The Impact of Exposure to Media Coverage of the 2012 Paralympic Games on Mixed Physical Ability Interactions.

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Keywords: Paralympics; media; embarrassment; intergroup contact; stereotypes

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Abstract

The current work assessed the impact of the 2012 Paralympic Games on psychological factors operating during interactions between physically disabled and non-disabled group members. In a two-wave longitudinal design the pre- to post-Paralympic increase in exposure to Paralympic media coverage led to more positive ingroup norms about disabled people's competence and improved intergroup contact quality among both physically disabled and non-disabled participants. Moreover, more positive norms about disabled people's competence partially mediated the relationship between media exposure and contact quality. However, exposure to Paralympic media coverage did not appear to impact embarrassment about intergroup contact within either group. Findings are discussed in terms of the efficacy and limitations of Paralympic media coverage to improve intergroup relations in the mixed physical ability context.

Although several strategies to promote harmony between groups have been tested in the laboratory (e.g., Abrams, Eller, & Bryant, 2006; Brambilla, Ravenna, & Hewstone, 2012), there persists a lack of knowledge over what works in the real world (Paluck & Green, 2009). In particular, field tests of the effectiveness of mass media are rare (Paluck, 2009). This is unfortunate because exposure to positive mass media portrayals of different groups has the potential to complement strategies that rely on face-to-face encounters between group members to improve relations, such as direct intergroup contact (Allport, 1954; Harwood, Hewstone, Amichai-Hamburger, & Tausch, 2013). To address this gap, the present study examined the impact of the Paralympic Games on intergroup relations between physically disabled and non-disabled group members. Such evaluations are needed, particularly as the 2012 Paralympic Games was described as a watershed moment for people with disabilities in part due to its extensive media coverage (Hirst & Mower, 2012; Swartz et al., 2016).

In addition to 150 hours of live Paralympic event coverage in the UK (Beacom, French, & Kendall, 2016), a dedicated feature ("The Last Leg") hosted by physically disabled and non-disabled presenters contained sports highlights and athlete interviews (Giuffre, 2014). Studies of the 2012 Paralympic Games, including a systematic review (Rees, Robinson, & Shields, 2017), suggested that its media coverage focused extensively on the success and ability of athletes, albeit sometimes using a "supercrip" lens (Beacom et al., 2016). This lens refers to the practice of depicting athletes as overcoming adversity to achieve success (e.g., by presenting the back stories of athletes with acquired impairment; Silva & Howe, 2012), thereby instilling viewers with prescriptive expectations regarding what *all* disabled people can achieve (Berger, 2008). Overall, however, media coverage of the 2012 Paralympic Games prominently emphasised the athleticism and capability of disabled athletes

(Rees et al., 2017). In the current study, we assessed the extent to which such positive depictions may improve mixed physical ability intergroup relations.

Mass Media-based Contact

Forms of mass media which depict outgroups or interactions between ingroup and outgroup members have been suggested to represent an important source of information about intergroup relations, particularly in contexts where direct contact is limited (Mutz & Goldman, 2010). Schiappa, Gregg, and Hewes (2005) suggested that depictions of group members in mass media may shift perceptions because such portrayals would be processed by the perceiver in a similar fashion to direct contact. Additionally, Ortiz and Harwood (2007) proposed an explanation aligning with social cognitive theory (Bandura, 2001). This view holds that individuals learn positive attitudes and behaviour towards outgroups from media via vicarious learning of positive affective reactions and behavioral responses displayed by ingroup members toward outgroup members (Ortiz & Harwood, 2007). Exposure to media coverage featuring both intergroup interactions (Joyce & Harwood, 2014; Ortiz & Harwood, 2007; Visintin, Voci, Pagotto & Hewstone, 2017) and only outgroup members (e.g., stand-up comedy; Schiappa et al., 2005) has been shown to improve ingroup perceptions of outgroups, where the media depictions have been positive in nature (e.g., Joyce & Harwood, 2014).

Notwithstanding this growing evidence, understanding of the impact of mass media strategies on intergroup relations ultimately remains limited. This is because studies rarely assess exposure to media coverage among minority group members, let alone examine the dynamic impact that media exposure may exert on both majority and minority group members concurrently. Moreover, the extent that mass media can offer positive indirect intergroup contact within the mixed physical ability context remains under-researched. Specifically, although viewing purposively selected Paralympic footage in the lab has been shown to

improve the implicit disability attitudes of non-disabled people (Ferrara, Burns, & Mills, 2015), the impact of Paralympic media exposure in the real-world has not been substantively assessed, including among disabled people themselves.

This paper addresses these gaps by investigating exposure to Paralympic media coverage on *both* physically disabled and non-disabled group members, using a longitudinal design to demonstrate if the necessary condition for causality exists (i.e. direction of an effect; see Binder et al., 2009, p. 8). Further, as Paluck and Green (2009, p. 357) highlight, testing such strategies outside of the laboratory is vital to determine if they work amidst the noise of real-world conditions. In the present study, we integrated key perspectives on intergroup relations and tested the impact of naturally occurring Paralympic media exposure against predictions derived from these theories, allowing for a systematic understanding of exactly what aspect(s) of mixed physical ability intergroup relations the Paralympics may improve. Specifically, we assessed the impact of Paralympic media coverage on the two facets of the stereotype content model, competence and warmth (Fiske, Cuddy, Glick & Xu, 2002), by examining ingroup norms about disabled people within these dimensions. Further, theorized based on intergroup emotions theory (Mackie, Smith & Ray, 2008), we also assessed its impact on intergroup embarrassment. Finally, we tested the impact of Paralympic media exposure on the two facets on contact derived from intergroup contact theory (Allport, 1954), contact quality and contact quantity.

Ingroup Norms of Competence and Warmth toward Disabled People

Several studies have shown that in-groups form impressions of out-groups (e.g., Fiske et al., 2002; Phalet & Poppet, 1997) based on two key evaluative dimensions: competence (e.g., ability, efficiency) and warmth (e.g., sincerity, friendliness). Furthermore, perceptions on these dimensions also contribute to individuals' evaluation of their own group (Leach,

Ellemers, & Barreto, 2007; Shnabel, Ullrich, Nadler, Dovidio, & Aydin, 2013). Supporting empirical evidence suggests that people with physical disabilities are perceived to have low competence, but high warmth. For instance, these judgments have been identified when non-disabled participants have been asked to assign competence and warmth ratings to people with physical disabilities (Fiske et al., 2002; Louvet, Rohmer, & Dubois, 2009) and where people with disabilities have been asked to assign ratings to their own group (Nario-Redmond, 2010)

While some studies investigating the impact of mass media on intergroup relations have suggested that exposure may be able to positively shift personal perceptions of groups, including outgroup stereotypes (e.g., Joyce & Harwood, 2014), others have found that media exposure did not precipitate changes in personal beliefs, even where related norms and behaviour grow more positive (Paluck, 2009). It has further been suggested that personal perceptions are difficult to change, and that mass media conveys what others think, rather than prescribing what individuals should think (Mutz, 1998; Paluck, 2009). Group norm theory (Sherif & Sherif, 1953) predicts that individuals adopt the same beliefs which valued groups hold and thus, changing an individual's perceptions of what a valued group thinks is more effective than modifying personal perceptions (Crandall, Eshleman, & O'Brien, 2002). Previous studies have highlighted a strong, positive relationship between ingroup norms about outgroups and expressed antipathy toward them (Crandall & Eshleman, 2003; Crandall et al., 2002), suggesting that whether a mass media-based strategy can shift ingroup norms about a target outgroup among majority group members provides a good test of its efficacy within the real world. Likewise, as individuals are likely to view themselves according to ingroup norms (Hornsey, 2008), it follows that for minority group members, the promise of mass media-based strategies may lie in their ability to combat negative stereotypes about the ingroup.

