

As far as possible: the relationship between public awareness, social distance and stigma towards people with intellectual disability

Public stigma towards people with intellectual disability

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\*Authors declare no conflicts of interest.

\*This study followed the Helsinki Declaration. All the procedures were reviewed and approved by an ethical review board.

## **Abstract**

Research shows that people with intellectual disability (ID) face public stigma. However a recently published narrative review suggests that this phenomenon has not been explored in a Latin American country. This study fills the gap in our understanding of public stigma towards people with intellectual disability in Chile. 395 adults from the general population (18 to 78 years) participated in the survey. Using the Intellectual Disability Literacy Scale, adapted for Chile, we explored the participants' literacy about ID, their causal beliefs and desire of social distance. Only 1.3% of the sample identified intellectual disability in the instrument's vignette. The most common causal attribution for the condition was environmental, followed by biomedical factors. Participants showed a high desire of social distance, with higher scores associated with more educated participants. Our findings show that low literacy about intellectual disability and a high desire for social distance are significant factors contributing to public stigma in Chile. These are tangible targets for change that can lead to increased social inclusion and participation of people with intellectual disability in Chile. Any such approaches are likely to be transferable to other Latin American countries and could help reduce public stigma for this population.

**Keywords:** Intellectual disability, intellectual development disorder, disorders of intellectual development, stigma, public policy, Chile

Stigma is a form of negative social stereotyping based on social norms and values. The term has been used to describe problems of knowledge, attitudes, and behaviour towards marginalised groups (Thorncroft et al., 2007; Walker & Scior, 2013). Minority groups have been identified as victims of stigma and people with intellectual disability (ID) have been consistently identified as one of the least desirable groups in Western societies (Walker & Scior, 2013; Werner, 2015).

ID is characterised by limitations in intellectual functioning and adaptive behaviours, affecting many everyday social and practical skills. These impairments must occur before the age of 22 (Schalock et al., 2021). More than 300 million people with ID globally experience public, courtesy and self-perceived stigma (Maulik et al., 2011) depending on cultural backgrounds and values (Scior et al., 2012).

Public stigma is defined as the negative attitudes of the general population towards a marginalised group, resulting in reduced participation and inclusion in social spaces and activities (Werner, 2015). Knowledge about the condition (i.e., literacy), causal attributions related with the origin of the intellectual disability, and the desire of social distance are the best indicators of stigma (Scior et al., 2020; Zeilinger et al., 2020). Social distance is an expression of stigma, defined as the willingness of a person to engage with a member of another group (Ouellette-Kuntz et al., 2010).

Despite substantial attention paid to stigma towards people with mental health conditions (Lauber et al., 2003; Morgan et al., 2018), equivalent research in the field of ID has been limited, particularly in low and middle-income countries (Jansen-van Vuuren & Aldersey, 2020; Scior, Potts, et al., 2013; Wang et al., 2021). Cross cultural studies have exposed differences in the level of awareness of ID and desire of social distance among lay people from different sociocultural backgrounds (Jansen-van Vuuren & Aldersey, 2020; McConkey et al., 2021; Mkabile et al., 2021). Research has

suggested that stigmatisation is more prominent in cultures with a collectivist ethos that tend to avoid emotional expressions to maintain the family's reputation (Scior, Potts, et al., 2013). For example, a high level of desire of social distance was reported in Russia and Mongolia compared with Germany (Dietrich et al., 2004), or in Japan compared with Australia (Griffiths et al., 2006) and in Austria/German compared with UK (Zeilinger et al., 2020).

Studies have also shown differences in the recognition of ID characteristics between ethnic groups, with the lowest rates associated with participants from Asian and African/Caribbean backgrounds (Scior, Hamid, et al., 2013). Studies have also reported national differences in social acceptance and awareness of ID related to literacy about the condition (Zeilinger et al., 2020). A narrative review presented by a joint UK-Chile team found that there is a paucity of data available about stigma towards people with ID in South America (Tenorio et al., 2020).

Research has shown that some socio-demographic variables like education, gender, socioeconomic status, age, educational level, religion and previous contact can predict the degree of social distance reported against minority groups. Older people with lower educational attainment are more likely to express stigmatising attitudes (Page & Islam, 2015; Scior, 2011; Scior et al., 2012; Scior, Connolly, et al., 2013; Sheridan & Scior, 2013; Werner & Shulman, 2015).

The national survey used to obtain population data about the prevalence and incidence of disabilities in Chile is called Encuesta Nacional de Discapacidad (ENDISC, Servicio Nacional de la Discapacidad & Ministerio de Desarrollo Social, 2016). Studies conducted by non-governmental agencies complement this information (Fundación ConTrabajo, Fundación Ronda, Fundación Tacal). According to these sources 2.836.810 persons live with a disability in the country, of whom 21% have ID.

Regional epidemiological studies show a higher birth rate of babies with Down Syndrome compared to international rates (2.7/1000 vs. 1.0/1000) (Nazer & Cifuentes, 2011; Potier & Reeves, 2016). Persons with ID form a considerable group in Chile that has, until now, remained largely invisible (Tenorio et al., 2020).

Schools in Chile are categorised in two different ways, depending on source of funding and target population. According to type of funding, there are three kinds of schools: public, with funding coming wholly from the government; private, funded by families; and mixed, funded both by families and the government. Regarding the population, there are two types: special schools, catering for children with special needs; and mainstream schools, that cater for neuro-typical children. To further complicate the issue, some mainstream schools receive government funding to provide integration programs (PIE).

Special education in Chile includes special schools, hospital schools, and regular schools with PIE. In 2009, a decree was issued providing subsidiary funds for these schools to provide educational and other services to children with neurodevelopmental disorders (Decreto 170). A recent study (Holz, 2018) reports that there are 2,027 special schools in Chile, 46 hospital schools and 5,662 regular schools with PIE. It also reports 183,373 students with special educational needs (5.2% of the national public student body) mostly comprising of mixed funding schools (almost 95%). Of them, 75.5% are diagnosed with language disorders and 20.8% with IDD. The segregated configuration of the educational system exacerbates social gaps and barriers for children with disabilities.

Regarding inclusion in the workplace, a national law has established a mandatory quota that people with disabilities should make up at least 1% of the workforce for companies with 100 or more employees (Ley 21.015). According to

available data, this quota is only fulfilled in 15% of companies covered by the law (Fundación ConTrabajo). In the judicial system persons with ID are discriminated against and most judges operate under a medicalisation framework regarding the condition (see Marshall & Gimenez (2021) for a complete explanation).

