

Social vulnerability and severity of COVID-19 clinical presentations in hospital admitted patients in Havana, Cuba.

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Objective: To explore the association between social vulnerability and severity of clinical presentation in COVID-19 patients admitted to a tertiary hospital.

Methods

Study Site

A tertiary 140 beds hospital (IPK) in Havana, Cuba. All direct medical costs are assumed by the government financed health care system.

Study design and sample

A cross sectional mixed methods study. We interviewed a sample of 70 randomly selected patients admitted between April-August 2021 with COVID-19 disease. They provided informed consent.

Conceptual framework

We relied on the Assets, Vulnerability, Structure of Opportunities framework (AVEO as original Spanish acronym). Vulnerability results from the interplay between Assets and the ability to use them within the Structure of Opportunities. Assets (physical assets, human assets and social assets) are the resources that can be mobilized in search of improvements or to avoid losses in well-being. Structure of Opportunities is the mode of social reproduction (market, society and the state) that permits to mobilize and/or provides assets in adequate quantities to that end –or does not do so.

Data collection and analysis

Clinical and laboratory information was extracted from the clinical records. Severity of disease was classified according to WHO criteria. Patients were interviewed as soon as their condition permitted, using a questionnaire with 38 closed and open-ended questions with 2 main sections: AVEO dimensions (human capital, socioeconomic status, social capital), and self-perception of vulnerability and social (dis)advantage in general.

Data analysis

To analyze the quantitative data we used routine descriptive and inferential statistics. The qualitative data was analyzed by auto codification (deductive categories) and reclassification (inductive categories). Multivariable analysis was conducted to identify vulnerability clusters amongst patients (fig 1).

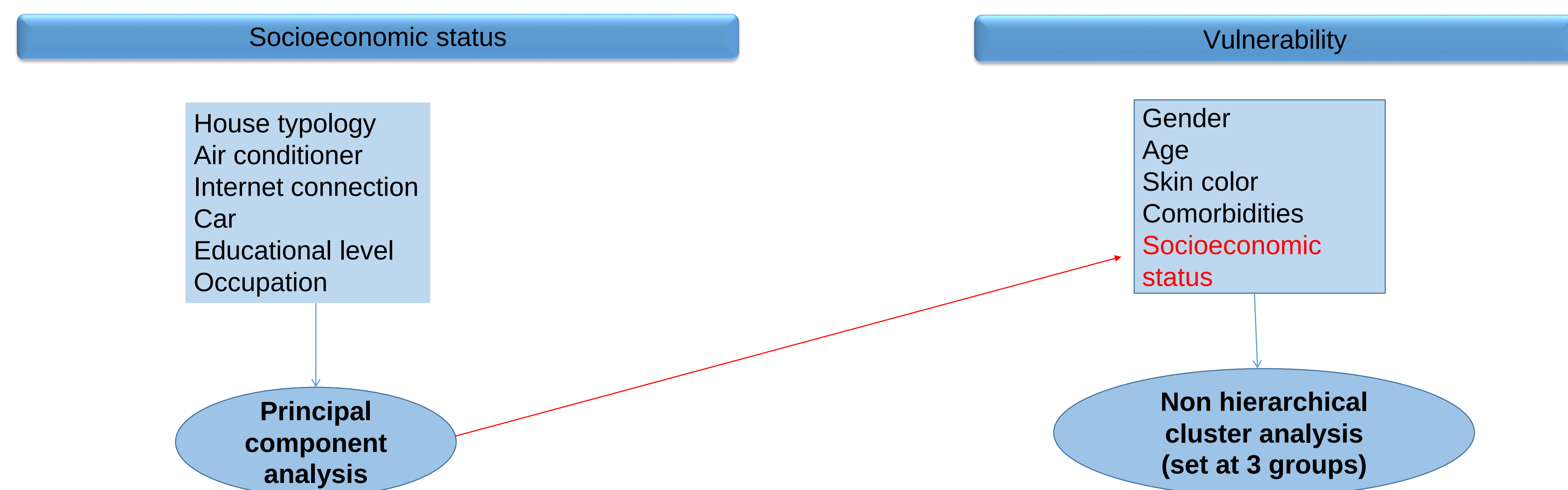


Fig. 1 Elements and analysis path to identify vulnerability clusters amongst patients

Results

Table 1 shows the characteristics of the 70 patients. PCA derived socio-economic status was low, average and high in 3%, 48%, and 49% of them, respectively. All patients reported having various types of social capital (individual, family, institutional, community and public).

Table 1. Characteristics of the COVID-19 patients.

Variable (N= 70)	Frequency n (%)
Gender	
Female	30 (43)
Male	40 (57)
Age	
19-59	50 (71)
60 y +	20 (29)
Skin color	
White	62 (89)
Mestizo	5 (7)
Black	3 (4)
Comorbidities	
Yes	43 (61)
No	27 (39)
Educational level finished	
Middle school	5 (7)
Technical school	12 (17)
High school	19 (27)
University	34 (49)
Occupation	
Worker	6 (8)
Technician	11 (16)
Professional	32 (46)
Self-employed	9 (13)
Others	12 (17)

Overall, access to hospital was mediated by their ability to manage their networks, primarily at family and institutional levels. Self-perception of being socially advantaged or disadvantaged in one or more particular domains reached 64% and 24% respectively (Table 2).

Table 2. Self-perception of COVID-19 patients of being socially advantaged or disadvantaged in one or more particular domains.

		Advantaged				Total
		Yes	No	NR	DNK	
Disadvantaged	Yes	14	2	0	0	16
	No	28	22	0	1	51
	NR	0	0	2	0	2
	DNK	1	0	0	0	1
	Total	43	24	2	1	70

NR=no response; DNK=don't know

Self-perception of vulnerability changed from 61% before to 86% after COVID-19 disease diagnose (Table 3).

Table 3. Self-perception of social vulnerability before and after COVID-19 diagnosis.

		Before		Total
		Yes	No	
	After	41	19	60
	Yes	2	8	10
	No	43	27	70
	Total			

Mcneemar Test p=0.00

Three social vulnerability clusters were identified (Table 4). A week relation was found between vulnerability groups and the clinical presentation of the disease (Table 5).

Table 4. Estimated social vulnerability clusters* of COVID-19 patients.

Variable	Group 1	Group 2	Group 3
Comorbidities	No	No	Si
Age range	21-38	42-61	62-83
Skin color	Mestizo	White	White
Gender	Male	Female	Male
Socioeconomic status	Average	High	Average

*Non hierarchical cluster analysis

Table 5. Severity of clinical presentation of COVID-19 disease according to social vulnerability cluster of the patients.

Cluster N=69	Clinical presentation n(%)			Total n(%)
	Mild	Moderate	Severe	
Group 1	7 (77,8)	1 (11,1)	1 (11,1)	9 (100,0)
Group 2	20 (47,6)	10 (23,8)	12 (28,6)	42 (100,0)
Group 3	8 (44,4)	4 (22,2)	6 (33,3)	18 (100,0)

Chi square= 3,32; d.f. 4; p=0.52

Conclusion: The relation found between vulnerability and the severity of the clinical presentation was rather ambiguous. In general, patients in this study did not present typical pronounced profiles of social vulnerability. Further studies should be conducted in hospitals admitting a more heterogeneous population.