Intergroup Embarrassment

Interest in the role that emotions play has grown to offer explanation for intergroup phenomena. A major contribution of this emphasis on affect has been the development of intergroup emotions theory (Mackie et al., 2008). The theory proposes both that people feel emotions (e.g., guilt, pride) because of the unique social identities they possess and that such emotions have tangible consequences on intergroup relations.

A negative emotion that may influence the nature of intergroup relations between minorities and majorities is embarrassment, defined by Miller (1996, p. 129) as the "acute state of flustered, awkward, abashed chagrin that follows events that increase the threat of unwanted evaluations". Although negative interpersonal consequences of embarrassment are well-documented, such as the avoidance of embarrassing circumstances that would otherwise benefit the individual (e.g., healthcare check-ups; McCambridge & Consedine, 2014), focus on the implications of embarrassment has only relatively recently been extended from the interpersonal to the intergroup setting (Eller, Koschate, & Gilson, 2011).

Evidence indicates that embarrassment may be common in the mixed physical ability context. For example, a recent survey showed that only 33% of non-disabled people in the UK would feel comfortable talking to a person with a physical disability, due to worries and uncertainty about acting in an embarrassing way (e.g., appearing prejudiced, saying the wrong thing; Aiden & McCarthy, 2014). Qualitative accounts from people with physical disabilities suggest that experiencing awkward behavior (e.g., invasive questioning) from non-disabled people is commonly embarrassing as well (Reeve, 2012).

Intergroup Quality and Quantity of Contact

Intergroup contact theory (Allport, 1954) posits that, under the right conditions, greater quality and quantity of contact between groups will lead to prejudice reduction.

Overall, mainly positive effects of contact for intergroup relations have been observed across a wide variety of settings (Hewstone et al., 2014; Pettigrew & Tropp, 2006), and good quality contact (and to a lesser extent quantity of contact; see Binder et al., 2009) is generally thought to form an integral part of positive intergroup relations.

Mixed physical ability interactions, like other intergroup contexts, are frequently fraught with concerns, misperceptions and involuntary stigmatisation (e.g., Aiden & McCarthy, 2014; Reeve, 2012) which shape the experiences and perceptions of intergroup contact quality to be negative. However, while there is strong evidence attesting to the beneficial outcomes of intergroup contact, little is known about what predicts good quality contact, including the potential for media-based contact to engender higher quality direct contact.

The Current Research

This study provides, to our knowledge, the first assessment of the impact of natural exposure to media coverage of the Paralympics on the intergroup relations between both physically disabled and non-disabled group members. Specifically, we assessed the impact of Paralympic media exposure on several psychological factors operating in this context, derived from three key theoretical perspectives.

Derived from the stereotype content model (Fiske et al., 2002) we assessed the impact of Paralympic media exposure on ingroup norms of competence and warmth toward disabled people. In light of the reviewed evidence, we hypothesised that exposure to Paralympic media coverage would improve negative group norms about the competence of people with physical disabilities among both physically disabled and non-disabled group members. For physically disabled group members, exposure to Paralympic media coverage showing athletes as competent should be readily accepted as normative for the group, since individuals are

motivated to view their group positively (Hornsey, 2008; Tajfel & Turner, 1979). On the other hand, non-disabled group members may vicariously learn (Ortiz & Harwood, 2007) ingroup norms about disabled competence by observing ingroup members' positive reactions (e.g., audience members, presenters) to athletes' sporting and personal achievements (e.g., recovery from acquired impairment). We did not formulate a specific prediction about Paralympic media exposure and ingroup norms of warmth toward disabled people. This is because although some coverage may have focused on warmth relevant traits of athletes (e.g., through athlete back stories), it contained mainly depictions of their capability and success (e.g., through competitive sporting events; Rees et al., 2017).

Based on intergroup emotions theory (Mackie et al., 2008), we assessed the impact of Paralympic media exposure on intergroup embarrassment. From Paralympic media coverage, it is plausible that both physically disabled and non-disabled people may vicariously learn (Ortiz & Harwood, 2007) positive affective responses from those displayed by ingroup members toward the outgroup. As such, we hypothesised that exposure to Paralympic media coverage would be able to reduce embarrassment experienced by physically disabled and non-disabled group members.

Lastly, derived from intergroup contact theory, we assessed the impact of Paralympic media exposure on intergroup contact quality and quantity. Based on the reviewed evidence, we hypothesised that exposure to Paralympic media coverage would improve intergroup contact quality among physically disabled and non-disabled group members. That is, by viewing Paralympic media coverage featuring ingroup members interact positively with outgroup members (e.g., fan- athlete interactions, athlete interviews), viewers may extrapolate a norm that such encounters can be high in quality (Ortiz & Harwood, 2007). Furthermore, given that viewers may also learn other norms (e.g., that disabled people are seen as competent by the ingroup) helpful to modify judgments of contact and navigate future

intergroup contact situations (Ortiz & Harwood, 2007), we made a further prediction based on this reasoning. Specifically, we hypothesised that the relationship between Paralympic media exposure and intergroup contact quality would be mediated by the adoption of ingroup norms of competence toward disabled people. We did not formulate a specific prediction about Paralympic media exposure and intergroup contact quantity, given that there are many non-psychological barriers (e.g., inaccessible environments) preventing people with physical disabilities from participating fully in society.

To accurately evaluate the impact of the Paralympics amidst the noise of real-world conditions (see Paluck & Green, 2009), it was important to separate out the impact of co-occurring attitudes about the event, like general interest and knowledge about the Paralympics, from our key variables, given that changes in these covariates can take place in the absence of any media coverage (e.g., through conversations with peers). Additionally, within direct intergroup contact, typicality of group members has been shown to moderate whether attitude generalise beyond contact experiences (Brown & Hewstone, 2005). Although studies have not found consistent evidence of a similar function in media based contact (Joyce & Harwood, 2014; Ortiz & Harwood, 2007), we control for athlete typicality in the present study.