In general, social participation of people with IDD is low and there are few governmental policies and programs designed to improve this situation. This, in turn, limits the opportunities for contact between lay people and people with IDD. Social participation of people with ID tends to be limited because of the difficulties in adaptive behaviour that are part of the condition. Stigma adds an extra level of barrier to the participation of people with ID in public life thus negatively impacting their access to rights. As social participation is included in the Convention of Rights for People with Disabilities (United Nations, 2016), understanding the barriers that limit social inclusion allow for the development of interventions and public policies that can promote social inclusion

A published narrative review showed the lack of specific information about public stigma towards people with ID in South American countries (Tenorio et al., 2020). This literature gap impacts negatively in the design and implementation of public policies oriented to people with IDD. While foreign evidence is important, there is an urgent need for regional and local research that takes into account sociocultural variability to avoid Euro-centric biases. The aim of this study was to investigate the relation between literacy about ID, social distance and stigma towards people with ID in the urban areas of Chile, using an adaptation of the unlabelled vignette of the Intellectual Disability Literacy Scale (IDLS; Scior & Furnham, 2011).

### **Materials and methods**

This study closely replicated the methodology published in previous studies (Scior, Potts, et al., 2013; Scior & Furnham, 2011, 2016). We intended to explore

whether the general public can recognise the features of ID presented in a vignette, and whether sociodemographic factors can predict public/lay causal beliefs about ID and desire of social distance.

### **Participants**

The sample consisted of Chilean adults (18 years of age or older) and was stratified by age, gender, and educational level. 583 participants responded to the questionnaires, either in person or online. Before the analysis, we excluded incomplete records, questionnaires answered by Chilean people living outside of Chile, and foreign people living in Chile for less than 10 years because they might overlook cultural cues. Therefore, we report on the results obtained from 395 participants aged 18-78 years living in the urban central zone of Chile (Table 1).

<<Insert here Table 1>>

### **Measures**

We used two instruments to collect data: a socio-demographic questionnaire and Vignette 1 (mild intellectual disability) from the IDLS (Scior & Furnham, 2011).

Previous contact with the community suggested that lay people in Chile are ignorant about IDD. For this reason, we chose a measure of literacy and, to quantify the level of knowledge regarding the condition, we chose the unlabelled vignette in order to avoid possible bias due to explicit information about the condition. The socio-demographic questionnaire included questions about gender, age, income, educational level, religion, and previous contact with people with ID.

Vignette 1 from the IDLS explores the respondents' public stigma towards people with ID. The evaluation of stigma in this instrument includes literacy about the condition, causal beliefs, intervention beliefs, and the desire for social distance. This scale was developed and tested in 1376 people in the UK, and the authors presented robust evidence of reliability and validity (American Educational Research Association

(AERA) et al., 2014). Cronbach's  $\alpha$  ranged from .76 to .84 and good results in the parameters of internal structure analysis were reported (Scior & Furnham, 2011). The IDLS has been used to explore stigma in different countries and with people from specific ethnic groups (Scior, Connolly, et al., 2013; Scior, Hamid, et al., 2013; Scior & Furnham, 2011; Zeilinger et al., 2020).

In the IDLS an unlabelled vignette describes an individual (James) who has ID. Respondents are asked two open questions: "What do you think is going on with James?" and "What do you think needs to be done to help James?". Participants have to answer 22 items exploring causal beliefs related to the origin of the ID (agglomerated in four groups: adversity, biomedical and fate with 5 items each, and environment with 7 items), and 22 items exploring intervention beliefs (agglomerated in three factors: lifestyle with 11 items, expert help with 6 items, and religion/spiritual with 5 items) using a 7-point Likert scale. The IDLS includes a sub-scale of desire for social contact with four questions replicated from Link et al. (1999). Participants reported their degree of agreement using a 7-point Likert scale (1=strongly disagree to 7=strongly agree). The total score is a mean of reversed items: higher scores indicate a high desire of social distance. In this study, we analysed the relationship between casual belief and social distance.

As the IDLS has never been used before in a Spanish-speaking country, we adapted the instrument to review the psychometric properties of the Chilean version.

### **Procedures**

We designed a project to explore public stigma towards people with ID in Chile. A binational team combined their efforts to replicate previous studies conducted in UK, allowing a cross-cultural comparison of the results. Both teams from the UK and Chile have more than a decade of experience working with the community of people with IDD and their stakeholder groups. As published data about stigma towards ID was



lacking using the IDLS, we chose to translate, adapt and test the instrument in a Spanish language version for Chile.

The protocol used in this project was presented and approved by the Ethical Review Board of the university. The first step was a double back-translation conducted by bilingual professionals. The translation included all the items and the name of the person from the vignette (i.e. Jaime instead of James) as James is not a common name in Chile and Jaime is as common in Spanish as James in English. The guidelines published by The International Test Commission were followed to analyse the convenience of using this instrument in Chile (International Test Commission, 2017).

In a second step we determined face and content validity of the questionnaire following the procedure described in Ali et al., (2008). The Chilean version was revised by a board of four local academic experts. Also, six experts by experience were consulted to explore their opinions about the suitability and usability of this instrument. Recommendations from all experts were integrated and a revised version was presented to four focus groups, each including a relative of a person with ID, an education professional, a health professional, and a person without previous contact or professional knowledge in the area of ID.

A three-part semi-structured interview was used for the focus groups. First, general questions exploring participants' ideas about stigma as a social phenomenon and about stigma towards people with ID were discussed. Second, questions exploring their perceptions about stigma towards people with ID in Chile and its sources were presented. Third, they were presented the Chilean version of the IDLS and each participant completed the instrument and presented their comments.

All participants identified stigma as a form of negative social attitudes and behaviour. They perceived forms of stigma towards people with ID as feelings of

discomfort, desire of social distance, ignorance, difficulties in establishing relationships and problems in accessing information and benefits.

Differences in knowledge appeared in the statements of those who have daily or frequent contact with people with ID versus those who have less contact. The most important differences appeared in the definition of the condition and in the kind of attributions about treatment and support needs.

Participants agreed with the use of the Chilean version in the country and thought it was acceptable. Two participants pointed out that some people might require support in completing the instrument.

A final version of the questionnaire was back-translated from Spanish to English according to the World Health Organization process of translation and adaptation of instruments (World Health Organization, 2020).

