**Public attitudes to the rights and community inclusion of people with intellectual disabilities: A transnational study.**

**Highlights**

The general public in 17 countries mostly endorse the rights of people with ID

Comfort at meeting people with ID predicted support for rights and acceptance.

Country status on equality and development indices affected personal attitudes

Organisations that demonstrate social inclusion mediate public perceptions.

**Abstract**

Background: Public support for the rights of persons with intellectual disability (ID) and their acceptance in local communities has been rarely studied internationally and the variables associated with more positive attitudes remain to be confirmed.

Aims: To develop and test a model that brought together personal, organisational and national predictors related to public attitudes that have been previously identified in past research.

Methods and Procedures: Self-completed, online surveys were undertaken with market research panels in 17 countries and in eight cities in the USA with a total of 36,508 respondents who were representative in terms of gender and age. Path analysis was used to explore the inter-relationships among the predictor, possible mediating and outcomes variables.

Outcomes and Results: The resulting model was a good fit for the data. Support for the rights and community acceptance of people with ID was highest among university educated respondents, those who were comfortable at meeting people with ID and those living in countries with very high ratings on the Inequality Adjusted Human Development Index.

Conclusions and Implications: The model could guide further research into public attitudes alongside the development of interventions to promote more positive attitudes. Further research into the validity of the model is proposed.

**What this paper adds?**

Unlike past research, this study used representative samples across 17 countries and a common set of questions to investigate public attitudes towards two issues of concern to people with intellectual disability: their rights and acceptance within local communities. Moreover the study developed and tested a model for the possible influences on public attitudes based on past research findings and an ecological model for changing attitudes.

The resulting model identified the effect that a nation’s ratings on the Inequality Adjusted Human Development Index can have on public attitudes to rights and community acceptance which was made possible by conducting multi-national research.

The model also clarified the relationship between prior contact with people with intellectual disability and support for their rights and acceptance: namely that it is not direct but rather is mediated through perceptions of a person’s capabilities and their comfort at meeting them. Likewise an international organisation such as Special Olympics seems to have an indirect effect on public attitudes by boosting perceptions of their capabilities and making the public more comfortable with meeting them.

The model confirmed that the commonly reported finding that university educated respondents hold more supportive attitudes, but the impact of gender was much more limited.

Examples are given as to how the model could guide attitude change initiatives and future research. Further tests of its validity are proposed.

**Key words**

Intellectual Disability Rights Inclusion General Public International Special Olympics

# 1. Introduction

The United Nations Convention on the Rights of Persons with Disabilities has been signed and ratified by 174 countries world-wide since its launch in 2006. The Convention covers people with all levels of intellectual disability, however advocates with physical and sensorial disabilities have been more to the fore in promoting the Convention as a driver for improving the quality of life of disabled citizens (Mittler, 2015).

A fundamental principle of the Convention is that people with disabilities will enjoy “full and effective participation and inclusion in society” (Article 3). However there are well recognized obstacles to achieving these aspirations (Merrills, Buchanan & Waters, 2018). A commonly cited barrier is the attitudes of the general public towards people with disabilities. The stigma attached to intellectual disability in particular and the discrimination people with intellectual disability experience in many cultures is well documented (Scior et al., 2016). Less attention has been paid to how such barriers might be overcome (Werner & Scior, 2016). Moreover, the lack of a coherent theoretical framework for reducing stigma is seen as a major impediment towards improving attitudes in the field of intellectual disability; particularly in directing efforts aimed at promoting more positive attitudes and a greater acceptance of making local and national communities more inclusive (Scior et al., 2016).

A particularly influential theory in relation to marginalized groups more generally has been the ‘contact hypothesis’: namely that more positive attitudes can be fostered through positive, personal contacts with members of the ‘out group’ (Allport,1954). Indeed contact with only one person seems sufficient for generalization to the wider group (Ramiah & Hewstone, 2013). A substantial body of research supports this model although its application to people with intellectual disability remains sparse (Paluck, Green, & Green, 2018). Nonetheless there is growing evidence that quality contact is also associated with more positive attitudes towards people with intellectual disability (Keith, Bennetto & Rogge, 2015). In addition, a systematic review of attitudinal research towards people with intellectual disability has found that females and more educated persons are more likely to hold positive attitudes (Scior, 2011), although the reasons for this remain speculative.

