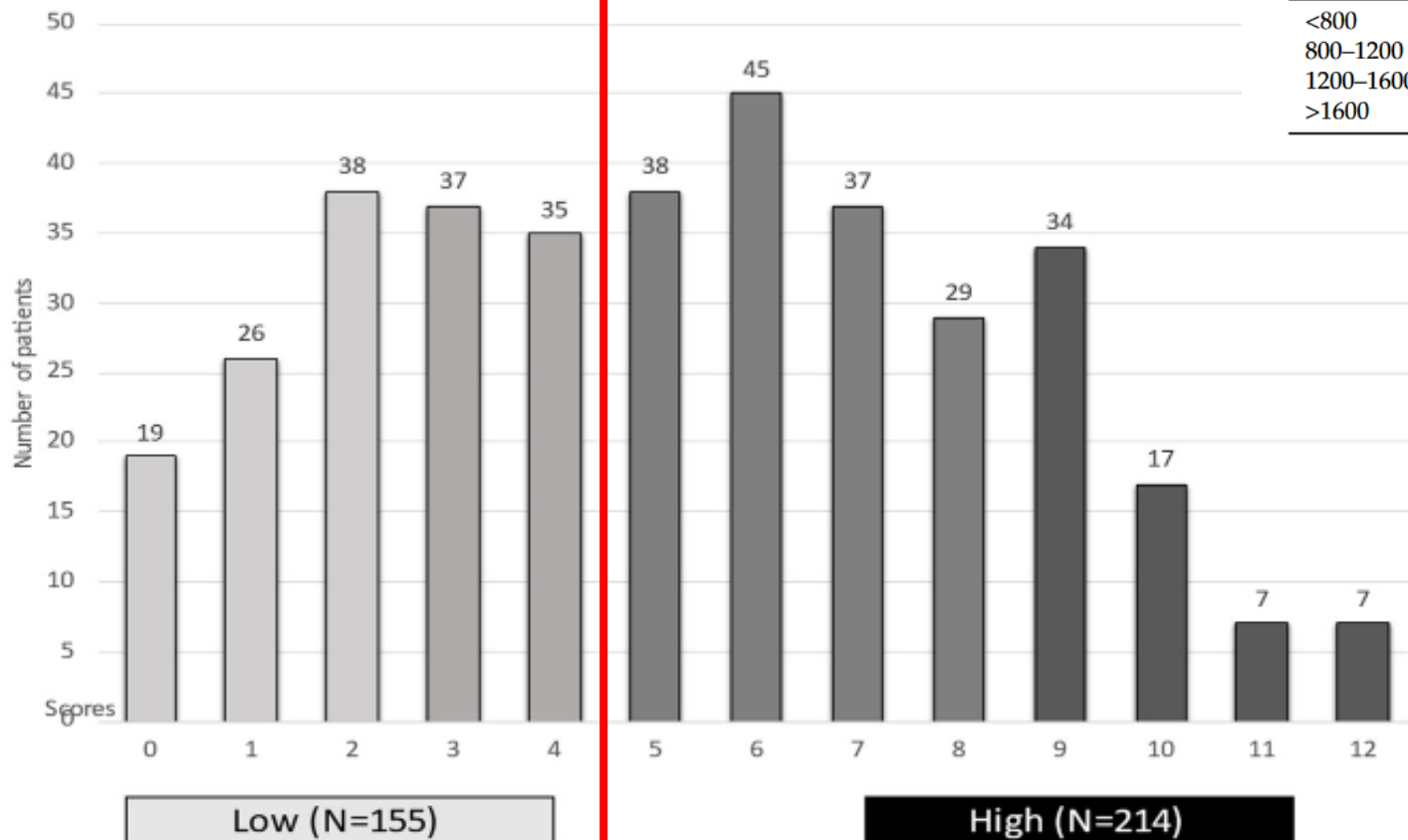


Table 1. Score categories for the CONUT score.