In sum, we hypothesised that Paralympic media exposure would improve negative group norms about the competence of people with physical disabilities, reduce intergroup embarrassment and improve intergroup contact quality among both physically disabled and non-disabled group members. We further hypothesised that the relationship between Paralympic media exposure and intergroup contact quality would be mediated by ingroup norms of competence toward disabled people.

Method

Design

A longitudinal design was used in which both groups of participants completed a survey containing all measures. Specifically, data collection took place from early June to mid-August 2012 (Time 1, T1) and resumed the week after the Paralympics closed on the 9th September until late October 2012 (Time 2, T2).

For both the physically disabled and non-disabled sample, approximately two thirds of data were collected in mid-June (T1) and mid-September (T2). The average time elapsed between responses was three months (range: 3 weeks to 4 months).

Participants

The initial Time 1 physically disabled sample consisted of 212 participants, recruited from online disability websites, forums, and social media groups, 153 of which were female and 53 who were male (six did not state their gender). These participants were aged 16 to 81 (M = 42.46, SD = 15.02). At Time 2, 101 participants were retained (20 males, 81 females). Age range was now 20 to 76 years (M = 43.92, SD = 14.78). The attrition rate for the physically disabled sample was 52%.

The initial Time 1 non-disabled sample consisted of 198 participants, recruited by using both on-line mailing lists and distributing identical paper surveys to people in the south-east of England. The sample contained 71 males and 125 females (two respondents did not state their gender). These participants were aged 16 to 84 (M = 33.23, SD = 14.39). At Time 2, 65 non-disabled participants were retained. This was roughly a third of the original sample (the attrition rate was 67%). The second wave sample consisted of 21 males and 44 females, who were aged between 16 and 67 (M = 36.98, SD = 15.63).

Procedure

Before beginning the survey, participants were told that the study would investigate general attitudes toward physical disability. As compensation for time spent, at each wave of the study, participants were entered into a prize draw to win 1 of 5 cash prizes of £20. During the first wave of data collection, participants completed the survey online or using an identical paper copy of the questionnaire.

Second wave data were collected from both samples using contact email addresses provided in the first survey. Measures were identical across the two time points and in each sample, except where noted below.

Measures

For all variables, participants were asked to select the number closest to how they were feeling using a nine-point Likert scale (1 = *Not at all*, 9 = *Very much so*; unless otherwise stated). Additionally, for all variables, high scores indicated greater quantity and measures comprising multiple items were averaged to form a single scale. Lastly, in addition to the below, demographic variables were also measured.

***Paralympic interest, Paralympic knowledge and Exposure to Paralympic media coverage*.** These were each measured via single items (1 = *Not at all*, 9 = *A lot*). Specifically, participants were asked about the "amount of interest you have in the 2012 Paralympics", "the amount you know about the physically disabled athletes in the 2012 Paralympics" and "the amount of exposure you have had to coverage of the 2012 Paralympics (e.g. watching TV footage, reading newspapers)".

Ingroup norms of competence toward disabled people. To measure ingroup norms of competence toward disabled people were asked to judge how people with physical disabilities are viewed on a number of competence-related traits. Specifically, we asked participants to give ratings on behalf of their in-group, rather than themselves personally. Physically disabled participants were asked how *"most physically disabled people"* viewed themselves, while non-disabled participants were asked how "*most people in the UK*" viewed people with physical disabilities. Six items were used to measure competence ("competent", "confident", "intelligent", "capable", "efficient", "skilful"; T1 α =.92; T2 α = .93; adapted from Fiske et al., 2002).

Ingroup norms of warmth toward disabled people. Five items were used to measure perceptions of disabled warmth ("warm", "well-intentioned", "friendly", "likeable" "good-natured"; T1 α=.89; T2 α = .94), derived from Fiske et al. (2002). Participants again gave responses on behalf of their in-group (i.e. "most physically disabled people" or "most people in the UK").[1]

Intergroup embarrassment. Participants were asked about their levels of embarrassment when interacting with members of the other group. Six items were used to measure embarrassment ("embarrassed", "incompetent", "foolish", "nervous", "awkward", "uncomfortable"; T1 α = .92, T2 α = .92; adapted from Modigliani, 1968).

Intergroup contact quality. Quality of contact was measured with three items (adapted from Tausch, Hewstone, Kenworthy, Cairns, & Christ, 2007), where participants

[1] Participants were asked to give a single rating of how much they *personally* agreed with the competence and warmth perceptions of the in-group. For disabled participants, this was above the scale midpoint (4.5) at both Time 1 (*M* = 5.97, *SD* = 2.05) and Time 2 (*M* = 5.58, *SD* = 1.77). For non-disabled participants, agreement was below the scale midpoint at both Time 1 (*M* = 3.54, *SD* = 2.17) and Time 2 (*M* = 3.69, *SD* = 1.85).This difference was significant at both Time 1, *t* (164) = 7.30, *p* < .001, and Time 2, *t* (164) = 6.60, *p* < .001, suggesting differences between the groups in how much participants personally agreed with the views of their ingroup. Due to this variation in personal agreement with ingroup norms, we control for this variable in the appropriate analyses.

were asked to indicate how "pleasant" or "positive" (T1 r (166) = .92, T2 r (166) = .87) their contact with members of the other group (i.e. "physically disabled people" or "non-disabled people") had been.[2]

Intergroup contact quantity. Quantity of contact with members of the out-group was measured using three items (adapted from Islam & Hewstone, 1993). Participants were asked to what extent they had contact with members of the other group (i.e. "physically disabled people" or "non-disabled people") "…in the area you live in", "…when socialising", and "…when engaging with leisure activities" (1 = *Not at all*, 9 = *A lot;* T1 α = .93; T2 α = .93).

Typicality. Athlete typicality was measured post-Paralympics only. Specifically, participants were asked to what extent *"...physically disabled people have a lot in common with Paralympic athletes*" and "*...Paralympic athletes are a good example of physically disabled people as a whole*", r (166) = .42.[3]

Results

Findings are presented in two sections. Firstly, we check panel attrition in our sample. Secondly, addressing our primary objective, we test the unique impact of exposure to Paralympic media coverage on our outcome variables across our matched sample (i.e. N = 166) using mixed ANOVAs and regression analyses.

[2] Due to low reliability (T1 α = .72, T2 α = .69), we dropped the item "intimate".

[3] We were initially concerned with keeping our survey brief as possible, however given the importance of this variable (Brown & Hewstone, 2005), we added it at T2. Due to low reliability after reverse coding (α < .26), we dropped the items "...Paralympic athletes lead very different lifestyles to most physically disabled people" and "...Paralympic athletes have many more opportunities than do most physically disabled people", which then gave α = .58.

