

profile, it was observed that 51,72% comprises the age group between 20 and 29 years, 66,13% had brown-skinned, 42,33% were single, 38,44% lived in Águas Lindas, 56,75% completed high school. Concerning the clinical data, 59,27% were multiparous women, 25,63% completed 39 weeks pregnant, 54,23% weren't induced, 51,59% didn't use anesthesia, 55,15% of the births were in lithotomy position, 29,06% had second-degree laceration, 91,76% didn't have an episiotomy, and 94,05% had a companion. Regarding the newborn's data, the mean weight was 3,15kg, the mean length was 48,4cm, the mean head circumference was 33,8cm and the mean of the first APGAR was 8,1.

**Conclusion:** With the presented data, it's possible to conclude that the vaginal birth's parturients' characterization it's variable in the majority of the analyzed factors and even though it was observed good obstetric practices, such as the presence of a companion and a few cases of episiotomy, it's still necessary the implementation of methods that reduce the risk of perineal injury, and comprehend the reason that most of the births are realized in lithotomy position, that biomechanically aren't favorable to the birth.

**Implications:** Many resources can be used to reduce the risk of perineal injury, and much of them are studied by obstetric physical therapy. Therefore, it's necessary to encourage the education of the benefits that other positions, besides the lithotomy, can bring in the moment of the birth.

**Keywords:** Natural Childbirth, Demography, Maternal and Child Health

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

**Acknowledgment:** We appreciate the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES) and the Fundação de Apoio à Pesquisa do Distrito Federal for the financial support.

**Ethics committee approval:** This study was approved by the Ethics and Research Committee from Faculdade de Ceilândia (CEP/FCE), with CAAE number 80704617.5.0000.8093.

<https://doi.org/10.1016/j.bjpt.2024.100990>

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## REFERENCE VALUES FOR PEAK EXPIRATORY FLOW OF BRAZILIAN ELDERLY PEOPLE IN THE AMAZON REGION

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**Background:** Peak Expiratory Flow (PEF) is a variable widely used to assess the effectiveness of coughing and to identify airway obstruction. This measurement can be obtained using the Peak Flow Meter, a portable equipment that is easy to access, perform and handle. However, specific studies that propose reference values for the Brazilian elderly people are still scarce.

**Objectives:** To describe PEF scores according to age group and propose reference values for community-dwelling elderly in the Amazon region.

**Methods:** Cross-sectional study carried out with community-dwelling elderly in Macapá, Amapá. The PEF was evaluated using an expiratory flow meter and the sample characterization data were collected through a semi-structured questionnaire. A descriptive statistical analysis of the data was carried out using means,

standard deviations, absolute values, percentages, and percentiles P10, P20, P30, P40, P50, P60, P70, P80, P90 stratified by sex and age groups (60-64; 65-69; 70-74; 75-79; 80 or more).

**Results:** A total of 409 elderly people were evaluated, of whom 138 (33.74%) were men and 271 (66.26%) were women. The largest number of seniors evaluated in total was in the age group of 60 to 64 years (n=110), with the highest mean value obtained from PEF, both for the total sample (307.20±137.03 L/min) and for men (n=44; 407.04±130.35L/min) and women (n=66; 240.65±94.88L/min). PEF was reduced with advancing age in both sexes, with a decrease of 167.71±35.53 L/min for men and 67.94±29.27 L/min for women, in the elderly age group younger than elderly people with more advanced age. PEF normative values with scores distributed in ascending order according to the 10th percentile (worst value) were 122L/min, 205L/min and 110L/min, and the 90th percentile (best value) were 500L/min, 575L/min and 360L/min, respectively of the total sample, men and women.

**Conclusion:** The present study provides PEF reference values for a representative sample of community-dwelling elderly in the Amazon region, according to gender and age group.

**Implications:** Based on the reference values developed in our study, it is possible to help physiotherapists in clinical practice during the evaluation of PEF measurements in the elderly, in relation to normal values for a given age group and gender. Additionally, based on studies such as ours, there is an incentive for health professionals to pay greater attention to the respiratory health of the elderly population, because although respiratory diseases are the main causes of morbidity and mortality among the elderly, they still need to be included in models of geriatric assessments.

**Keywords:** Aging, Peak expiratory flow rate, Reference values

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

**Acknowledgment:** Fundação de Amparo à Pesquisa do Amapá (FAPEAP; concessão nº 250.203.029/2016).

**Ethics committee approval:** Universidade Federal do Amapá, parecer nº 1.738.671.

<https://doi.org/10.1016/j.bjpt.2024.100991>

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## REFERRAL TO PRIMARY HEALTH CARE PHYSIOTHERAPISTS IS ASSOCIATED WITH CLINICAL AND SOCIODEMOGRAPHIC VARIABLES: A RETROSPECTIVE STUDY

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**Background:** Low back pain (LBP) is a public health concern. The referral process to the Physiotherapist in Primary Health Care (PHC) should be assessed, as it improves disability and reduces the use of low-value resources, though there is a need for consolidation within SUS.

**Objectives:** To investigate whether sociodemographic and clinical variables explain referrals to Physiotherapists working at NASF units (Expanded Family Health Center) in the Federal District. Secondly, to characterize the referral time and frequency of resource use.

**Methods:** This is a 12-month retrospective cohort (2018/2019) consisting of electronic medical records of 48 individuals. Individuals

with LBP who had not received treatment in the PHC in the previous six months and aged >18 years were included. Those with red flag signs, limited mobility and pregnant women were excluded. Participants were stratified into groups: G1) People without referral and assistance (n:23); G2) People referred and assisted (n:15); G3) People who sought care without referral (n:10). We adopted multinomial logistic regression with backward stepwise to investigate whether age, sex, drugs and exams prescriptions, number of exams, consultations with specialists and other interventions adequately classify the groups G1 (reference), G2 and G3. There was no collinearity, and data fit was confirmed by the Akaike criterion. The pseudo- $R^2$  (Nagelkerke) demonstrated the weight of the variables in the model and the odds ratio (OR) was calculated with a 95% confidence interval (95%CI).