Lymphocyte (/mL)	Points	Total Cholesterol (mg/dL)	Points	Albumin (g/dL)	Points
<800	3	<100	3	<2.5	6
800–1200	2	100–140	2	2.5–3	4
1200–1600	1	140–180	1	3–3.5	2
>1600	0	>180	0	>3.5	0

58% of patients with poor nutritional status

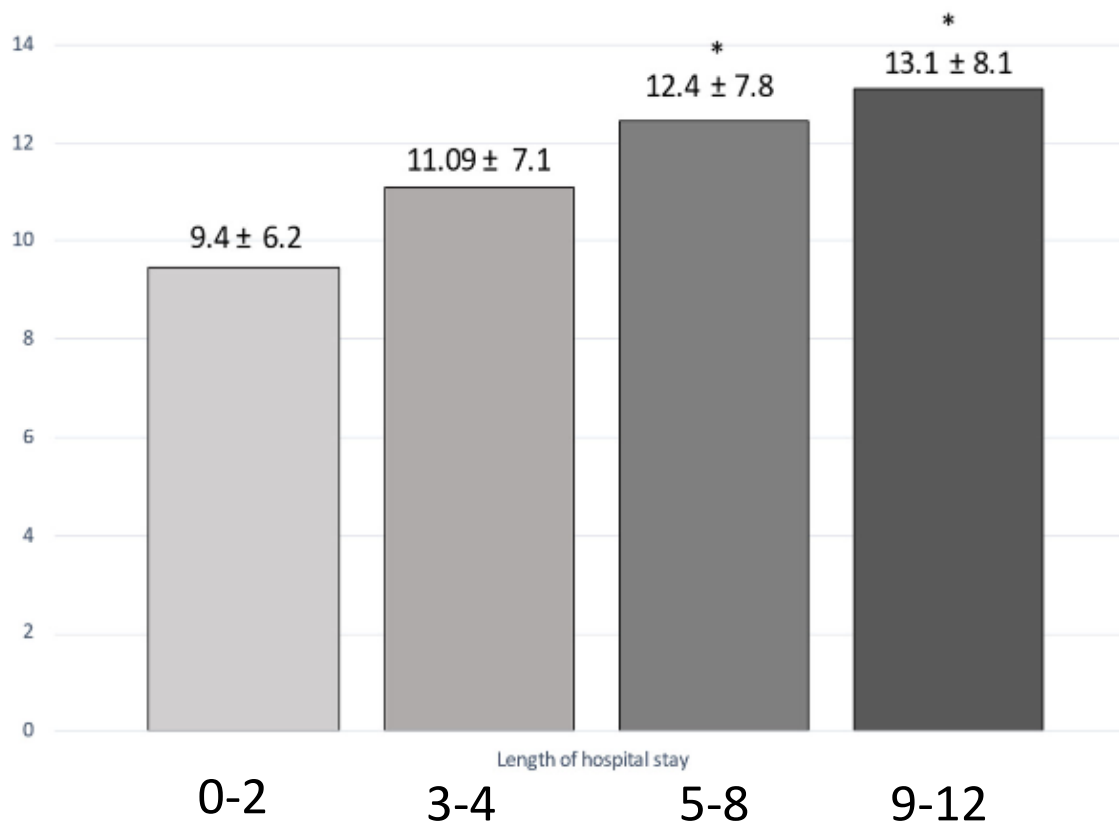


Article

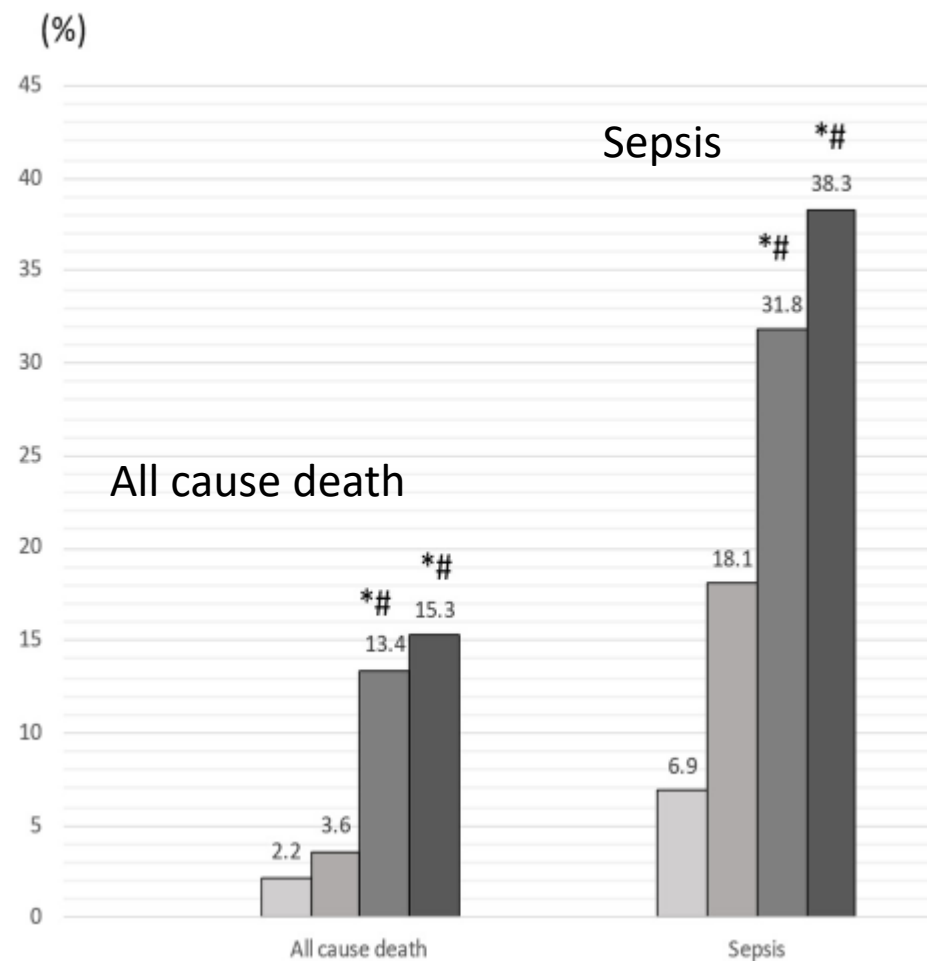
Controlling Nutritional Status (CONUT) Score as a Potential Prognostic Indicator of In-Hospital Mortality, Sepsis and Length of Stay in an Internal Medicine Department