Panel Attrition

Differences between those participants who responded at Time 2 and the full Time 1 dataset were checked separately for each sample. For the physically disabled sample, differences were non-significant across all key measures (range p = .098 to .988).

For the non-disabled sample, attrition did produce differences on key measures. First, respondents reported higher levels of intergroup embarrassment (M = 3.32, SD = 1.86) compared to non-respondents (M = 2.66, SD = 1.46), F (1, 196) = 7.53, p = .007. Second, respondents reported less positive ingroup norms of warmth toward disabled people (M = 5.54, SD = 1.42) compared to non-respondents (M = 5.96, SD = 1.25), F (1, 196) = 4.48, p = .035. We consider this in the discussion.

Additionally, mode of data collection (online vs paper version) did not significantly influence responses (range: p = .093 to .972).

Overall Change in Paralympic Interest, Paralympic Knowledge and Exposure to Paralympic Media Coverage

We first tested whether Paralympic interest, Paralympic knowledge and exposure to Paralympic media coverage significantly increased pre- to post Paralympics among both groups. A series of two-way mixed ANOVAs were conducted using time (pre-Paralympics, post-Paralympics) as a within-subjects factor and group membership (physically disabled, non-disabled) as a between-subjects factor. Table 1 shows the means and standard deviations.

As might be expected, a significant increase over time was observed in Paralympic interest, Paralympic knowledge, and, crucially, exposure to Paralympic media coverage Results of the ANOVAs are given in the supplementary material.

The Impact of Exposure to Paralympic Media Coverage

Tables 2 and 3 give the correlations between all measured variables.

To test the unique impact of the exposure to Paralympic media coverage on the five outcome measures (ingroup norms of competence toward disabled people, ingroup norms of warmth toward disabled people, intergroup embarrassment, intergroup contact quality, intergroup contact quantity) we computed a series of three-step hierarchal regression models, with predictors centered before inclusion.

For all models, in Step 1, we controlled for pre-Paralympic levels of the respective outcome variable, as well pre-Paralympic levels of intergroup contact quality and quantity to ensure that any observed changes were not attributable to pre-existing direct contact experiences. Given the heterogeneity of the sample, we also added age and gender as controls here. Additionally, when regressing ingroup norms of competence and warmth toward disabled people, we also added personal agreement with the views of the ingroup at this stage. For all models, in Step 2, to assess the unique impact of increased exposure to Paralympic media coverage, we included the *change* in exposure (i.e. pre-Paralympic scores subtracted from post-Paralympic scores) as a predictor. Crucially, to disentangle the unique impact of exposure to Paralympic media coverage on our outcome variables from more general attitudes about the event, we included the corresponding change in Paralympic interest and knowledge, as well as post-Paralympic ratings of athlete typicality. Step 3 explored a possible two-way interaction between exposure to Paralympic media coverage (i.e. its change score) and group membership.

Results for all steps of all regression models are shown in Table 4. As hypothesised, the change in exposure to Paralympic media coverage significantly predicted ingroup norms of competence toward disabled people. That is, a greater increase in exposure to Paralympic

media coverage was associated with more positive post-Paralympic ingroup norms of competence toward disabled people. Similarly, as hypothesised, the change in exposure to Paralympic media coverage predicted higher post-Paralympic intergroup contact quality ratings. Contrary to our hypothesis, change in exposure to Paralympic media coverage did not predict intergroup embarrassment. Additionally, no relationship was observed between the change in Paralympic media exposure and either ingroup norms of warmth toward disabled people or intergroup contact quantity. No interactions between exposure to Paralympic media coverage and group were found.[4]

Mediation Analysis

We also explored the possibility that the observed relationship between Paralympic media exposure and intergroup contact quality would be mediated by ingroup norms of competence toward disabled people, reasoning that perceiving a positive ingroup norm about disabled people might help modify judgements of intergroup encounters and prove useful to both physically disabled and non-disabled group members in navigating these situations. Mediation was conducted using PROCESS analyses (Hayes, 2013) of the change scores (i.e. all pre- to post-Paralympic ratings).

Results for the full model are shown in Table 5. Step 1 of the obtained model was significant, F (6,159) = 2.52, p = .023, R^2 = .09[5], with an increase in pre- to post Paralympic media exposure significantly associated with a positive shift in pre- to post-Paralympic ingroup norms of competence toward disabled people. Step 2 of the obtained model was also

[4] In separate regression models, we also explored a potential two-way interaction between media exposure and typicality and a potential three-way interaction between media exposure, group and typicality. Results were non-significant for all outcomes (range p = .138 to .795).

[5] We initially retained all covariates from the regression models and the suggested mediation was present. However, the fit of the Step 2 model was poor (p = .107) due to the inclusion of several non-significant covariates. Thus, we dropped the three of these covariates that held the least theoretical interest to Step 2 (age, gender and personal agreement with the views of the ingroup) in order to improve model fit.

significant, F (7,158) = 2.28, p = .031, R^2 = .09. Specifically, a positive shift in pre- to post-Paralympic ingroup norms of competence toward disabled people was associated with a significant increase in pre- to post-Paralympic intergroup contact quality. We also detected partial mediation (see Figure 1). Specifically, both the direct effect of Paralympic media exposure on intergroup contact quality, [B = .11, SE = .05, 95% CI (.0047, .2214)] and its indirect effect through ingroup norms of competence toward disabled people [B = .03, SE = .02, 95% CI (.0036, .0755)] were significant.

As such, the results provide empirical support for our hypothesis. Specifically, we identify partial mediation of the relationship between Paralympic media exposure and intergroup contact quality by ingroup norms of competence toward disabled people.

Discussion

This study examined the real-world impact of the Paralympics and how the event's media coverage may have influenced mixed physical ability interactions for *both* physically disabled and non-disabled group members. To date, the impact of mass media on minority group members in addition to its dynamic impact of media exposure on both majority and minority group members has not been widely assessed. Our findings illustrate the importance of this focus.

Over the Paralympic period (i.e. pre- to post-Paralympics), increased exposure to Paralympic media coverage led to more positive post-Paralympic group norms of competence toward disabled people among both the physically disabled and non-disabled sample. This is likely to have been achieved through exposure to media coverage depicting athletes as successful, which may have enabled individuals to vicariously learn (Ortiz & Harwood, 2007) more positive ingroup norms toward the disabled through observation of the athletes (for physically disabled people) or ingroup members reactions to them (for non-disabled people).

Moreover, among both samples, greater exposure to Paralympic media coverage led to higher post-Paralympic ratings of intergroup contact quality, which was mediated by a positive shift within ingroup norms of competence toward disabled people. This is consistent with the idea that viewers learn norms from ingroup members depicted through media coverage and apply them in future intergroup encounters (Ortiz & Harwood, 2007). Taken together, the findings advance knowledge of how the Paralympics and other media-based contact approaches could be used to modify entrenched norms about group members (see Paluck, 2009) like disabled incompetence (Fiske et al., 2002) as part of a preparatory strategy for high quality direct intergroup contact. This finding is particularly useful as there is still very little understanding of what can determine good quality contact in real-life settings (see Pettigrew & Tropp, 2006).

