

Armstrong M, Morris C, Abraham C, Tarrant M. (2017)

Interventions utilising contact with people with disabilities to improve children's attitudes towards disability: a systematic review and meta-analysis. *Disability and Health Journal*. doi.org/10.1016/j.dhjo.2016.10.003.

Abstract

Background Children with disabilities are often the target of prejudice from their peers. The effects of prejudice include harmful health consequences. The Contact Hypothesis has previously shown to promote positive attitudes towards a range of social groups.

Objective To conduct a systematic review and meta-analysis on the effectiveness of school-based interventions for improving children's attitudes towards disability through contact with people with disabilities.

Methods A comprehensive search was conducted across multiple databases. Studies were included if it evaluated an intervention that aimed to improve children's attitudes towards disability and involved either direct (in-person) or indirect (e.g., extended) contact with people with disabilities. Data were synthesised in a meta-analysis.

Results Twelve studies met the inclusion criteria. Of these, 11 found significant effects: six used direct contact, two used extended contact, two used parasocial (media-based) contact and one used guided imagined contact. One parasocial contact intervention found no significant effects. Three meta-analyses showed direct contact ($d = 0.55$, 95% CI 0.20 to 0.90) and extended contact ($d=0.61$, 95% CI 0.15 to 1.07) improved children's attitudes; there was no evidence for parasocial contact ($d=0.20$, 95% CI -0.01 to 1.40).

Conclusions Direct, extended, and guided imagined contact interventions are effective in improving children's attitudes towards disability; there was no evidence for parasocial contact.

Keywords: Attitudes, Contact, Disability, Children

INTRODUCTION

Children with disabilities are often the target of prejudice from their peers [1]. Prejudice and discrimination can have harmful health consequences, increasing victims' loneliness and anxiety, and reducing their self-worth [2]. Recent research has demonstrated that many schools in the UK do little to promote positive attitudes towards disability in pupils, and that teachers may require more resources to support them in developing strategies to encourage positive attitudes [3].

The 'contact hypothesis' describes the positive impact that direct face-to-face interactions can have on people's attitudes towards members of different social groups [4]. Subsequent research has found evidence for the contact hypothesis in the context of children's attitudes towards disability [5, 6]. A systematic review of 35 studies found there was a positive association between children who have contact with people with disabilities at school and their attitudes towards people with disabilities [5]. A recent cross-sectional survey of over 1,800 children supported the findings from the review [6]. The survey also found that the contact-attitude link, in the context of disability, was mediated by empathy for and anxiety about interacting with people with disabilities. Beyond associations, a systematic review explored interventions aiming to improve children attitudes towards disability and this included seven effective direct contact interventions (i.e., increased contact led to improved attitudes towards people with disabilities) [7]. However, the review did not consider indirect contact interventions, so while there is clear evidence for direct contact effects, it is less clear how attitudes may be improved in school contexts where contact is not possible.

In addition to direct contact, indirect contact has emerged as an effective intervention. One reason that prejudice arises, according to the contact hypothesis, is due to a lack of contact [4]. It can be difficult to create contact between two social groups when one social group is a minority or in situations where direct contact is not always possible. Indirect contact includes (1) knowing a fellow 'in-group' member has a close relationship with an 'out-group member' (extended contact) [8]; (2) imagining a positive interaction with an out-group member (guided imagined contact) [9]; and (3) being exposed to out-group members through their portrayal using media such as

video (parasocial contact) [10]. There is debate as to whether such 'indirect' contact yields effects on attitudes as strong as direct contact [11].

The aim of this study was to synthesise studies evaluating school-based interventions to improve children's attitudes towards disability using direct or indirect (imagined, extended, parasocial) contact methods.

