



ORIGINAL ARTICLE

## Musculoskeletal complaints in cardiac rehabilitation: Prevalence and impact on cardiovascular risk factor profile and functional and psychosocial status



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### KEYWORDS

Coronary disease;  
Musculoskeletal pain;  
Physical activity

### Abstract

**Objective:** To assess the prevalence of musculoskeletal complaints and their association with risk factor profile and functional and psychosocial status in patients on a cardiac rehabilitation program.

**Methods:** In this cross-sectional study of 449 patients admitted within three months of an acute coronary syndrome, patients were divided into those with (MSC+) and those without (MSC–) musculoskeletal complaints. The Hospital Anxiety and Depression Scale and the Short Form 36 Health Survey were used to assess psychosocial status and quality of life, and the International Physical Activity Questionnaire for physical activity. Functional capacity was estimated from exercise testing.

**Results:** Musculoskeletal pain was present in 119 patients (27%), mainly in the lower limbs (56%). MSC+ were older (mean 56.5±9.9 vs. 53.2±9.5 years; p<0.001) and more frequently women (20.2% vs. 9.1%; p<0.001). MSC+ had a higher prevalence of dyslipidemia (68.6% vs. 51.2%; p<0.001), hypertension (51.7% vs. 35.5%; p<0.001), obesity (29.4% vs. 17.9%; p<0.001) and metabolic syndrome (44.5% vs. 31.5%; p<0.001). MSC+ showed higher body mass index and waist circumference, and lower physical activity levels (p<0.05), as well as lower functional capacity (8.6±2.2 vs. 9.6±2.1 MET; p<0.05), higher scores for depression (6 [3–9] vs. 3 [1–7]; p<0.05) and anxiety (7 [3–10] vs. 5 [2–8]; p<0.05), and lower scores for physical (44.1±8.7 vs. 47.6±7.6; p<0.05) and mental (39.2±13.0 vs. 44.0±13.0; p<0.05) quality of life.

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**PALAVRAS-CHAVE**

Doença coronária;  
Dor músculo-  
esquelética;  
Atividade física

**Conclusions:** Musculoskeletal complaints are common in cardiac rehabilitation and predict lower levels of physical activity, worse cardiovascular risk factor profile, and poorer functional capacity and psychosocial status, irrespective of age and gender.

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### Dor músculo-esquelética em reabilitação cardíaca: prevalência e impacto no perfil de risco cardiovascular e estado funcional e psicossocial

**Resumo**

**Objetivo:** determinar a prevalência da dor músculo-esquelética e sua associação com perfil de risco cardiovascular, estado funcional e psicossocial em doentes admitidos num programa de reabilitação cardíaca

**Métodos:** estudo transversal de 449 doentes admitidos nos primeiros três meses após síndrome coronária aguda. Os doentes foram categorizados em grupo com (MSC+) e sem (MSC-) dor músculo-esquelética. O estado psicossocial e a qualidade foram avaliadas com as escalas HADS e SF36 e a atividade física com o IPAQ. Capacidade funcional foi estimada com prova de esforço basal.

**Resultados:** Dor músculo-esquelética estava presente em 119 (27%), maioritariamente nos membros inferiores (56%). MSC+ eram mais velhos [média(DP): 56,5±9,9 versus 53,2±9,5; p<0,001] e mais frequentemente mulheres [20,2% versus 9,1%; p<0,001]. MSC+ apresentavam maior prevalência de dislipidemia (68,6% versus 51,2%; p<0,001), hipertensão arterial (51,7% versus 35,5%; p<0,001), obesidade (29,4% versus 17,9%; p<0,001) e síndrome metabólica (44,5% versus 31,5%; p<0,001). MSC+ mostravam maiores índice de massa corporal e perímetro abdominal e menor atividade física (p<0,005). MSC+ tinham menor capacidade funcional [8,6±2,2 versus 9,6±2,1 MET; p<0,05], maior prevalência de sintomas depressivos [6(3-9) versus 3(1-7); p<0,05] e ansiosos [7(3-10) versus 5(2-8); p<0,05], e menor qualidade de vida física [44,1±8,7 versus 47,6±7,6; p<0,05] e mental [39,2±13,0 versus 44,0±13,0; p<0,05].

**Conclusão:** Dor músculo-esquelética associa-se a menores níveis de atividade física, pior capacidade funcional, pior perfil de risco cardiovascular e a um estado psicossocial mais adverso.

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## Introduction and Objectives

Despite recent advances in both revascularization procedures and drug therapy, coronary heart disease (CHD) remains the major cause of death and disability worldwide, and is expected to remain so for at least the next 20 years.<sup>1,2</sup> Population aging, together with a sharp decrease in case fatality, have resulted in a growing population of CHD survivors who, over time, frequently develop significant disability, restrictions in work and social participation, and need for continuous medical assistance.<sup>3</sup>

The prevalence of musculoskeletal complaints (MSC) also increases with age and is a major cause of disability and functional impairment.<sup>1</sup> It has been shown that CHD patients have double the risk of suffering from arthritis and 30% higher probability of being physically inactive compared to the general population, even adjusting for age, gender, race/ethnicity, education level, and body mass index (BMI).<sup>4</sup> However, several mechanisms may contribute to this association, particularly restricted physical activity,<sup>4</sup> unhealthy lifestyles,

low-grade inflammatory activation,<sup>5</sup> and prolonged use of anti-inflammatory drugs.<sup>6</sup>

Cardiac rehabilitation (CR) offers an excellent opportunity for identification and early management of MSC, helping to overcome barriers that restrict activity and providing individualized exercise programs.

Our objectives were: (1) to assess the prevalence of MSC in patients undergoing CR; (2) to study the association between MSC and cardiovascular (CV) risk profile and functional and psychosocial status; and (3) to estimate the increased prevalence of different CV risk factors due to the presence of MSC.

## Methods

### Study design

This was a single-center hospital-based cross-sectional study. The CR program took place in a cardiac rehabilitation unit. Enrollment in CR was voluntary after referral from the attending cardiologist during the initial hospitalization.

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