


LETTER



Socioeconomic status features of ICU patients: the PRECAREA pilot study

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Dear Editor,

Socioeconomic inequalities are increasingly recognized as an important public health issue. Patients with low socioeconomic status (SES) experience reduced access to primary care and a higher incidence of chronic diseases such as cardiovascular diseases, cancer, and chronic kidney disease. Data focusing on intensive care unit (ICU) patients is scarce. Studies addressing the impact of area-level SES on mortality report conflicting results [1, 2], and patient-level studies show that low SES is associated with higher severity of disease, mortality and ICU length of stay [3, 4]. There is no consensus on SES definition, as it includes social, economic, educational and cultural dimensions. We aimed to explore the epidemiology of SES in ICU patients from a 400-bed general hospital located in a high-poverty-rate territory, and the impact of low SES features on ICU mortality. The city of Saint-Denis has a poverty rate of 39% [defined as the percentage of the population living below the 60th percentile of the country's median income (www.insee.fr)], as compared to the national rate of 14.7%.

We prospectively recorded SES of all consecutive patients admitted to our ICU from March to June 2017, using six features: health insurance coverage, financial resources, housing, social environment, language skill and educational level. We defined SES features as low

when: (1) social environment: no next of kin; (2) language skill: unable to express oneself in French; (3) education level: lower secondary education or below; (4) housing: homeless or living in hotel/hostel; (5) financial resources: none or minimum welfare; (6) health insurance: none (ESM 1). Data are presented as number and percentage or median and quartiles. Association between low SES features and ICU mortality was tested using Cox proportional hazard models. This preliminary study is a part of the PRECAREA study (ClinicalTrials.gov, NCT03607019), which received approval from an independent review board. Patients provided informed consent. Some of the results of this study have been previously reported in the form of an abstract [5].

We included 234 patients during the study period [age 56.5 (34.5–69.7) years, 132 (56.4%) men] with a simplified acute physiology score 2 (SAPS2) of 39 (22–51). Invasive mechanical ventilation was required for 73 (31.2%) patients and vasopressors in 49 (20.9%) patients. ICU length of stay and mortality were 4 (2–7) days and 20 (8.5%), respectively. Patients lived 3 (0–4.7) km away from the hospital, suggesting a local recruitment. Distribution of SES features is reported in Fig. 1a. We observed a higher diagnostic rate of chronic medical condition during ICU stay in patients with a low social environment and in patients without health insurance (ESM

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a

Health insurance

- None
- Free state medical aid
- Basic health insurance
- Supplemental health insurance

Housing

- Living on the street
- Hostel / Hotel
- Housing by relatives
- Personal housing

Language skill

- Poor comprehension and expression
- Basic comprehension / Poor expression
- Basic comprehension and expression
- Fluent / Correct language skill

