

# Quality of life and intrinsic capacity in patients with post-acute COVID-19 syndrome is in relation to frailty and resilience phenotypes

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## Background

The objective of this study was to characterize frailty and resilience in people evaluated for Post-Acute COVID-19 Syndrome (PACS), in relation to quality of life (QoL) and Intrinsic Capacity (IC).

## Methods

This cross-sectional, observational, study included consecutive people previously hospitalized for severe COVID-19 pneumonia attending Modena (Italy) PACS Clinic from July 2020 to April 2021. PACS diagnosis was defined when at least one of the following cluster symptoms were present: neurocognitive (brain fog, dizziness, loss of attention, confusion), respiratory (general fatigue, dyspnea, cough, throat pain), musculoskeletal (myalgias, arthralgias), psychological (post-traumatic stress disorder, anxiety, depression, insomnia), metabolic (non-alcoholic fatty liver disease – NAFLD assessed with transient elastography using a CAP cutoff >248 dB/m), sensory (ageusia, anosmia, hearing loss). Frailty and resilience were defined according to frailty phenotype and Connor Davidson resilience scale (CD-RISC-25) respectively. Four frailty-resilience phenotypes were built: “fit/resilient”, “fit/non-resilient”, “frail/resilient” and “frail/non-resilient”. Study outcomes were: QoL assessed by means of Symptoms Short form health survey (SF-36) and health-related quality of life (EQ-5D-5L) and IC by means of a dedicated questionnaire. Their predictors including frailty-resilience phenotypes were explored in logistic regressions.

## Results

- 232 patients were evaluated, median age was 58.0 years.
- PACS was diagnosed in 173 (74.6%) patients.
- Impaired resilience was documented in 114 (49.1%) individuals.
- Table 1 shows demographic, anthropometric and clinical characteristics, comorbidities and patient-reported outcomes according to four frailty-resilience phenotypes.

	Fit & resilient N=95 (41%)	Fit & non resilient N=65 (28.0%)	Frail & resilient N=23 (9.9%)	Frail & non resilient N=49 (21.1%)	P
<b>Demographic, anthropometric and clinical characteristics at MPC visit</b>					
Age, years, median (Q1-Q3)	60.0 (51.0 - 66.5)	58.0 (49.0 - 66.0)	54.0 (51.5 - 67.0)	58.0 (53.0 - 68.0)	0.80
Male sex, N (%)	66 (69.5%)	39 (60.0%)	11 (47.8%)	25 (51.0%)	0.09
Body mass index, kg/m <sup>2</sup> , median (IQR)	29.1 (25.9 - 32.0)	28.0 (25.8 - 31.0)	30.43 (27.1 - 34.6)	30.7 (25.5 - 33.9)	0.14
Physical activity, N (%)					
Low physical activity	52 (54.7%)	37 (56.9%)	21 (91.3%)	46 (93.9%)	<0.001
Moderate physical activity	39 (41.1%)	26 (40.0%)	2 (8.7%)	3 (6.1%)	
Intense physical activity	4 (4.2%)	2 (3.1%)	0 (0.0%)	0 (0.0%)	
<b>PACS clusters</b>					
Respiratory cluster, N (%)	36 (37.9%)	35 (53.9%)	18 (78.3%)	39 (79.6%)	<0.001
Neurocognitive cluster, N (%)	19 (20.0%)	24 (36.9%)	12 (52.2%)	27 (55.1%)	<0.001
Musculoskeletal cluster, N (%)	18 (19.0%)	14 (21.5%)	12 (52.2%)	23 (46.9%)	<0.001
Psychological cluster, N (%)	22 (23.2%)	19 (29.2%)	11 (47.8%)	27 (55.1%)	<0.001
Sensory cluster, N (%)	14 (14.7%)	15 (23.1%)	6 (26.1%)	14 (28.6%)	0.22
Dermatologic cluster, N (%)	10 (10.5%)	13 (20.0%)	6 (26.1%)	13 (26.5%)	0.07
NAFLD cluster, N (%)	31 (32.6%)	29 (44.6%)	12 (52.2%)	21 (42.9%)	0.42
PACS syndrome, N (%)	59 (62.1%)	48 (73.9%)	22 (95.7%)	44 (89.8%)	<0.001
<b>Geriatric syndromes</b>					
Falls in the last year, N (%)	11 (11.6%)	3 (4.6%)	8 (34.8%)	13 (26.5%)	<0.001
Polypharmacy, N (%)	12 (12.6%)	16 (24.6%)	12 (52.2%)	17 (34.7%)	<0.001

