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433

## RECRUITMENT AND PARTICIPANT FOLLOW-UP STRATEGIES: DATA FROM A RANDOMIZED CONTROLLED TRIAL CONDUCTED VIA REDCAP

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**Background:** Conducting randomized controlled trials (RCTs) using digital technologies is potentially an accessible, low cost and strategic approach to investigate interventions to improve the beliefs of consumers with regard to low back pain (LBP). However, there are challenges with this research approach, considering that Brazil is a large populous country, and restricted funding scenarios present difficulties for recruitment and follow-up in digital RCTs.

**Objectives:** To describe the recruitment process and recruitment rates, as well as follow-up rates during an RCT using digital recruitment and follow-up strategies.

**Methods:** This observational study is secondary to the RCT registered in The Brazilian Registry of Clinical Trials (RBR-10kpgx78). We invited Brazilian residents to tell us what they think about LBP and recorded their responses in Research Electronic Data Capture (REDCap). Until March 15th, 2023, we used three digital recruitment strategies: 1) posts on social networks; 2) paid traffic; 3) WhatsApp® messages. We collected outcomes at immediate and eight-week follow-up after exposure to health education materials. The immediate follow-up must be answered soon after the exposure, otherwise, we send return reminders by: 1) e-mail integrated into REDCap; 2) WhatsApp®; 3) social networks; 4) e-mail of the responsible researcher; daily for the immediate follow-up and every three days for the eight-week follow-up. In this study, we describe the strategies and recruitment rate (randomized people in relation to those who started the survey); response rates (proportion of those who responded to the follow-up in relation to those randomized eligible for that stage).

**Results:** Recruitment started on December 16th, 2022, and we considered data from 170 adult participants. We posted 32 publications on social media profiles. We invested R\$142,35 in two 7-day paid traffic campaigns, reaching 26,203 accounts, click-through rate of 2.19% and conversion rate of 2.78%. We sent WhatsApp® messages in bulk on two specific days: 1) 19/12/22, with 60 new recruits in one week; 2) 31/01/23, with 65 new recruits at the same time. In three months, we have 205 respondents to the invitation and 170 randomized, indicating a recruitment rate of 82.9%. The response rates for the immediate and eight-week follow-up are 81.2% and 28.3%, respectively, and the median response times are 6.1 and 64.9 days, in that order. Immediate follow-up was completed right away by 39.9% of the participants and the return via WhatsApp® reminders represented 46.4%. At the eight-week follow-up, e-mails integrated into REDCap accounted for 57.7% of survey returns.

**Conclusions:** The rates show the viability of combined recruitment strategies on social networks and WhatsApp®. The retention of respondents during the RCT can be maintained through WhatsApp® messages and e-mails integrated into REDCap.

**Implications:** Designing an electronically conducted RCT needs a diversified strategic plan for recruiting and retaining participants,

as well as iterative monitoring of the results, in order to optimize recruitment and follow-up rates.

**Keywords:** Research Subject Recruitment, Follow-Up Studies, Randomized Controlled Trial

**Conflict of interest:** The authors declare no conflict of interest.

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434

## PSYCHOMETRIC PROPERTIES OF THE YC-PEM BRAZIL

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**Background:** Participation is a critical concept for children's health and their interaction with the context in which they live. Recently, participation has been understood as a family of constructs that includes attendance (frequency of activities carried out) and involvement (engagement, persistence, social connection, affection, and personal preferences). Young children with disabilities are at risk of experiencing participation restriction, which reinforces the importance of incorporating participation assessment measures into child rehabilitation. In this sense, the Participation and Environment Measure - Young Children (YC-PEM) stands out, an instrument developed based on the model of the International Classification of Functioning, Disability and Health (ICF), centered on the perception of the caregiver, to assess the participation and environment of young children, with or without disabilities.

**Objective:** To establish the initial psychometric properties of the YC-PEM translated into Brazilian Portuguese.

**Methods:** This is a methodological study. A total of 143 Brazilian children with and without disabilities from ages 0 to 5 years and 11 months were included. Recruitment was voluntary, resulting from dissemination on social networks and partnerships with universities and teaching clinics in Brazil. The parents/guardians responded to the instrument YC-PEM. The variables analyzed were frequency of participation, involvement, and desire for change; supports, barriers, environmental helpfulness, environmental resources and overall environmental support, in the three sections: home, daycare/preschool and community, adopting a significance level of  $\alpha=0.05$ . The Cronbach's alpha test was used to assess internal consistency (IC). To check the construct validity, we investigated differences between groups using Mann-Whitney or Chi-square tests.

**Results:** 73 children with (mean age 24.6 months) and 70 children without disabilities (mean age 30.9 months) of both genders participated, among which 41% attended daycare/preschool. Cronbach's alpha ranged from 0.625 to 0.991 in the different subscales, which confirms its internal consistency. As for construct validity, the instrument could detect statistically significant differences between the groups in the domains of frequency of participation and involvement in daycare/preschool, involvement in the community, help from the environment, resources and General support from the environment in all 3 instrument sections.

**Conclusion:** The YC-PEM Brazil has acceptable initial psychometric properties and is a valid option to evaluate the participation of young Brazilian children, with or without disabilities, in clinical practice and research.