Although clearly the Paralympics was successful in some respects, it appears the potential for media coverage of the event to address other barriers has limits. Specifically, exposure did not significantly predict post-Paralympic intergroup embarrassment ratings as hypothesised. Following Ortiz and Harwood (2007), we suggested that physically disabled and non-disabled group members may benefit specifically from exposure to media coverage featuring ingroup members interacting with outgroup members (e.g., athlete interviews), allowing for the modeling of positive affective responses. Previous studies which have assessed media exposure to intergroup interactions specifically have found that it can change affect about intergroup contact situations (e.g., reducing intergroup anxiety; Ortiz & Harwood, 2007; increasing empathy; Paluck, 2009). Given that Paralympic media coverage may depict intergroup interaction more briefly, amidst other content (e.g., events), it may be that exposure was sufficient to generate a general norm about people with disabilities as competent (see Ortiz & Harwood, 2007), but not to model specific affective responses displayed by ingroup to outgroup members that would counteract intergroup embarrassment

in actual encounters, especially as the emotion is so deeply prevalent within mixed ability interactions (e.g., Reeve, 2012). As such, exposure to Paralympic media coverage may not have substantively impacted the actual experience of contact (e.g., reducing negative affect), but rather how these intergroup encounters are perceived/judged in terms of their quality. This is in line with the fact we did not observe any impact of media exposure on the frequency of contact reported over the Paralympic period.

Naturally, this research also had some limitations. Firstly, there was non-random panel attrition among the non-disabled group. Specifically, respondents reported higher levels of intergroup embarrassment and more negative ingroup norms of warmth toward disabled people than did non-respondents. Therefore, caution should be taken when extrapolating the findings of this study to non-disabled group members in general. Secondly, all assessed measures were self-report, so the media exposure reported by participants may not fully capture their actual exposure. Finally, although this study did not find any moderation by athlete typicality on the impact of Paralympic media exposure, in the present context of the 2012 Paralympic Games, athletes may not have been seen as substantively atypical by either physically disabled or non-disabled group members. This is because 2012 Paralympic media coverage utilised a Supercrip narrative which has been described communicating prescriptive expectations for all disabled people (Berger, 2008). As such, the potential impact of athlete typicality on the effects of media exposure should be considered in future studies, especially as Paralympic media coverage may move away from the Supercrip narrative in the future to provide more differentiated representations of disability.

To conclude, our findings demonstrate the value of exposure to Paralympic media coverage as a naturally occurring strategy that can improve mixed physical ability interactions. Moreover, they shed light on the potential utility of mass media-based strategies to improve intergroup relations for minority group members. These findings also carry a clear

message for organizers and policymakers concerned with the legacy of the 2012 Games, as well as those involved in future disability sporting events. Specifically, the real-world impact of the Paralympics appears to be positive, engendering more positive ingroup norms of competence toward disabled people and increasing intergroup contact quality among both physically disabled and non-disabled people. However, our findings also suggest a degree of restrained expectations when discussing the potential benefits of the Paralympics, given that we found no empirical evidence that the event could reduce intergroup embarrassment. As an explicit aim of the 2012 Paralympic Games was to create a better world for people with disabilities (Swartz et al., 2016), we hope that our findings are helpful in evaluating the legacy of the event, as well as guiding the implementation of future mass media-based interventions.

References

Abrams, D., Eller, A., & Bryant, J. (2006). An age apart: the effects of intergenerational contact and stereotype threat on performance and intergroup bias. *Psychology and Aging*, *21*(4), 691.

Aiden, H., & McCarthy, A. (2014). Current attitudes toward disabled people. *Scope.* Retrieved from: http://www.scope.org.uk/Scope/media/Images/Publication%20Directory/Current-attitudes-towards-disabled-people.pdf?ext=.pdf

Allport, G. W. (1954). *The nature of prejudice*. Reading, MA: Addison-Wesley.

Bandura, A. (2001). Social cognitive theory of mass communication. *Media Psychology, 3*, 265-299.

Beacom, A., French, L., & Kendall, S. (2016). Reframing impairment? Continuity and change in media representations of disability through the Paralympic Games. *International Journal of Sport Communication*, *9*(1), 42-62. https://doi.org/10.1123/ijsc.2015-0077

Berger, R. J. (2008). Disability and the dedicated wheelchair athlete: Beyond the "supercrip" critique. *Journal of Contemporary Ethnography*, *37*(6), 647-678.

Binder, J., Zagefka, H., Brown, R., Funke, F., Kessler, T., Mummendey, A., ... & Leyens, J. P. (2009). Does contact reduce prejudice or does prejudice reduce contact? A longitudinal test of the contact hypothesis among majority and minority groups in three European countries. *Journal of Personality and Social Psychology*, *96*, 843-856. doi: 10.1037/a0013470.

Brambilla, M., Ravenna, M., & Hewstone, M. (2012). Changing stereotype content through mental imagery: Imagining intergroup contact promotes stereotype change. *Group Processes & Intergroup Relations*, *15*(3), 305-315.

Brown, R., & Hewstone, M. (2005). An integrative theory of intergroup contact. *Advances in Experimental Social Psychology, 37,* 255-343. doi: 10.1016/S0065-2601(05)37005-5

Crandall, C. S., & Eshleman, A. (2003). A justification-suppression model of the expression and experience of prejudice. *Psychological Bulletin, 129*(3), 414-446.

Crandall, C. S., Eshleman, A., & O'Brien, L. T. (2002). Social norms and the expression and suppression of prejudice: The struggle for internalization. *Journal of Personality and Social Psychology, 82,* 359–378

Eller, A., Koschate, M., & Gilson, K. M. (2011). Embarrassment: The ingroup–outgroup audience effect in faux pas situations. *European Journal of Social Psychology, 41,* 489-500. doi: 10.1002/ejsp.815

Ferrara, K., Burns, J., & Mills, H. (2015). Public attitudes toward people with intellectual disabilities after viewing Olympic or Paralympic performance. *Adapted Physical Activity Quarterly, 32,* 19-33. doi: 10.1123/apaq.2014-0136.

Fiske, S. T., Cuddy, A. J., Glick, P., & Xu, J. (2002). A model of (often mixed) stereotype content: competence and warmth respectively follow from perceived status and competition. *Journal of Personality and Social Psychology, 82,* 878-902. doi: 10.1037//0022-3514.82.6.878

Giuffre, L. (2014). #IsItOk to be a celebrity (disabled) comedian? approaching disability with Adam Hills's television programme, the last leg. In D. Jackson, C. E. M. Hodges, M. Molesworth, & R. Scullion (Eds.), *Reframing disability?: media, (dis)empowerment, and voice in the 2012 paralympics* (pp. 66-78). New York: Routledge.