Miano N et al., *Nutrients* 2023

Difference in the length of hospital stay among the four groups



Distribution of all-cause death and sepsis among the four groups according to the CONUT score





Controlling Nutritional Status Score as a Predictive Marker of In-hospital Mortality in Older Adult Patients

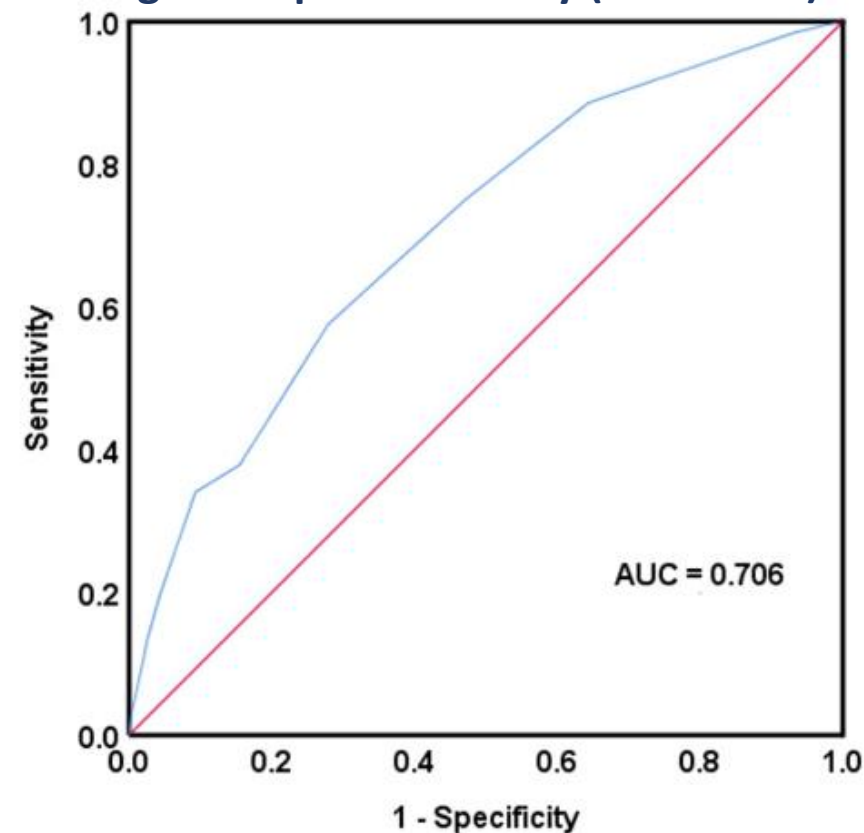
11,795 older adult patients retrospectively studied

