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Virtually meeting "The Intouchables": Online contact, sense of community, and prejudice toward people with a disability

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Abstract

Prejudice toward people with a disability remains an unchallenged global problem. This cross-sectional study investigated online intergroup contact involving university students without disability ($N = 107$), participating within a social program aimed at fostering the social inclusion of people with a disability. We tested two separate path models, where positive and negative online contact were the predictors (controlling for positive and negative offline contact), sense of community was the mediator, while social distance from, and attitudes toward people with disability, were the outcome variables. Results showed that greater positive (but not negative) online contact was associated with more positive evaluations and lower social distance toward people with a disability, via heightened sense of community.

1 | INTRODUCTION

Prejudice and its reduction have been investigated across several socio-cultural contexts (Pettigrew & Tropp, 2006; White et al., 2020), however the prejudice experienced by people with a disability remains relatively untested (Vezzali & Capozza, 2011). This is despite the fact that around 16% of the world's population, or estimated 1.3 billion people, live with disabilities, making them the world's largest minority (World Health Organization, 2023). People with a disability experience physical and psychological hardship as targets of stigma and prejudice (Friedman, 2020). New strategies are urgently needed to address the global problem of disability prejudice.

There is general consensus that direct offline intergroup contact can—under certain conditions—improve intergroup relations and reduce prejudice (Pettigrew & Tropp, 2006; Vezzali & Stathi, 2021). Given the increasing pervasiveness of online social environments, it is also important to understand the potential role of online contact in prejudice reduction. Surprisingly, online contact has so far received limited attention, in comparison to the overwhelming focus on direct offline contact, or other forms of indirect contact, like extended and vicarious contact (Vezzali et al., 2014; White et al., 2021), or imagined contact (Crisp & Turner, 2012). Although there are indications that online contact can improve intergroup relations (White et al., 2020), research still suffers from limitations. Amongst these, search for underlying processes—except for intergroup anxiety, which qualifies as a relevant mediator of online contact (e.g., White, Turner, et al., 2019)—is still at an early stage. In addition, research has largely focused on intercultural relations, while studies on the effects of online contact on attitudes toward people with a disability are absent.

In the present study, we investigate online contact within a social program ("The Intouchables") that uses an ad-hoc created social web platform for online interactions, meant to foster the social inclusion of people with a disability. In so doing, we also assess for the first time whether sense of community, defined as the perception of membership, influence, integration, and needs' satisfaction with a common ingroup identity including both people with and without disability (Gaertner & Dovidio, 2000), qualifies as a mediator of the association between online contact and prejudice toward people with a disability. This study has both theoretical and practical relevance. Theoretically, it tests online contact toward a novel target group whilst also investigating a yet untested mediator. Practically, this study will highlight the potential of virtual environments to be used

as safe community spaces to foster the development of positive relations with stigmatized groups.

2 | ONLINE CONTACT

Online contact, that is contact that occurs in online environments among individuals belonging to different groups, can overcome some limitations of offline contact (White et al., 2021). For instance, online contact is not limited by geographical distance or segregated contexts (Amichai-Hamburger & McKenna, 2006), and potentially can produce a higher number of cross-group friendships due to the widespread use of online platforms, chats, social media, and the elimination of barriers related to physical distance (Amichai-Hamburger et al., 2015).

There is now experimental (Cao & Lin, 2017; MacInnis & Hodson, 2015; White & Abu-Rayya, 2012), longitudinal (Abu-Rayya, 2017; Benatow et al., 2021; White et al., 2014), and correlational (Lissitsa & Kushnirovich, 2018; Schwab et al., 2019) evidence that online contact reduces prejudice (for a meta-analysis, see Imperato et al., 2021). There is evidence that online contact can improve attitudes for a variety of intergroup relations, like relationships based on ethnicity/nationality/immigration status (Bagci et al., 2021; Kim & Wojcieszak, 2018; Kioumi & Gardikiotis, 2023), religion (Lev-On & Lissitsa, 2015; Walther et al., 2015; White et al., 2014; White, Turner, et al., 2019), sexual orientation (Boccanfuso et al., 2021; Hatoum & White, 2022; White, Verrelli, et al., 2019), age (Chua et al., 2013).

