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Association between functional impairments at hospital discharge and short-term barriers to cardiac rehabilitation in acute coronary syndrome: a longitudinal study

Associação entre déficits funcionais na alta hospitalar e barreiras de curto prazo à reabilitação cardíaca na síndrome coronariana aguda: um estudo longitudinal

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Abstract

Background: The functional status of acute coronary syndrome (ACS) patients at hospital discharge and its impact on participation in cardiac rehabilitation (CR) programs remains unclear. **Aim**: This study investigates barriers to and adherence in CR programs 30 days post-discharge for ACS exacerbation and explores the predictive value of functional characteristics for these barriers. **Methods**: Upon hospital discharge, participants underwent functional tests, including assessments of respiratory muscle strength (maximal inspiratory and expiratory pressures [MIP and MEP]), handgrip strength (HGS), and the 6-minute walk distance (6MWD). Thirty days post-discharge, participants were evaluated using the Cardiac Rehabilitation Barrier Scale (CRBS). **Results**: 130 participants (64.6% men, mean age 65 ± 12 years, median length of stay before discharge 17 [8; 41] days) were included. The major barrier to participation and adherence in CR programs was comorbidities/functional status (13.1 ± 4.3 points). After adjustment for age, sex, and length of stay, the CRBS comorbidities/functional score was negatively associated with MIP (β= -0.123, 95% CI -0.215 to -0.031), while the CRBS perceived needs/healthcare factors score was positively associated with MIP (β= 0.073, 95% CI 0.009 to 0.137). **Conclusion**: Barriers to participation and adherence in CR programs among ACS adults 30 days post-hospital discharge are mainly explained by respiratory muscle function. These findings underscore the importance of early post-discharge strategies targeting patients with lower functional status to reduce barriers to CR participation.

Keywords: Acute Coronary Syndrome; Cardiovascular Diseases; Barriers to Access of Health Services.

Resumo

Introdução: O estado funcional dos pacientes com síndrome coronariana aguda (SCA) na alta hospitalar e seu impacto na participação em programas de reabilitação cardíaca (RC) permanece desconhecidos. **Objetivo**: Investigar barreiras e adesão em programas de RC 30 dias pós-alta por exacerbação de SCA e explorar o valor preditivo das características funcionais para essas barreiras. **Métodos**: Na alta hospitalar, os participantes foram submetidos a testes de capacidade funcional, força muscular respiratória (pressões inspiratórias e expiratórias máximas [PImáx e PEmáx]), força de preensão manual (FPM) e distância percorrida no teste de caminhada de 6 minutos (DTC6). Trinta dias após a alta, os participantes foram avaliados por meio da Escala de Barreira de Reabilitação Cardíaca (CRBS). **Resultados**: Foram incluídos 130 participantes (64,6% homens, idade média 65 ± 12 anos, tempo mediano de internamento antes da alta 17 [8; 41] dias). A principal barreira foi comorbidades/estado funcional (13,1 ± 4,3 pontos). Após ajuste para idade, sexo e tempo de internação, o escore de comorbidades/funcional do CRBS foi negativamente associado à PImáx (β= -0,123, IC 95% -0,215 a -0,031), enquanto o escore de necessidades percebidas/fatores de saúde do CRBS foi positivamente associado com PImáx (β= 0,073, IC 95% 0,009 a 0,137). **Conclusão**: As barreiras à participação e adesão em programas de RC entre adultos com SCA 30 dias pós-alta hospitalar são explicadas principalmente pela função muscular respiratória. Esses achados ressaltam a importância de

estratégias precoces pós-alta direcionadas a pacientes com status funcional mais baixo para reduzir barreiras à participação na RC.

Palavras-chave: Síndrome Coronariana Aguda; Doenças Cardiovasculares; Barreiras ao Acesso aos Cuidados de Saúde.

INTRODUCTION

Approximately 80% of cardiovascular disease (CVD) mortality is linked to established risk factors, such as an aging population, unhealthy diet, smoking, sedentary lifestyle, stress, hypertension, and diabetes[1]. In Brazil, high hospital admission rates, particularly for acute coronary syndrome (ACS), significantly increase costs for both public and private healthcare systems.[2] It is known that physical, environmental, and psychosocial stressors during hospitalization trigger multisystem pathophysiological responses, raising the risk of readmission for CVD patients[1]. Hospitalization can also impair muscle function, leading to new functional limitations[3,4], and post-hospitalization syndrome – characterized by new clinical manifestations due to various stressors during hospitalization – may develop after discharge and further compromise physical functioning[5]. Therefore, assessing functional status at discharge and its impact on participation in rehabilitation programs is of clinical importance.