METHOD

Inclusion and exclusion criteria

Studies were included in the review if they:

- Focused on children aged under 18 years
- Evaluated changes in children's attitudes towards disability using quantitative outcome measures
- Evaluated a school-based intervention with a component that included either direct or indirect contact with people with disabilities

Studies were excluded if they:

- Were not reported in English language
- Were not published in a peer-reviewed journal
- Did not include a control group

Identification of studies

Four databases were searched systematically: MEDLINE (using the Ovid interface), Applied Social Science Index and Abstracts (ASSIA) (using the Proquest interface), PsycInfo (using the Ovid interface) and Educational Resources Information Centre (ERIC) (using the Proquest interface). Databases were searched in June 2015 and used blocks of search terms aimed at locating relevant papers (i.e., variations of the terms 'child', 'attitudes' and 'disability'). Retrieved references were stored in reference management software (Endnote X4) and duplicates were removed. Forward and backward citation searches were conducted to help ensure that all relevant studies were located.

Study selection

One reviewer (MA) screened the title and abstract of the search results to identify relevant studies. A second reviewer (KW) screened 10% of the search results as a quality assurance check. After screening, the first reviewer retrieved full text copies of the studies and emailed the leading author of each paper to request further information regarding the intervention and its implementation, as well as the raw data set. MA and KW then independently reviewed the full text version of the studies for inclusion in the review and any discrepancies arising were resolved through discussion. Studies not appropriate for inclusion in a meta-analysis were still included in this review and were narratively synthesised.

Data extraction and synthesis

The authors created a data extraction form to capture key features of the studies, including authors, date, setting, participants, research design method for measuring attitudes, intervention components and results. Extracted data included the means and standard deviation of children's attitudes towards disability scores for both the intervention and control groups, if these were available. Two reviewers (MA/MT) independently extracted all data and resolved discrepancies by discussion. Studies were synthesised narratively and appropriate studies for inclusion in a meta-analysis were additionally synthesised using this method.

Quality appraisal

Two reviewers (MA/MT) independently assessed all studies using principles published by the National Health Service Centre for Reviews and Dissemination and the Cochrane Collaboration [12]. Discrepancies were resolved by discussion.

Meta-analysis

To calculate effect sizes of the different types of contact (direct, extended, imagined, or parasocial), the interventions were categorised according to the type of contact and a separate meta-analysis conducted for each. If the study evaluated more than one intervention (e.g., two interventions and a control group), the intervention with the contact component was included in the analysis.

Meta-analyses were conducted in Review Manager 5.0 [13]. A random-effects approach was used which assumes that variation in effect sizes are not just due to

sampling error but, rather, other factors within the studies; therefore, studies are assumed to be measuring different, but related, intervention effects [14]. To examine statistical heterogeneity in the meta-analysis, the Q statistic and I^2 were used. Following published guidelines, a group of effect sizes were deemed homogeneous if the Q statistic was not significant at $p < 0.01$ [15]. Additionally, an I^2 of between 0-30% was interpreted to be low heterogeneity, 31%-60% moderate heterogeneity and 61% and above to mean substantial heterogeneity [12]. As attitude outcomes were measured using different instruments, the standard mean difference between the intervention and control was taken for the effect measure. The magnitudes of the mean effect size estimates (d) were then interpreted according to Cohen's (1988) convention: $d = 0.3$ (small effect size), $d = 0.5$ (moderate effect size), and $d = 0.8$ (large effect size) [16].

RESULTS

Study selection

Figure 1 summarises the identification and selection of studies. A total of 3,649 articles were located, from which 749 duplicates were removed. The titles and abstracts of 2,900 retrieved studies were screened and 25 full text studies were read. Citation searching located two additional studies. Lastly, 15 studies were removed for not meeting the inclusion criteria, leaving 12 studies for inclusion in this review.

Study characteristics

The characteristics of studies are presented in Tables 1-4. Studies attempted to improve attitudes towards a range of disabilities; the most frequent were physical disability (N=4) [17-20] and learning disabilities (N=4) [21-24]. Two studies focused on both physical and learning disability [25, 26]. Two studies focused on a specific diagnosis: Tourette's syndrome (TS) [27] and mental health illness [28]. Four studies were conducted in the UK [17, 23, 25, 26], two in the USA [19, 27], two in Canada [20, 28], one in Australia [24], one in Germany [18], one in Turkey [22], and one in France [21].

