

Sociodemographic correlates of physical activity grades in the **Global Matrix 3.0**

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Abstract

High levels of child and youth physical inactivity around the world represent a complex problem for which a single, generic solution may be misguided. Multiple factors from a diverse sample of countries may help inform the development of effective physical activity strategies. Therefore, we examined sociodemographic correlates of physical activity grades from 49 countries across six continents that participated in the Global Matrix 3.0. Participating countries followed a standardized process to assign letter grades (A, B, C, D, F or Incomplete) to 10 indicators of physical activity, based on the proportion of 5- to 17-year-olds meeting a given benchmark(s). The number of A, B or C grades (i.e. good grades; 229/490) and the number of Incomplete grades (121/490) were tallied for each country. Country-level sociodemographic data were accessed from several online databases and included: distance to the equator, gross national income per capita (GNI), the Gender Inequality Index (GII), the Gini coefficient, life expectancy at birth, public health expenditures (%GNI) and population density. Two generalized linear models were fit with the number of A, B or C grades (model 1) and the number of Incomplete grades (model 2) regressed on multiple sociodemographic predictors. Incident rate ratios (IRR) were computed from model estimates. An alpha level of 0.20 was set for identifying correlates. In model 1 (Cox & Snell's $R^2 = 0.37$), four correlates were identified: GNI per capita (IRR = 0.99, CI = 0.99-1.00, $p < 0.01$), GII (IRR = 0.99, CI = 0.97-1.00, $p = 0.10$), Gini (IRR = 0.98, CI = 0.97-1.00, $p = 0.03$) and public health expenditures (IRR = 1.18, CI = 1.07-1.31, $p < 0.01$). In model 2 (Cox & Snell's $R^2 = 0.36$), four correlates were also identified: GII (IRR = 1.03, CI = 1.00-1.07, $p = 0.08$), Gini (IRR = 1.03, CI = 1.00-1.06, $p = 0.09$), life expectancy (IRR = 1.05, CI = 0.99-1.11, $p = 0.08$) and population density (IRR = 1.00, CI = 1.00-1.00, $p = 0.01$). These correlates may be helpful when developing strategies to improve physical activity grades within specific countries.

Introduction

High levels of child and youth physical inactivity around the world represent a complex problem for which a single, generic solution may be misguided. Multiple factors from a diverse sample of countries may help inform the development of effective physical activity strategies. Therefore, we examined sociodemographic correlates of physical activity grades from 49 countries across six continents that participated in the Global Matrix 3.0.

Methods

Participating countries (figure 1) followed a standardized process to assign letter grades (A, B, C, D, F or Incomplete) to 10 indicators of physical activity, based on the proportion of 5- to 17-year-olds meeting a given benchmark(s). Indicators included: overall physical activity, organized sport and physical activity, active play, active transportation, sedentary behavior, physical fitness, family and peers, school, community and environment, and government. The number of A, B or C grades (i.e. good grades; 229/490) and the number of Incomplete grades (121/490) were tallied for each country (figure 2). Country-level sociodemographic data were accessed from several online databases and included: distance to the equator, gross national income per capita (GNI), the Gender Inequality Index (GII), the Gini coefficient, life expectancy at birth, public health expenditures (%GNI) and population density. Two generalized linear models were fit with the number of A, B or C grades (model 1) and the number of Incomplete grades (model 2) regressed on multiple sociodemographic predictors. Incident rate ratios (IRR) were computed from model estimates. An alpha level of 0.20 was set for identifying correlates. All analyses and data visualizations were performed using R 3.6.1 and RStudio 1.2.5001.