Systematic reviews[6-11] of 148 high-quality randomized controlled trials, involving 98,093 participants, indicate that cardiac rehabilitation (CR) added to usual care can reduce hospital admissions and improve quality of life in low-risk individuals after acute myocardial infarction, percutaneous coronary intervention, or with congestive heart failure[12]. However, in Brazil, CR programs are primarily available in major metropolitan centers and are largely absent in the North and Northeast regions. Even where such programs are available, there are common barriers to CR participation including a lack of referrals from health professionals, mobility difficulties, low income, lack of insurance coverage, and low educational levels[13,14]. To the best of or knowledge, no studies have examined whether functional outcomes at hospital discharge predict barriers to CR in this population. Understanding these predictors could enhance patient care by identifying functional characteristics that should be monitored at discharge to increase adherence to CR programs.

This study investigates the barriers to participation and adherence to CR programs 30 days after hospital discharge in patients hospitalized for ACS. We hypothesize that comorbidity/functional status and access are the primary barriers to low adherence and participation in CR programs. Additionally, we examine the association between functional status (peripheral and respiratory muscle strength, functional capacity) assessed at hospital discharge and barriers to CR participation and adherence assessed 30 days post-discharge. We hypothesize that better post-discharge functional status is associated with fewer barriers to CR participation and adherence 30 days after discharge.

METHODS

Study design

This single-center, observational longitudinal study assessed patients at hospital discharge using a standard case report form to collect data on clinical status, lifestyle, comorbidities, and functional capacity tests. After 30 days, a clinical reassessment was conducted to gather data on barriers to CR and adherence. The same assessor performed all procedures. This study follows the STrengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines[15].

The sample size was estimated using G*Power version 3.1, with type-I and type-II errors set at 5% and 20% for a linear regression model (H_0: R^2=0). A minimum of 109 participants was required to detect at least a medium effect size (f^2 = 0.15, R^2 ~ 0.14) using eight independent predictors.

Ethics

Following national regulations, the Institutional Ethics Committee approved the study protocol (CAAE 53894821.9.0000.5235, Centro Universitário Augusto Motta, No. 5.139.567). Participants provided written informed consent after being briefed on the study's aims, design, and protocol.

Setting and participants

Data collection occurred between November 2021 and February 2023 in the cardiology ward of Hospital Dr. Wilson Franco Rodrigues, Roraima, in the North region of Brazil. Inclusion criteria were adults (≥18 years) hospitalized for ACS confirmed by medical staff and records. Additional criteria included hemodynamic and clinical stability, no oxygen support for >24 hours, no angioplasty within the last 24 hours, Glasgow scale >11, and absence of retrosternal pain, tachypnea, tachycardia, palpitation, abdominal distention, ascites, neuromuscular diseases, and hemoglobin >10 g/dL.

Assessment at hospital discharge

All patients meeting the inclusion criteria were assessed for cardiovascular risk, lifestyle factors (stress, smoking, and physical activity), and functional status (peripheral and respiratory muscle strength, functional capacity).

Cardiovascular risk was assessed using the Global Registry of Acute Coronary Events (GRACE) 2.0 score at hospital discharge. The GRACE score accounts for age,

systolic blood pressure, heart rate, plasma creatinine, Killip class, ST-segment depression, myocardial necrosis marker elevation, and cardiac arrest on admission. Scores range from 0 to 372, with categories of low (<108), intermediate (109–140), and high (>140) cardiovascular risk. The GRACE scale has a sensitivity of 100% and a specificity of 75%, with a C-statistic of 0.91 (95% CI = 0.86 to 0.97), indicating good calibration and discrimination[16].

Stress was evaluated using the stress-producing life events (EVPE) instrument, which comprises concise dichotomous questions. The instrument assesses the occurrence, within the last 12 months of severe illness episodes, death of close relatives, hospitalization, separation/divorce, forced relocation, significant financial difficulties, physical aggression, and violent assault or robbery. The reliability of the EVPE was found to be substantial to almost perfect (Kappa > 0.60)[17].

Smoking was quantified using the smoking load, calculated as the average number of packs smoked per day multiplied by the duration of smoking in years[18].