Sample sizes ranged from 38 participants [22] to 784 participants [21] (total N = 2,538). All studies included both genders except one that only included males [22].

Participants' ages ranged from 5-15 years with the largest age range in a single study being five years [25].

Description of the intervention and control groups

Control group

Eight studies had 'no intervention' controls [17, 18, 20, 21, 23, 24, 26, 28], and four studies involved activities involving book reading [25], watching video clips [27], and engaging in sport activities groups [19, 22].

Duration and frequency

Interventions varied in terms of their duration and frequency. Three studies consisted of a single session of 45 minutes [20, 27, 28]. One study provided a resource pack for teachers to use after the intervention sessions, which means the duration of the intervention may have continued after the single 45 minute session if the teachers utilised the resource pack [20]. Another study only conducted a one-off session, but this included three minutes of the intervention task (imagining contact) followed by a 15-20 minute discussion with the participants [17]. Two studies comprised two 90-minute intervention sessions.

The remaining interventions were more intensive: two studies [25, 26] involved a weekly 20-minute session for six weeks, one study [19] involved daily 25-minute sessions for four weeks, and one study [23] involved two 40-minute sessions per week for 10 weeks. The longest intervention was conducted over four months and delivered by schoolteachers, but the frequency of intervention sessions was unclear [21]. One study retrospectively measured attitudes eight years after the intervention had taken place; there was little description regarding the duration of the sessions, but the authors' stated there was between three and eight sessions [24].

Intervention facilitator

Seven interventions were facilitated by a researcher [17-19, 25-28]. Five interventions were facilitated by teachers [21, 23], a disabled person [18], a social worker [20], a sports trainer [22], or a guest speaker (teacher of a Child with disabilities) [24]. Only one study provided details about the training that the facilitator received [21].

Type of contact

The most frequent type of contact was direct contact and this was used in six studies. Of these, five studies involved direct contact with children with disabilities [19, 20, 22-24], and one with a disabled adult athletes [18]. Contact involved meeting people with disabilities and discussing disability with them [20], taking part in sports [18, 19, 22], and cooperative tasks like creating a theatrical production [23, 24].

Parasocial contact was used in three studies and included watching video tapes of people with disabilities discussing their lives [21, 27] and watching a play using puppets [28]. Two studies used extended contact, involving reading about positive interactions between people with disabilities with and without disabilities [25, 26]. One guided imagined contact study asked children to spend three minutes imagining a positive interaction with a child with disabilities [17].

Follow-up period

Seven studies [17, 19, 22, 23, 26-28] measured attitudes towards disability immediately after the intervention. Two studies [18, 20] also measured attitudes at a second time point (one month and three months later). The remaining studies assessed attitudes one week [25], four months [21], and eight years [24] after the intervention.

Outcomes

Attitudes towards people with disabilities were assessed using ten different self-report questionnaires. The most frequent measure was the 'Chedoke-McMaster Attitudes Towards Children with Handicaps' (CATCH) [29] (N=3). The CATCH is a 36-item measure capturing affective, behavioural and cognitive attitudes towards people with disabilities. One used measures created by the authors themselves [24]. The other measures used are listed in Tables 1-4.

Meta-analyses of intervention studies

Of the 12 studies included in this review, three were excluded from the meta-analysis: two because they did not report standard deviations or standard errors even when contacted by the authors of this review [18, 28], and the single study of

guided imagined contact [17]. Due to the small number of studies for each type of contact, it was not possible to conduct any further analysis (i.e., sensitivity analysis) on other characteristics of the interventions (e.g., follow-up period). The results of the meta-analyses are presented in Figures 2-4.