**Results:** The mean age was 55 years (SD: 13 years), and 75% were women. Of the total, 21% received imaging tests and 10.5% received drug prescriptions. The mean referral time until the first Physiotherapy appointment for LBP treatment (G2) was 99.5 days. The overall average of Physiotherapy visits was 6.5 sessions/person. Gender, age, number of consultations with specialists and other interventions explained 56% of the model ( $R^2$ ). Compared to G1, the chance of being referred (G2) increased with increasing age (OR: 1.11 95%CI: 1.07;1.15), less number of consultations (OR: 0.26 95%CI: 0.10;0.91), less number of other interventions (OR: 0.21 95%CI: 0.05;0.91). The G3 was explained by female gender (OR: 17.1 95%CI: 3.3;88.8), age (OR: 1.24 95%CI: 1.17;1.31), and less number of consultations (OR : 0.06 95%CI: 0.11;0.39).

**Conclusion:** The time length for people with LBP to be treated after being referred to Physiotherapy was long. Age increments increased between 11% and 24% the chance of being referred and seeking care, respectively. The lower the number of consultations with specialists and other interventions, the greater the chance of being referred to Physiotherapy compared to people who are not referred. Women were 17 times more likely to seek Physiotherapy without a referral.

**Implications:** Our findings contribute to understanding the population profile and factors associated with referral to PHC Physiotherapists. We raise a caution note related to the delay in referral time is highlighted, which can cause deleterious clinical impacts.

**Keywords:** Low back pain, Primary health care, Physiotherapy

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

**Acknowledgment:** FAPDF (process n. 0814/2021-21); UnB/DPI; CAPES (code 001).

**Ethics committee approval:** FEPECS/SES/DF, opinion n. 5,700,552

<https://doi.org/10.1016/j.bjpt.2024.100992>

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## IMPACTS OF AIR RESISTANCE IMPOSED BY RESPIRATORY FILTERS ON VOLUME AND FLOW VALUES DURING SIMULATED RESPIRATORY PATTERN

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**Background:** Pulmonary function and respiratory pattern exams are essential for the diagnosis of various diseases, such as COPD and asthma. Most equipment used in these exams is not sterilized, making the use of respiratory filters necessary for biological protection of the

evaluated individual. However, the use of filters with high air resistance can alter the measurement of airflow and air volume during these evaluations. Thus, analyzing the influence of this resistance is important to ensure that the results of these exams can be reliable.

**Objectives:** To analyze the influence of the resistance of a respiratory filter on the flow and volume values collected in an innovative equipment used for the examination of the human respiratory pattern.

**Methods:** This is an experimental study. The measurement system consists of an Active Servo Lung (ASL) 5000 human breathing simulator; a respiratory filter holder for the KOKO spirometer; a respiratory filter for spirometry; and the Respiratory Diagnostic Assistant (RDA) device, developed by the LINDEF/UFPE laboratory for the evaluation of the respiratory pattern. The ASL 5000 was configured to simulate the normal respiratory pattern of a healthy adult individual. The settings were: respiratory frequency = 10 bpm; inspiratory time 2 s, expiratory time 4 s, I:E ratio = 1:2; tidal volume = 0.5L; airway resistance = 3cmH<sub>2</sub>O; lung compliance = 100mL/cmH<sub>2</sub>O; and muscle pressure = 15cmH<sub>2</sub>O. The breathing simulation was programmed to occur for 3 minutes, and thus, the ASL 5000 produced a total of 30 respiratory cycles, of which the flow and volume curves and respiratory pattern parameters were recorded by the RDA. This same procedure was performed twice, once with the presence of the filter membrane inside the filter holder, and another time without the presence of the filter membrane. The results were subsequently analyzed by the RDA Analysis software.

**Results:** With the addition of the filter to the system, there was a decrease from 84.46 L/min to 79.76 L/min in inspiratory flow and from 90.25 L/min to 85.76 L/min in expiratory flow, with a consequent reduction from 1323.63 mL to 1285.26 mL in inspiratory tidal volume and from 1293.73 mL to 1270.96 mL in expiratory tidal volume.

**Conclusion:** By comparing the mean values of inspiratory and expiratory flow and volume in the simulation of a basal respiration, it can be inferred that the resistance imposed by the filter added to the system produced considerable decreases in inspiratory and expiratory flow and volume values.

**Implications:** The differences obtained in this result are useful for compensation adjustments in the RDA software, aiming to correct this resistance imposed by the filter membrane, necessary during collection. Thus, this result will contribute to ensuring a respiratory pattern exam as close as possible to what the evaluated patient actually presents. It also brings reflection on the need to correct the volume and flow values obtained by other software responsible for the processing of respiratory pattern and pulmonary function data, which require the use of respiratory filters in their execution.

**Keywords:** Respiratory Filter, Respiratory Pattern, Pulmonary Function

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

**Acknowledgment:** UFPE (Propg), CAPES, CNPq (403341/2020-5), FACEPE (APQ-0249-4.08/20), and FACEPE (APQ-0801-4.08/21).

**Ethics committee approval:** Not reported.

<https://doi.org/10.1016/j.bjpt.2024.100993>

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## AGREEMENT OF PHYSIOTHERAPISTS WITH DIFFERENT TIMES OF CLINICAL PRACTICE IN RELATION TO BODY STABILITY IN THE TRADITIONAL FRONT PLANK: PILOT STUDY

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