Physical activity was assessed using the International Physical Activity Questionnaire short form (IPAQ-SF), which evaluates the time spent on daily activities. Activities are categorized into different intensities (vigorous, moderate, and light) across five domains: work, transportation, housework, recreation/sports/exercise/leisure activities, and sedentary behavior. Participants reported their activity levels for the week preceding the IPAQ administration. The IPAQ-SF demonstrated good reproducibility regarding metabolic equivalent (MET) per week (r = 0.95)[19].

Peripheral muscle strength was measured by handgrip strength of the dominant hand (HGS) using an analog dynamometer (Instrutherm Instrumentos de Medição LTDA, SP, Brazil), following the protocol of the American Association of Hand Therapists[20]. Three trials were conducted with a 1-minute rest interval between each, and the highest recorded value was used to ensure validity and reliability[21]. Predicted values (HGS%) were derived from a national reference equation[22].

Respiratory muscle strength was assessed by measuring maximum inspiratory and expiratory pressures (MIP and MEP, respectively) following the recommendations of the American Thoracic Society[23] using a calibrated portable analog manovacuometer (MRN 020002, Murenas's Produtos para Saúde LTDA, MG, Brazil). To ensure accuracy, the mouthpiece was firmly positioned in the patient's mouth with an unobstructed escape orifice, which maintains the glottis open, preventing interference from oropharyngeal facial musculature that could affect results. The obstruction valve was opened at residual volume and total lung capacity and closed during evaluations. Three consecutive measurements were conducted, with the highest value recorded, each lasting 2 seconds without leaks. Predicted values (MIP% and MEP%) were calculated using national reference equations[24].

The six-minute walk test (6MWT) was conducted following international guidelines[25,26]. Participants were instructed to discontinue the test if they experienced dizziness, leg cramps, chest pain, or unbearable dyspnea[27]. Oxygen saturation (SpO_2) was measured before and after the test using a portable oximeter (Intermed Model SAT-200, CONTEC MEDICAL SYSTEMS CO., LTD, China). Heart rate (HR) was recorded before and immediately after the 6MWT, and the difference between these measurements (ΔHR) was calculated. The Modified Borg Dyspnea Scale was administered at baseline and 6 minutes of the 6MWT, with scores ranging from 0 (No Fatigue) to 10 (Extremely Tired). Participants were briefed on the scale before its application, and the difference between baseline and 6 minutes (Δ0' - 6') was calculated[28]. Reference values for the 6MWT were obtained using the reference equation with the smallest standard error (Model 7), which incorporates gender, age, BMI, Δ0' - 6', distance covered, HR, and IPAQ[25].

Outcome: Barriers to cardiac rehabilitation and adherence 30 days after hospital discharge

We used the Portuguese-Brazil version of the Cardiac Rehabilitation Barriers Scale (CRBS), demonstrating satisfactory validity and reliability (Cronbach's alpha = 0.88, ICC = 0.68)[29]. The CRBS comprises 21 items rated on a 5-point Likert scale ranging from "fully disagree" (=1) to "fully agree" (=5). Factor analysis identified five factors: comorbidities/functional status (max subscore = 35), perceived need/healthcare factors (max subscore = 25), personal/family problems (max subscore = 15), work/time conflicts (max subscore = 10), and access (max subscore = 20). The total CRBS score ranges from 21 to 105, with higher scores indicating greater barriers to participation or adherence to CR programs.

Statistical analysis

Statistical analyses were performed using Jamovi 2.5.5. A two-tailed type-I error of $P < 0.05$ was adopted.

Continuous variables with normal distribution were presented as mean ± standard deviation, whereas those with non-normal distribution were reported as median [minimum; maximum]. Categorical variables were described as absolute frequency (%).

Multivariable linear regression models analyzed the relationship between barriers to cardiac rehabilitation (total CRBS score and individual dimension scores) and HGS, MIP, MEP, and 6MWT. Both raw and adjusted (for age, sex, and length of stay) models were calculated. Coefficients (β) with 95% confidence intervals were reported alongside P-values for the null hypothesis significance test (H_0: β = 0). Model fit was assessed using R^2 and adjusted R^2 values, with higher values indicating better model fit.