Direct contact

A random effects model produced an overall moderate Cohen's *d* effect size of 0.55 (95% CI 0.20 to 0.90) for the five studies of direct contact (N = 469). Participants who received a direct contact intervention reported attitudes that were more positive than those in the control conditions were. Of these five studies, two had a control group that was a similar activity (sports) to the intervention [19, 22] and three used 'no intervention' control groups [20, 23, 24]. Examination of the I^2 suggested moderate levels of heterogeneity ($I^2 = 56\%$; $Q=9.16$, $p=0.06$).

Extended contact

A random effects model produced an overall moderate Cohen's *d* effect size of 0.61 (95% CI 0.15 to 1.07) for the two studies of extended contact (N = 83). Participants receiving an extended contact intervention reported attitudes that were significantly more positive than those in control conditions were. Of these two studies, one had control group that used book reading, which was the same as the intervention [25] and one had a 'no intervention' control group [26]. Heterogeneity was low ($I^2 = 7\%$; $Q=1.08$, $p=0.30$).

Parasocial contact

A random effects model produced overall Cohen's *d* effect size of 0.20 (95% CI -0.01 to 1.40) for the two parasocial contact interventions (N = 873). However, there was no evidence that there was any difference in attitudes between participants in the intervention and those in the control condition, as the confidence interval includes zero. One study used a 'no intervention' control group [21] and the other study used video clips, which was similar to the intervention group [27]. There was moderate heterogeneity ($I^2 = 31\%$; $Q=1.44$, $p=0.23$).

Quality appraisal (risk of bias)

Only one study conducted an a priori sample size calculation [21]. Four studies recruited participants from one school only, which limits generalisation of their conclusions beyond that particular setting [18, 19, 22, 23]. The remaining eight studies recruited from multiple schools but Godeau, Vignes [21] was the only study to use a multi-level analysis to take into account that participants were recruited from clusters (i.e., schools). Godeau et al. (2010) observed a difference between the control and intervention group only when multi-level analysis was *not* used.

All studies randomised participants to control and experimental groups and all but one study [21] had more than 80% of participants in their follow up assessment. However, only six studies reported baseline data; accordingly, it is unclear whether there were any differences between the control and experimental group prior to the intervention [18, 21, 22, 24, 25, 27]. None of the 12 studies reported whether the outcome assessors were blind to the participants' group allocation (e.g., intervention or control). Also, of the 11 studies that reported significant intervention effects, only four reported effect sizes; therefore, where possible, effect sizes were calculated by the authors [17, 19, 22, 24].

DISCUSSION

The findings of this review provide evidence that direct and indirect contact with people with disabilities is effective at improving children's attitudes towards disability. Out of 12 studies that were included in this review, 11 reported a positive effect of contact on children's disability attitudes. Interventions involving extended contact had the largest effect size ($d=0.61$), followed by direct contact ($d=0.55$). Interventions based on parasocial contact had an effect size of $d=0.20$; however, as the confidence interval included zero, there was no evidence parasocial contact in an effective intervention technique. . As there was only one study evaluating guided imagined contact, a separate meta-analysis for this could not be conducted. However, this single study suggested the intervention was effective at improving attitudes towards disability. We would have liked to have conducted sensitivity analyses on factors such as follow-up period and facilitator of the intervention, but were unable to do so due to the small number of studies within each contact intervention group.

The one study that reported no improvement in attitudes was the largest in this review with a sample size of 784 [21]. Notably, teachers delivered the intervention, but there were no data on how they did this or whether they followed an intervention manual. Such factors may have undermined any potential positive effects of the intervention. Furthermore, less than 80% of the sample in this study was included in the assessment follow-up and it was reported that participants who were most likely to drop out of the intervention were boys and those with low socioeconomic status. Both of these factors have been reported to be closely associated with negative attitudes towards disability [21]. It might be argued, therefore, that the very children who stood to benefit most from the intervention were least likely to engage with it.