After this process was finished, an invitation to participate was distributed using social media and university mailing lists of students, professors, administrative workers, visitors and alumni, among others. The invitation included a link to an online platform where potential participants received information about the study, signed the informed consent, and completed the survey. The survey was available for one month and participation peaked in the first twelve days. Afterwards, a preliminary check of socio-demographic data was performed and a bias by educational level was identified: 87% of the sample had a university degree or higher.

In order to address this, we made efforts to increase participation by using a hard copy version that researchers distributed at public spaces like parks, main streets, and markets in Santiago de Chile and other urban zones nearby. They searched for participants with medium or low educational level, and they were invited to take part in

the survey and provide informed consent, followed by the administration of the questionnaire. 37% of the final sample was recruited with this strategy.

### **Data analysis**

The present study only includes Vignette 1 (mild intellectual disability) of the IDLS. Evidence of reliability for the scale of causal beliefs was obtained by analysing the internal consistency via Cronbach's  $\alpha$ , with values from 0.7 to 0.8 considered adequate, from 0.8 to 0.9 considered good, and 0.9 and higher considered excellent (Lichtenberger & Kaufman, 2009; Nunnally & Bernstein, 1994). We compared Cronbach's  $\alpha$  across scales following Scior & Furnham (2016).

Evidence of validity was analysed based on test content and the verification of the internal structure for the causal beliefs scale. A Confirmatory Factor Analysis (CFA) was conducted (Schumacker & Lomax, 2016) to determine if the data in Chile fits the model reported in the UK. For this analysis, we assume the 7-point Likert scale to represent an interval scale of agreement. Five indexes were considered:  $\chi^2$ /degrees of freedom test using both standard  $\chi^2$  and Satorra-Bentler scaled  $\chi^2$ , Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) with expected values near to 1 for good fit, and Root Mean Square Error of Approximation (RMSEA) with values for good fit in .05 or less (Browne & Cudeck, 1992).

Answers to the open recognition questions were coded following the methods described by Scior, Potts, et al., (2013)). First, the coding identified the kind of causal belief for each answer and then they were catalogued in terms of attributions about general medical conditions, mental health, cognitive or intellectual causes, disability, and explicit mentions to ID.

Previously reported procedures were used for data analysis (Scior, Potts, et al., 2013; Scior & Furnham, 2016). Results regarding the identification of ID based on a

vignette, the scale of causal beliefs for ID and the items about social distance were considered in this analysis. The influence of age, gender (female vs male), educational level (low=8 years of education or less, medium = between 8 to 12 years of education and high = more than 12 years of education), and religion (catholic vs other) was considered for analyses.

Logistic regressions were carried out to examine the relationship between the recognition of mental health or a cognitive/intellectual condition, and social distance. Multiple regression analyses were conducted in order to examine whether socio-demographic data predicted social distance. In order to examine associations between the four causal beliefs and social distance, correlations were calculated.

All analyses were conducted in R using packages Amelia, aod, foreign, lavaan, lavaanPlot, MVN, parameters, ROCR and tidy verse (Honaker et al., 2011; Korkmaz et al., 2014; Lesnoff et al., 2012; Lishinski, 2018; Lüdecke et al., 2020; R Core Team, 2013, 2020; Rosseel, 2012; Sing et al., 2005; Wickham et al., 2019) and SPSS 24 (IBM Corporation, 2017).

## **Results**

### **Psychometric properties of IDLS-Chilean version**

Evidence of reliability was explored through Cronbach's  $\alpha$  analyses of the causal belief items following current recommendations (American Educational Research Association (AERA) et al., 2014). Results show good levels of internal consistency for the biomedical ( $\alpha=.814$ ) and environmental ( $\alpha=.800$ ) causes, and adequate levels for the adversity ( $\alpha=.761$ ) and supernatural causes ( $\alpha=.769$ ).

Evidence of validity is based on content analysis and verification of internal structure of the scale via CFA. The content was validated by experts in ID as described in the procedure.

According to Scior & Furnham (2011), the structure of the causal beliefs scale has four factors: (1) Supernatural (Possession by spirits, Punishment for own wrongdoings, Strong religious or spiritual belief, Punishment for parents' wrongdoings, and A test from God/Allah), (2) Biomedical (Genetic factors, Complications at time of birth, Brain abnormality, Meningitis, and Virus/other infection that affects the brain), (3) Adversity (Family arguments, Financial worries, Suffering abuse as a child, Recent traumatic incident such as traffic accident, and Recent death of relative close friend), and (4) Environment (Being from a single-parent family and lack of an intimate relationship, Overly spoilt as a child, Lack of daytime occupation, Parents too lenient, and Very poor schooling). We conducted a CFA for the Chilean version of IDLS using this structure. As the Henze-Zirkler test indicates multivariate nonnormality ( $HZ = 1.35$ ,  $p < .05$ ), we include the Satorra-Bentler scaled  $\chi^2$  test. Bartlett's test of sphericity suggests that there is sufficient significant correlation in the data for factor analysis ( $\chi^2(231) = 3400.26$ ,  $p < .001$ ). The Kaiser, Meyer, Olkin (KMO) measure of sampling adequacy suggests that the data seems appropriate for factor analysis (KMO = 0.88).

Results of the model's fit are  $\chi^2/df = 4.36$ ; SB  $\chi^2/df = 2.83$ ; CFI = .790; TLI = .761; RMSEA = .092. These results show acceptable fit of the model, except for the  $\chi^2$  test, which could be expected given the deviation from multivariate normality and a sample with fewer than 500 participants (Weston & Gore, 2006).

### **Identification of ID based on a non-labelled vignette**

In response to the questions about the cause of James' difficulties in the ID vignette, 68.3% of the participants incorrectly associated James' characteristics to some form of a mental health problem. Amongst the participants, 29.4% identified a biomedical condition, 32.2% suggested the presence of cognitive or intellectual causes

(e.g. dyslexia or learning difficulties), 2.5% talked about disability in general, and only 1.3% specifically identified ID.

Female participants who reported a high educational level were more likely to identify both the mental health and the intellectual/cognitive conditions. Male participants were more likely to recognize the presence of intellectual/cognitive problems (Mental health: OR 0.46; 95% CI [0.25-0.85] vs. Intellectual/cognitive: OR 0.67; 95% CI [0.34-1.28]). Respondents with low educational attainment were more likely to identify a intellectual/cognitive problem (Mental health: OR 0.21, 95% CI [0.09-0.44] vs. Intellectual/cognitive: OR 0.43; 95% CI [0.18-0.95]) and participants of medium educational level were less likely to attribute a cognitive/intellectual cause to the symptoms presented in the vignette (Mental health: OR 0.78 95% CI [0.39-1.6] vs. Intellectual/cognitive: OR 0.4; 95% CI [0.19-0.78]) (Table 2).