**Implications:** The instrument can help health professionals to identify the levels of participation of children aged 0 to 5 years and plan interventions aspired at improving participation in different contexts. In addition, caregivers, who are active agents in the child's support process, can learn about participation and develop skills that promote greater management of their children's levels of functionality and autonomy.

**Keywords:** Child Health, Social Participation, Data Reliability

**Conflict of interest:** The authors declare no conflict of interest.

**Acknowledgment:** Not applicable.

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435

### PEAK EXPIRATORY FLOW AS A PREDICTOR OF DYNAPENIA IN COMMUNITY-DWELLING OLDER ADULTS: A CROSS-SECTIONAL STUDY

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**Background:** Aging brings damage to the musculoskeletal system, which may result in a decline in neuromuscular strength, a condition called dynapenia. Additionally, there may be impairment of strength and/or respiratory function, which promotes negative outcomes and can potentiate or accelerate the onset of dynapenia in older adults. Previous studies have shown the association of respiratory variables with sarcopenia, as well as suggesting cut-off points as diagnostic criteria for this condition. However, the identification of the association between peak expiratory flow (PEF) obtained by means of the *peak flow meter* with dynapenia, as well as the proposition of cut-off points to predict it in Brazilian older adults, have not yet been found in the available literature.

**Objectives:** To compare the values of PEF between dynapenic and non-dynapenic older adults, to assess the association of PEF with the diagnosis of dynapenia, and to establish cutoff points for PEF to predict dynapenia.

**Methods:** Cross-sectional study conducted with 382 (70,03±7,30 years) community-dwelling older adults from the urban area of Macapá, Amapá. Peak expiratory flow (PEF) obtained using a *Peak Flow Meter* and dynapenia based on handgrip strength were evaluated, considering three diagnostic criteria: 1 (<26 kg for men and <16 kg for women), 2 (<30 kg for men and <20 kg for women), and 3 (based on the sample's BMI and sex). The Student's t-test was used for group comparisons, and crude and adjusted analyses using a binary logistic regression model were performed to verify the association between PEF and dynapenia ( $p<0,05$ ). Receiver Operating Characteristic (ROC) curves with parameters of area under the ROC curve (AUC), sensitivity, and specificity, with a 95% confidence interval and a significance level of 5%, were generated to identify potential PEF cut-off points as discriminators of dynapenia.

**Results:** Lower PEF values were observed in those with dynapenia when compared to those with non-dynapenia ( $p<0,001$ ); and in the

adjusted analysis, there was an inverse association between PEF and dynapenia, independent of the cutoff point considered ( $p<0,05$ ). Cutoff points were established for PEF as a discriminator of dynapenia, namely: 1 (PEF≤260L/min; AUC=0.631; sensitivity=70.42%; specificity=49.20%), 2 (PEF≤280L/min; AUC=0.624; sensitivity=71.94%; specificity=45.27%) and 3 (PEF≤250L/min; AUC=0.640; sensitivity=70.37%; specificity=52.82%).

**Conclusion:** The elderly with dynapenia had lower PEF values compared to the elderly without dynapenia. In addition, PEF cut-off points have been proposed to predict dynapenia, results which demonstrate that PEF seems to influence the dynapenia process.

**Implications:** The identification of the association and the diagnostic criteria for dynapenia based on PEF, using the *peak flow meter*, a portable device widely used by physical therapists, can help to screen for this condition and based on this, propose measures for prevention and care of the elderly respiratory health.

**Keywords:** Aged, Muscle strength, Peak Expiratory Flow Rate

**Conflict of interest:** The authors declare that there are no conflicts of interest.

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436

### VENTILATORY VARIABILITY IN HEART FAILURE, CHRONIC OBSTRUCTIVE PULMONARY DISEASE AND HEART FAILURE PLUS CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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**Background:** Ventilatory variability (vVE) constitutes the dynamic and complex breath-to-breath oscillation of pulmonary ventilation. However, vVE has only recently been investigated in heart failure and chronic obstructive pulmonary disease (COPD) using the Poincaré approach. Briefly, the Poincaré analysis generates, through scatter plots, two pieces of information: called SD1 (standard deviation 1) and SD2 (standard deviation 2); SD1 is defined as the dispersion of data points perpendicular to the line of identity across the plot's centroid and is a short-term variability descriptor; SD2 describes the dispersion of points along the line of identity and reflects the long-term variability of the signal.

**Objectives:** the present study aims to perform Poincaré analysis to distinguish vVE patterns between healthy controls and patients diagnosed with COPD, heart failure (HF) and heart failure with COPD during cardiopulmonary exercise testing (CPET).

**Methods:** Patients with COPD, heart failure, COPD + HF and healthy subjects participated in this research. Lung function was performed according to the recommendations of the American Thoracic Society/European Respiratory Society and adjusted to the Brazilian reference values. Standard echocardiography followed the recommendations of the American Echocardiography Society. A symptom-limited incremental CPET was performed on a cycle ergometer, with increments per minute of 5–10 W for patients and 10–15 W for healthy controls. Poincaré analysis was used to calculate vVE using a custom R program (<http://www.R-project.org>),