TABLE 2 | Comparison of AUC of different nutrition-related tools in predicting in-hospital mortality.

	AUC	P value	95%CI
CONUT	0.706	<0.001	0.661–0.750
OPNI	0.694	<0.001	0.654–0.735
INA	0.653	<0.001	0.612–0.694
GNRI	0.653	<0.001	0.592–0.714
NRS-2002	0.649	<0.001	0.603–0.694

AUC, Area under the curve; CI, Confidence Interval; CONUT, Controlling Nutritional Status; OPNI, Onodera Prognostic Nutritional Index; INA, Instant Nutritional Assessment; GNRI, Geriatric Nutritional Risk Index; NRS-2002, Nutritional Risk Screening-2002.

Accuracy of the controlling nutritional status score in predicting in-hospital mortality (CONUT ≥6)



OR 3.242, 95%CI 2.148–4.892, P < 0.001



Article

Controlling Nutritional Status (CONUT) Score as a Predictive Marker in Hospitalized Frail Elderly Patients

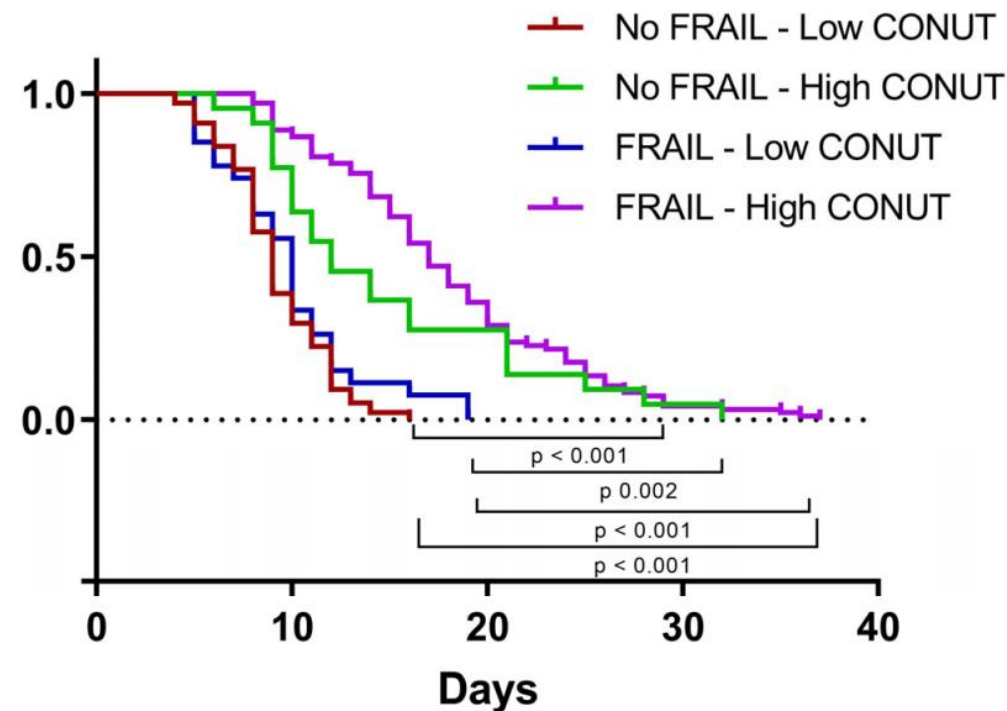
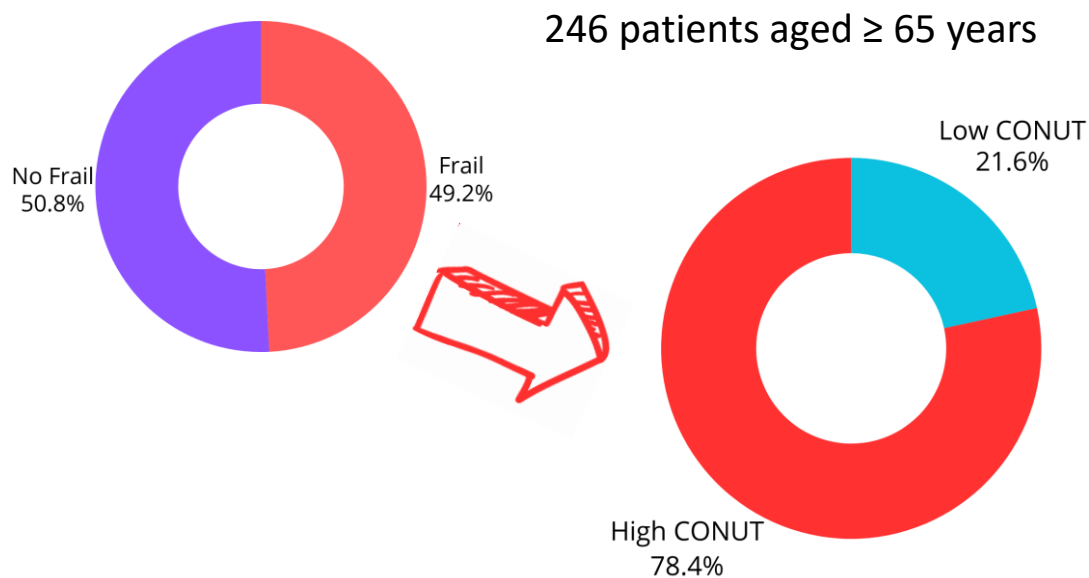


Table 8. Single and multiple linear regression of factors associated to length of stay in frail patients.