<<Insert here Table 2>>

### **Attributions about origin of condition based on item endorsement**

The most common attribution for the condition was Environmental factors (lack of daytime occupation, very poor schooling, parents too lenient, and overly spoilt as a child), followed by Biomedical factors (genetic factors, brain abnormality, and complication at time of birth; see Table 3).

<<Insert here table 3>>

### **Desire of social distance**

When participants were asked how they would feel about social contact with someone like the person in the vignette, they expressed a high desire of social distance (M=4.66, SD=1.6).

To examine whether sociodemographic characteristics, religion and previous contact predicted social distance, multiple regressions were conducted (Table 4). As most of the participants did not identify the condition as ID, but as a mental health

condition, we analysed the desire of social distance of these two groups (identified James' problem as a mental health problem or identified it as ID) separately. For both conditions, participants who reported low educational level showed less desire for social distance towards individuals while male participants showed a greater desire for social distance. Previous contact and religion were not predictors for the desire of social distance.

<<Insert here table 4>>

In order to analyse the associations between causal beliefs and social distance, regardless of participants' ability to identify the symptoms presented in the vignette, correlations were calculated considering individual causal items (Table 5).

<<Insert table 5>>

Results show significant correlations between different items from all factors and the desire for social distance. All Biomedical items showed a significant correlation with the desire of social distance. In Adversity, two items presented a significant relation ("suffering abuse as a child" and "Recent traumatic incident such as traffic accident"). For Environment, three items presented a significant correlation ("Being from a single-parent family", "Lack of an intimate relationship" and "Isolation from extended family"). Finally, in the Supernatural factor, three significant correlations were observed ("Possession by spirits", "Strong religious or spiritual belief" and "A test from God/Allah").

### **Discussion**

The aim of this study was to explore the characteristics of public stigma towards people with ID in Chile measured by the adapted version of the IDLS.

Our results showed that persons with ID are stigmatised, a finding that matches results from previous studies from other countries. The use of a Chilean version of

IDLS helped offer a measure of the problem regarding the social exclusion of people with ID.

Our study showed that a small fraction of the sample (1.3%) correctly identified a person with ID, compared to other studies: 28% from a study of ethnic groups in the UK (Scior, Potts, et al., 2013), 23.8% in a large sample from the UK, India, Hong Kong and Singapore (Scior & Furnham, 2011), 38.3% in a UK sample compared with 12.4% observed in Austria and Germany (Zeilinger et al., 2020). This low identification of ID in our study shows the low levels of literacy towards the condition in Chile and are relevant when analysing our results. Using an unlabelled vignette allows the identification of implicit attitudes toward the characteristics of James and lowers the possibility of biased answers. Future studies should include the labelled vignette of IDLS to compare if the knowledge about the causes and interventions, as well as the desire of social distance change when people know that James has **an** ID, and if a bias can be identified.

Previous studies have shown the importance of literacy to raise awareness towards ID and decrease the expression of stigma. This may also explain specific national characteristics: low levels of inclusion in regular schools (less than a 15% of the children with ID attend regular schools) (Servicio Nacional de la Discapacidad & Ministerio de Desarrollo Social, 2016), scarce efforts from the executive and legislative powers to create regulations aligned with the Convention on the Rights of Persons with Disabilities (United Nations, 2006), barriers identified in the health system (Ali et al., 2013) and low rates of social participation (Wilson, Mahoney, Chen, Marks, Buchanan, & Cordier, 2020). From this study we cannot identify the direction of the relationship between literacy and the low levels of inclusion in the country, or if there is a causal



association between them. More research is needed to deepen the understanding of the relationship between these variables.

In Chile, attributions about the origin of the condition seem to be mainly associated with Environmental and Biomedical factors in contrast to published data collected in the UK where Adversity was the main factor of attribution. Cultural differences in how disability is understood and the idiosyncrasy about parental roles may help understand this. Compared to the UK, with its long history of disability activism and a focus on the social model, Latin American countries still have a strong focus on the medicalisation of disability. This may explain why attribution to Biomedical factors is higher in Chile. Regarding parental roles, in Latin American countries, strong cultural values are related to raising children and they remain in the family house long after they have finished high school. Furthermore, violent actions, such as spanking and yelling, are allowed based on antiquated beliefs which could help explain the observed attribution.

A striking finding in this study is that the desire of social distance of 4.66 (SD=1.60), is almost twice that reported in studies carried out in Europe. For example, a sample of 477 participants recruited from colleges in the Greater London area (Walker & Scior, 2013) reported a social distance of 2.40 (SD=1.28); a UK representative sample (n=338) reported a social distance of 2.52 (SD=1.17) (Wilson & Scior, 2015). Finally, another study of 1002 UK residents reported a desire of social distance result of 4.19 (SD=1.53) (Scior, Potts, et al., 2013), closer to our findings. However, the study does not provide any details about this apparent high social distance score. It would appear that sample socio-demographic characteristics and public attitudes may account for these differences.

Regarding predictors of social distance, gender and educational level appear to be significant: male participants with higher educational levels express a greater desire of social distance. Neither religion nor previous contact contribute to the expression of this desire. Regarding previous contact, this result is surprising as published studies have established the importance of this variable in the reduction of social attitudes and prejudice.

Previous research indicated that education and contact are protective factors against stigma. In Chile, education appears as a risk factor for stigmatising attitudes which may be explained by characteristics of the educational system in Chile. State schools are compelled to receive children with ID, mixed funding schools maybe compelled if they have explicitly declared their intention to be inclusive and have programs in place to support this group; and most private schools do not consider these children as part of their community. As was explained in the introduction, the differences in the types of schools that children with ID attend could be a factor that exacerbates exclusion and those schools provide few opportunities for social contact, increasing the negative attitudes towards people with the condition and therefore, the desire for social distance, especially in people from high economic status.

Previous studies about prejudice associated with poverty, immigration, or mental health in Chile, also suggest that socio-demographic factors and intergroup contact predict the amount of stigma (Carmona-Halty, Navas, & Rojas-Paz, 2018; Sirlopú et al., 2015). However, this study found no association between previous contact and social distance. It is interesting to note that this result is closer to the desire of social distance expressed towards persons with Schizophrenia observed in the UK and considered a social problem by the authors (Scior, Potts, et al., 2013).