Harwood, J., Hewstone, M., Amichai-Hamburger, Y., & Tausch, N. (2013). Intergroup contact: An integration of social psychological and communication perspectives. In C. T. Salmon (Ed.), *Communication yearbook* (pp. 55-102).New York: Routledge.

Hirst, M., & Mower, J. (2012). London 2012: Disabled fans on Paralympics experience. *BBC News.* Retrieved from: http://www.bbc.co.uk/news/uk-19513761

Hornsey, M. J. (2008). Social identity theory and self-categorization theory: A historical review. *Social and Personality Psychology Compass*, *2*(1), 204-222.

Joyce, N., & Harwood, J. (2014). Improving intergroup attitudes through televised vicarious intergroup contact: Social cognitive processing of ingroup and outgroup information. *Communication Research*, *41*(5), 627-643. doi: 10.1177/0093650212447944

Leach, C. W., Ellemers, N., & Barreto, M. (2007). Group virtue: the importance of morality (vs. competence and sociability) in the positive evaluation of in-groups. *Journal of Personality and Social Psychology*, *93*, 234-249. doi: 10.1037/0022-3514.93.2.234

Louvet, E., Rohmer, O., & Dubois, N. (2009). Social judgment of people with disability in the work place: How to make a good impression on employers. *Swiss Journal of Psychology*, 68, 153-159. doi: 10.1024/1421-0185.68.3.153

Mackie, D. M., Smith, E. R., & Ray, D. G. (2008). Intergroup emotions and intergroup relations. *Social and Personality Psychology Compass*, *2*, 1866-1880. doi: 10.1111/j.1751-9004.2008.00130.x

McCambridge, S. A., & Consedine, N. S. (2014). For whom the bell tolls: Experimentally-manipulated disgust and embarrassment may cause anticipated sexual healthcare avoidance among some people. *Emotion*, *14*, 407-415. doi: 10.1037/a0035209

Miller, R. S. (1996). *Embarrassment: Poise and peril in everyday life*. New York: Guilford Press.

Modigliani, A. (1968). Embarrassment and embarrassability. *Sociometry*, 313-326.

Mutz, D. (1998). *Impersonal influence: How perceptions of mass collectives affect political attitudes.* Cambridge, England: Cambridge University Press.

Mutz, D. C., & Goldman, S. K. (2010). Mass media. In J. F. Dovidio, M. Hewstone, P. Glick, & V. M. Esses (Eds.), *Handbook of prejudice, stereotyping, and discrimination* (pp. 241–258). London: Sage.

Nario-Redmond, M. R. (2010). Cultural stereotypes of disabled and non-disabled men and women: Consensus for global category representations and diagnostic domains. *British Journal of Social Psychology*, *49*(3), 471-488.

Ortiz, M., & Harwood, J. (2007). A social cognitive theory approach to the effect of mediated intergroup contact on intergroup attitudes. *Journal of Broadcasting and Electronic Media, 51*, 615–631. https://doi.org/10.1080/08838150701626487

Paluck, E. L. (2009). Reducing intergroup prejudice and conflict using the media: A field experiment in Rwanda. *Journal of Personality and Social Psychology*, 96, 574-587. doi: 10.1037/a0011989

Paluck, E. L., & Green, D. P. (2009). Prejudice reduction: What works? A critical look at evidence from the field and the laboratory. *Annual Review of Psychology*, 60, 339-367. doi: 10.1146/annurev.psych.60.110707.163607

Pettigrew, T. F., & Tropp, L. R. (2006). A meta-analytic test of intergroup contact theory. *Journal of Personality and Social Psychology*, *90*, 751-770. doi: 10.1037/0022-3514.90.5.751

Phalet, K., & Poppe, E. (1997). Competence and morality dimensions of national and ethnic stereotypes: A study in six eastern-European countries. *European Journal of Social Psychology*, *27*, 703–723. doi: 10.1002/(SICI)1099-0992(199711/12)27:6<703::AID-EJSP841>3.0.CO;2-K

Rees, L., Robinson, P., & Shields, N. (2017). Media portrayal of elite athletes with disability–a systematic review. *Disability and Rehabilitation*, 1-8.

Reeve, D. (2012). Psycho-emotional disablism: the missing link?. In N. Watson, A. Roulstone, & C. Thomas (Eds.), *Routledge handbook of disability studies* (pp. 78-92). London: Routledge.

Schiappa, E., Gregg, P. B., & Hewes, D. E. (2005). The parasocial contact hypothesis. *Communication Monographs*, *72*, 92-115. doi: 10.1080/0363775052000342544

Shnabel, N., Ullrich, J., Nadler, A., Dovidio, J. F., & Aydin, A. L. (2013). Warm or competent? Improving intergroup relations by addressing threatened identities of advantaged and disadvantaged groups. *European Journal of Social Psychology*, *43*, 482-492. doi: 10.1002/ejsp.1975

Sherif, M., & Sherif, C. W. (1953). *Groups in harmony and tension: An integration of studies on intergroup relations.* New York: Octagon

Silva, C. F., & Howe, P. D. (2012). The (in) validity of supercrip representation of Paralympian athletes. *Journal of Sport and Social Issues*, *36*(2), 174-194.

Swartz, L., Bantjes, J., Rall, D., Ferreira, S., Blauwet, C., & Derman, W. (2016). "A more equitable society": The politics of global fairness in Paralympic Sport. *PloS one*, *11*(12), e0167481.

Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. In W. G. Austin & S. Worchel (Eds.), *The Social Psychology of Intergroup Relations* (pp. 33–47). Monterey, CA: Brooks/Cole.

Tausch, N., Hewstone, M., Kenworthy, J., Cairns, E., & Christ, O. (2007). Cross-community contact, perceived status differences, and intergroup attitudes in Northern Ireland: The mediating roles

of individual-level versus group-level threats and the moderating role of social identification. *Political Psychology*, *28*, 53-68. doi: 10.1111/j.1467-9221.2007.00551.x

Visintin, E. P., Voci, A., Pagotto, L., & Hewstone, M. (2017). Direct, extended, and mass-mediated contact with immigrants in Italy: Their associations with emotions, prejudice, and humanity perceptions. *Journal of Applied Social Psychology*, *47*, 175-194. https://doi.org/10.1111/jasp.12423

Voci, A., & Hewstone, M. (2003). Intergroup contact and prejudice towards immigrants in Italy: The mediational role of anxiety and the moderational role of group salience. *Group Processes and Intergroup Relations, 6*, 37–54. doi: 10.1177/1368430203006001011

Table 1. *Mean scores and standard deviations (SD) for Paralympic interest, knowledge and media exposure pre- and post-Paralympic Games*

