

# FUNCTIONAL AND PSYCHOSOCIAL OUTCOMES ON PATIENTS WITH MODERATE-TO-SEVERE COVID-19 DISEASES: A POST-HOSPITALIZATION FOLLOW-UP STUDY



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## PURPOSE

COVID-19 survivors suffer from variable limitations affecting their daily activities and quality of life. Patients with pre-existing co-morbidities suffered deconditioning after hospitalization for moderate-to-severe diseases.

We examined the functional and psychosocial outcomes among COVID-19 patients with moderate-to-severe diseases admitted to Kepala Batas Hospital during the Delta wave, at three months after discharge from our hospital.

## METHODS & MATERIALS

This retrospective cohort study included 510 COVID-19 patients admitted to Kepala Batas Hospital with moderate-to-severe diseases, requiring oxygen therapy during hospitalization (Malaysia COVID-19 severity category  $\geq 4$ ; WHO scale  $\geq 5$ ), between January 1<sup>st</sup> and August 31<sup>st</sup> 2021. An additional 369 patients were uncontactable for follow-up and excluded from this study. Our hospital was the designated COVID-19 hospital covering over 1 million populations in mainland of Penang state, and borders of Kedah and Perak states.

We followed up with the COVID-19 survivors via telephone surveillances by 90 days post-discharge from our hospital, assessing their performance for activities of daily living, employment status and psychosocial implications. Relevant clinical data were extracted from COVID-19 database and individual medical records. We also compared patients who required low ( $<10\text{L}/\text{min}$ ) versus high ( $\geq 10\text{L}/\text{min}$ , including mechanical ventilation) oxygen requirements throughout their hospitalization, on the patient-reported outcome variables.

We obtained ethics approval from Medical Research and Ethics Committee, Ministry of Health (NMRR ID-22-00396-VNS (IIR)). We performed the data analysis using SPSS version 23.0.

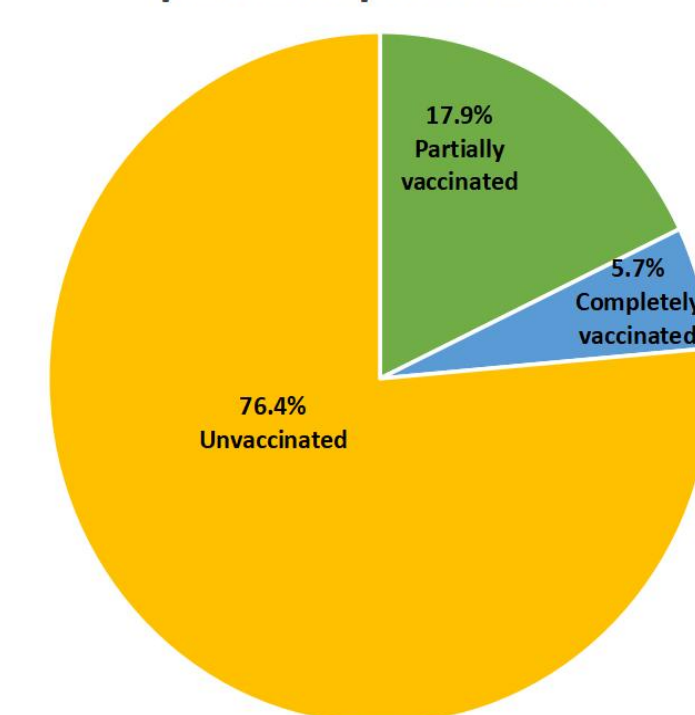
## RESULTS

Among 510 patients, 441 (86.5%) survived at 90 days post-hospitalization, with a relatively young population (Table 1). Majority were unvaccinated (Figure 1). Most survivors had low dose oxygen therapy (Figure 2).