Results

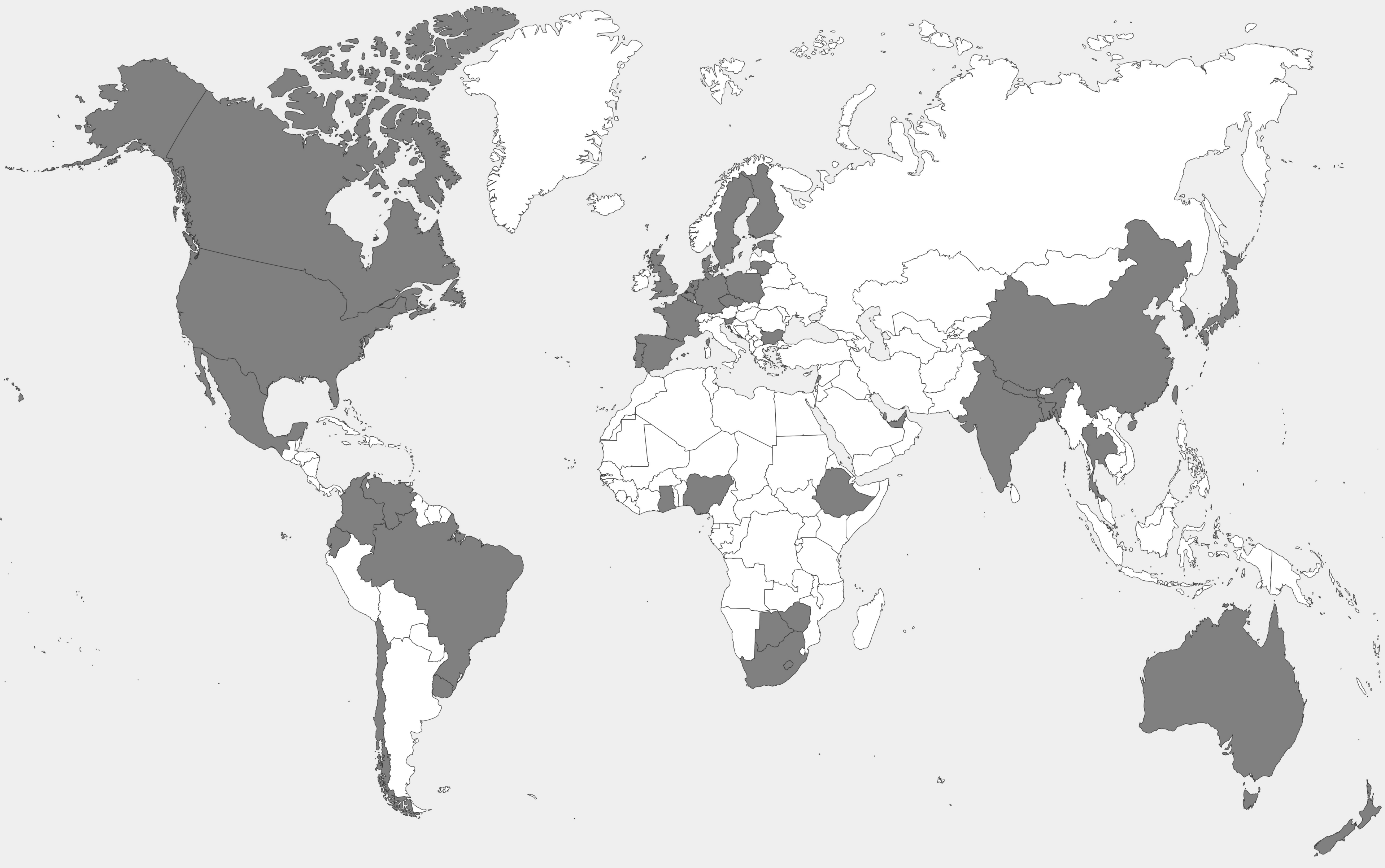


Figure 1. World map of participating countries (shaded) in the Global Matrix 3.0.