We are aware of only one study investigating the extent to which online contact can improve attitudes toward some form of disability. Maunder et al. (2019) asked participants to interact online with an individual with a diagnosis of schizophrenia (experimental condition; responses were actually pre-programmed and did not involve a real collaborator) or did not engage in contact. Results revealed that contact was effective in reducing prejudice. This study however focused on relations with people with mental illness, rather than the broader category of people with a disability. Moreover, this evidence is not based on online contact with real individuals, rather on simulation through a pre-programmed chat and therefore does not demonstrate the potential of online contact in real-world interventions. As such, it constitutes relevant preliminary evidence for testing online contact and attitudes toward people with a disability.

Research has also investigated mediators of online contact. Paralleling research on offline contact (Pettigrew & Tropp, 2008), reduction in intergroup anxiety represents the main process underlying the online contact effects (e.g., Bagci et al., 2021; White, Turner, et al., 2019; for a review see White et al., 2020). Search for other mediators is however sparse, and mostly limited to intergroup emotions. Specifically, some studies showed that online contact reduces prejudice via improvement in intergroup emotions, like reduction in fear and anger (Maunder et al., 2019) and negative emotions in general (Kim & Wojcieszak, 2018), or increase in trust (Bagci et al., 2021) or more generally positive emotions (Kim & Wojcieszak, 2018).

To advance the field, this study investigates a novel and potential mediator of online contact: sense of community.

3 | SENSE OF COMMUNITY

The extent to which individuals are integrated into communities strongly impacts their well-being and their health (Berkman & Krishna, 2014). White et al. (2020) provided strong evidence for the effects of programs specifically structured to promote recategorization of pre-existing identities during online contact, as a means to reduce prejudice between members of different groups. Specifically, they conducted a series of experimental interventions where participants from different religious groups (e.g., Christians and Muslims in Australia) were involved in interactions with the aim of stressing a sense of dual identity, where both their pre-existing categories of identification and the new emphasized superordinate categorization were salient (dual identity-electronic contact or DIEC; White et al., 2020). In these interventions, participants were for instance involved in 8–9 structured sessions, where—in small teams composed of both ingroup and outgroup members—they discussed via text-based chat interfaith information as well as how to realize a common task. Results generally revealed effects on prejudice reduction that lasted over a period of 12 months (e.g., White et al., 2014). Although these studies offer preliminary indications of the potential effect of a sense of common belonging in promoting positive intergroup relations, they however did not include explicit measures of recategorization as the mediating process.

Two studies provided initial evidence that online contact can foster recategorization of members of different groups in a common group and that this sense of common belonging can mediate its effects. Adachi et al. (2016) showed that playing videogames cooperatively with a student from another university (vs. playing individually), as members of a common group and with common goals, improves outgroup attitudes via common ingroup identity perceptions. In Rompke et al.'s (2019, Study 2) study, German participants' international contact was indirectly associated with proenvironmental socially responsible attitudes via identification with humanity (i.e., an overarching common group).

In this study, we are interested in the construct of sense of community that, for the purposes of the present research, has been defined as a strong sense of membership, influence, integration, and needs' satisfaction (McMillan & Chavis, 1986) with a common ingroup identity that includes both people with and without disability (Gaertner & Dovidio, 2000), and specifically with the community of "The Intouchables." Indeed, the social program "The Intouchables" was specifically aimed to promote a sense of community among participants involved in the program (see next section). Sense of community is a typical construct of community psychology, referring to the sense of connectedness and the perceptions of a supporting network among individuals belonging to a community (Sarason, 1974). According to McMillan and Chavis (1986), four dimensions contribute to sense of community: group membership and perceived relatedness

with other community members; fulfillment of personal and group needs by the community; perceived emotional connection and sharing of experiences, history, shared repertoires; perceived mutual influence between community and individuals in terms of choices and decisions. Sense of community is therefore a complex multicomponent construct, capturing at cognitive and affective levels the collective self and the interconnectedness among its different components (e.g., different social groups embodied in the community).

