**Associations between physical activity and subcategories of mental health: A propensity score analysis among a global sample of 341,956 adults**

**Abstract**

Background: Evidence indicates that physical activity (PA) can be a clinically useful and low-cost option for preventing and managing many mental health problems. Further investigation into which specific aspects of mental health are most influenced by PA can help to elucidate the differential effects that PA may confer.

Purpose: This study used cross-sectional data from the Global Mind Project to investigate the association of PA on overall mental well-being and various subcategories of mental health across different adult age groups.

Methods: Participants completed the 47-item Mental Health Quotient (MHQ) and reported how frequently they engaged in daily bouts of PA for 30 min or more. Weighted propensity score models were used to estimate the Average Treatment effect on the Control (ATC) of PA engagement on overall mental well-being as well as six subcategories of mental health.

Results: An estimated ATC of 17.41 was found for overall MHQ, corresponding to a standardized mean difference (SMD) of 0.25. Among the mental health subcategories, PA engagement was estimated to have the largest ATC for Mind-Body Connection (ATC=18.90; SMD=0.30), followed by Adaptability and Resilience (ATC=17.09; SMD=0.26), Core Cognition (ATC=16.00; SMD=0.24), Drive and Motivation (ATC=15.43; SMD=0.24), Mood and Outlook (ATC=14.81; SMD=0.21), and Social Self (ATC=12.53; SMD=0.17).

Conclusion: Our findings support the existing literature demonstrating an association of PA engagement on overall mental well-being, and builds on this work by revealing consistent effects that exist across various mental health subcategories and the adult lifespan.