More broadly, Fisher & Purcal (2017) have proposed a three-tier, ecological framework in relation to changing attitudes: namely that change has to occur at the personal, organizational and governmental levels. The latter has probably been least studied despite the increased number of legal and policy initiatives in support of rights and social inclusion of persons with disabilities across the globe (Mannan et al., 2012). However, nations clearly differ in the extent to which their societies have become more equal and inclusive (Wilkinson & Pickett, 2010). To date there is a lack of research on the relationship between national standing (in terms of development and inequalities) with public attitudes to marginalized groups; largely due to the dearth of transnational studies. Yet it is feasible that cultural differences both within and between nations could affect public responses to stigmatized groups (Scior, Addai‐Davis, Kenyon & Sheridan, 2013).

Likewise the impact on attitude formation and change among the general population of organisations – especially those involved in the delivery of education, health and social care - has also received scarce attention. Of particular significance is the long history of institutionalization of people with intellectual disability that removed them from their families and community. The intention was to ensure their safety as well as offering protection for the general public, which surely reinforced some of stigmatized attitudes of the general public towards them (Beadle-Brown, Mansell & Kozma, 2009).

Conversely organisations also have the capacity to change public opinion (Cook, Purdie-Vaughns, Meyer & Busch, 2014). Of particular note is the international contribution made by Special Olympics to the public awareness of people with intellectual disability (Harada, Siperstein, Parker & Lenox, 2011). Started over 50 years ago, it provides sports training and competitions for over five million persons with intellectual disability in more than 170 countries. In recent years, Special Olympics has instituted a variety of other programs around health, youth leadership and early child development. The organisation’s Global Strategic Plan states that “attitude change must be a deliberate outcome of Special Olympics” in order to promote “the inclusion of people with intellectual disabilities in friendships, communities, health, education, and jobs” (Special Olympics, 2019).

## 1.1 Conceptual Model and Aims

It was against this background that a conceptual model was devised and tested using data from a transnational study in 17 countries. Such a model could serve two purposes. It would guide future research initiatives as well as identifying approaches for promoting more positive attitudes to the rights and community inclusion of people with intellectual disabilities.

The focus of the model was on public attitudes to the rights and capabilities of persons with intellectual disability and on their perceptions of community acceptance within their local neighbourhoods. This lens provided a more specific context for examining public attitudes given that much of the focus of past research has been on more generalized reactions to people with intellectual disability (Scior, 2011). Moreover the topics of rights and community acceptance were major concerns for persons with an intellectual disability and they feature strongly in the UN Convention (Lombardi et al., 2019).

The model was based on the broad ecological framework proposed by Fisher & Purcal (2017) allied to the contact hypothesis. Based on past research, four predictors were included for the personal level of the framework: namely, contact with a person with intellectual disability, comfort with social interactions with people with them, gender, and education level (Morin, Rivard, Crocker, Boursier & Caron, 2013; McConkey, 2015; Scior & Werner, 2016). The organizational level of the framework was represented in the model by the public’s awareness of, and engagement with Special Olympics. The country’s Inequality Adjusted Index of Human Development (UNDP, 2019) was included as a proxy for the governmental context as it combines a measure of a country’s developmental status allied with social inequalities. To our knowledge, no research on attitudes to disability has considered either an organizational or governmental influence on public attitudes.

In addition, a possible mediating variable on public attitudes was included. Past research suggests that people with more severe disabilities are viewed more negatively than more able persons (e.g. Siperstein et al., 2007). Hence a measure of public perceptions about the capabilities of people with intellectual disability was included.

In testing the proposed model, the study also aimed to overcome two other criticisms of past research, namely around generalizability and representation. Representative samples of national populations in terms of age and gender were recruited. The applicability of the model was tested across 17 countries.

# 2. Methods and Procedures

## 2.1 Country selection and research design

Special Olympics Inc partnered with the market research firm Kantar Millward Brown – a leading international market research organisation - to implement a global survey of attitudes. Special Olympics staff selected the locations in which samples would be recruited: namely ones in which Special Olympics had a particular interest because of the activities and programs underway or planned for them. A full list of participating sites is given in Table 1. All country and city samples included 1500 respondents except where indicated.