Sense of community may be considered the central element of a healthy community (Obst & White, 2005) that arises and develops among individuals who share and recognize their group affiliation (Carlson et al., 2008), representing an empowered and broader form of social identification (Fisher & Sonn, 2002; Mannarini et al., 2012). While social identification is a robust and frequently studied construct, directing attention to sense of community may be more appropriate in certain social contexts, where the community does not merely represent a group with which to identify. In contrast, it represents a relevant social identity with strong connections among individuals, which allow satisfaction of personal and group needs, allowing the exchange of emotions, experiences, history, and with mutual reciprocal influences regarding decisions to be taken and choices to made (McMillan & Chavis, 1986). In the case of the present study, a focus on sense of community emerges as especially relevant, as "The Intouchables" program was meant to create a strong sense of connection among participants that would go beyond mere identification, to encompass strong relatedness, emotional connection and sharing of experiences. Key elements emphasized within the social program "The Intouchables," such as fostering the belief that one's needs can only be met within the group and that members have the power to influence the community, would therefore not be captured by simply assessing social identification with the common group. Instead, these aspects are encapsulated in the broader concept of sense of community and constitute some of its core elements.

Sense of community has been associated with positive outcomes, such as community participation (Albanesi et al., 2007) and well-being (Stewart & Townley, 2020). Research has provided evidence that higher levels of positive contact are associated with an increased sense of community (Huang et al., 2020). There also are indications that online communication, and especially synchronous communication, can foster the development of sense of community (Schwier & Balbar, 2002). Consistent with literature on common ingroup identity (Gaertner & Dovidio, 2000), sense of community has been shown to be a predictor of reduced prejudice (Mannarini et al., 2017). Merging these complementary lines of research, we predict that positive online contact will be associated with a heightened sense of community and in turn more positive attitudes toward people with a disability.

4 | "THE INTOUCHABLES"

"The Intouchables" is a social program, inspired by the famous French movie with the same name. The development of the online program involved a collaboration between a university institute, the University of Modena and Reggio Emilia, and a nonprofit association, "Il Tesoro Nascosto," both located in Northern Italy. The program, first launched in 2016, is based on pairing university students (who through the program have the opportunity to receive course credits) and people with a disability, mainly selected locally by national health system institutions, with approximately the same age as the students for a period of time of 3 consecutive months. People with a disability included in the program generally suffer from low-to-moderate (but clearly recognizable) levels of disability diagnosed by the local national health system institutions, ranging from intellectual to physical disability. These young people generally experience social isolation and enter the program with the goal of making friends and having their own social network. Before officially starting the program, university students had to follow an online training course specifically designed for the program, providing general information about disability, the program, and social inclusion, pointing out barriers and risks of interacting with individuals from stigmatized social groups. Then, based on reciprocal interests and residence location, people with and without disability are paired in dyads and interact, mainly face-to-face, over a period of 3 months.

This "basic" version of the program required changes at the beginning of the COVID-19 lockdowns in 2020, when it had to be moved online to survive. Indeed, we reasoned that cross-group friendships may be actually facilitated by online interactions, providing the opportunity to go beyond barriers to positive intergroup relations, like intergroup anxiety (McKenna & Seidman, 2005; Stephan, 2014). Online interactions can also foster greater intimacy than offline interactions (McKenna, Buffardi, et al., 2005), allowing individuals to express their "true" selves more freely (McKenna et al., 2002). These considerations are especially relevant for individuals from disadvantaged groups: people with a disability, who suffering from stigma (Buljevac et al., 2012) and social isolation (Emerson et al., 2021), may be less inhibited in online than offline environments (Amichai-Hamburger & Furnham, 2007), especially when these environments are specifically meant to favor the development of positive intergroup relations like in the present social program.

We therefore decided to create a multicomponential web platform for interactions aimed at (a) facilitating intergroup contact within and between dyads, (b) stimulating mutual knowledge through games and activities, (c) forming a real community, which was not possible in the "basic" version where individuals only interacted in dyads. In this updated online version of the social program "The Intouchables," participants are still paired in dyads, but they also have to interact through the online platform in larger groups (through activities, games, videogames and most importantly video calls). They are also explicitly invited to have at least 2 weekly video calls and use a dedicated forum (password-protected, for "The Intouchables" participants only) which, by implying group interactions, represents a means to foster sense of community. As anticipated, the website also includes tools, like videogames to be played together, first in dyads but then also in groups. The project is supervised by researchers, who constantly monitor the development of the relationships and the use of the tools provided for interaction.

Amichai-Hamburger et al. (2015) argued that structured environments, like the one provided in the present study to participants, have different advantages over unstructured environments. Amongst these, in addition to providing control over responses (which reduces intergroup anxiety) when asynchronous communication is available (like in "The Intouchables") and allowing more frequent encounters (Amichai-Hamburger & McKenna, 2006), they permit greater control over intergroup interactions. They also allow to include features that can motivate individuals to the development of their friendship, like fun activities. Such activities also limit the likelihood of negative contact, which typically disrupts intergroup relations over and above the effects of positive contact (Schafer et al., 2021).