A recent result presented in the UK is relevant to this discussion: MENCAP (2021) launched a survey conducted with a nationally representative sample of 2001 adults. Results showed that two-thirds of respondents cannot identify an intellectual disability with 40% relating it to dyslexia and 28% to a mental health issue. The lack of similar previous studies in Chile makes our results difficult to interpret. Nevertheless, we hypothesise that ignorance about ID makes it indistinguishable from a mental health problem and, therefore, the public expresses stigma based on that assumption.

In order to identify the existing associations between causal belief and social distance, correlations were calculated as per Scior & Furnham (2016). The relationship between Biomedical items and social distance showed the same tendency. In contrast, the results about the relationship between Environmental causes and social distance, as well as attributions related to Supernatural causes, exhibited a different pattern.

In both cases (UK and Chile) respondents tend to accept a closer relationship with people with ID when the main attribution of origin is biomedical. While Supernatural factors seem to be important in the UK or in some countries of Africa (Mkabile et al., 2021), this is not observed in Chile. Instead, Environment seems to be an important source of attribution about origin of ID in Chile but not in the UK.

Furthermore, two different systems with different rules co-exist: regular and special education. Many Chilean children with ID are educated in a segregated system of special schools that allows few opportunities of contact outside their educational facilities. As a consequence, there is almost no experience of direct and positive contact between neurodiverse and neurotypical children. Without it, the probability that neurodiverse children are perceived as equals by their neurotypical peers tends to be lower (Sirlopú et al., 2008). Same segregation tendency, with a high level of medicalisation have been reported in judges (Marshall & Jiménez, 2021). The desire of

social distance observed in this study might be a consequence of this lack of contact during school age.

Several limitations need to be considered. Resource constraints forced the study to use a convenience sample, an issue that may lead to biases as our sample was not based on a probabilistic sampling by geopolitical regions. Participants were distributed among all socio-economic levels, but all were residents of the urban area of Santiago. The country, large, thin, and over-centralised has different social contexts across its sixteen administrative divisions, and between urban and rural areas. Future studies need to include sampling from a broader geographical spread.

Another limitation is that although we included expert and expert by experience opinions in the investigation of content validity for the questionnaire, we did not conduct a separate formal qualitative approach to data analysis. The focus groups contributed some insights into the area, but a mixed approach could have further enriched our interpretations.

In conclusion, the low level of literacy indicates that many people in Chile believe that IDD is a mental health problem. The most common attributional cause associated with James' difficulties was Environment, followed by Biomedical factors. People who reported low educational level showed less desire for social distance towards individuals, while male participants showed a greater desire for social distance. Neither previous contact nor religion were predictors for the desire of social distance. This is the first study in Latin America that explored variables associated with public stigma towards people with IDD; our results suggest that actions in both public and private spheres should be undertaken to combat stigma and promote social inclusion of this group.

In the future, decreasing the desire for social distance might be influenced by increasing the positive portrayals of people with ID in Chilean society, promoting opportunities for contact in educational institutions, and facilitating people with ID to be role models in the fight for human rights and the rights of people with disabilities.

### References

- Ali, A., Scior, K., Ratti, V., Strydom, A., King, M., & Hassiotis, A. (2013). Discrimination and Other Barriers to Accessing Health Care: Perspectives of Patients with Mild and Moderate Intellectual Disability and Their Carers. *PLoS ONE*, 8(8), e70855. <https://doi.org/10.1371/journal.pone.0070855>
- Ali, A., Strydom, A., Hassiotis, A., Williams, R., & King, M. (2008). A measure of perceived stigma in people with intellectual disability. *British Journal of Psychiatry*, 193(05), 410–415. <https://doi.org/10.1192/bjp.bp.107.045823>
- American Educational Research Association (AERA), American Psychological Association (APA), & National Council on Measurement in Education (NCME). (2014). *The Standards for Educational and Psychological Testing*. AERA Publications Sales.
- Browne, M. W., & Cudeck, R. (1992). Alternative Ways of Assessing Model Fit. *Sociological Methods & Research*, 21(2), 230–258. <https://doi.org/10.1177/0049124192021002005>
- Carmona-Halty, M., Navas, M., & Rojas-Paz, P. (2018). Percepción de amenaza exogrupal, contacto intergrupalo y prejuicio afectivo hacia colectivos migrantes latinoamericanos residentes en Chile. *Interciencia*, 43(1), 23–27.
- Commission, I. T. (2017). *The ITC Guidelines for Translating and Adapting Tests (Second edition)*. <https://doi.org/10.1111/j.1464-0597.1975.tb00322.x>
- Dietrich, S., Beck, M., Bujantugs, B., Kenzine, D., Matschinger, H., & Angermeyer, M. C. (2004). The Relationship Between Public Causal Beliefs and Social Distance

- Toward Mentally Ill People. *Australian & New Zealand Journal of Psychiatry*, 38(5), 348–354. <https://doi.org/10.1080/j.1440-1614.2004.01363.x>
- Griffiths, K. M., Nakane, Y., Christensen, H., Yoshioka, K., Jorm, A. F., & Nakane, H. (2006). Stigma in response to mental disorders: a comparison of Australia and Japan. *BMC Psychiatry*, 6(1), 21. <https://doi.org/10.1186/1471-244X-6-21>
- Honaker, J., King, G., & Blackwell, M. (2011). {Amelia II}: A Program for Missing Data. *Journal of Statistical Software*, 45(7), 1–47. <http://www.jstatsoft.org/v45/i07/>
- IBM Corporation. (2017). *IBM SPSS Statistics for Macintosh, Version 25.0 (25.0)*.
- Jansen-van Vuuren, J., & Aldersey, H. M. (2020). Stigma, Acceptance and Belonging for People with IDD Across Cultures. In *Current Developmental Disorders Reports* (Vol. 7, Issue 3, pp. 163–172). Springer. <https://doi.org/10.1007/s40474-020-00206-w>
- Korkmaz, S., Goksuluk, D., & Zararsiz, G. (2014). MVN: An R Package for Assessing Multivariate Normality. *The R Journal*, 6(2), 151–162. <https://journal.r-project.org/archive/2014-2/korkmaz-goksuluk-zararsiz.pdf>
- Lauber, C., Nordt, C., Falcató, L., & Rössler, W. (2003). Do people recognise mental illness? *European Archives of Psychiatry and Clinical Neuroscience*, 253(5), 248–251. <https://doi.org/10.1007/s00406-003-0439-0>
- Lesnoff, M., Lancelot, & R. (2012). *aod: Analysis of Overdispersed Data*. <https://cran.r-project.org/package=aod>
- Lichtenberger, E. O., & Kaufman, A. S. (2009). *Essentials of WAIS-IV Assessment*. John Wiley & Sons, Inc.
- Link, B. G., Phelan, J. C., Bresnahan, M., Stueve, A., & Pescosolido, B. A. (1999). Public conceptions of mental illness: Labels, causes, dangerousness, and social

distance. *American Journal of Public Health*, 89(9), 1328–1333.