**Table 1**

*International Sample Sites and Respective Sample Sizes and IHDI Grouping*

|  |  |  |
| --- | --- | --- |
| USA2 | Europe | Other Regions |
| National (n=1491) | Austria1 | **Asia - Pacific** |
| Boston (n=1501) | Belgium1 | India3 (1501) |
| Chicago (n=1503) | Finland1 (n=1501) | Japan1 (n=1499) |
| Indianapolis | Germany1 | China3 (n=1504) |
| Philadelphia | Ireland1 | **Central America** |
| Phoenix | Malta1 (n=502) | Mexico3 (n-1502) |
| San Francisco | Poland2 | Panama3 (n=1504) |
| Seattle | Romania2 | **Middle East** |
| Washington DC | United Kingdom1 | United Arab EmiratesNA |
|  |  | **Africa** |
|  |  | South Africa3 |

1Very high IHDI 2High IHDI 3Medium High NANot Available

In total, 25 discrete surveys were conducted in eight US cities and 17 national surveys with 36,508 members of public.

## 2.2 Participants

Table 2 summarizes the demographic characteristics of the participants across the total sample of 36,508 respondents. The samples were representative of national and city populations in terms of gender and age although details were gathered on other pertinent characteristics. Of note is the high percentage of university educated respondents which may reflect a bias arising from using online panels for the surveys. Almost 30% of the respondents had frequent personal contact with people with intellectual disability whereas the remainder had infrequent or no contact. In all, 15% of respondents had an active or associate involvement with Special Olympics.

**Table 2**

*The Characteristics of Respondents across the 17 countries (n=36,508)*

|  |  |  |
| --- | --- | --- |
|  | Number | Percent |
| Gender | | |
| Male | 18,462 | 50.6% |
| Female | 18,046 | 49.4% |
| Age Bands | | |
| 18-34 yrs | 11,640 | 31.9 |
| 35-54 yrs | 12,902 | 35.3 |
| 55+ yrs | 11,966 | 32.8 |
| University educated | | |
| Yes | 20,464 | 56.1 |
| No | 16,031 | 43.9 |
| Marital status | | |
| Married/partner | 22,876 | 63.8 |
| Single/widowed/divorced | 12,998 | 36.2 |
| Parent with children at home | | |
| Yes | 11,405 | 31.2 |
| No | 25,103 | 68.8 |
| In Paid Employed | | |
| Yes | 23,669 | 64.8 |
| No | 12,839 | 35.2 |
| Type of employment | | |
| In health, social care or education | 5,839 | 16.0% |
| Other | 30,889 | 84.0% |
| Frequency of Contact | | |
| Frequent Personal Contact | 10,408 | 29.2% |
| Infrequent Personal Contact | 11,389 | 32.0% |
| Infrequent Contact | 13,833 | 38.8% |
| IHDI Scores | | |
| Very High 0.800 + | 11,002 | 22.1% |
| High 0.700 – 0.799 | 16,495 | 61.1% |
| Medium <0.700 | 7511 | 15.1% |
| Involvement with Special Olympics | | |
| Active | 2244 | 6.1% |
| Associated | 2819 | 7.7% |
| Supporter | 13,078 | 35.8% |
| Aware but no involvement | 12,133 | 33.2% |
| Not aware | 6234 | 17.1% |

## 2.3. Instrumentation

An online, self-completion survey was judged the most feasible means for data collection across 17 countries, within a tight time frame and limited resources. Special Olympics personnel, with advice from an advisory panel of international researchers, developed the online questionnaire based on items that had been previously used in other studies as referenced above. The reliability and validity of the measures were informed by the procedures used by Morin et al. (2013). A copy of the questionnaire is available on request from the authors.

### 2.3.1. Outcome measures

For the current study, two outcome measures were chosen: rights and community acceptance.

*2.3.1.1. Rights of People with Intellectual Disability:* Public perceptions of rights were measured using seven items reflective of the UN Convention that were judged particularly apposite to the daily lives of people with intellectual disability: namely attendance at school, participation in sports, raising children, access to healthcare, getting married and voting in elections (Ticha et al., 2018). These rights are particularly important given the documented global disparities in health, education, and other activities of daily living for people with intellectual disability, WHO/ World Bank, 2011).