The environment provided in "The Intouchables" is also consistent with the optimal contact conditions that Allport (1954) theorized as central to prejudice reduction (see also Pettigrew & Tropp, 2006; Pettigrew, 1998), and that Di Bernardo et al. (2022) showed to be relevant to provide the groundwork for the development of positive contact: equal status, cooperation for common goals, institutional support. Indeed, in such protected environments, individuals belonging to different groups are more likely to interact on equal status, which can be conveyed by subtle cues that are less present in online environments (Amichai-Hamburger & McKenna, 2006). Some of the activities on the online platform (e.g., videogames; for studies showing attitudes improvement as a result of cooperative videogaming, see Benatov et al., 2021; Stiff & Bowen, 2016) were meant to create intimacy as well as cooperation between people with and without disability, with the common (explicit) goal of creating a collaborative and friendly community. Finally, university coordination together with an NGO ensured institutional support to the program. These attempts at operationalizing Allport's optimal contact conditions are similar to those outlined by White and her colleagues in their E-contact prejudice reduction interventions (see White et al., 2020).

5 | THE PRESENT RESEARCH

We conducted a study to investigate whether positive online contact that participants without disability experienced in the program "The Intouchables" was associated with improved outgroup attitudes. We also tested sense of community as a potential mediating factor.

As described in the previous section, the program had amongst its main aims that of creating a cohesive community of participants involved. Individuals can develop a distinct sense of community for their different social identities (Broodsky et al., 2002; Mannarini et al., 2018). The program aimed at making "The Intouchables" identity important and creating that sense of connectedness and reciprocal support that can characterize a virtuous community.

As predictor variables, we decided to include negative in addition to positive online contact. Negative contact has been shown to be a relevant predictor of outgroup attitudes over and above the effects of positive contact (Schäfer et al., 2021), and therefore omitting it from the design may produce biased conclusions (Pettigrew & Hewstone, 2017). In addition, although the program aimed to foster positive contact, we cannot exclude that it also gave rise to negative contact experiences. Similarly, since our participants may have meaningful positive and direct face-to-face contact that is not online, we controlled for their offline positive and negative contact experiences.

As dependent variables, we included two attitude measures. The first is the general evaluation scale (Wright et al., 1997), which us widely used in contact research (Lolliot et al., 2015). Second, we included a measure of social distance. To the extent that people with a disability may suffer of social exclusion (O'Grady et al., 2004), and "The Intouchables" is instead focused with social inclusion, it is important to understand whether contact can increase psychological closeness to people with a disability.

In summary, based on research reviewed above, we predict that positive online contact is indirectly associated with more positive outgroup attitudes and less social distance via increased sense of community. Although we do not expect direct or indirect associations of negative online contact (because we anticipate it to be low, with limited variance to produce meaningful associations), we acknowledge that some of these effects may emerge.

6 | METHOD

Data of this study, codebook, and R script are openly available at: https://osf.io/3nu7g/?view_only=68202aa6c8d24569a583bb7e0d323bfa.

6.1 | Participants and procedure

We recruited all university students taking part in the social program "The Intouchables" since the beginning of the COVID-19 pandemic (since 2020). All participants enrolled in the program interacted with individuals with a disability, previously selected locally by national health system institutions, through the dedicated online platform of the program, for a period of time of 3 months. Each participant enrolled in the program completed an online questionnaire precisely at the end of this 3-month initiative. The final sample consisted of 107 university students (89% women; $M_{age} = 23.11$; $SD_{age} = 5.23$). Participants were told that the questionnaire was meant to investigate their experience within the social program and the interactions they had with their peers with a disability. Then, they were thanked and debriefed.

6.2 | Measures

At the end of the program, participants completed the following measures:

6.2.1 | Positive and negative online contact

We employed one item each (adapted from Barlow et al., 2012; Lissitsa & Kushnirovich, 2018) to assess positive and negative online contact with people with disability (i.e., "How much positive [negative] online contact do you have with people with a disability?"; 1 = *None*, 5 = *Very much*).

6.2.2 | Positive and negative offline contact

Participants were asked to rate the degree of positive and negative offline contact with people with disability ("How much positive [negative] offline contact do you have with people with a disability?"; 1 = None, 5 = Very much; adapted from Barlow et al., 2012).