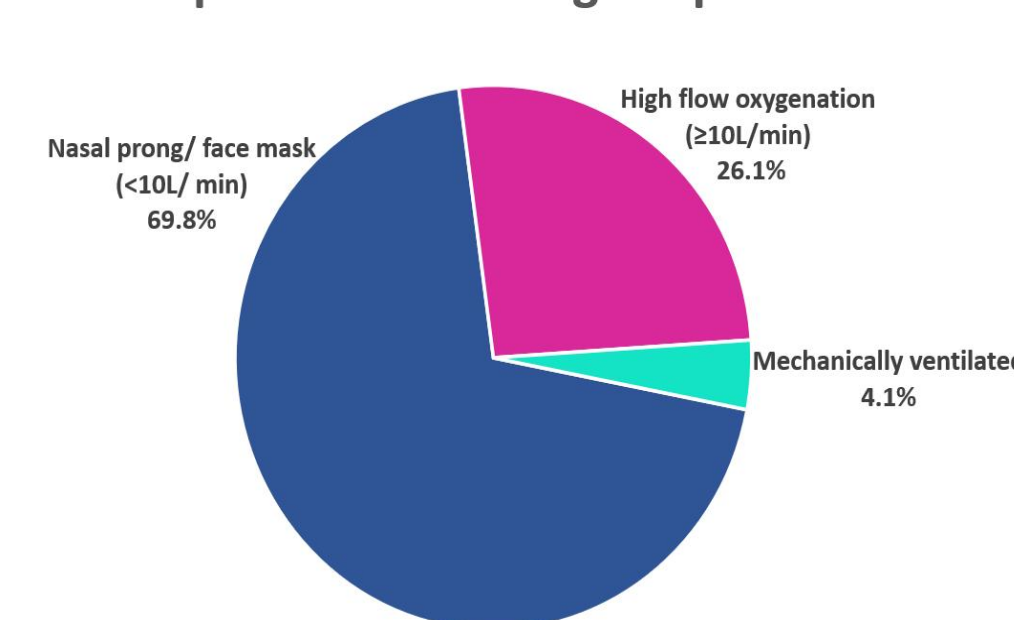
**Table 1: Demographics of COVID-19 Survivors at 90-day post-hospitalization**

Demographics	mean (SD)
Age, years	50.2 (13.73)
Status	n (%)
Survivor	441 (86.5)
Death	69 (13.5)
Gender	
Male	223 (50.6)
Female	218 (49.4)
Ethnicity	
Chinese	106 (24.0)
Malay	268 (60.8)
Indian	48 (10.9)
Non-citizen	19 (4.3)