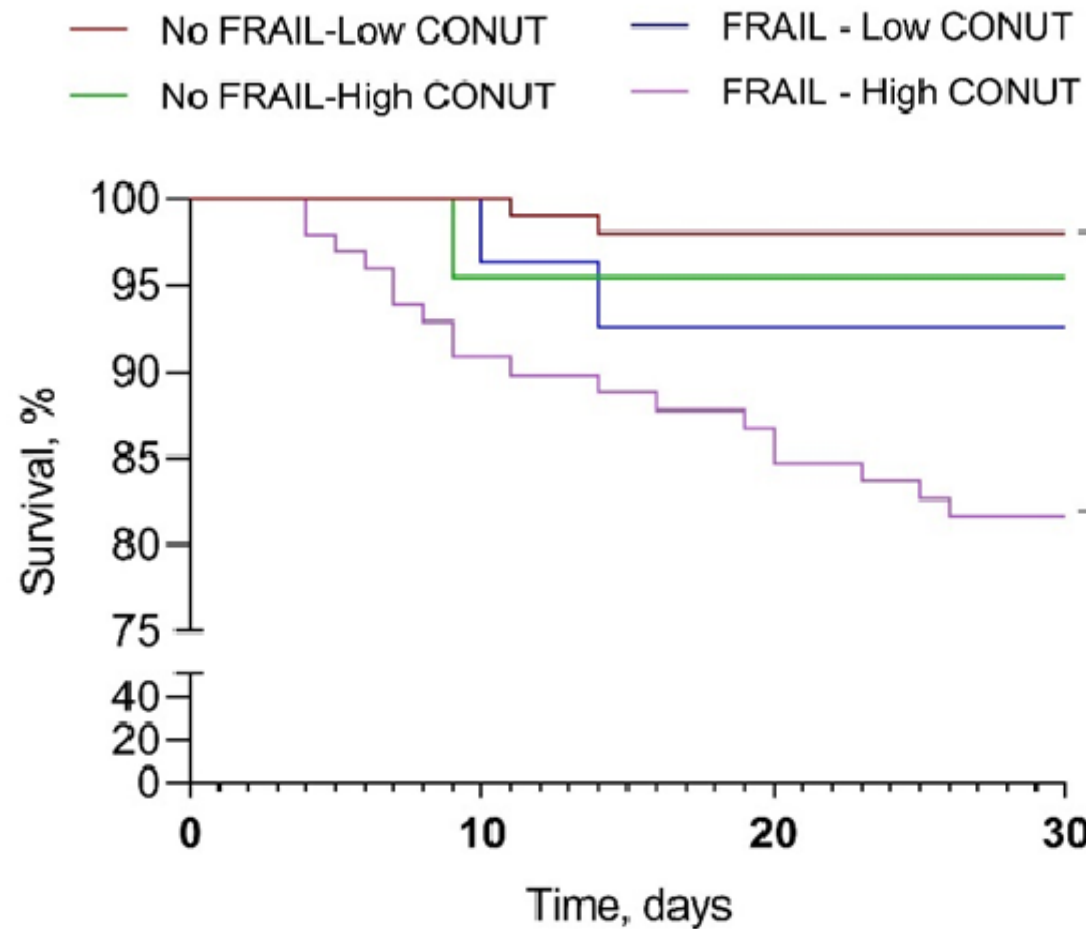
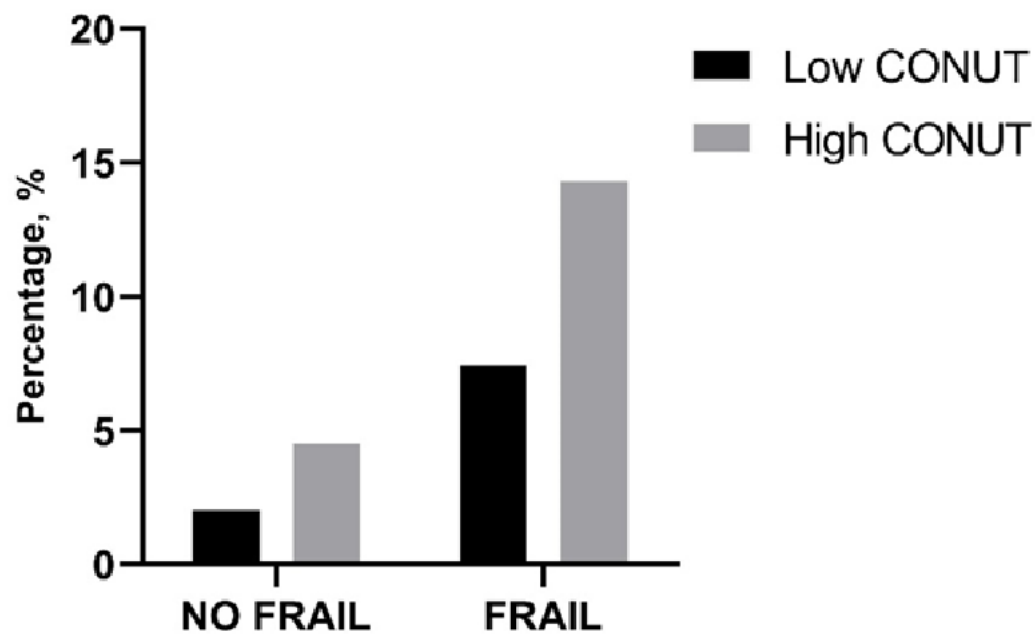
	Single Linear Regression Analysis			Multiple Linear Regression Analysis		
	Coefficients	<i>p</i> Value	IC 95% of Coefficient	Coefficients	<i>p</i> Value	IC 95% of Coefficient
MMSE, score	0.70	<0.001	0.50–0.81	0.11	0.175	–0.01–0.27
ADL, score	3.07	<0.001	2.40–3.64	0.09	0.794	–0.78–0.60
CONUT, score	2.38	<0.001	2.22–2.55	2.11	<0.001	1.78–2.40