6.2.3 | Sense of community

To measure the sense of community that participants developed toward the program, we adapted the Brief Sense of Community Scale (Peterson et al., 2008). Respondents were asked to rate the five items (e.g., "*Quasi amici* has helped me fulfill my needs") on a 5-point scale, going from 1 = *Disagree* to 5 = *Agree*. The scale was highly reliable (α = .83).

6.2.4 | Social distance

A modified version of Esses and Dovidio's (2002) measure of social distance was administered. Participants rated the extent to which they would like to have a person with a disability as (a) a neighbor; (b) a schoolmate/a work colleague; (c) a professor/a boss at work (1 = *Not at all*, 5 = *Very much*; α = .87). The scale was reversed-scored, thereby high scores indicate high levels of social distance and, therefore, more prejudice.

6.2.5 | Outgroup evaluation

To assess participants' general evaluation of people with disability we employed Wright et al. (1997) semantic differential scale. Participants used a 5-point scale to rate people with disability on six bipolar pairs (i.e., negative-positive; cold-warm; suspicious-trusting; hostile-friendly; contempt-respect; disgust-admiration; α = .81).

7 | RESULTS

All analyses were performed in R (R Core Team, 2021). Descriptives and correlations are shown in Table 1. A series of paired sample *t*-tests showed that participants reported significantly higher levels of positive online contact (M = 3.94; SD = 1.16), compared to negative online contact (M = 1.27; SD = 0.52), t (106) = 2.43, p < .001; d = 2.97. Likewise, participants showed significantly higher levels of positive online contact, compared to positive offline contact (M = 3.60; SD = 1.35), t (106) = 2.54, p = .012; whereas no significant difference was found between the means of negative online contact and negative offline contact (M = 1.21; SD = 0.58), t (106) = 1.26, p = .21, both of which were low.

To test our hypotheses, we performed two separate path models (one for each of the two dependent variables), employing the R package *lavaan* (Rosseel, 2012). In the models, positive and negative online contact were the predictors, sense of community toward "The Intouchables" was the mediator, while the outcome variables were outgroup evaluation and social distance. Positive and negative offline contact were controlled for. A bias-corrected bootstrapping procedure (Preacher & Hayes, 2008) with 10,000 resamples was conducted for all models to identify mediating processes. We used 95% confidence intervals for the unstandardized effects to determine their statistical significance, while we used standardized estimates to evaluate the magnitude of indirect effects.

Concerning direct relationships among the variables (Table 2), in both models, positive online contact was positively associated with sense of community, while we found no significant association with

TABLE 1 Means, standard deviations, and correlations among the variables.

		Correlations						
	M (SD)	1	2	3	4	5	6	7
1. Positive online contact	3.94 (1.16)	–						
2. Negative online contact	1.27 (0.52)	0.03	–					
3. Positive offline contact	3.60 (1.35)	0.38***	0.05	–				
4. Negative offline contact	1.21 (0.58)	0.06	0.53***	0.17	–			
5. Sense of community	4.12 (0.70)	0.40***	0.08	0.15	−0.15	–		
6. Outgroup evaluation	4.39 (0.51)	0.15	−0.04	0.03	−0.11	0.30**	–	
7. Social distance	1.79 (0.73)	−0.35***	−0.08	−0.25**	−0.07	−0.36***	−0.29**	–

***p < .001; **p < .01.

TABLE 2 Results of regression models.

	Model 1				Model 2			
	Mediator		Outcome		Mediator		Outcome	
	Sense of community		Outgroup evaluation		Sense of community		Social distance	
Predictors	Estimate (SE)	95% CI	Estimate (SE)	95% CI	Estimate (SE)	95% CI		
Positive online contact	**0.24 (0.069)**	**[0.123, 0.390]**	0.02 (0.046)	[−0.082, 0.100]	**0.24 (0.067)**	**[0.130, 0.393]**	−0.11 (0.074)	[−0.261, 0.032]
Negative online contact	0.30 (0.145)	[−0.053, 0.514]	−0.04 (0.143)	[−0.276, 0.290]	0.30 (0.145)	[−0.058, 0.509]	−0.01 (0.192)	[−0.392. 0.370]
Mediator								
Sense of community	-		**0.21 (0.086)**	**[0.064, 0.403]**		-	**−0.28 (0.107)**	**[−0.496, −0.077]**
Control variables								
Positive offline contact	0.02 (0.047)	[−0.074, 0.110]	−0.01 (0.040)	[−0.082, 0.073]	0.02 (0.047)	[−0.075, 0.109]	−0.07 (0.054)	[−0.186, 0.027]
Negative offline contact	**−0.36 (0.184)**	**[−0.743, −0.010]**	−0.04 (0.169)	[−0.339, 0.325]	−0.36 (0.184)	**[−0.742, −0.020]**	−0.09 (**0.201**)	[−0.342, 0.437]

