Frailty Phenotype and Mini Nutritional Assessment in elderly cancer patients: is it the same thing?

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INTRODUCTION

Frailty is a syndrome of decreased reserves and resistance to stress, causing vulnerability to adverse events (Fried *et al.*, 2001). One of the factors that may be related to frailty is impaired nutritional status, which is often observed in elderly cancer patients.

MNA-SF — Physical Function Markers — Low Cost/Easy Application — Standardization — Frailty Phenotype
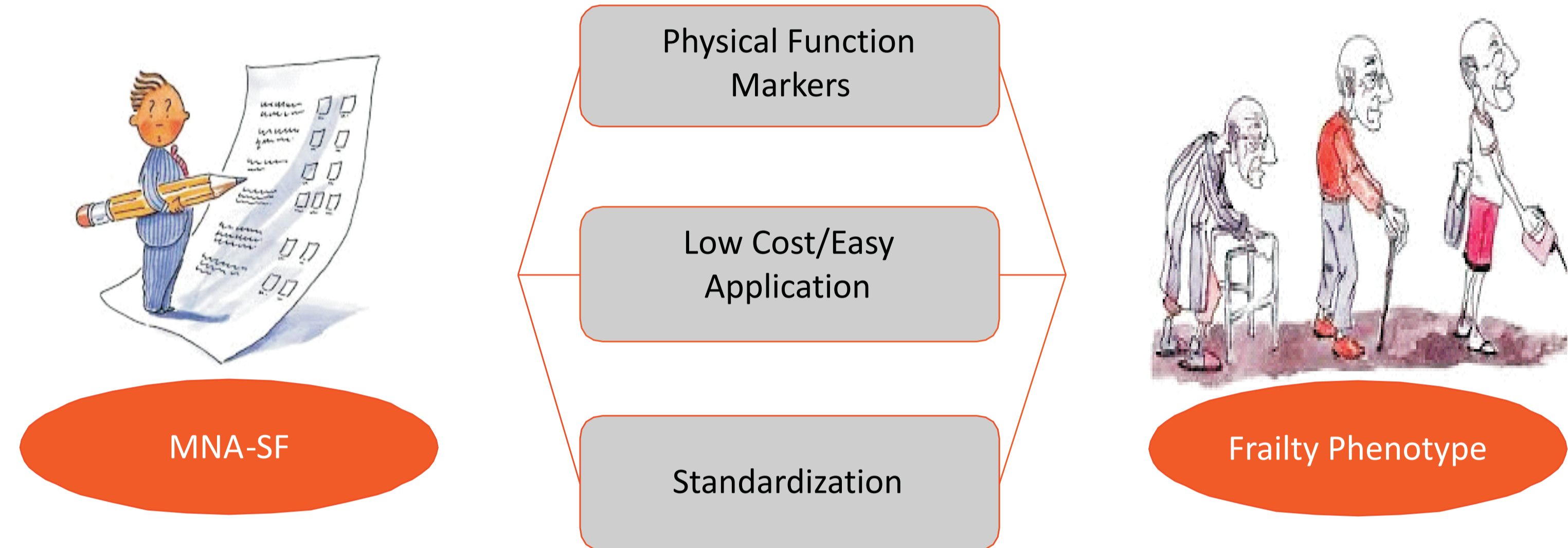
The objective of the study was to evaluate the prevalence of Frailty Phenotype (FP) and Mini Nutrition Assessment – Short Form (MNA-SF) in elderly people with cancer, and to investigate the association of both tools.

METHOD

Frailty Phenotype (FRIED *et al.*, 2001):
- Robust = 0
- Prefrail = 1 or 2
- Frail = 3
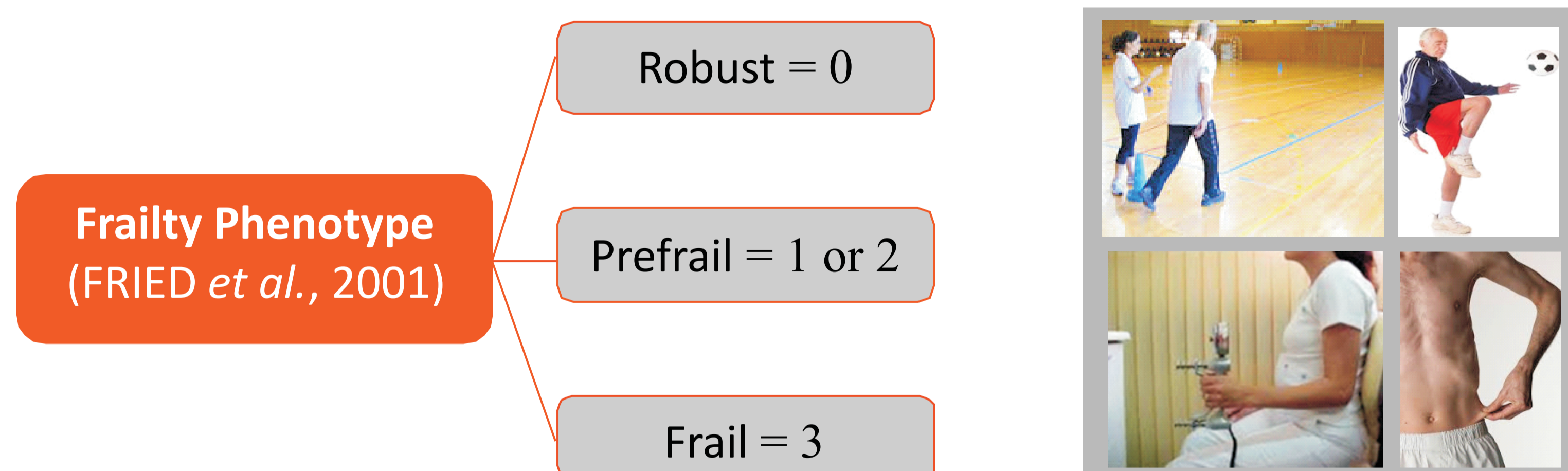
- Non-intentional Weight Loss (WL)
- Weakness/Hand Grip Strength Reduction (HGS)
- Sowness/Walking Velocity Reduction (WV)
- Low Physical Activity (PA) - IPAQ
- Fatigue Reported