Respondents rated each item on a seven-point Likert scale ranging from Entirely Disagree (1) to Entirely Agree (7). A principal components analysis of these items yielded one main factor that accounted for 64% of the variance with factor loadings ranging from .705 to .534. A summary score on Rights was calculated by adding the ratings across the seven items giving a minimum score of 7 and a maximum 49. A higher score was reflective of support for the rights of persons with intellectual disability. The internal reliability for the scale as measured by Cronbach Alpha was .904. For the total sample, the mean score was 41.16 (SD 7.98).

*2.3.1.2. Community acceptance of people with intellectual disability:* A vignette approach was used to assess public perceptions of how accepting their local neighbourhood would be to the presence of a person with intellectual disability (Hughes and Huby, 2012). Respondents were told: “*Please imagine an adult with an intellectual disability named Michael (*the name was changed to one commonly used in the country) *moves into your neighborhood/community. Please indicate your agreement or disagreement with the following statements*”. Nine scenarios were given including: people avoiding speaking to Michael, Michael receives worse healthcare, and Michael will be bullied. The items were rated on a seven-point Likert scale ranging from entirely disagree to entirely agree. Following a principal components analysis, a summary score was calculated by adding the ratings across the five items that loaded highest on one main factor (accounting for 37% of variance with factor loadings ranging from .84 to .73). The internal reliability for the scale was .86. The minimum score was 5 and the maximum 35. A higher score was indicative of people who perceived their community to be *less* accepting of a person with intellectual disability. The mean score for the total sample was 16.0 (SD 7.01).

### 2.3.2. Predictor variables

In addition to gender and education level of respondents (university educated versus other), the following variables were also included in the model (see table 2).

*2.1.2.1. Past contact with people with intellectual disabilities:* Respondents were asked a question about how frequently they were in contact with a person with intellectual disability. Those with any amount of contact were then asked to select the nature of their contact from a list of ten options. Three groupings were formed from their responses: Frequent personal contact (daily or weekly contact with family member, friend, neighbour and in workplace – 29% of all respondents): Infrequent personal contact (monthly or less often with those noted previously – 31% of all respondents) and No personal contact (40.3% of all respondents). They were coded from 1 to 3 in this order. (See Author’s reference 2019b for further details).

*2.3.2.2. Comfort at meeting a person with intellectual disability:* The same vignette about Michael was used to assess respondents’ comfort using eight items that offered varying degrees of social contact; ranging from speaking to Michael on the street to employing him as home help. The items were rated on a five-point Likert scale from Very Uncomfortable to Very Comfortable as used in previous research (McConkey, 2015). A principal components analysis identified one main factor that accounted for 69% of the variance with factor loadings ranging from .88 to .73. A summary score across the eight items was calculated ranging from 5 to 40 with higher scores indicating greater levels of comfort. The Cronbach alpha was .93 and the mean score across the total sample was 31.4 (SD 5.83).

*2.3.2.3. Engagement with Special Olympics*: Respondents were first asked if they had heard of Special Olympics. Those who answered yes were then asked to indicate their experience with Special Olympics. From a list of 10 items, respondents selected all those that applied to them as well as options for other forms of contact or no contact. Based on their responses, respondents were then grouped into those who had active engagement (as a volunteer, coach, official, a Unified partner, or competed as an athlete): associated engagement (if they had attended a SO event or if a friend or relative participated in SO activities) and supporter (included those who had watched Special Olympics on TV, read about it or donated to it). Other respondents indicated they were aware of Special Olympics but did not choose any of the available response options. The percentages of the total sample in each of these grouping plus those who had not heard of Special Olympics are shown in Table 2. (see Authors reference 2019a for further details).

*Country groupings by Inequality Adjusted Human Development Index (IHDI)*: The United Nations Development Program (2019) has adapted the Human Development Index originally proposed by ul Hag and Sen (1990) to one that takes account of inequalities when combining a country’s average achievements in health, education and income with how those achievements are distributed among a country’s population. The resulting Inequality-adjusted Human Development Index (IHDI) emerged as the most comprehensive wellbeing index in terms of non-economic inequalities in a review undertaken by Peterson (2014). For the current study, countries were grouped into very high human development (with index ratings of 0.800 and above), high human development (0.700 to 0.799), and medium human development (<0.700). Table 1 indicates the grouping for participating countries, although respondents from the United Arab Emirates were omitted as the data underpinning the groupings was not made available to UNDP. The percentage of respondents in each category in this study were: Very High 30%; High 45% and Medium 21%. No country that rated low in IHDI was included in this study.