Note: Reported effects are unstandardized. Statistically significant effects (in bold) determined by 95% bias-corrected bootstrapped confidence interval (10,000 bootstrapped samples).

negative online contact. Importantly, sense of community was associated with outcome variables of both models, being positively related with outgroup evaluation and negatively related with social distance, respectively.

As for indirect effects (Table 3), consistently with our prediction, positive online contact was indirectly associated with less prejudice (i.e., greater outgroup evaluation, lower social distance) via heightened sense of community. Unexpectedly, we also found a significant indirect effect of negative offline contact, which was associated with lower outgroup evaluation and greater social distance via reduced sense of community. In both models, the overall total effect was nonsignificant (Table 3).[1]

8 | DISCUSSION

We conducted a study investigating the associations of positive and negative online contact with outgroup attitudes, among people without disability involved in a virtual program meant to provide social inclusion to people with a disability. In line with hypotheses, results revealed that positive online contact was associated with improved attitudes toward people with disability (more positive outgroup evaluation, lower social distance), with sense of community emerging as the underlying psychological process.

These results are not only consistent with previous research showing the effectiveness of online contact (White et al., 2020), but they also extend it. First, while previous research on online contact did not examine disability prejudice, the current study showed that positive online contact can represent an effective strategy to improve relations toward people with a disability. Second, the present findings provide the first evidence that sense of community mediates the effects of (online) contact. In the introductory section, we reviewed two studies showing that the effects of online contact are mediated by superordinate representations (Adachi et al., 2016; Rompke et al., 2019). This study extends this initial evidence to sense of community. Tangentially, this is also the only study of which we are aware showing that sense of community mediates the effects of intergroup contact as a general construct. Online contact can therefore contribute to shaping and reinforcing the sense of meaningful communities specifically designed to provide social inclusion to individuals from disadvantaged groups, like people with a disability.

As expected, we did not find evidence for an association of negative online contact with the outcome variables via sense of community, possibly because of its low values and limited variance, which reduced the likelihood of meaningful associations. However, this finding should be intended within the specificity of this study. In line with the larger literature, we argue that negative online contact can have additive or interactive effects to those of positive contact, and it needs to be included in future research (Schäfer et al., 2021).

While relationships with individuals with intellectual or physical disability can be different, there is evidence that contact is associated with more positive attitudes toward both types of disability

TABLE 3 Indirect and total effects of the mediation models.

	Predictors	Mediator	Outcome	Indirect effects			Total effect		
				Unstandardized			Unstandardized		
				Estimate (SE)	95% CI	Standardized	Estimate (SE)	95% CI	Standardized
Model 1	Positive online contact	Sense of community	Outgroup evaluation	**0.05 (0.026)**	**[0.014, 0.116]**	**0.11**	0.03 (0.138)	[−0.210, 0.312]	−0.04
	Negative online contact	Sense of community	Outgroup evaluation	0.06 (0.040)	[−0.012, 0.146]	0.06			
	Positive contact	Sense of community	Outgroup evaluation	0.00 (0.011)	[−0.019, 0.028]	0.01			
	Negative contact	Sense of community	Outgroup evaluation	**−0.07 (0.063)**	**[−0.242, −0.000]**	**−0.08**			
Model 2	Positive online contact	Sense of community	Social distance	**−0.07 (0.035)**	**[−0.151, −0.016]**	**−0.11**	−0.34 (0.186)	[−0.605, 0.138]	−0.50
	Negative online contact	Sense of community	Social distance	−0.09 (0.053)	[−0.189, 0.015]	−0.06			
	Positive contact	Sense of community	Social distance	−0.01 (0.014)	[−0.034, 0.025]	−0.01			
	Negative contact	Sense of community	Social distance	**0.10 (0.066)**	**[0.001, 0.260]**	**0.08**			

Note: Indirect effects reported are determined by 95% bias-corrected bootstrapped confidence interval with 10,000 bootstrapped samples. Statistical indirect effects are in bold.