**Figure 1: Patients' vaccination status prior hospitalization**



**Figure 2: Patients' highest oxygen requirements during hospitalization**

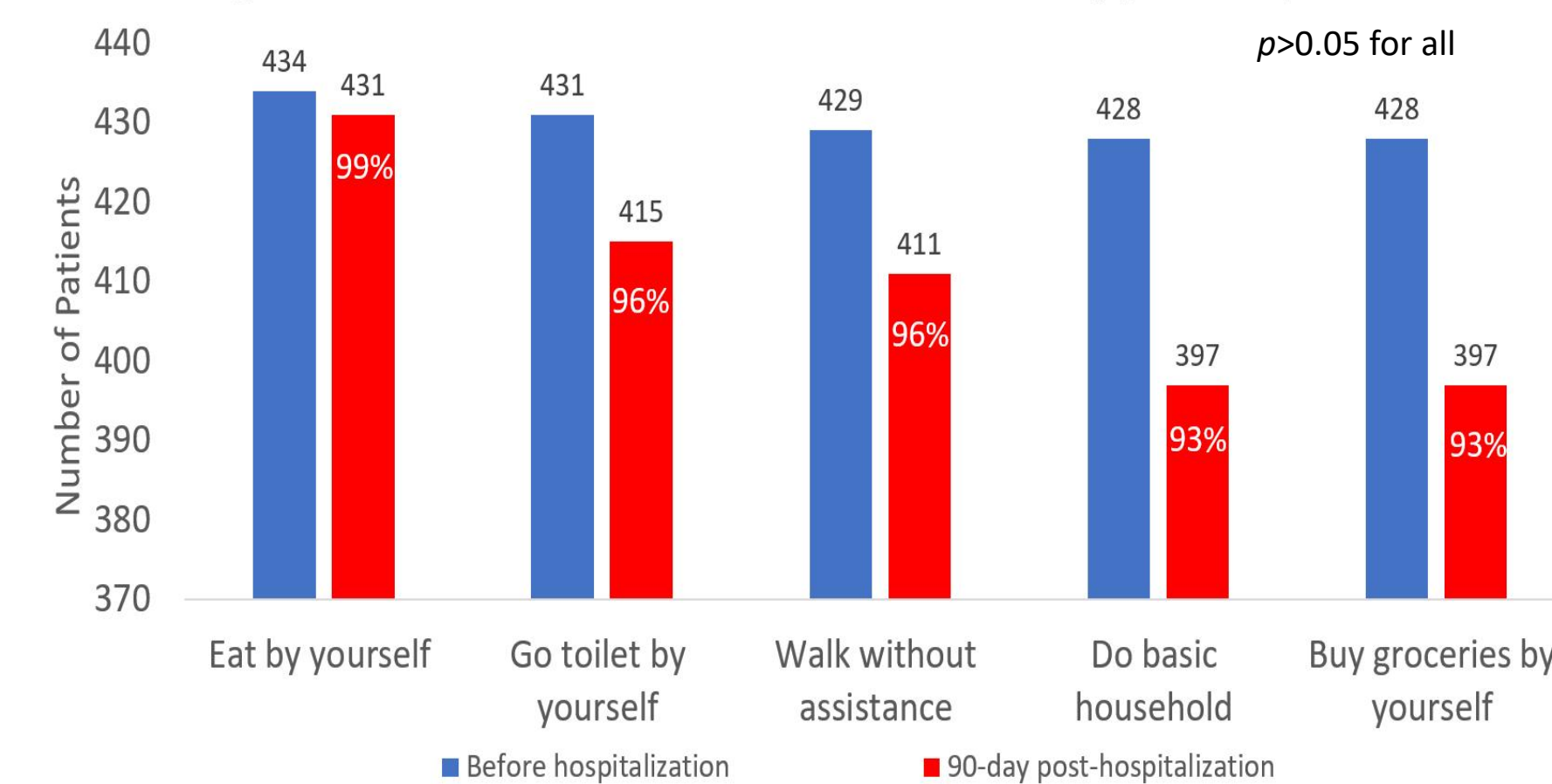


## Functional Status

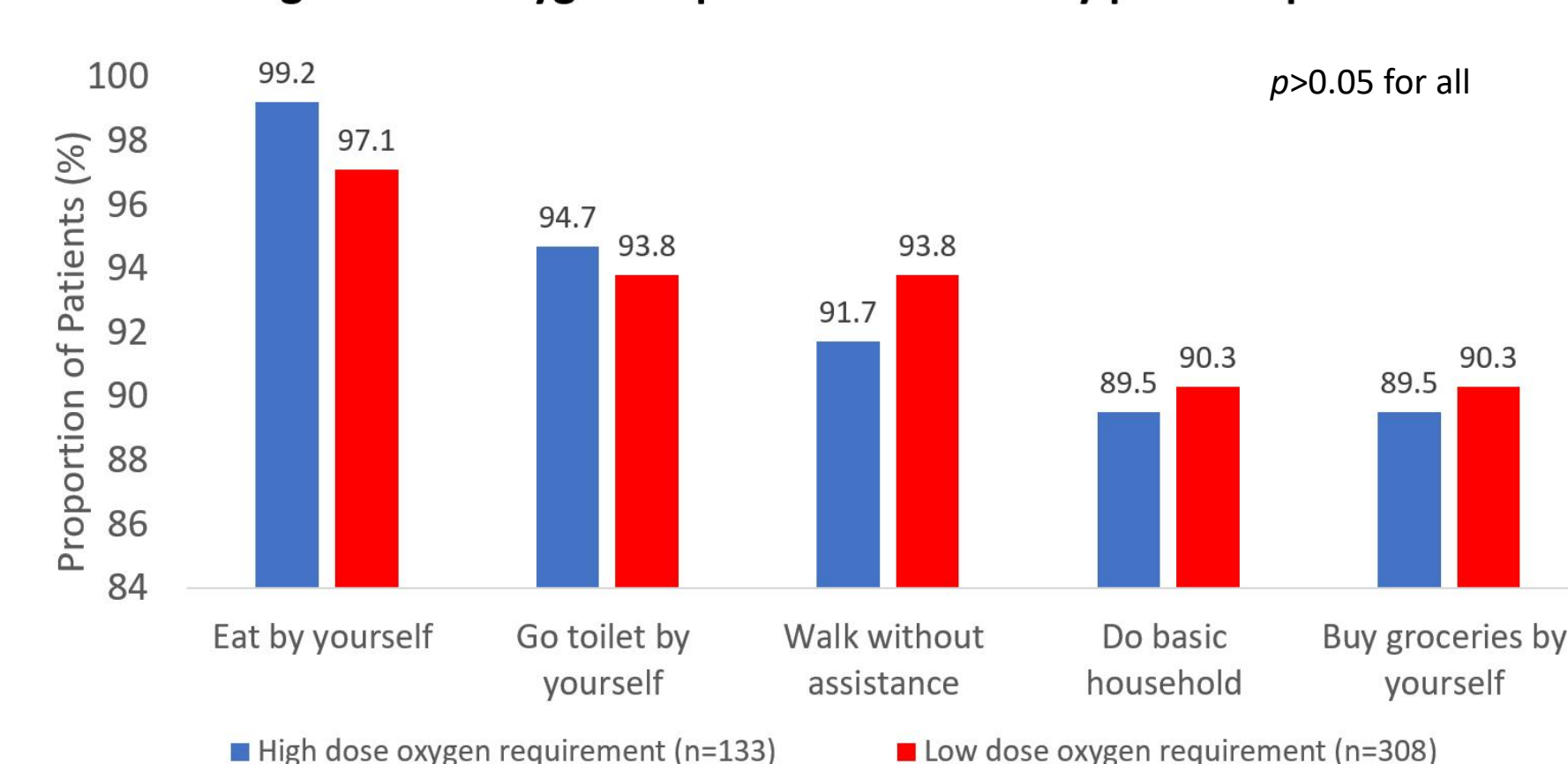
More than 90% had their functionality returned to baseline before hospitalization (Figures 3 and 4). About 20 (4.5%) became fully dependent on caretakers compared to being independent prior to hospital admission.