The findings from this review build on previous research by focusing specifically on children's attitudes towards disability [30]. Furthermore, this review supports previous findings on extended contact [8] and guided imagined contact [9] within the context of children's attitudes towards disability, although there was only one guided imagined contact study. Conversely, the findings from his review found no evidence that parasocial contact [10] is an effective technique to improve children's attitudes towards disability. However, despite the promising findings from these contact interventions, the quality and the reporting within most studies was judged relatively poor, for a variety of reasons, including lack of baseline data, failure to report effect sizes, and failure to conduct a priori sample size calculations.

All the direct contact interventions included in the review were effective and, therefore, schools might consider inviting a disabled athlete [18] or child [20] coming into lessons to discuss a disability issues and conducting simulation tasks. If this is not feasible, then extended contact through the use of reading storybooks with the children has been shown to be effective [25]. Furthermore, these interventions have been effective after a one-off 45 minute lesson [20] and when conducted by guest speakers, researchers [19] or teachers [23].

Few studies explored implementation; therefore, little can be deduced regarding how and whether the interventions reported in this review would be feasible to deliver in schools out of the context of the study. One direct contact study collected some implementation data; this study could not be used in the meta-analysis as it did not

report complete quantitative data [18]. Participants were asked (a) how much they had liked the session; (b) how much fun they had had during the session; (c) how interested they had been in the new disciplines; (d) how much they felt they had learned; (e) how much they liked the athletes and (f) how exhausting they had found the session to be. All responses were made on 4-point Likert scale of 'not at all' to 'very much' [18]. When comparing two interventions, participants rated the intervention with the contact component more highly on the six items listed above. Beyond whether the participants and teachers enjoyed the intervention, none of the studies considered the implementation of conducting an intervention in a school (e.g., how it would fit in with the curriculum). It has previously been argued that teachers avoid discussing disability with school children due to feeling embarrassed or worried about approaching the issue [3]. Researchers should develop interventions in consultation with teachers, so the key issues surrounding implementation in this context are addressed.

All three meta-analyses included studies that had a 'no intervention' control group and studies that had an active control groups (i.e., a control with similar methods as the intervention but without the disability component). Additionally, the direct contact and parasocial contact meta-analyses included studies that used different outcome measures from each other, although all aiming to measure attitudes. Therefore, the meta-analyses findings should be viewed with caution as the studies within the meta-analyses are heterogeneous and could be measuring different effects (i.e., comparing an intervention to no intervention could possibly yield different effects than comparing to a more active control group). However, the statistics from the meta-analyses reported low to moderate heterogeneity between the studies.

This review has several limitations. The review contained only nine studies in the meta-analysis, which were further grouped by type of contact; it was not possible to separate studies by other factors such as type of facilitator (e.g., teacher or researcher) or length of time of the interventions. There is therefore a need for research to explore these factors in more detail, so interventions can be tailored to what makes contact more or less effective. Studies not in peer-reviewed journals (grey literature) was not included; therefore, potentially important studies may have

been missed. We elected to include only peer-reviewed studies as a scientific quality standard, so in fact this could be considered a strength of the review.

Conclusion

This review demonstrates that contact with people with disabilities can be an effective component for intervention developers to use to improve children's attitudes towards disability. The most effective types of contact appear to be extended contact and direct contact; there was no evidence of the effectiveness for parasocial contact. The review has also highlighted a need to evaluate factors related to the wider implementation of the intervention and not just the effectiveness.

Acknowledgements

We acknowledge funding from the National Institute for Health Research (NIHR) Collaboration for Leadership in Applied Health Research and Care of the South West

Peninsula (PenCLAHRC), and the charity Cerebra. The views and opinions expressed in this paper are those of the authors and not necessarily those of the NHS, the NIHR, the Department of Health, or Cerebra. We are grateful to Krystal Warmoth who helped screen and review the studies for inclusion in the review.

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