(Pettigrew & Tropp, 2006), also when using indirect contact (Armstrong et al., 2016). In one of the rare studies examining the differential contact effects toward different types of disability, Ginevra et al. (2021) found that a school imagined contact intervention was equally effective toward both physical and intellectual types of disability. "The Intouchables" includes individuals with different levels of physical and/or intellectual disability. However, some of the individuals included may have more than one type of disability, including both physical and intellectual disability, therefore a distinction between the two types is not always possible. In addition, the community nature of the present program, including contact with individuals with different types of disability, makes a distinction between the effects of contact with physical or intellectual disability not possible. While based on literature we argue that contact may have beneficial effects independently from the disability type, future studies should try to disentangle the effects when considering different and nonoverlapping types of disability.

It is worth noting that focusing on social identification rather than the sense of community would be limiting and inadequate for probing into the effects of the kind of intergroup contact dynamics that occurred within this social program. "The Intouchables" was explicitly designed to foster the creation of a supporting network among individuals and was based on strong relatedness, emotional involvement, and perceptions such as the belief that one's needs are met within the community, as well as the sense of having the power to influence it. These perceptions play a key role in cultivating a sense of responsibility to the community, promoting greater participation in group dynamics, and fostering positive attitudes toward former outgroup members now belonging to the community. The perception of group membership precedes the emergence of an overall sense of community among group members (Smith et al., 1999), which can be intended as an empowered social identification, in this case with a common group, characterized by a strong interconnection among members where mutual social identities are recognized and valued (Mannarini et al., 2018).

The present data allow us to have a glimpse of program effectiveness. First, the fact that positive online contact was higher than negative online contact shows that "The Intouchables" was successful in allowing more positive than negative intergroup interactions. Second, positive online contact was higher than positive offline contact (i.e., contact occurred outside the program), demonstrating that the program was successful in creating the premises for positive intergroup interactions that provide an advantage compared to naturalistic contacts. This finding also speaks to the potential selection bias concerning individuals taking part in the program. It is indeed possible that only people with already low levels of prejudice participated in "The Intouchables." We argue however that our results are not impacted by this possibility. Indeed, the fact that online positive contact was higher than offline positive contact shows the relevance of the program to participants' intergroup interactions also occurring in their daily lives outside the program. Second, selection bias would have prevented effects, because of ceiling

effects of the measures of contact and attitudes among participants, which would have prevented the emergence of significant associations. Rather, we showed that participants responded differently to the program (e.g., with greater or lower positive online contact), and the greater the online contact, the more positive attitudes via increased sense of community.

Third, the fact that growing degrees of positive online contact related to more positive outgroup attitudes, via sense of community, suggests that the program may have successfully achieved its aims of improving intergroup relations. Nonetheless, it is worth noting that this study was not explicitly designed to provide a test of the relative effectiveness of the program. To do that, a quasi-experimental design would need to be adopted where program participants' attitudes toward people with a disability are compared to participants from an equivalent control group.

Fourth, relating to potential program effectiveness, a relevant finding refers to the associations emerged for negative offline contact, which we included (together with positive offline contact) as a covariate. Specifically, negative offline contact was negatively associated with sense of community and, in turn, more prejudice (i.e., lower outgroup evaluation and greater social distance). In other words, contact experienced beyond the present program worsened intergroup relations, consistent with findings from the broader literature (Schäfer et al., 2021), and also impacting the relations within "The Intouchables" (as shown by the negative association with sense of community). Positive online contact counteracted the detrimental associations of negative online contact, resulting in a nonsignificant total effect for both outcome variables (Table 3). In other words, the negative associations of negative offline contact were canceled by the positive associations of positive online contact, demonstrating the relevant role of ad-hoc prejudice-reduction programs such as "The Intouchables" in "correcting" negative everyday experiences with stigmatized outgroups.

Brown and Hewstone (2005) pointed out the relevance of group salience for attitude generalization (for recent evidence, see Vezzali, Trifiletti, et al., 2023). However, the different modes of online communication can have differential consequences for group salience and, therefore, attitude generalization. Cao and Lin (2017) found that text-based online contact produced stronger attitude generalization than video-based online contact, possibly because of the reduced salience of individuating cues in text-based than video-based communication. In the present study, we did not investigate the differential effects of the different modes of communication enabled by the online platform we created and the social media used by participants. Future studies might provide a deeper investigation of the online tools that are differentially related to attitude generalization.