RESULTS

Table 1 presents the demographic and clinical characteristics of the sample (n = 130), assessed at hospital discharge from the cardiology ward. The follow-up time was 31 [29; 37] days. Missing data occurred for the 6MWD for 1 (<1%) participant, which was not imputed for analysis. The participants had age of 65 ± 12 years, with a median length of stay of 17 days (8–41 days). The majority were men (n = 84, 64.6%), with a mean GRACE score of 112 ± 24, indicating a low cardiovascular risk for most participants (n = 63, 48.5%). The most commonly reported risk factors included dyslipidemia (n = 92, 70.8%), smoking (n = 83, 63.8%), and diabetes mellitus (n = 71, 54.6%). Hypertension was the most prevalent cardiovascular comorbidity (n = 120, 92.3%), followed by congestive heart failure (n = 60, 46.2%), and atrial fibrillation (n = 24, 18.5%).

Table 1 further presents the sample's baseline functional characteristics and CRBS score for each factor. Evidence

Table 1. Characteristics of the studied sample (n = 130).

Variable	Categories	Levels	Statistics
Age, years			65 ± 12
Sex	Women:Men		46:84 (35.4:64.6%)
Length of stay, days			17 [8, 41]
GRACE score, points			112 ± 23.9
GRACE score, risk stratification			
	High		16 (12.3%)
	Intermediate		51 (39.2%)
	Low		63 (48.5%)
Heart rate, b/min			71.2 ± 11.3
Systolic blood pressure, mmHg			126 ± 14.5
Diastolic blood pressure, mmHg			75.3 ± 9.61
Glycemia, mg/dL			139 ± 35.8
Smoking load, year-pack			10.0 [0, 60.0]
Waist circumference, cm			91.9 ± 12.0
Body mass index, kg/m²			30.3 ± 4.28
Nutritional status			
	Eutrophic		12 (9.2%)
	Overweight		58 (44.6%)
	Obesity I		40 (30.8%)
	Obesity II		19 (14.6%)
	Obesity III		1 (0.8%)
Lifestyle			
	Smoking		83 (63.8%)
	Physical activity		
		Very active	1 (0.8%)
		Active	115 (88.5%)
		Irregularly active A	8 (6.2%)
		Irregularly active B	5 (3.8%)
		Sedentary	1 (0.8%)
Comorbidities			
	Hypertension		120 (92.3%)
	Dyslipidemia		92 (70.8%)
	Diabetes		71 (54.6%)
	Congestive heart failure		70 (53.8%)
	Atrial fibrillation		24 (18.5%)
Medications			
	Anti-hypertensive		115 (88.5%)
	Hypoglycemic		75 (57.7%)
Functional status			
	Respiratory muscle strength	Max inspiratory pressure (cmH_2O)	-76.5 ± 11.2
		Max expiratory pressure (cmH_2O)	69.1 ± 15.0
	Peripheral muscle strength	Handgrip strength (dominant hand) (kgf)	28.6 ± 6.10
	Functional capacity	6-minute walk test (m)	330 ± 50.5
CRBS sum score, points	Total score		36.5 ± 3.87
	Factors	Comorbidities | Functional status (score)	13.1 ± 4.25
		Perceived need | Healthcare factors (score)	8.67 ± 2.49
		Personal | Family problems (score)	4.52 ± 1.74
		Work | Time conflicts (score)	2.49 ± 1.04
		Logistical factors (score)	7.72 ± 2.44

of respiratory muscle weakness was noted, with MIP of -76.5 ± 11.2 cmH_2O and MEP of 69.1 ± 15 cmH_2O. Peripheral muscle weakness was also evident, with a HGS of 28.6 ± 6.1 kgf. Additionally, participants exhibited limited functional capacity, as evidenced by a mean 6MWD of 330 ± 51 m.

The CRBS subscores, expressed as percentages of their respective maximum values, ranked by importance, are comorbidities/functional status (37.4%, 13.10 ± 4.25), perceived need/healthcare factors (34.7%, 8.67 ± 2.49), logistical factors (38.6%, 7.72 ± 2.44), personal/family problems (30.1%, 4.52 ± 1.74), and work/time conflicts (24.9%, 2.49 ± 1.04).