Data are expressed as mean (\pm standard deviation), median [interquartile range] or *n* (percentage) as appropriate. Abbreviations: MMSE, mini mental state examination; ADL, activity of daily living;



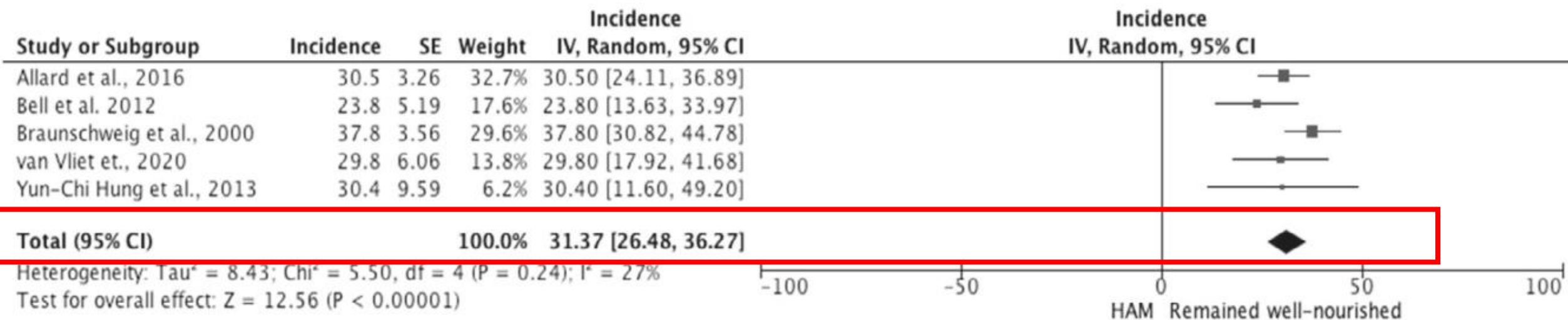
Article

Controlling Nutritional Status (CONUT) Score as a Predictive Marker in Hospitalized Frail Elderly Patients



Cumulative incidence proportion of HAM for prospective studies

Incidence proportion of HAM: 31.37% (95% CI = 26.48–36.27)



- **Timeframe:** Baseline assessment conducted 5 (±4 days) prior admission or up to 72 h of admission, and follow up assessment conducted at discharge.
- **Nutrition assessment tools** or criteria included are: the Subjective Global Assessment; the Patient Generated Subjective Global Assessment; and the 2012 malnutrition diagnostic criteria by the Academy of Nutrition and Dietetics and the American Association of Enteral and Parenteral Nutrition