Relatedly, while online environments can increase the salience of social groups (Spears et al., 2002) like that of the virtual community as in the present study, online interactions can also produce more individualized impressions, lowering rather than increasing group salience (Walther, 2007; Wang et al., 2009). We argue that the context of the online reference environment is crucial to determine whether group salience will be increased or reduced. The context provided to participants of the present study was specifically aimed at favoring individual self-disclosure and personal intimacy, but also the salience of interactions between people with and without disability, and that of a community of people taking part in the program. In other contexts, online contact may not be associated with a higher sense of community.

Although untested in the present study, it is also possible that other forms of online contact contributed to the present results. Indeed, by interacting on the web platform, participants were exposed to intergroup interactions between other participants of "The Intouchables," resulting in online extended and vicarious contact (knowing of or observing positive relations between ingroup and outgroup members; Vezzali et al., 2014; White et al., 2021). There is evidence that such extended and vicarious forms of contact reduce prejudice in online environments (Andrews et al., 2018; Schwab & Greitemeyer, 2015). Future studies can investigate the differential contribution of different forms of online contact and their impact on outgroup attitudes.

This study has important practical implications. It shows that structured programs can successfully help to foster a sense of community that provides social inclusion to individuals from stigmatized groups (White et al., 2014, 2020). While contact can sometimes be intended as an individual strategy, it is supported by social norms from relevant social identities that concur to attitude improvement (Christ et al., 2014). We therefore argue that, whenever possible, explicitly creating a sense of belonging, by stressing the sense of connectedness and reciprocal support among its members, can sensibly reinforce the "individual" effects of contact. Virtual environments can be particularly suitable for the creation of salient social identities. They represent highly controllable environments both in terms of content and regulation of interactions among members, being therefore ideal to conduct interventions, also given their potential wide audience. Importantly, they should be coupled with face-to-face initiatives, which may reinforce the effects on prejudice reduction.

We acknowledge some limitations. First, the study is correlational, therefore we cannot infer causality. There is however evidence that online contact has causal effects on prejudice reduction (White et al., 2020). In any case, we argue that psychological processes are likely bidirectional, such that contact may increase outgroup attitudes, while positive outgroup attitudes may result in greater contact (Vezzali, Lolliot, et al., 2023). Second, the sample size was limited. While we believe this is an understandable limitation, since it requires selecting individuals and engaging them fully in the program for several months, nonetheless, it may have an impact on the reliability and interpretation of the results. For example, some of the effects found may not have emerged because of a lack of statistical power. Future studies should try their best to increase the sample size, to provide reliable conclusions for both theorists and practitioners. Third, online contact was assessed with 1-item measures, which are suboptimal. However, the fact that effects also emerged with these measures can indirectly inform us of the

strength of the effects. A further important limitation is that we did not include people with a disability taking part in the program as participants, due to the low sample size that did not allow to conduct reliable statistical analyses. However, given the general satisfaction shown by these participants and their families, and the fact that they typically remain months and years in the program, we speculate that they achieved positive outcomes, like more life satisfaction and self-esteem, less intergroup threat, more positive outgroup attitudes and desire for social inclusion. Although we do not have empirical supporting data, these results would be consistent with research on sense of community, showing general increases in sense of connectedness among individuals as well as greater well-being (Stewart & Townley, 2020).

In conclusion, positive online contact developed within a structured social inclusion program allowed to virtually "touch" "The Intouchables," contributing to reducing the stigma typically attached to people with a disability. We believe that virtual environments have great potential to contribute to the social inclusion of disadvantaged groups, and we invite scholars and practitioners to (also) capitalize on online contact to improve the lives of stigmatized groups, including people with a disability.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

Data of this study, codebook, and R script are openly available at: https://osf.io/3nu7g/?view_only=68202aa6c8d24569a583bb7e0d323bfa.

ETHICS STATEMENT

The authors declare that informed consent was obtained.

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ENDNOTE

[1] We conducted additional analyses using age and gender as covariates. Results are similar to those presented in the text, with one exception: the indirect association of negative contact with outgroup evaluation was no longer statistically significant. These additional analyses are presented in the Supplementary material.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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