Measure	Pre-Paralympics	Post-Paralympics
Full sample	Mean (*SD*)	Mean (*SD*)
Interest	5.12 (2.79)^{a}	5.84 (2.92)^{b}
Knowledge	3.66 (2.30)^{a}	4.56 (2.40)^{b}
Media exposure	3.74 (2.33)^{a}	5.69 (2.73)^{b}
Physically disabled	Mean (*SD*)	Mean (*SD*)
Interest	5.40 (2.85)$^{a}{}_{a}$	5.68 (2.92)$^{a}{}_{a}$
Knowledge	3.99 (2.42)$^{a}{}_{a}$	4.66 (2.43)$^{b}{}_{a}$
Media exposure	4.17 (2.42)$^{a}{}_{a}$	5.60 (2.74)$^{b}{}_{a}$
Non-disabled	Mean (*SD*)	Mean (*SD*)
Interest	4.85 (2.51)$^{a}{}_{a}$	6.00 (2.76)$^{b}{}_{a}$
Knowledge	3.32 (1.95)$^{a}{}_{a}$	4.46 (2.18)$^{b}{}_{a}$
Media exposure	3.31(2.05)$^{a}{}_{b}$	5.77 (2.55)$^{b}{}_{a}$

Note. Within rows means in all sections of the table (i.e. Pre-Paralympics compared to Post-Paralympics) with different superscript notations are significantly different from each other at $p < .05$. Within columns means in bottom two sections of the table (i.e. physically disabled compared to non-disabled) with different subscript notations are significantly different from each other at $p < .05$.

Table 2. *Cross-sectional correlations at Time 1 (Pre-Paralympics) and Time 2 (Post-Paralympics).*

Measure	1	2	3	4	5	6	7	8
Physically disabled								
1. Interest	-	**.65*** **	**.45*** **	**-.02**	**.05**	**-.18**	**.04**	**.05**
2. Knowledge	.80***	-	**.59*** **	**.03**	**-.05**	**-.15**	**.01**	**.17**
3. Media exposure	.81***	.75***	-	**.06**	**.01**	**-.15**	**.10**	**.02**
4. Competence	.13	.07	.14	-	**.67*** **	**-.40*** **	**.37*** **	**.10**
5. Warmth	.16	.07	.20*	.74***	-	**-.16**	**.33** **	**.07**
6. Embarrassment	.05	.06	-.01	-.25*	-.09	-	**-.38*** **	**-.15**
7. Contact quality	.08	-.04	.07	.32**	.26**	-.47***	-	**.46*** **
8. Contact quantity	.06	.06	.04	.22*	.07	-.36***	.53***	-
9. Typicality	.31**	.24*	.25*	.33**	.32**	.01	.05	-.08
Non-disabled								
1. Interest	-	**.55*** **	**.52*** **	**.28***	**.36** **	**-.27***	**.35** **	**.29***
2. Knowledge	.74***	-	**.65*** **	**.26***	**.37** **	**-.22**	**.24**	**.49*** **
3. Media exposure	.71***	.68***	-	**.35** **	**.39** **	**-.07**	**.08**	**.31***
4. Competence	.21	.20	.24	-	**.74*** **	**-.08**	**.21**	**.30***
5. Warmth	.21	.23	.29*	.56***	-	**-.06**	**.37** **	**.36** **
6. Embarrassment	-.18	-.22	-.19	-.06	-.02	-	**-.24**	**-.39** **
7. Contact quality	.09	.24	.24	.11	.10	-.42**	-	**.41** **
8. Contact quantity	.21	.40**	.23	.17	.12	-.44***	.49	-
9. Typicality	.23	.46***	.19	.05	.21	-.06	.29*	.34**

Note. Coefficients above the diagonal in bold type are cross-sectional Time 1 (T1) correlations. Below the diagonal are cross-sectional correlations at Time 2 (T2). Typicality was assessed at Time 2 only. Physically disabled $N = 101$, Non-disabled $N = 65$. *$p < .05$, **$p < .01$, ***$p < .001$.

Table 3. *Longitudinal inter-correlations*

Measure	1	2	3	4	5	6	7	8
Physically disabled								
1. Interest	**.74*** **	**.60*** **	**.60*** **	**.24***	**.28****	**-.07**	**.10**	**.01**
2. Knowledge		**.69*** **	**.58*** **	**.15**	**.09**	**-.09**	**-.04**	**.01**
3. Media exposure			**.48*** **	**.07**	**.13**	**-.15**	**-.07**	**-.03**
4. Competence				**.56*** **	**.39*** **	**-.27****	**.22***	**.22***
5. Warmth					**.58*** **	**-.11**	**.26****	**.10**
6. Embarrassment						**.59*** **	**-.39*** **	**-.23***
7. Contact quality							**.61*** **	**.33****
8. Contact quantity								**.51*** **
Non-disabled								
1. Interest	**.64*** **	**.66*** **	**.51*** **	**.22**	**.22**	**-.29***	**.35****	**.39****
2. Knowledge		**.53*** **	**.38****	**-.03**	**.13**	**-.38****	**.27***	**.44*** **
3. Media exposure			**.48*** **	**.18**	**.37****	**-.25***	**.08**	**.30***
4. Competence				**.40****	**.20**	**.04**	**.12**	**.26***
5. Warmth					**.26***	**-.00**	**.19**	**.29***
6. Embarrassment						**.58***	**-.43*** **	**-.31***
7. Contact quality							**.40****	**.21**
8. Contact quantity								**.67*** **

Note. Coefficients are Time 1 (T1) and Time 2 (T2) correlations (e.g., from T1 values of variables in column 1 to T2 values of variables in top row). Physically disabled $N = 101$. Non-disabled $N = 65$, *$p < .05$, **$p < .01$, ***$p < .001$.