Only 7 (1.6%) patients still required home oxygen supplementation by 3-month of follow-up.

**Figure 3: Functional status at baseline and 90-day post-hospitalization**



**Figure 4: Functional status between COVID-19 patients with high vs low oxygen requirement at 90-day post-hospitalization**



Among 254 patients returning to work, 98% worked in the same institution but 18.9% required job scope adjustments (Table 2).

**Table 2: Employment status and work adjustment of COVID-19 patients (high vs low oxygen requirement) at 90-days post discharge from hospital**

Status	Overall	High dose O <sub>2</sub>	Low dose O <sub>2</sub>	p-value
n	441	133	308	
Currently employed	254 (57.6)	78 (58.6)	176 (57.1)	
n	254	78	308	
Worked at same company	250 (98.4)	76(97.4)	174(98.9)	0.589
Worked at new company	4 (1.6)	2(2.6)	2(2.6)	0.589
Retrenchment from employer	2 (0.8)	1(1.3)	1(0.6)	0.521
Adjustment of works in same position	12 (4.7)	1(1.3)	11(6.2)	0.112
Light duty with activities reduction	28 (11.0)	8(10.3)	20(11.4)	>0.99
Spread work activities over time	8 (3.1)	3(3.8)	5(2.8)	0.704

All data were presented in n (%). Fisher's exact tests were performed for all inferential analyses.

## Psychosocial Implications

About 7.7% experienced post-covid stigma at home and/or work, 3.9% suffered from depression 5.7% and 0.9% had suicidal ideation or attempt (Table 3). Helps sought for them and conditions improved.

**Table 3: Psychosocial implications reported by COVID-19 patients at 90-days post discharge from hospital**

Status	Overall	High dose O <sub>2</sub>	Low dose O <sub>2</sub>	p-value
n	441	133	308	
No longer able to take care of your loved ones	11 (2.5)	1(0.8)	10(3.2)	0.185
Experience problems with relationship with people at home and/ or work	34 (7.7)	9(6.8)	25(8.1)	0.701
Become isolated	25(5.7)	7(5.3)	18(5.8)	>0.99
Loss of friendship	2(0.5)	1(0.8)	1(0.3)	0.513
Feeling depressed	17(3.9)	5(3.8)	12(3.9)	>0.99
Suicidal ideation	3(0.7)	1(0.8)	2(0.6)	>0.99
Suicidal attempt	1(0.2)	1(0.8)	0(0.0)	0.302

All data were presented in n (%). Fisher's exact tests were performed for all inferential analyses.

## CONCLUSIONS

Despite fair recovery outcomes reported by COVID-19 survivors with moderate-to severe diseases, a small proportion suffered from significant functional limitations and psychosocial adversity. Functional and psychosocial outcomes were similar between survivors with low and higher oxygen requirements. Post-hospitalization care is essential to screen- detect post-COVID complications and provide timely interventions.

## ACKNOWLEDGEMENT

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