RESULTS

We studied 200 patients with mean age of 72.5 years (±5.3). Tumors of the digestive system were the most frequent, followed by respiratory system, oral cavity and pharynx. Most of the participants were diagnosed at the initial stage of cancer. There was a higher frequency of elderly patients during treatment. The majority of patients were classified as risk of undernutrition or undernutrition. Prevalence of prefrail was 57.5% and frail patients was 18.5%. About the components of the FP, it can be observed that the most frequent was weight loss. The FP score had a negative association with MNA-SF (r=-0.419, P<0.001), and this tool was not accurate enough to identify frailty elderly (ROC=0.657, P=0.003).

REFERENCES

Dent E, Visvanathan R, Piantadosi C et al. (2012) Use of the Mini Nutritional Assessment to Detect Frailty in Hospitalised Older People. *J Nutr Health Aging* **16**, Suppl. 9, 764-767.

Fried LP, Tangen CM, Walston J et al. (2001) Cardiovascular Health Study Collaborative Research Group. Frailty in older adults: evidence for a phenotype. *J Gerontol A Biol Sci Med Sci* **56**, Suppl. 3, 146-156.

Kaiser MJ, Bauer JM, Ramsch C et al. (2009) Validation of the Mini Nutritional Assessment Short-Form (MNA®-SF): A Practical Tool For Identification of Nutritional Status. *J Nutr Health Aging* **13**, Suppl. 9, 782-788.

Martucci RB, Barbosa MV, D'Almeida CA et al. (2017) Undernutrition as independent predictor of early mortality in elderly cancer patients. *Nutrition* **34**, 65–70.

Matsudo S, Araújo T, Matsudo V et al. (2001) Questionário Internacional de Atividade Física (IPAQ): estudo de validade e reprodutibilidade no Brasil. *Rev Bras de Ativ Fís Saúde* **6**, Suppl. 2, 5-12.

Nunes DP, Duarte YAO, Santos JLF et al. (2015) Screening for frailty in older adults using a self-reported instrument. *Rev Saude Publica* **49**, Suppl. 2, S9.

Table 1. Demographic and Clinical Characteristics of Elderly Patients with Cancer (n=200).

VARIABLES		n (%)	VARIABLES		n (%)
General Data			**Disease Information**		
Age, years - Mean (SD)		72.5 (5.3)	Tumor Sites	Digestive System	127 (63.5)
Sex	Male	107 (53.5)		Respiratory System	22 (11.0)
	Female	93 (46.5)		Oral Cavity and Pharynx	15 (7.5)
Smoking	Yes	117 (58.5)		Male Urogenital System	11 (5.5)
	No	83 (41.5)		Hematologic	11 (5.5)
Alcoholism	Yes	17 (8.5)		Skin and Melanoma	5 (2.5)
	No	99 (49.5)		Urinary System	5 (2.5)
	Ex	84 (42.0)		Others*	4 (2.0)
Comorbidities	Yes	149 (74.5)	Cancer Stage (n = 196)	Initial**	105 (53.6)
	No	51 (25.5)		Advanced***	91 (46.4)
Family History of Cancer	Yes	100 (50.0)	Presence of Metastasis	Yes	40 (20.0)
	No	100 (50.0)		No	160 (80.0)
			Time of Cancer Treatment	Pretreatment	27 (13.5)
				Ongoing Treatment	92 (46.0)
				Post treatment	81 (40.5)

SD, standard deviation. *Thyroid and female gynecological tumor; **Stages I e II; ***Stages III e IV.