### 2.3.3 Mediating variable

*2.3.3.1. Capability of Persons with intellectual Disability*: Respondents were presented with a listing of community living skills and asked to rate the extent to which they felt people with intellectual disability were capable of undertaking each one, using a seven-point Likert scale ranging from entirely disagree to entirely agree. A principal components analysis identified one factor of six items that accounted for 39% of the variance with factor loadings ranging from .86 to .72; namely raising children, attending university, making their own decisions, managing a business, hold a position of leadership in a community, and participating in elections. A summary score was calculated with scores ranging from 6 to 42. The Cronbach alpha was .92 and the overall mean score was 31.16 (SD 8.86).

## 2.4 Definition of intellectual Disability

At the outset of the questionnaire, respondents were provided with this definition adapted from that provided by the American Association on Intellectual and Developmental Disabilities (2019). *“Intellectual disability (or ID) is a term used when a person has certain limitations in intellectual functioning and skills, including communication, social and self-care skills. These limitations can cause a child to develop and learn more slowly or differently than a typically developing child. Intellectual disability can happen any time before a child turns 18 years old, even before birth. People with certain conditions like Down Syndrome, Fragile-X, and others will have intellectual disabilities. Dyslexia and mental illness are not intellectual disabilities*”.

## 2.5 Procedure

Kantar, or their associates in certain countries, were responsible for the recruitment of participants through their existing panels, the presentation of the questions online and recording of responses. The questionnaire was delivered online and through individual interviews in Panama due to the more limited internet access.

The survey was available in the language(s) appropriate to the country. The questionnaire was translated by Kantar staff into other languages in line with their usual procedures and cognitively tested by them. The translations were checked by Special Olympics personnel in each participating country for accuracy of translation and meaning. However the number of items was constrained by Kantar’s requirement that online surveys had to be completed in 15 minutes or less.

For each survey, repeated waves of invitations were sent out to panels available in each location of the survey until the sample sizes were attained and balanced by national gender ratios and age.

Panel members were not given any specific information about the content of the questionnaire when invited to participate in the survey but they first had to confirm their gender, age and provide a Zip Code (or equivalent). Over all surveys, 7% of respondents dropped out at this point with a further 5% failing to complete the survey having commenced it. Hence the survey was completed by an average of 88% persons of those approached.

The online questionnaire required a response to each item before respondents could move on to the next question. Hence there was no missing data on the main variables included in the questionnaire although a very small proportion of respondents chose not to disclose certain personal details.

## 2.6 Ethical Approval

In line with standard market research practice, formal ethical approval was not sought for the surveys. However, Kantar and their associates fully subscribed to the industry’s code of practice. All responses were to be given anonymously so no-one could be identified through their participation. Respondents could freely choose to take part and to drop-out without having to give a reason. The only incentive provided was the award of points to Kantar panel members for taking part in a survey. They were not given any type of extra or direct incentive which would make this survey more ‘appealing’ than any other survey (thus influencing the types of respondents completing this survey).

## 2.7 Data analysis

Kantar and their associates undertook the data cleaning and anonymized the complete dataset which was made available to the authors who undertook the statistical analyses using SPSS version 25. Following the principal component analyses described above, summary scores were identified for each of the outcome, predictor and mediating variables included in the study. Prior to analysis, issues of skewness, kurtosis and collinearity were checked for the continuous variables. Checks were also made as to whether the identified demographic characteristics and categorical variables proposed for the model had a significant relationship with the outcome, predictor and/or mediating variables.

A measurement model was developed using path analysis in MPlus and based on a review from previous research literature in this area as noted in the Introduction. This formed the basic model of confirmatory model testing, albeit an untested model.