<https://doi.org/10.2105/AJPH.89.9.1328>

Lishinski, A. (2018). *lavaanPlot: Path Diagrams for Lavaan Models via DiagrammeR*.

<https://cran.r-project.org/package=lavaanPlot>

Lüdecke, D., Ben-Shachar, M. S., Patil, I., & Makowski, D. (2020). Extracting, Computing and Exploring the Parameters of Statistical Models using {R}. *Journal of Open Source Software*, 5(53), 2445. <https://doi.org/10.21105/joss.02445>

Marshall, P., & Jiménez, G. (2021). Medicalisation and participation in legal capacity determinations in Chile. *International Journal of Law and Psychiatry*, 78, 101735.

<https://doi.org/10.1016/J.IJLP.2021.101735>

Maulik, P. K., Mascarenhas, M. N., Mathers, C. D., Dua, T., & Saxena, S. (2011).

Prevalence of intellectual disability: A meta-analysis of population-based studies. *Research in Developmental Disabilities*, 32(2), 419–436.

<https://doi.org/10.1016/j.ridd.2010.12.018>

Mencap. (2021). Society is Missing Out: Research by Mencap highlights the misunderstanding of people with a learning disability and the negative impact this can have on society. <https://www.mencap.org.uk/>

McConkey, R., Slater, P., Dubois, L., Shellard, A., & Smith, A. (2021). An international study of public contact with people who have an intellectual disability. *Journal of Intellectual Disability Research*, 65(3), 272–282.

<https://doi.org/10.1111/JIR.12809>

Mkabile, S., Garrun, K. L., Shelton, M., & Swartz, L. (2021). African families' and caregivers' experiences of raising a child with intellectual disability: A narrative synthesis of qualitative studies. *African Journal of Disability*, 10, 1–10.

<https://doi.org/10.4102/AJOD.V10I0.827>

- Morgan, A. J., Reavley, N. J., Ross, A., Too, L. S., & Jorm, A. F. (2018). Interventions to reduce stigma towards people with severe mental illness: Systematic review and meta-analysis. *Journal of Psychiatric Research, 103*, 120–133.  
<https://doi.org/10.1016/J.JPSYCHIRES.2018.05.017>
- Nations, U. (2016). *Comité sobre los Derechos de las Personas con Discapacidad. Observaciones finales sobre el informe inicial de Chile.*
- Nazer, J., & Cifuentes, L. (2011). Estudio epidemiológico global del síndrome de Down. *Revista Chilena de Pediatría, 82*(2), 105–112.  
<https://doi.org/10.4067/S0370-41062011000200004>
- Nunnally, J., & Bernstein, I. (1994). *Psychometric theory*. McGraw-Hill.
- Ouellette-Kuntz, H., Burge, P., Brown, H. K., & Arsenault, E. (2010). Public Attitudes Towards Individuals with Intellectual Disabilities as Measured by the Concept of Social Distance. *Journal of Applied Research in Intellectual Disabilities, 23*(2), 132–142. <https://doi.org/10.1111/j.1468-3148.2009.00514.x>
- Page, S. L., & Islam, M. R. (2015). The role of personality variables in predicting attitudes toward people with intellectual disability: An Australian perspective. *Journal of Intellectual Disability Research, 59*(8), 741–745.  
<https://doi.org/10.1111/jir.12180>
- Potier, M. C., & Reeves, R. H. (2016). Editorial: Intellectual disabilities in down syndrome from birth and throughout life: Assessment and treatment. *Frontiers in Behavioral Neuroscience, 10*(JUN), 1–4. <https://doi.org/10.3389/fnbeh.2016.00120>
- R Core Team. (2013). *R: A language and environment for statistical computing* (3.3). R Foundation for Statistical Computing. <http://www.r-project.org/>
- R Core Team. (2020). *foreign: Read Data Stored by “Minitab”, “S”, “SAS”, “SPSS”, “Stata”, “Systat”, “Weka”, “dBase”, ...* <https://cran.r-project.org/package=foreign>



- Rosseel, Y. (2012). {lavaan}: An {R} Package for Structural Equation Modeling. *Journal of Statistical Software*, 48(2), 1–36. <http://www.jstatsoft.org/v48/i02/>
- Schalock, R., Luckasson, R., & Tasse, M. (2021). *Twenty Questions and Answers Regarding the 12th Edition of the AAIDD Manual: Intellectual Disability: Definition, Diagnosis, Classification, and Systems of Supports*. [https://www.aaidd.org/docs/default-source/intellectualdisability/12th-ed-twenty-questions-faq.pdf?sfvrsn=a6403421\\_4](https://www.aaidd.org/docs/default-source/intellectualdisability/12th-ed-twenty-questions-faq.pdf?sfvrsn=a6403421_4)
- Schumacker, R. E., & Lomax, R. G. (2016). *A beginner's guide to structural equation modelin*. Routledge.
- Scior, K. (2011). Public awareness, attitudes and beliefs regarding intellectual disability: A systematic review. *Research in Developmental Disabilities*, 32(6), 2164–2182. <https://www.sciencedirect.com/science/article/pii/S0891422211002617>
- Scior, K., Addai-Davis, J., Kenyon, M., & Sheridan, J. (2012). Stigma, public awareness about intellectual disability and attitudes to inclusion among different ethnic groups. *Journal of Intellectual Disability Research*, no-no. <https://doi.org/10.1111/j.1365-2788.2012.01597.x>
- Scior, K., Connolly, T., & Williams, J. (2013). The Effects of Symptom Recognition and Diagnostic Labels on Public Beliefs, Emotional Reactions, and Stigmas Associated with Intellectual Disability. *American Journal on Intellectual and Developmental Disabilities*, 118(3), 211–223. <https://doi.org/10.1352/1944-7558-118.3.211>
- Scior, K., & Furnham, A. (2011). Development and validation of the Intellectual Disability Literacy Scale for assessment of knowledge, beliefs and attitudes to intellectual disability. *Research in Developmental Disabilities*, 32(5), 1530–1541.