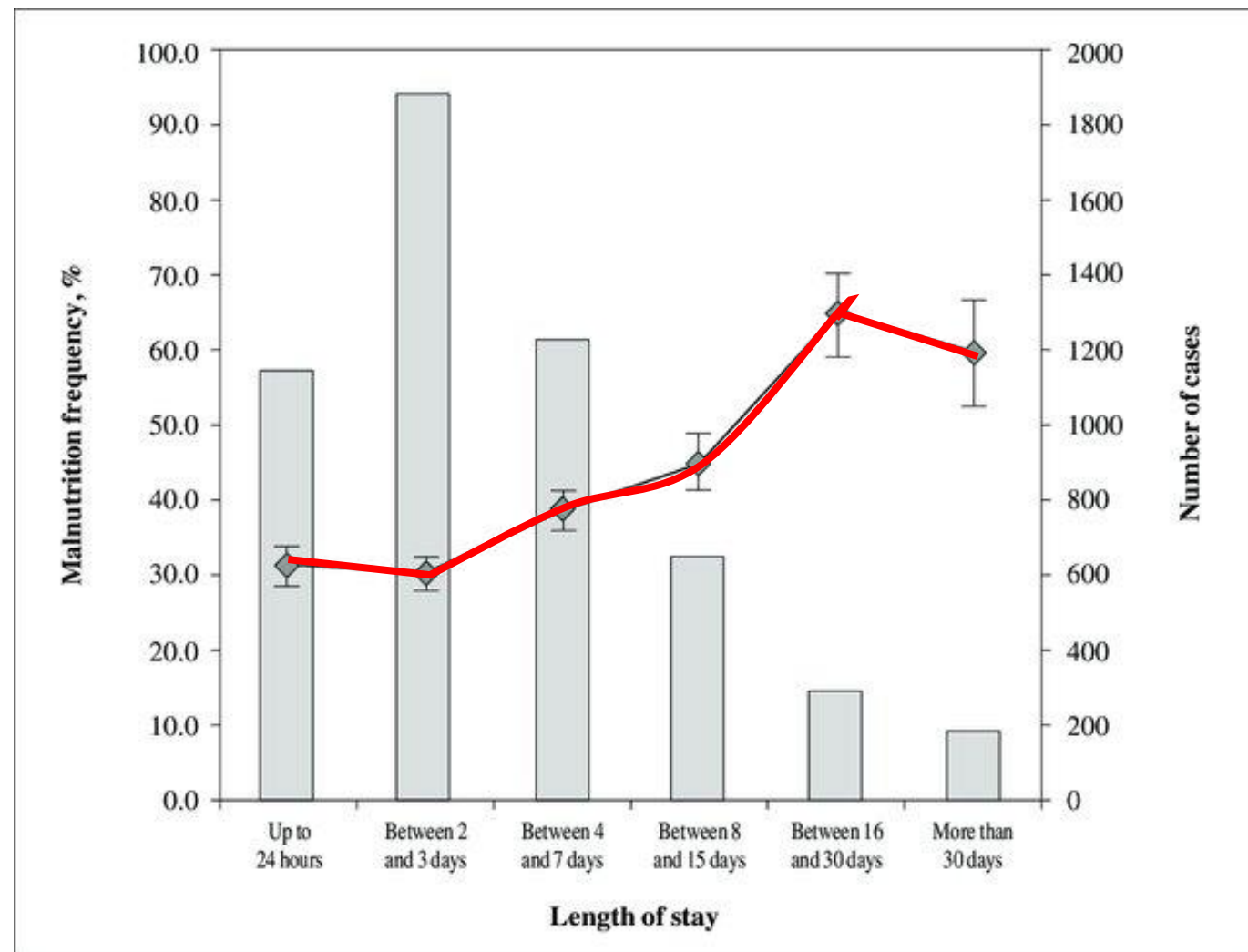
REVIEW ARTICLE **OPEN**

Incidence and criteria used in the diagnosis of hospital-acquired malnutrition in adults: a systematic review and pooled incidence analysis

Liliana Botero¹, Adrienne M. Young^{2,3}, Merrillyn D. Banks² and Judy Bauer^{1,2,4}

35,324 participants from acute (9 studies) and subacute settings (3 studies)

The overall incidence of HAM ranged between 0.15–38%





Key messages

La malnutrizione presenta un'elevata prevalenza tra i pazienti anziani ospedalizzati

I test di screening presentano tra loro una variabilità nella capacità di identificare l'alterato stato nutrizionale

Alcuni test di screening della malnutrizione mostrano potenziali capacità predittive di importanti outcomes clinici

Lo screening della malnutrizione andrebbe effettuato all'ingresso e durante la degenza soprattutto nei pazienti anziani a rischio

Particolare attenzione va posta al rischio di malnutrizione sviluppata durante l'ospedalizzazione