Modification indices from Mplus provided modification indices of potential relationships between variables that would improve the fit of the model (exploratory element). Maximum likelihood was used to fit the model as the continuous variable data were normally distributed. An initial model with only continuous variables was initially tested. Non-significant relationships were removed from the model to provide as parsimonious a model as possible. Correlations between all independent variables were initially established. Non-significant relationships were removed from the model to provide as parsimonious a model as possible. The relationships included in the model were based on the strength and significance of the indices score and if they were theoretically relevant.

The stratification command was used to 'cluster' responses within US Cities and countries so that this would be controlled for in the analysis. The emergent model would then be relevant to all cities and countries.

# 3. Results

## 3.1 Inter-relationships among the attitude summary scores

The created measures met all assumptions of normality (see table 3). The mean scores (SDs) generally showed a positive attitude to people with intellectual disability and a broad spread in responses around mean scores.

**Table 3:**

*Summary Statistics for the Measures used in the Model (N=36,508)*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Construct** | **Number items** | **Mean (SD)** | **Skewness** | **Kurtosis** |
| Rights | 7 items | 41.16 (8.0) | -1.38 | 2.41 |
| Community Acceptance | 5 items | 16.55 (7.0) | 0.28 | -0.37 |
| Capable | 6 items | 31.16 (8.9) | 0.29 | -0.14 |
| Comfort | 8 items | 31.38 (5.9) | -0.50 | 0.35 |

Prior to undertaking the path analysis, the inter-relationships between the various measures were assessed. They were as follows: Rights with comfort r=.27; with capability r=0.49; Community with comfort r=-.29; with rights r=-.03; with capability r=-.09. Although there were some statistically significant correlations among these measures, the relationships were not at a level to indicate multicollinearity.

The relationships between the demographic characteristics of respondents shown in table 2 and the two main outcome variables of rights and community acceptance were explored using bivariate analyses. These confirmed that age, marital status, parenting and employment status were not significantly related and were not included in the model.

## 3.2 Path Analysis

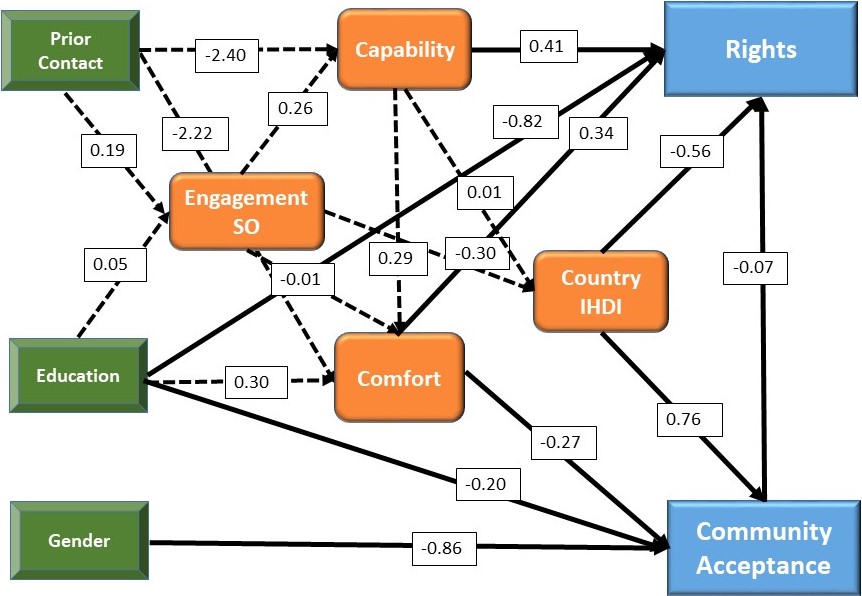
The model was stratified according to countries (and cities in the US) so that the path analysis model would be applicable within each location’s data subset. The model portrayed in Figure 1 was a good statistical fit for the data. All the measures of fit were at a statistically acceptable level: Chi-square test of model fit =617, df = 14, p>0.001: RMSEA = 0.035; 90% RMSEA 0.033 – 0.037 (Probability RMSEA < 1.0); Confirmatory Fit Index = 0.99; TLI = 0.97.

*Insert Figure 1 about here*

The model explained the following variance: Rights 52%, Comfort 29%, Special Olympics involvement 24%, Community acceptance 12% and Capable 2%. Examination of the results show that the model could be further supplemented in order to explain a higher percentage of the variance; a point discussed later.