<https://doi.org/10.1016/j.ridd.2011.01.044>

Scior, K., & Furnham, A. (2016). Causal beliefs about intellectual disability and schizophrenia and their relationship with awareness of the condition and social distance. *Psychiatry Research*, *243*, 100–108.

<https://doi.org/10.1016/J.PSYCHRES.2016.06.019>

Scior, K., Hamid, A., Hastings, R., Werner, S., Belton, C., Laniyan, A., Patel, M., & Kett, M. (2020). Intellectual disability stigma and initiatives to challenge it and promote inclusion around the globe. *Journal of Policy and Practice in Intellectual Disabilities*, *17*(2), 165–175. <https://doi.org/10.1111/JPPI.12330>

Scior, K., Hamid, A., Mahfoudhi, A., & Abdalla, F. (2013). The relationship between awareness of intellectual disability, causal and intervention beliefs and social distance in Kuwait and the UK. *Research in Developmental Disabilities*, *34*(11), 3896–3905. <https://doi.org/10.1016/j.ridd.2013.07.030>

Scior, K., Potts, H. W., & Furnham, A. F. (2013). Awareness of schizophrenia and intellectual disability and stigma across ethnic groups in the UK. *Psychiatry Research*, *208*(2), 125–130. <https://doi.org/10.1016/J.PSYCHRES.2012.09.059>

Servicio Nacional de la Discapacidad, & Ministerio de Desarrollo Social. (2016). *II ESTUDIO NACIONAL DE LA DISCAPACIDAD EN CHILE*. Gobierno de Chile. [www.senadis.cl](http://www.senadis.cl)

Sheridan, J., & Scior, K. (2013). Attitudes towards people with intellectual disabilities: A comparison of young people from British South Asian and White British backgrounds. *Research in Developmental Disabilities*, *34*(4), 1240–1247. <https://doi.org/10.1016/j.ridd.2012.12.017>

Sing, T., Sander, O., Beerenwinkel, N., & Lengauer, T. (2005). ROCr: visualizing classifier performance in R. *Bioinformatics*, *21*(20), 7881. <http://rocr.bioinf.mpi->

sb.mpg.de

Sirlopu, D., González, R., Bohner, G., Siebler, F., Ordóñez, G., Millar, A., Torres, D., & de Tezanos-Pinto, P. (2008). Promoting Positive Attitudes Toward People With Down Syndrome: The Benefit of School Inclusion Programs. *Journal of Applied Social Psychology*, 38(11), 2710–2736. <https://doi.org/10.1111/j.1559-1816.2008.00411.x>

Sirlopu, D., Melipillán, R., Sánchez, A., & Valdés, C. (2015). ¿Malos para aceptar la diversidad? Predictores socio-demográficos y psicológicos de las actitudes hacia el multiculturalismo en Chile. *Psyche*, 24(2), 1–13. <https://doi.org/10.7764/psyche.24.2.714>

Tenorio, M., Donoso, J., Ali, A., & Hassiotis, A. (2020). Stigma Towards Persons With Intellectual Disability In South-America: A Narrative Review. *Journal of Policy and Practice in Intellectual Disability*.

Thornicroft, G., Rose, D., Kassam, A., & Sartorius, N. (2007). Stigma: ignorance, prejudice or discrimination? *British Journal of Psychiatry*, 190(3), 192–193. <https://doi.org/10.1192/bjp.bp.106.025791>

United Nations. (2006). *Convention on the Rights of Persons with Disabilities - Articles / United Nations Enable*. <https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities/convention-on-the-rights-of-persons-with-disabilities-2.html>

Walker, J., & Scior, K. (2013). Tackling stigma associated with intellectual disability among the general public: A study of two indirect contact interventions. *Research in Developmental Disabilities*, 34(7), 2200–2210. <http://linkinghub.elsevier.com/retrieve/pii/S0891422213001285>

- Wang, Z., Xu, X., Han, Q., Chen, Y., Jiang, J., & Ni, G.-X. (2021). Factors associated with public attitudes towards persons with disabilities: a systematic review. *BMC Public Health*, *21*(1). <https://doi.org/10.1186/S12889-021-11139-3>
- Werner, S. (2015). Public stigma in intellectual disability: do direct versus indirect questions make a difference? *Journal of Intellectual Disability Research*, *59*(10), 958–969. <https://doi.org/10.1111/jir.12207>
- Werner, S., & Shulman, C. (2015). Does type of disability make a difference in affiliate stigma among family caregivers of individuals with autism, intellectual disability or physical disability? *Journal of Intellectual Disability Research*, *59*(3), 272–283. <https://doi.org/10.1111/jir.12136>
- Weston, R., & Gore, P. A. (2006). *A Brief Guide to Structural Equation Modeling*. <https://doi.org/10.1177/0011000006286345>
- Wickham, H., Averick, M., Bryan, J., Chang, W., McGowan, L. D., François, R., Grolemund, G., Hayes, A., Henry, L., Hester, J., Kuhn, M., Pedersen, T. L., Miller, E., Bache, S. M., Müller, K., Ooms, J., Robinson, D., Seidel, D. P., Spinu, V., ... Yutani, H. (2019). Welcome to the {tidyverse}. *Journal of Open Source Software*, *4*(43), 1686. <https://doi.org/10.21105/joss.01686>
- Wilson, N. J., Mahoney, N., Chen, Y., Marks, A., Buchanan, A., & Cordier, R. (2019). *Methods to understand everyday experiences of adults with intellectual disability*. <https://researchdirect.westernsydney.edu.au/islandora/object/uws:53585/datastream/PDF/view>
- Wilson, M. C., & Scior, K. (2015). Implicit attitudes towards people with intellectual disabilities: Their rel...: EBSCOhost. *PLoS ONE*, *10*(9), ArtID: e0137902. <http://web.b.ebscohost.com/uandes.idm.oclc.org/ehost/detail/detail?vid=21&sid=20e9a88b-0814-4b2a-9299-00f71107bd41%40pdc-v->

sessmgr01&bdata=Jmxhbmc9ZXMmc2l0ZT1laG9zdC1saXZl#AN=2016-02519-001&db=psyh

World Health Organization. (2020). *Process of translation and adaptation of instruments*. [https://www.who.int/substance\\_abuse/research\\_tools/translation/en/](https://www.who.int/substance_abuse/research_tools/translation/en/)

