Background

Intellectual and developmental disabilities (IDD) comprise lifelong limitations of intellectual, physical, or emotional development. Increased risk of childhood obesity has been found in children and adolescents with IDD (CAIDD) across a diverse range of countries. This is particularly concerning because childhood obesity is associated with hypertension, Type 2 diabetes, musculoskeletal problems, and obesity in adulthood, contributing to a decreased life expectancy of 12.7 years in CAIDD. Exercise can alleviate morbidity and mortality faced by CAIDD; however, barriers to exercise for this population are not well understood. In this study, we aim to understand the global variations in barriers to exercise for CAIDD.

Methods

This retrospective review examined data collected by the Special Olympics Healthy Athletes Program across 193 countries, separated into seven regions, between 2007 and 2020. We included 2866 participants (ages 0–21 years) with IDD who reported having no regular activity program. The primary outcome was which of nine barriers to exercise participants reported, totaling 3870 responses. χ^2 tests were used to test significance, at $p<0.001$.

Findings

2906 participants were enrolled, with a mean age of 14.4 years (SD 4.7); 1212 (42.3%) were female. 589 participants lived in Africa (AF), 698 in Asia Pacific (AP), 172 in East Asia (EA), 486 in Europe (EU), 592 in Latin America (LA), 34 in Middle East (ME), and 335 in North America (NA). The primary outcome had 3870 responses. For each region except ME, there was statistically significant variation in the frequency of reported barriers. In EA, EU, and NA, the most frequent barrier was lack of interest (50.7%, 45.5%, and 57.8% respectively; all $p<0{\cdot}001$). By contrast, no facilities was the most frequent barrier in AF, AP, and LA (25.4%, 72.4%, and 25.6% respectively; all $p<0{\cdot}001$), as well as ME (52.9%, $p=0.04$). For all nine barriers there was regional variation in the likelihood each barrier was reported (all $p<0.001$). Interest was most often cited in NA (RR 2.65), professional help in EA (RR 1.91), equipment in AF (RR 1.65), partner in EU (RR 1.58), transportation in AF (RR 2.15), finances in AF (RR 2.16), physical ability in LA (RR 1.36), facilities in AP (RR 2.32), and safety in LA (RR 3.53).

Interpretation

Barriers to exercise for CAIDD vary depending on region, to our knowledge this is the largest study examining these barriers. This analysis could help to inform health policy and target interventions to improve exercise frequency and prevent morbidity and mortality in CAIDD.

	AFRICA	ASIA PACIFIC	EAST ASIA	EUROPE	LATIN AMERICA	MIDDLE EAST	NORTH AMERICA	GLOBAL	P-VALUE FOR BARRIER
# RESPONDENTS	589	698	172	486	592	34	335	2906	
# RESPONSES	1276	729	203	550	704	34	374	3870	
AVG. AGE (YEARS)	12.2	15.4	14.7	16.0	11.9	17.5	16.3	14.4	
PERCENT FEMALE	39.7	35.5%	31.4%	38.0%	40.2%	41.5%	41.5%	42.3	
INTEREST	68 (5.3%)	69 (9.5%)	103 (50.7%)	250 (45.5%)	125 (17.8%)	11 (32.4%)	216 (57.8%)	842 (21.8%)	<0.001
PROFESSIONAL HELP	30 (2.4%)	65 (8.9%)	26 (12.8%)	36 (6.5%)	80 (11.4%)	0 (0%)	22 (5.9%)	259 (6.7%)	<0.001
EQUIPMENT	72 (5.6%)	0 (0%)	3 (1.5%)	18 (3.3%)	27 (3.8%)	0 (0%)	12 (3.2%)	132 (3.4%)	<0.001
EXERCISE PARTNER	51 (4.0%)	30 (4.1%)	14 (6.9%)	52 (9.5%)	58 (8.2%)	1 (2.9%)	25 (6.7%)	231 (6.0%)	<0.001
TRANSPORTATION	287 (22.5%)	16 (2.2%)	10 (4.9%)	11 (2.0%)	63 (8.9%)	3 (8.8%)	15 (4.0%)	405 (10.5%)	<0.001
FINANCES	305 (23.9%)	8 (1.1%)	2 (1.0%)	43 (7.8%)	62 (8.8%)	1 (2.9%)	7 (1.9%)	428 (11.1%)	<0.001
PHYSICAL ABILITY	135 (10.6%)	9 (1.2%)	20 (9.9%)	58 (10.5%)	80 (11.4%)	0 (0%)	22 (5.9%)	324 (8.4%)	<0.001
FACILITIES	324 (25.4%)	528 (72.4%)	23 (11.3%)	77 (14.0%)	182 (25.9%)	18 (52.9%)	156 (12.9%)	1207 (31.2%)	<0.001
SAFETY	4 (0.3%)	4 (0.5%)	2(1.0%)	5 (0.9%)	27 (3.8%)	0 (0%)	0 (0%)	42 (1.1%)	<0.001
P-VALUE FOR REGION	<0.001	<0.001	<0.001	<0.001	<0.001	0.04	<0.001		

Table 1

Frequency and percentage of responses indicating each barrier that is present as a proportion of total responses within each respective region. P-value for barrier shows the differences between regions of a barrier being cited. P-value for region shows the differences in the barriers cited within a region.