**Figure 1**

*The Inter-relationships among the Variables Predictive of the Rights and Community Acceptance of Persons with Intellectual Disability.*



**(**Note: The solid line indicates a direct relationship with the outcome variables and the dotted line the significant relationships among the predictor variables. The emergent mediating variables are grouped in the middle of the Figure.)

Table 4 summarises the relationship, direction and the strength of inter-relationships in the final model.

**Table 4**

*Relationship between Exogenous and Endogenous Variables in the Path Analysis model*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Rights on** | **Community Acceptance on** | **Comfort on** | **Engagement Special Olympics on** | **Capability on** | **IHDI on** |
| Capability (0.41) | Comfort (-0.27) | Capability (0.29) | Education (0.05) | ISO (0.26) | Capability (0.01) |
| Community (-0.07) | Education (-0.20) | ISO (-0.01) | Contact (0.19) | Contact (-2.40) | ISO (-0.30) |
| IHDI (-0.56) | IHDI (0.76) | Contact  (-2.22) | Comfort (-0.01) |  |  |
| Education (-0.82) | Gender (-0.86) | Rights (0.34) |  |  |  |
| Comfort (0.34) |  |  |  |  |  |

The four variables of rights, community acceptance (negatively scored), comfort at meeting and capability were all inter-connected as shown in table 4. Belief in the rights of people with intellectual disability was positively associated with belief in the capabilities of people with intellectual disability, comfort at meeting person with intellectual disability and higher ratings of their community as being accepting of someone with an intellectual disability.

The Inequality-adjusted Human Development Index (IHDI) was directly associated with rights and community acceptance in that respondents in countries with higher IHDI scores were associated with more positive perceptions on these two measures.

The other variables included in the model did not have a direct effect on perceptions of right and community acceptance, but were mediated through other variables as shown by the dotted lines in Figure 1. Thus respondents who had more frequent contact with people with intellectual disability were more likely to feel comfortable meeting a person with intellectual disability and rated them more highly on capabilities. Also, university educated respondents scored higher on comfort and community acceptance and in turn had positive view of the rights of people with intellectual disability.

University educated respondents were also more likely to be involved and aware of Special Olympics as were respondents who reported having more frequent personal contacts with people with intellectual disability. However, engagement with Special Olympics was associated with higher ratings of capability and comfort at meeting a person with ID but not on rights of people with intellectual disability.

In summary, the relationships identified in the model indicate that comfort at meeting people with intellectual disability, IHDI and education levels have strong impact on positive perceptions of people with intellectual disability and their rights and role in society.

# 4. Discussion

This study and the model that emerged is the first to include representative samples in terms of gender and age of the general population from a globally diverse sample. It is also unique for the focus on two pertinent themes from the UN Convention: namely rights and community inclusion of people with intellectual disability. The measures included in the model were psychometrically sound confirming the model’s robustness. Moreover the model held across the variety of countries included in the study and would likely apply to other countries beyond those sampled; a claim that few studies can make.

The model confirms some well-established findings regarding the relationships between frequent personal contact and positive appraisal by the public of people with intellectual disability in terms of their capabilities and comfort at meeting them which is line with the contact hypothesis However the model develops this relationship further in that it suggests that personal contact with people with intellectual disability exerts its effect on public perceptions of their rights and community acceptance indirectly through increased perceptions of their capabilities, comfort at meeting and an engagement with Special Olympics.

Two implications flow from this. The capabilities of people with intellectual disability should be promoted rather than their inability which too often dominates in media portrayals and in charitable fund-raising efforts (Renwick, 2016). Also, future research should further explore public understanding of intellectual disability and particularly the main differences they perceive between people with intellectual disability and others in society who are not given this label.

Personal comfort in meeting people with intellectual disability has been associated with more positive attitudes both for the general public (McConkey, 2015) and professional groups such as healthcare staff (Morins et al., 2013). Conversely, lack of personal contact is related to more discomfort at the thought of meeting a person with intellectual disability. But the model also suggests that viewing people with intellectual disability as more capable can minimize this discomfort. Hence, creating opportunities for the public to experience personal contacts with even one person is a key step towards reducing their discomfort and in turn changing attitudes.

