

STROBE Checklist – Cross-Sectional Study

Completed manuscript-location mapping

Manuscript: **Changes in Aerobic and Muscle-Strengthening Physical Activity and Self-Reported Morbidity Among University Students During the COVID-19 Pandemic: A Cross-Sectional Study**

Final revised manuscript: 15 pages; continuous line numbering

Section	Item	Reporting topic	Location in manuscript	Completion note
Title and abstract	1a	Study design identified	p. 1, p. 2,	Cross-sectional design is stated in the title and abstract.
Title and abstract	1b	Informative, balanced abstract	p. 2	Abstract reports design, sample, measurements, adjusted results, precision, and cautious interpretation.
Introduction	2	Scientific background and rationale	p. 2–3	Background covers NCDs, university populations, physical-activity modalities, pandemic context, and the evidence gap.
Introduction	3	Objectives and prespecified hypotheses	p. 3	Objective and two directional hypotheses for MPA and MSPA are stated.
Methods	4	Key study-design elements	p. 3	Observational cross-sectional design, institution, period, remote-learning context, consent, and ethics are reported.
Methods	5	Setting, location, and dates	p. 3-4	Private university in Rio de Janeiro; August 2021–April 2022; target population and recruitment context described.
Methods	6a	Eligibility and participant selection	p. 3-4	Eligibility/exclusion criteria and decentralized recruitment through program coordinators are described; invitation denominator was unavailable.
Methods	7	Outcome, exposures, and confounders	p. 4-5	Morbidity outcome, MPA/MSPA exposures, dietary variables, and

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				selected covariates are defined.
Methods	8	Data sources and measurement	p. 3-4	Online questionnaire/PERMEV, outcome ascertainment, exposure questions, response options, and sugar/fat assessment are described.
Methods	9	Potential sources of bias	p. 4; p. 9–10,	Recruitment constraints are reported and recall/reporting, self-selection, measurement, and generalizability limitations are explicitly discussed.
Methods	10	Study-size determination	p. 3	Finite-population calculation, assumptions, minimum sample (1,057), purpose of calculation, and final sample (1,150) are reported.
Methods	11	Handling of quantitative variables	p. 3-4	Age was entered as a continuous variable to reduce residual confounding.
Methods	12a	Statistical methods and confounding control	p. 5,	Logistic regression, reference category, three adjusted models, covariates, collinearity, calibration, discrimination, and significance level are described.
Methods	12b	Subgroups/interactions	N/A	No subgroup or interaction analyses were performed in this study.
Methods	12c	Missing data	p. 5-6	Complete-case analysis, no imputation, missing-data proportions, and analytical sample sizes are reported.
Methods	12d	Sampling-strategy methods	N/A	No complex/probability sampling strategy requiring analytical weighting or design correction was used.

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Methods	12e	Sensitivity analyses	N/A	No sensitivity analyses were performed.
Results	13a	Numbers of participants through study stages	p. 4; p. 6, p. 5-6	Final sample was 1,150; analytical samples were 1,133/1,135/1,133. Number invited/response rate could not be determined because distribution was decentralized.
Results	13b	Reasons for non-participation	p. 4	Not ascertainable: the research team did not know how many students received/viewed the invitation; nonrespondent information was unavailable.
Results	13c	Flow diagram	N/A	A flow diagram was not used; the relevant participant counts and recruitment limitation are reported in text.
Results	14a	Participant characteristics/exposures/confounders	p. 6–7, (Table 1)	Table 1 reports sociodemographic, academic, behavioral, exposure, and outcome characteristics.
Results	14b	Missing data by variable	p. 6–7; p. 5-6	Variable-specific denominators are shown in Table 1; the note explains varying denominators, and model-level missingness is quantified.
Results	15	Outcome data	p. 6; p. 7	Overall morbidity was 108/1,150 (9.4%); morbidity counts and percentages are also reported across MPA/MSPA categories.
Results	16a	Unadjusted and adjusted estimates with precision	pp. 7-8, (especially Table 2); p. 5,	Crude ORs with 95% CIs and adjusted ORs with 95% CIs are reported; covariates and the separate/mutually adjusted models are specified.

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Results	16b	Boundaries for categorized continuous variables	N/A for regression models	Age is continuous in regression. Descriptive age categories (18–24; ≥25 years) are shown in Table 1, pp. 7–8.
Results	16c	Absolute-risk translation	N/A	Not applicable to this cross-sectional analysis of odds ratios and a self-reported morbidity outcome.
Results	17	Other analyses	p. 5; p. 7-8,	Cramer's V/VIF diagnostics and model calibration/discrimination are reported; no subgroup, interaction, or sensitivity analyses were conducted.
Discussion	18	Key results linked to objectives	p. 8	Opening Discussion paragraphs summarize the principal findings for separate and mutually adjusted models and morbidity prevalence.
Discussion	19	Limitations, bias, and imprecision	pp. 9–10	Temporal ambiguity/reverse causality, composite outcome, self-report, measurement limits, missing BMI/adiposity, self-selection, sample composition, and pandemic context are discussed.
Discussion	20	Cautious overall interpretation	pp. 8–10	Interpretation considers objectives, attenuation with mutual adjustment, collinearity/overlap, related evidence, mechanisms, and study limitations without causal claims.
Discussion	21	Generalisability	p. 8; p. 10	Age heterogeneity, Health Sciences predominance, recruitment approach, and pandemic-specific context are discussed as limits to generalizability.
Other information	22	Funding source and funder role	p. 10	FCT funding/projects are identified and the

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				manuscript states that funders had no role beyond funding.

Note: N/A indicates that the checklist component was not applicable or that the corresponding analysis was not performed. For participant-flow items, the manuscript transparently reports that the invitation denominator and response rate could not be determined because recruitment was decentralized.

Checklist basis: STROBE Statement checklist for cross-sectional studies.