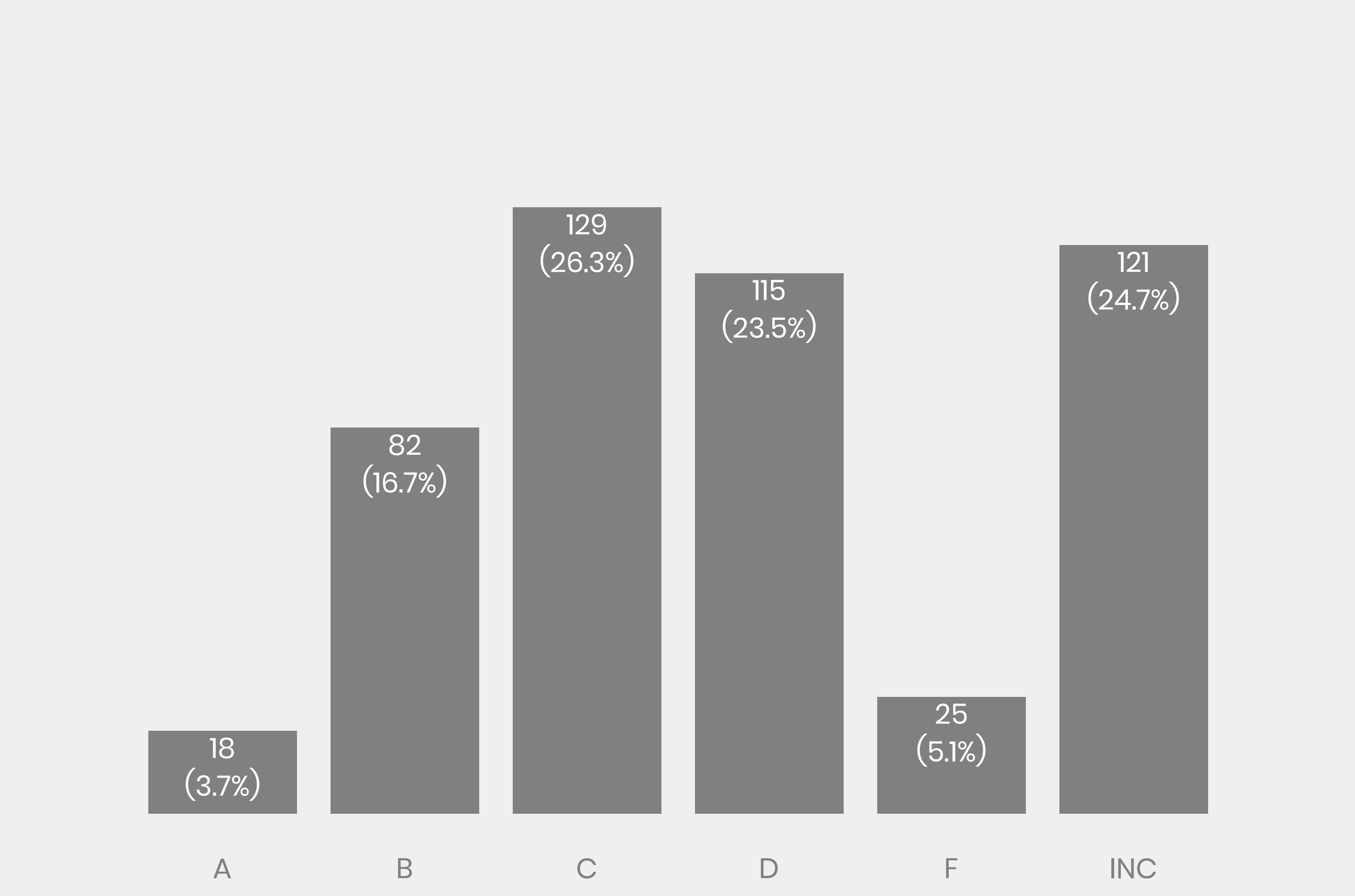


Figure 2. Tally of letter grades from the 49 participating in the Global Matrix 3.0 (INC: incomplete).

Conclusions

These correlates may be helpful when developing strategies to improve physical activity grades within specific countries.