Table 2 presents the association between functional characteristics at hospital discharge and the total CRBS score 30 days after discharge. The CRBS sum score exhibited an inverse association with the 6MWD (β = -0.017, 95% CI -0.032 to -0.003). However, after adjusting for age, sex, and length of stay, no functional outcome retained a significant association. Regarding the CRBS subscores, the comorbidities/functional status subscore showed an inverse association with the 6MWD (β = -0.021, 95% CI -0.035 to -0.007) and MIP (β = -0.136, 95% CI -0.229 to -0.043). After adjusting for confounders, only MIP remained statistically significant (β = -0.123, 95% CI -0.215 to -0.031). The perceived needs/healthcare factors subscore was associated with MIP (β = 0.077, 95% CI -0.014 to 0.139), with this association persisting after adjustment (β = 0.073, 95% CI 0.009 to 0.137). The CRBS subscores for logistical factors,

Table 2. Association between functional characteristics at hospital discharge and barriers to cardiac rehabilitation after hospital discharge (n = 130).

Outcome	*Predictors*	Raw model			Adjusted model*		
		Coefficient (95%CI)	*SE*	*P Value*	*Coefficient (95%CI)*	*SE*	*P Value*
CRBS sum score							
	Max inspiratory pressure	0.018 (-0.080 – 0.116)	0.050	0.717	0.026 (-0.074 – 0.126)	0.051	0.611
	Max expiratory pressure	-0.034 (-0.094 – 0.027)	0.031	0.274	-0.019 (-0.082 – 0.043)	0.032	0.543
	Handgrip strength	-0.011 (-0.156 – 0.134)	0.074	0.880	-0.020 (-0.208 – 0.168)	0.096	0.836
	6-minute walk test	-0.017 (-0.032 – -0.003)	0.007	**0.021**	-0.010 (-0.028 – 0.008)	0.009	0.285
	R^2 / R^2 adjusted	0.080 / 0.050			0.104 / 0.045		
Comorbidities | Functional status score							
	Max inspiratory pressure	-0.136 (-0.229 – -0.043)	0.047	**0.004**	-0.123 (-0.215 – -0.031)	0.047	**0.009**
	Max expiratory pressure	-0.030 (-0.087 – 0.027)	0.029	0.307	-0.005 (-0.062 – 0.053)	0.029	0.877
	Handgrip strength	0.047 (-0.091 – 0.185)	0.070	0.502	0.045 (-0.128 – 0.218)	0.088	0.612
	6-minute walk test	-0.021 (-0.035 – -0.007)	0.007	**0.003**	-0.007 (-0.024 – 0.010)	0.009	0.411
	R^2 / R^2 adjusted	0.312 / 0.290			0.369 / 0.333		
Perceived need | Healthcare factors							
	Max inspiratory pressure	0.077 (0.014 – 0.139)	0.032	**0.016**	0.073 (0.009 – 0.137)	0.033	**0.025**
	Max expiratory pressure	-0.008 (-0.047 – 0.030)	0.020	0.677	-0.006 (-0.046 – 0.034)	0.021	0.777
	Handgrip strength	-0.021 (-0.114 – 0.071)	0.047	0.650	-0.061 (-0.181 – 0.060)	0.062	0.325
	6-minute walk test	0.002 (-0.007 – 0.011)	0.005	0.695	0.002 (-0.009 – 0.014)	0.006	0.689
	R^2 / R^2 adjusted	0.089 / 0.060			0.100 / 0.048		
Logistical factors							
	Max inspiratory pressure	0.044 (-0.020 – 0.107)	0.033	0.179	0.045 (-0.021 – 0.110)	0.033	0.182
	Max expiratory pressure	-0.001 (-0.041 – 0.038)	0.020	0.943	-0.002 (-0.043 – 0.039)	0.021	0.923
	Handgrip strength	-0.044 (-0.139 – 0.050)	0.048	0.357	-0.042 (-0.166 – 0.081)	0.063	0.500
	6-minute walk test	0.000 (-0.009 – 0.010)	0.005	0.935	-0.000 (-0.013 – 0.012)	0.006	0.936
	R^2 / R^2 adjusted	0.022 / -0.009			0.024 / -0.032		
Work | Time conflicts							
	Max inspiratory pressure	0.016 (-0.010 – 0.042)	0.013	0.219	0.012 (-0.014 – 0.037)	0.013	0.377
	Max expiratory pressure	0.001 (-0.015 – 0.017)	0.008	0.891	-0.004 (-0.020 – 0.012)	0.008	0.641
	Handgrip strength	0.029 (-0.009 – 0.066)	0.019	0.139	0.007 (-0.041 – 0.055)	0.025	0.774
	6-minute walk test	0.002 (-0.002 – 0.006)	0.002	0.285	-0.001 (-0.006 – 0.003)	0.002	0.542
	R^2 / R^2 adjusted	0.138 / 0.111			0.180 / 0.132		
Personal | Family problems							
	Max inspiratory pressure	0.018 (-0.028 – 0.064)	0.023	0.441	0.019 (-0.026 – 0.065)	0.023	0.401
	Max expiratory pressure	0.005 (-0.023 – 0.033)	0.014	0.744	-0.003 (-0.032 – 0.025)	0.015	0.825
	Handgrip strength	-0.021 (-0.089 – 0.047)	0.034	0.541	0.031 (-0.054 – 0.117)	0.043	0.470
	6-minute walk test	-0.000 (-0.007 – 0.006)	0.003	0.916	-0.003 (-0.012 – 0.005)	0.004	0.427
	R^2 / R^2 adjusted	0.012 / -0.020			0.086 / 0.033		