The model also highlights the contribution that an organisation such as Special Olympics can make to influencing public attitudes particularly with respect to community acceptance. Although engagement with the organisation did not have a direct influence on respondents’ perceptions of rights or community acceptance, those who were involved with Special Olympics perceived people with intellectual disability as more capable and were more comfortable at meeting them. These outcomes confirm the role that Special Olympics plays in promoting the talents of their athletes in competitions especially and the opportunities they provide for the public to meet athletes as players, volunteers or spectators under the pleasurable circumstances of sport. The lack of a direct influence that Special Olympics has on the public’s perceptions of rights and community acceptance could point to a need for the organisation to become more explicit in promoting the rights and the wider community inclusion of persons with intellectual disability beyond participation in sports.

Future studies could usefully confirm if a similar impact holds for other international agencies or national organisations in particular countries, especially those engaged in advocacy for persons with a disability.

The model also identified that the wider societal context had a direct influence on public perceptions of rights and community acceptance of persons with intellectual disability. Respondents living in nations who scored highly in terms of IHDI were more likely to support their rights and perceive their communities to be more welcoming of people with intellectual disability. These impacts may have been even greater if nations with lower IHDI scores, such as those in Eastern Europe and Africa, were included in the study. Equally the IHDI measure takes no account of intra-country differences such as those which might be experienced by respondents from different cultures within the same country. These findings point to the importance of contextualising attitudinal research on intellectual disability within the wider societal responses to inequalities experienced by citizens from different marginalised groups. Moreover, they also suggest that more positive attitudes to people with intellectual disability might also come from aligning their needs with those of others marginalised groups facing stigma and discrimination.

Finally the model also confirmed that persons with higher education are more supportive of rights and community acceptance of persons with ID as well as being more comfortable at meeting them and becoming involved with organisations such as Special Olympics. But in contrast to previous research (Scior, 2011), gender made little contribution to the overall model which suggests that other variables were more influential in shaping attitudes to rights in particular. However females do seem to be more disposed to the community accepting people with ID although the reasons for this are not clear from this study.

Future research on the model could further test its validity in three ways. First, this model may be applicable when the attitudes to particular subgroups of the population are the focus of study, such as teachers and healthcare workers, who are more likely to encounter people with intellectual disability as part of their job (Morin et al., 2018). Fostering more positive attitudes among such community personnel is a pre-requisite to greater inclusion. Secondly, the model should be examined for applicability in understanding public attitudes to other marginalised groups such as persons with mental health problems or ethnic minorities. Thirdly, the model should be considered a work in progress and ought to be tested with different attitudinal domains included such as knowledge of intellectual disability or likely behavioural responses in contexts such as prioritisation for healthcare or social security benefits. These could explain some of the unexplained variance identified in the present analyses.

There were three main limitations inherent in the way information was gathered in this study. In common with many other attitudinal studies, the responses obtained may not reflect how the public would actually behave when faced with the reality of supporting the rights of people with intellectual disability or welcoming them to their neighbourhood. It has been argued that internet surveys reduce socially desirable responding compared to face-to-face interviews (Krumpal, 2013), while others have argued that implicit measurements of attitudes may give a complementary reflection of public perceptions (Wilson & Scior, 2015). To date, there is little empirical evidence to support either of these positions.

Secondly, the choice of online surveys resulted in skewed samples with a bias towards those who were computer literate with internet access. Hence less educated persons from poorer backgrounds were possibly under-represented in the surveys which was compounded by the omission of low income countries. Future research should address this issue.

Thirdly, although respondents were presented with a definition of intellectual disability, no checks were made to ascertain how they had interpreted ‘intellectual disability’ and whether they perceived it to include persons with learning disability (such as dyslexia), autism or brain injury.

# Conclusions

The development and testing of a model was intended to guide further research and a range of suggestions have been made for the form and format that future studies might take. Our hope also was that a model would guide the development of interventions to promote more positive attitudes and again, practical strategies have been proposed; the evaluation of which would further support the validity of the model.

Nonetheless some major methodological challenges remain in undertaking attitudinal research but being aware of them, is the first step to overcoming them. The rationale for further studies of public attitudes if anything is stronger than ever, as people with intellectual disability strive for equal opportunities to become part of, rather than a part from, their local communities.

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