Zeilinger, E. L., Stiehl, K. A. M., Bagnall, H., & Scior, K. (2020a). Intellectual disability literacy and its connection to stigma: A multinational comparison study in three European countries. *PLOS ONE*, *15*(10), 1–14. <https://doi.org/10.1371/journal.pone.0239936>

Zeilinger, E. L., Stiehl, K. A. M., Bagnall, H., & Scior, K. (2020b). *Intellectual disability literacy and its connection to stigma: A multinational comparison study in three European countries*. *15*, e0239936. <https://pubmed.ncbi.nlm.nih.gov/33057379/>

*Table 1.*

Participants' sociodemographic information

Variable		N (%)
Gender	Female	269 (68.1)
	Male	126 (31.9)
Age	< 35	162 (41.0)
	35 to 54	130 (32.9)
	> 54	103 (26.1)
Education	Low (Incomplete high school or less)	102 (25.8)
	Medium (High school or technical degree)	106 (26.8)
	High (College or graduate degree)	185 (46.8)
	No answer	2 (0.5)
Religion	Catholic	262 (66.4)
	Atheist	98 (24.8)
	No answer	35 (8.9)

Table 2.

Odds ratios (and 95% confidence intervals) from logistic regression analyses: effects of gender and educational level on the likelihood of identifying the condition

	Mental Health <sup>1</sup>			Cognitive or Intellectual <sup>2</sup>		
	B	SE B	OR	B	SE B	OR
Intercept	0.988	0.386	2.68 (1.28- 5.89)	-0.11	0.43	0.89 (0.37-2.08)
Gender	-0.77	0.31	0.46 (0.25- 0.85) *	-0.39	0.33	0.67 (0.34-1.28)
Contact	0.65	0.38	1.92 (0.88- 4.11)	0.14	0.43	1.16 (0.5-2.79)
Education						
Low vs other	-1.54	0.38	0.21 (0.09-0.44) ***	-0.82	0.41	0.43 (0.18-0.95) *
Medium vs other	-0.23	0.35	0.78 (0.39-1.6)	-0.91	0.35	0.4 (0.19-0.78) **
High vs other	NA					
Religion	0.24	0.34	1.28 (0.66-2.55)	-0.34	0.43	0.7 (0.37-2.08)

Gender: 0=female, 1=male; Contact:0=no prior contact,1=prior contact; Education: 1=Low

educational level, 0=other; 1=Medium educational level, 0=other; 1=High educational level, 0=other;

Religion: 1=Atheist, 0=Catholic

\* p < 0.05; \*\* p < 0.01; \*\*\* p < 0.001

<sup>1</sup>272 participants recognised a mental health condition in the vignette.

<sup>2</sup>128 participants recognised a cognitive or intellectual condition in the vignette.

Table 3.

Item endorsement to the scales and mean scores for this sample

Causal item		M (SD)
Biomedical	Virus/other infection that affects the brain	2.14 (1.79)
	Genetic factors	3.68 (1.96)
	Complications at time of birth	3.47 (2.09)
	Brain abnormality	3.66 (2.19)
	Meningitis	2.68 (1.92)
Adversity	Family arguments	2.69 (1.82)
	Financial worries	2.08 (1.64)
	Suffering abuse as a child	2.78 (1.89)
	Recent traumatic incident such as traffic accident	2.54(1.77)
	Recent death of relative or close friend	2.18(1.7)
Environment	Overly spoilt as a child	3.85(2.05)
	Lack of daytime occupation	4.47(2.11)
	Very poor schooling	4.19(2.13)
	Being from a single-parent family	2.01(1.77)
	Parents too lenient	3.96(2.24)
	Lack of an intimate relationship	1.97(1.64)
	Isolation from extended family	2.07(1.67)
Supernatural	Possession by spirits	1.23(0.79)



Punishment for own past wrongdoings	1.68(1.49)
Strong religious or spiritual belief	1.39(1.11)
Punishment for parents' wrongdoings	1.77(1.51)
A test from God/ Allah	1.51(1.37)

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Table 4.

Predictors of the desire for social distance of people that identify James' condition as a mental health condition or as ID

	Mental Health			Cognitive or Intellectual		
R <sup>2</sup>	.142			.133		
	B	SE B	Std. B	B	SE B	Std. B
Constant	5.474	.402	NA	5.600	.428	NA
Identification	-.198	.218	-.057	-.256	.210	-.079
Gender	.588	.204	.174*	.481	.225	.0138*
Contact	-.123	.258	.028	-.398	.293	-.087
Age	-.011	.007	.118	-.007	.007	-.065
Education						
Low vs other	-1.276	.349	.302*	-1.316	.349	-.315*
Medium vs other	NA	NA				
High vs other	-.085	.233	.027	-.265	.255	-.084
Religion	.020	.212	.006	.069	.232	-.019

Identification: 0=no, 1=yes; Gender:0=female, 1=male; Contact:0=no prior contact,1=prior contact;

Education: 1=Low educational level, 0=other; 1=Medium educational level, 0=other; 1=High

educational level, 0=other; Religion: 1=Atheist, 0=Catholicism

\* p < 0.05

Table 5.

Correlation between individual causes and desire of social distance

Causal item		Social distance	
		CC	Sig. (2 tailed)
Biomedical	Virus/other infection that affects the brain	-.246	.000**
	Genetic factors	-.220	.000**
	Complications at time of birth	-.210	.000**
	Brain abnormality	-.138	.006**
	Meningitis	-.233	.000**
Adversity	Family arguments	.007	.890
	Financial worries	.010	.845
	Suffering abuse as a child	-.112	.026*
	Recent traumatic incident such as traffic accident	-.139	.006**
	Recent death of relative close friend	-.095	.059
Environment	Overly spoilt as a child	.047	.352
	Lack of daytime occupation	.040	.427
	Very poor schooling	.026	.611
	Being from a single-parent family	-.127	.011*

	Parents too lenient	.088	.079
	Lack of an intimate relationship	-.100	.047*
	Isolation from extended family	-.161	.001**
<hr/>			
Supernatural	Possession by spirits	-.102	.043*
	Punishment for own wrongdoings	-.20	.668
	Strong religious or spiritual belief	-.119	.018*
	Punishment for parents' wrongdoings	-.015	.767
	A test from God/Allah	-.121	.016*

Spearman's rho significant at: \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$  (Bonferroni corrected)