Financial resources

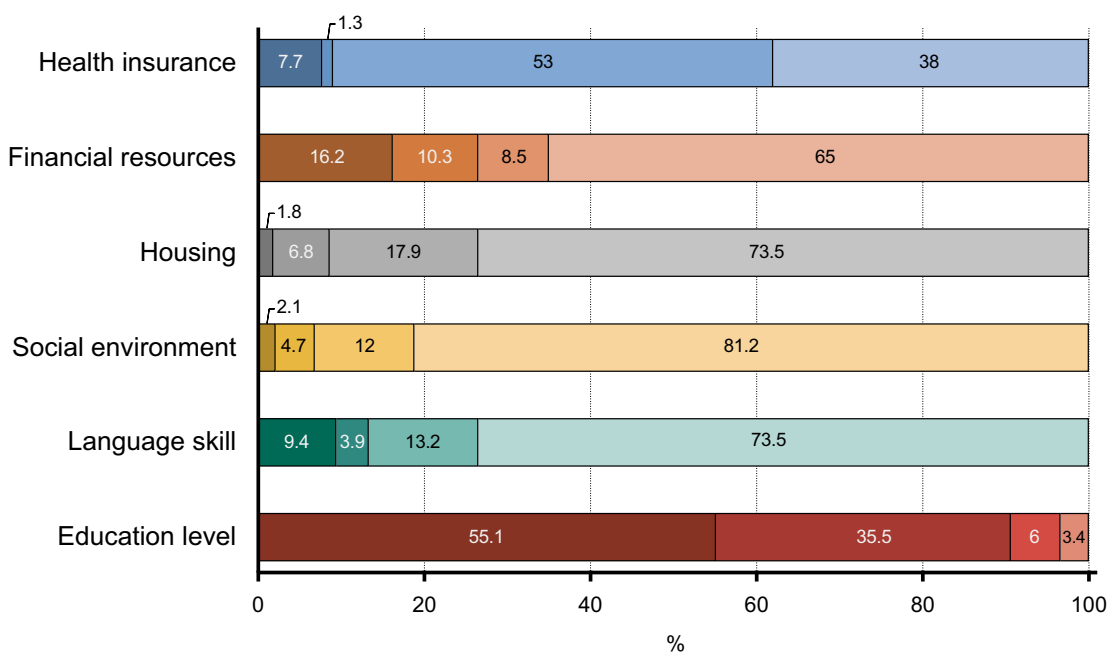
- None
- Minimum welfare
- Pension
- Income from employment

Education level

- Lower secondary or below
- Upper secondary
- Short cycle tertiary
- Bachelor's or above

Social environment

- Total social isolation
- Social worker / charitable association
- Friends
- Next-of-kin



b

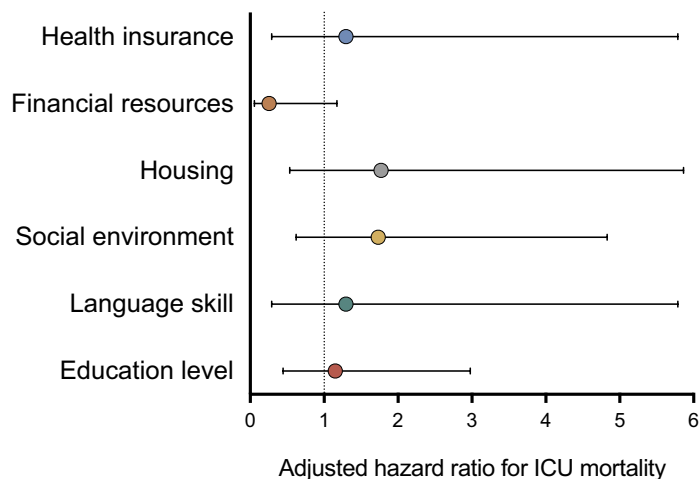


Fig. 1 Socioeconomic status of study population ($n = 234$) presented by social, economic or educational features. **a** Distribution of socioeconomic status features. **b** Cox multivariate analysis of the association between a low SES feature and ICU mortality. Low socioeconomic status features are defined as (1) social environment: no family or next of kin; (2) language skill: unable to express oneself in French; (3) education level: lower secondary education or below; (4) housing: homeless or living in hotel/hostel; (5) financial resources: none or minimum welfare; (6) health insurance: none. Each hazard ratio is issued from a separate model where the effect of the SES feature is adjusted on SAPS 2, sex and body mass index

3). With the limitations of a small patient sample and a single-centre design, we did not find a significant association between a low SES feature and ICU mortality in multivariate analysis (Fig. 1b, ESM 4). An ongoing prospective multicentre cohort study in ICUs of the Paris area will address the prevalence and relative impact of the aforementioned SES features on ICU outcomes.

Electronic supplementary material

The online version of this article (<https://doi.org/10.1007/s00134-018-5380-9>) contains supplementary material, which is available to authorized users.

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Compliance with ethical standards

Conflicts of interest

The authors declare no competing interests.

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