

Legacy of the Special Olympics World Games Berlin 2023

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Study design and participants

This quasi-experimental trial was performed in urban and municipal areas throughout Germany. Adults of any gender, race/ethnicity were eligible for participation if they resided in one of the a priori selected communities, were at least 18 years of age and part of one of the three stakeholder groups. The recruitment period, including the baseline measurement, commenced on March 14th 2023 and concluded on June 8th, 2023. The intervention (Host Town Program) was conducted from June 12th to 15th, 2023. The post intervention measurement took place from June 26th to July 15th, 2023 and the 6-months follow up measurement from November 29th, 2023 to December 31st, 2023.

The intervention group comprised residents from Host Towns, while the control group consisted of residents from municipalities that had not applied to become Host Towns (prior to the initiation of the study, 216 municipalities were selected by Special Olympics to deliver the Host Town Program). Host Towns and Control towns were constituted through a random selection process, stratified by municipality size. Of note, random selection was only feasible within the group of the Control Towns, while allocation to the intervention was not at random (Host Towns were defined by Special Olympics; nonequivalent groups design). The selection of municipalities was conducted from a range of urban and rural communities, encompassing large cities, medium-sized towns, small towns, and rural communities, in accordance with the categorisation of city and community types as delineated by the Federal Institute for Research on Building, Urban Affairs and Spatial Development (Bundesinstitut für Bau-, Stadt- und Raumforschung., 2017).

Intervention

The Host Town Program facilitated interaction and contact between people with and without intellectual disabilities to promote positive attitudes towards people with intellectual disabilities in Host Towns in Germany. Therefore, in every Host Town a Host Town Program leader organized inclusive activities. These activities included sport festivals, school visits, workshops, and festivals. Furthermore, Host Towns functioned as hosts for the international delegations of Special Olympics athletes. The activities were planned in cooperation with local stakeholders from sports clubs, schools, and political institutions. A preliminary study was conducted in which 56 leaders of the Host Town Program were invited to provide feedback on the planned content of the program. As a result, 89% of Host Town Program leaders planned to collaborate with regional sports clubs, 50% stated that they involve schools, 39% intended to engage organizations for people with intellectual disabilities, and 4% wanted to involve kindergartens.

To prepare for the Host Town Program, monthly trainings for Host Town Program leaders have been conducted by the Berlin 2023 LOC. The objective of the training program was to provide program leaders and stakeholders with the knowledge and skills necessary to plan and implement inclusive events in collaboration with people living with intellectual disabilities.

Therefore, the following teaching and learning materials were made available for use:

Guidelines for the promotion of inclusion in sporting activities, activity cards and project outlines for the promotion of inclusion in sports, guidelines for the establishment of inclusive communities and workshops for people with intellectual disabilities on the promotion of healthy and physically active lifestyles. After the Host Town Program, in August 2023, a series of sustainability workshops were conducted for the Host Town Program leaders and other community members involved in the local programs. The objective of these workshops was to facilitate the dissemination of knowledge, best practice advice, and feedback among

participating communities. Additionally, these workshops aimed to establish sustainable interventions and networks.

Primary outcomes

The primary outcomes of the present study was to ascertain participants' attitude change toward people with intellectual disabilities, measured by the self-administered Attitudes Toward Intellectual Disability – Short Form (ATTID-SF) questionnaire (D. Morin, Crocker, et al., 2013; D. Morin et al., 2019) translated into German. Attitude change was measured at post intervention and 6-months follow up.

The ATTID-SF assesses three components of attitudes according to a multidimensional model (Findler et al., 2007). Firstly, what positive and negative feelings do I have toward people with intellectual disabilities (emotion). Secondly, what do I think and know about people with intellectual disabilities and what perceptions, beliefs and opinions do I have (cognition). Thirdly, how do I behave toward people with intellectual disabilities (behavior). In collaboration with the author of the original questionnaire and considering the guidelines for intercultural adaptation, the questionnaire was translated into German and validated in a pilot study. The short form of the ATTID questionnaire consists of 35 questions (items) on a 5-point Likert scale (ranging from [1] strongly agree to [5] strongly disagree). High scores indicate negative attitudes toward people with intellectual disabilities. The questions are grouped into five factors: interaction, sensitivity or tenderness, discomfort, knowledge about the abilities of people with intellectual disabilities, and knowledge about the causes of intellectual disabilities. For each category, a mean is calculated. However, due to the factor structure, it is not recommended to calculate an overall score (D. Morin et al., 2019). Furthermore, data on socio-demographic characteristics, including age, gender, and level of education, were collected at baseline.

Statistical analysis

The minimum sample size was determined using an priori power analysis. The analysis was based on existing research that reported small effect sizes in attitudinal change trials (Diane Morin et al., 2023; Varughese & Luty, 2010; Walker & Scior, 2013). The only trial on attitudinal change study in the context of Special Olympics was conducted by Diane Morin et al. (2023) with small Cohen's d effect sizes for the sensitivity or tenderness factor ($d = 0.32$) and interaction factor ($d = 0.25$). We anticipated a mean effect size of $d = 0.29$, calculated from these two factors, for our sample size calculation. We assumed a two-sided t -test, an alpha level of 0.05, and a statistical power of 80%. Using G*Power 3.1.9.7 (Faul et al., 2009), we calculated a total sample size of 296 participants. In addition, we assumed an average dropout rate of 48% after baseline measurement, given the literature on dropout rates for attitude change in Special Olympics settings of 34% (Sullivan & Masters Glidden, 2014) and of 63% in average online surveys for randomly selected samples (Wu et al. (2022)). The aim was therefore to achieve a total sample size of 700 participants.

Descriptive statistics are presented using mean and standard deviation (SD) for continuous variables (unless otherwise stated). We used t -tests, Mann-Whitney U tests, or Chi-square tests to compare differences between groups (e.g., intervention vs control), depending on the distribution of metric data and the level of measurement. Associations of missingness at follow-up with baseline characteristics were assessed using binary logistic regression models.

A general linear model was used for analyses. All models were derived from complete cases according to allocation. K. Scior (2011) published a study identifying age and education as significant predictors of attitudes toward people with intellectual disabilities. Additionally, prior contact through sports has been demonstrated to be associated with less negative behavioral and affective attitudes (Albaum et al., 2022). Consequently, all models were adjusted for age, education, participation in sports, physical activity with people with intellectual

disabilities, and baseline outcomes. For sensitivity analysis, we further adjusted for gender, income, and work with people with intellectual disabilities. The literature for this three confounders is inconsistent (D. Morin, Rivard, et al., 2013; Scior, 2011; Slater et al., 2020). Furthermore, analysis were repeated after excluding outliers ($\pm 3SD$ away from the mean). The significance level was set at $p < 0.05$ (two-sided). The statistical analyses were performed using IBM SPSS Statistics (Version 30).