PHYSICAL ACTIVITY BUFFERS DETRIMENTAL INFLUENCE OF STRESS ON DEPRESSION AND ANXIETY AMONG PATIENTS WITH CORONARY HEART DISEASE

Biing-Jiun Shen, PhD¹, Ester Pei Xuan Lee, N/A², Hung Yong Tay, MS³, Cindy KS Lim, N/A³

¹Nanyang Technological University, Singapore; ²Nanyang Technological University, Singapore, N/A, Singapore; ³Singapore Heart Foundation, Singapore, N/A, Singapore

**Background:** For patients with coronary heart disease (CHD), promotion of physical activity is an essential task in behavioral intervention to encourage comprehensive healthy lifestyle changes. Research has shown that stress, depression, and anxiety are prevalent and detrimental to CHD patients. This study investigated whether physical activity would buffer the negative effect of stress on depressive and anxiety symptoms among CHD patients.

**Methodology:** Participants were 161 CHD patients (84% men), with a mean age of 63.7 (SD=9.1), who participated in a community-based cardiac rehabilitation program. Physical activity was assessed with the International Physical Activity Questionnaire, stress by Perceived Stress Scale, depression by the Center for Epidemiologic Studies Depression Scale, and anxiety by the Hospital Anxiety and Depression Scale. Hierarchical multiple regression was conducted to examine (1) whether higher stress and lower physical activity were associated with elevated depression and anxiety symptoms, and (2) whether physical activity interacted with stress to buffer its negative impact on depression and anxiety. All models were adjusted for age, gender, and ethnicity as standard covariates.

**Results:** In the model to predict depressive symptom severity, both higher stress (β = .55, \(p < .001\)) and lower physical activity (β = -.15, \(p = .03\)) were significantly associated with higher depressive symptoms, and there was also a significant stress by physical activity interaction (β = -.20, \(p = .004\)), indicating that physical activity buffered the negative impact of stress on depression. The simple slope analysis showed that for patients with higher stress levels (1 SD above the mean), higher physical activity was strongly associated with lower depressive symptoms (β = -.36, \(p = .002\)), whereas for those with lower stress (1 SD below mean), physical activity (β =.07, \(p = .47\)) was not associated with depression. In predicting anxiety, higher stress (β = .44, \(p < .001\)) and lower physical activity (β = -.16, \(p = .03\)) were both significantly associated with more elevated anxiety, and there was a significant stress by physical activity interaction (β = -.32, \(p < .001\)) indicating a buffering effect. The simple slope analysis demonstrated that for patients with higher stress, higher physical activity (β = -.51, \(p < .001\)) was strongly associated with lower anxiety; in contrast, for those with lower stress, physical activity was related to higher anxiety (β =.20, \(p = .03\)).

**Conclusion:** The findings suggest that physical activity appears to be an effective stress buffer.
among CHD patients. Promoting physical activity may be associated with lower depression and anxiety, especially for patients with higher stress levels.

CORRESPONDING AUTHOR: Biing-Jiun Shen, PhD, Nanyang Technological University, Singapore; bjshen@ntu.edu.sg