Table 4. *Hierarchal multiple regression analyses for all outcome variables*

Variable	Model 1			Model 2			Model 3		
Competence (T2)	B	β	*t*	B	β	*t*	B	β	*t*
Age (T1)	.01	.08	1.31	.01	.10	1.65	.01	.10	1.66
Gender	.14	.04	.592	.08	.02	.330	.10	.02	.396
Group	1.07	.30**	3.12	1.17	.33**	3.46	1.28	.37**	3.47
Contact quality (T1)	-.00	-.00	-.057	-.03	-.03	-.412	-.04	-.04	-.511
Contact quantity (T1)	-.04	-.07	-.771	-.03	-.06	-.639	-.03	-.05	-.556
Competence (T1)	.54	.54***	6.33	.56	.56***	6.68	.56	.56***	6.70
Personal agreement (T1)	-.07	-.09	-1.16	-.09	-.12	-1.56	-.09	-.12	-1.56
Interest (T1- T2 change)				-.09	-.11	-1.59	-.08	-.11	-1.55
Knowledge (T1- T2 change)				-.00	-.00	-.033	-.01	-.01	-.113
Media exposure (T1- T2 change)				.11	.17*	2.56	.15	.23*	2.18
Typicality (T2)				.14	.15*	2.47	.15	.15*	2.54
Group x Media exposure							-.06	-.08	-.749
R^2		.45			.50			.51	
F for change in R^2		18.58***			3.91**			.561	
	Model 1			Model 2			Model 3		
Warmth (T2)	B	β	*t*	B	β	*t*	B	β	*t*
Age (T1)	.00	.03	.381	.00	.04	.606	.00	.04	.610
Gender	.06	.02	.273	.04	.01	.161	.04	.01	.189
Group	1.26	.41***	3.97	1.42	.46***	4.44	1.46	.47***	4.20
Contact quality (T1)	.01	.01	.145	.00	.00	.054	.00	.00	.002
Contact quantity (T1)	-.13	-.24*	-2.51	-.12	-.23*	-2.42	-.12	-.23*	-2.37
Warmth (T1)	.59	.59***	6.87	.56	.56***	6.55	.57	.57***	6.51
Personal agreement (T1)	-.14	-.22**	-2.66	-.15	-.23**	-2.83	-.15	-.23**	-2.83
Interest (T1- T2 change)				-.03	-.04	-.535	-.03	-.04	-.514
Knowledge (T1- T2 change)				.02	.02	.309	.02	.02	.274
Media exposure (T1- T2 change)				.06	.10	1.37	.07	.12	1.09
Typicality (T2)				.15	.17**	2.69	.15	.18**	2.70
Group x Media exposure							-.02	-.04	-.306
R^2		.39			.43			.43	
F for change in R^2		14.14***			2.68*			.093	

	Model 1			Model 2			Model 3		
Embarrassment (T2)	B	β	*t*	B	β	*t*	B	β	*t*
Age (T1)	-.01	-.11	-1.65	-.01	-.10	-1.49	-.01	-.10	-1.49
Gender	-.31	-.08	-1.23	-.41	-.10	-1.63	-.42	-.11	-1.65
Group	.24	.07	.726	.38	.11	1.14	.33	.10	.890
Contact quality (T1)	-.08	-.08	-1.07	-.06	-.06	-.890	-.06	-.06	-.849
Contact quantity (T1)	-.11	-.18	-1.87	-.09	-.16	-1.66	-.10	-.16	-1.68
Embarrassment (T1)	.45	.51***	7.69	.48	.55***	8.14	.48	.54***	8.06
Interest (T1- T2 change)				.03	.03	.459	.03	.03	.445
Knowledge (T1- T2 change)				.13	.15*	2.12	.13	.15*	2.13
Media exposure (T1- T2 change)				.03	.05	.638	.01	.02	.148
Typicality (T2)				.09	.10	1.51	.09	.09	1.44
Group x Media exposure							.03	.03	.753
R^2		.39			.43			.43	
F for change in R^2		16.89***			2.83*			.099	

	Model 1			Model 2			Model 3		
Contact quality (T2)	B	β	*t*	B	β	*t*	B	β	*t*
Age (T1)	-.00	-.01	-.129	.00	.02	.262	.00	.02	.269
Gender	.20	.05	.805	.06	.02	.229	.06	.02	.260
Group	-.94	-.28**	-2.83	-.93	-.28**	-2.82	-.87	-.26*	-2.40
Contact quality (T1)	.42	.44***	6.05	.40	.43***	5.96	.40	.42***	5.85
Contact quantity (T1)	.16	.28**	2.85	.18	.32**	3.24	.18	.32**	3.24
Interest (T1- T2 change)				-.14	-.19*	-2.50	-.14	-.18*	-2.47
Knowledge (T1- T2 change)				.06	.07	.926	.05	.06	.885
Media exposure (T1- T2 change)				.14	.22**	3.07	.16	.25*	2.17
Typicality (T2)				.06	.07	1.06	.07	.07	1.09
Group x Media exposure							-.03	-.04	-.327
R^2		.34			.40			.40	
F for change in R^2		16.21***			3.90**			.107	

	Model 1			Model 2			Model 3		
Contact quantity (T2)	B	β	*t*	B	β	*t*	B	β	*t*
Age (T1)	.00	.01	.270	.01	.02	.457	.01	.02	.454
Gender	.34	.05	.969	.23	.03	.646	.23	.03	.636
Group	1.36	.23**	2.94	1.33	.22**	2.80	1.32	.22*	2.50
Contact quality (T1)	.05	.03	.538	.04	.02	.420	.04	.03	.422
Contact quantity (T1)	.59	.58***	7.48	.61	.60***	7.69	.61	.60***	7.61
Interest (T1- T2 change)				-.10	-.08	-1.25	-.10	-.08	-1.25
Knowledge (T1- T2 change)				.15	.10	1.74	.15	.10	1.74
Media exposure (T1- T2 change)				.04	.03	.535	.03	.03	.289
Typicality (T2)				.05	.03	.599	.05	.03	.584
Group x Media exposure							.01	.01	.055
R^2		.60			.61			.61	
F for change in R^2		47.09***			1.16			.003	

Note. Total $N = 166$, $^*p < .05$, $^{**}p < .01$, $^{***}p < .001$.

Table 5. *Co-efficients for the model testing mediation of the relationship between Paralympic media exposure and intergroup contact quality by ingroup norms of competence towards disabled people (N = 166).*

Competence (T1- T2 change)	B	SE	*t*	*p*	LLCI	ULCI
Group	.53	.33	1.63	.105	-.1125	1.1790
Contact quantity (T1)	-.10	.05	-1.86	.064	-.2067	.0060
Typicality (T2)	.09	.07	1.31	.192	-.0434	.2146
Interest (T1- T2 change)	-.06	.06	-.971	.333	-.1799	.0613
Knowledge (T1- T2 change)	-.04	.07	-.565	.573	-.1686	.0936
Media exposure (T1- T2 change)	.15	.05	2.99	.003	.0498	.2440
Contact quality (T1- T2 change)	B	SE	*t*	*p*	LLCI	ULCI
Group	.03	.36	.095	.925	-.6729	.7408
Contact quantity (T1)	-.03	.06	-.425	.672	-.1418	.0916
Typicality (T2)	.01	.07	.148	.883	-.1302	.1513
Interest (T1- T2 change)	-.08	.07	-1.25	.213	-.2144	.0481
Knowledge (T1- T2 change)	.05	.07	.626	.532	-.0973	.1876
Media exposure (T1- T2 change)	.11	.05	2.06	.041	.0047	.2214
Competence (T1- T2 change)	.21	.09	2.38	.018	.0352	.3752

Figure 1. *Indirect effect (B = .03, SE = .02, 95% CI [.0036, .0755]) of Paralympic media exposure on intergroup contact quality through ingroup norms of competence toward disabled people. Coefficients are unstandardized regression weights. *p < .05, **p < .01.*