Table 1

### Funding

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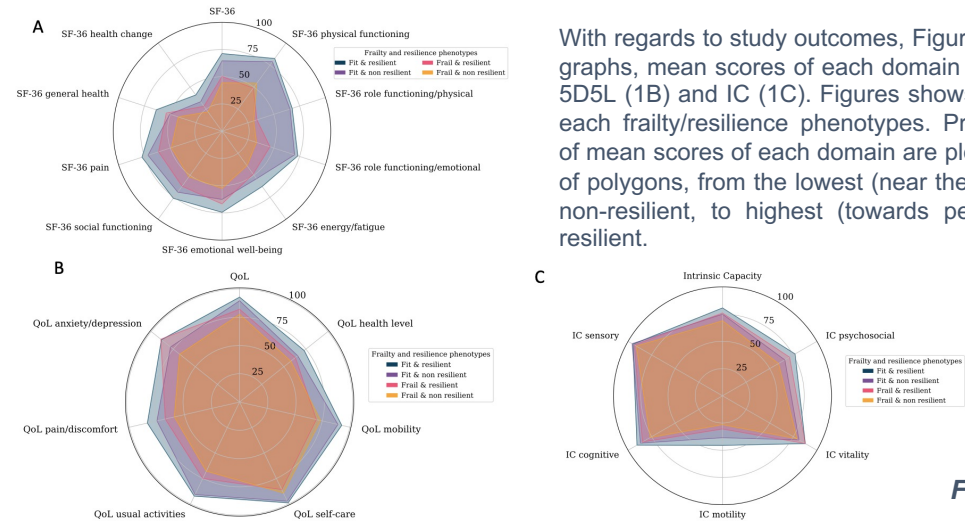
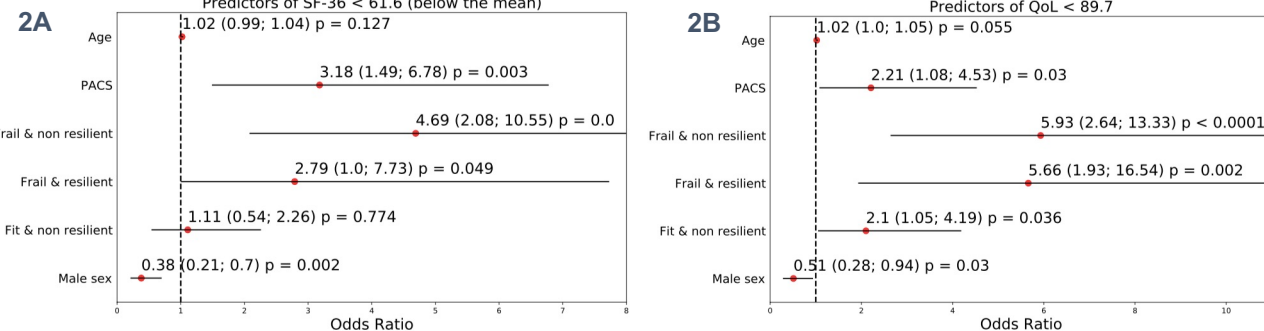


Figure 1

Multivariate logistic analyses were used to identify predictors of the total scores of SF-36 (Figure 2A) and EQ-5D5L (Figure 2B). Predictors of impaired IC were “frail/non-resilient” (OR=7.39, 95% CI, 3.20; 17.07, p<0.001), and “fit/non-resilient” (OR=4.34, 95% CI, 2.16; 8.71, p<0.001) phenotypes. Male sex was negatively associated with impaired IC (OR=0.41, 95% CI, 0.22; 0.75, p=0.004) (Figure not shown).



## Conclusions

- Resilience is complementary to frailty in the identification of clinical phenotypes with different impact on wellness and QoL.
- Frailty and resilience should be evaluated in people with PACS in order to identify vulnerable individuals to prioritize urgent health interventions.

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