CRBS: Cardiac Rehabilitation Barriers Scale. *Adjusted for age, sex, and length of stay.

personal/family problems, and work/time conflict were not significantly associated with functional characteristics.

DISCUSSION

This study investigated the association between functional impairments at hospital discharge and barriers to cardiac rehabilitation in ACS patients 30 days following discharge from the coronary ward. The main findings of this study suggest that 1) participants reported barriers related to comorbidities/functional status and perceived needs/healthcare factors, and 2) specific barrier domains to CR are influenced by declines in respiratory muscle strength in adults with ACS 30 days after hospital discharge.

The primary limitation of this longitudinal study may stem from its observational design, limiting the generalization of the association as a cause-effect relationship[30]. Additionally, data on additional risk factors, such as pulmonary function tests and functional exercise capacity, were not collected, which could have provided further insights into the investigated relationships. Moreover, despite the use of national prediction equations, regional variations at the national level may partly account for the observed low prediction values for musculoskeletal functions. Conversely, the major strength of this research includes using valid and reliable instruments to assess CVD risk factors, respiratory and peripheral muscle strengths, functional capacity, and barriers to CR. Furthermore, the demographics and the risk factor profile of this longitudinal study closely resemble those of other studies involving adults admitted to the intensive care unit following an ACS event[31,32], thereby enhancing the external validity of our findings.

Current CR program participation rates are below 40% for various reasons, including transportation difficulties and perceived lack of need[33,34]. A systematic review has identified that personal and contextual factors influence participation in CR programs[35]. Personal characteristics such as sex, age, comorbidities, employment status, education level, and transportation have been associated with CR program participation. Additionally, the lack of awareness about the benefits of CR programs among medical staff may reduce referral rates and hinder disseminating relevant information to patients, potentially affecting their engagement in CR programs. Our study adds to this understanding by revealing that functional/comorbidity barriers to CR participation are related to respiratory muscle strength and functional capacity, and may contribute to lower attendance rates. Conversely, inpatient referral has been identified as a strong predictor of CR program attendance[36]. Participation in CR from 6 to 12 weeks after discharge has been shown to reduce ACS readmissions and mortality as secondary prevention[37,38]. Given these findings, healthcare providers should address functional impairments, such as low respiratory muscle strength and functional capacity, as part of tailored interventions to enhance CR program accessibility and engagement. Additionally, future studies may investigate whether post-discharge functional impairments are associated with hospital readmission in this population.

A previous study indicated HGS decreases with age in individuals with heart disease, with a more pronounced decline observed after the age of 45[39]. Similarly, respiratory muscle function may be compromised in this population, potentially contributing to decreased functional capacity[40]. Existing literature suggests that only 30% to 50% of outpatients with heart failure exhibit respiratory muscle weakness[40]. Our study not only corroborated those findings but also observed an association between MIP and CRBS scores; however, HGS was not significantly associated with CRBS. This lack of evidence suggests that other factors beyond muscle function, such as psychological or socioeconomic factors, could play a more prominent role in determining barriers to CR participation – as supported by other dimensions in the CRBS scale. Further research with larger and more diverse cohorts is warranted to elucidate the relationship between peripheral muscle function and barriers to CR more comprehensively.

CONCLUSION

Our study highlights the comorbidities/functional status and perceived needs/healthcare factors as major barriers to CR participation that are associated with inspiratory muscle strength in ACS patients post-discharge. Future studies are warranted on whether post-discharge functional impairments are also associated with hospital readmission. Additional studies to investigate the effectiveness of interventions targeting inspiratory muscle strength and functional capacity during hospitalization in overcoming barriers to CR participation in this population are encouraged.

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CONFLICT OF INTEREST

None to declare

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