Fig. 2. Frailty Assessment vs. Mini Nutritional Assessment-Short Form (MNA-SF) in Patients Elderly with Cancer (n=200) (x^2=p<.001).

Fig. 3. Receiver Operator Curves (ROC) to identify the association between Frailty Phenotype and Mini Nutritional Assessment-Short Form in Elderly Patients with Cancer (n=200). Area under the curve (AUC)=0.657 (p=0.003).
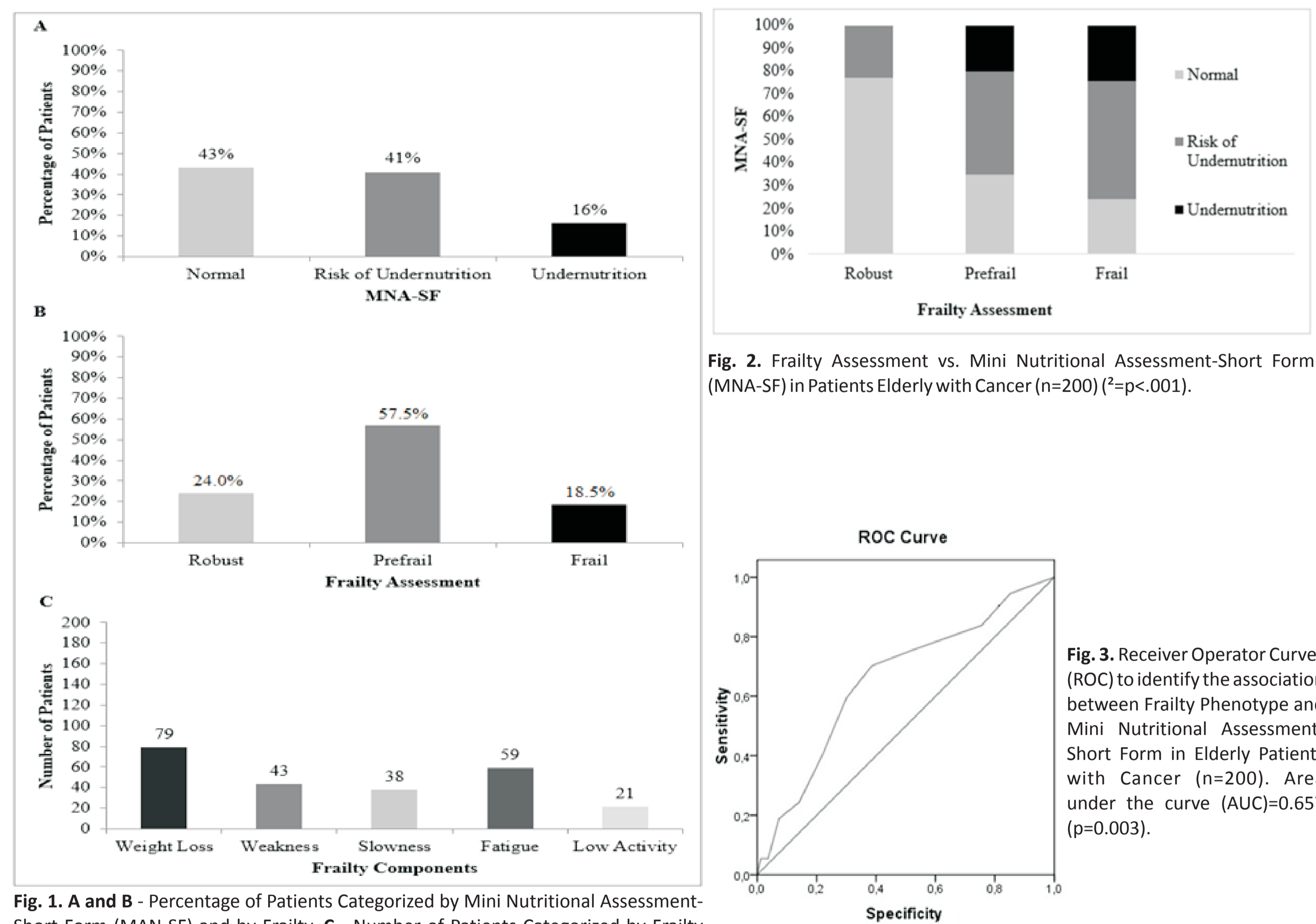
Fig. 1. A and B - Percentage of Patients Categorized by Mini Nutritional Assessment-Short Form (MAN-SF) and by Frailty. **C** - Number of Patients Categorized by Frailty Components (n=200).

CONCLUSION

The findings are clinically important and are based on the proposal of the incorporation of MNA-SF and FP into the practice of care for elderly cancer patients, since these tools provide information that can be used in the selection of treatment and in the adaptation of therapeutic interventions to groups with impaired nutritional status or some degree of frailty. It is concluded that MNA-SF does not substitute the FP and the application of both tools may contribute to the development of individualized and more effective therapeutic plans. It is suggested that new studies with elderly cancer patients on the subject in question be performed.

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