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Doing it for us: Community identification predicts willingness to receive a COVID-19 vaccination via perceived sense of duty to the community

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Abstract

The COVID-19 pandemic has presented huge challenges for communities across the world. Vaccines offer the best hope for controlling its deleterious effects, but not everybody is willing to be vaccinated, so it is important to explore variables that might predict vaccination willingness. The present study addressed this by drawing upon the Social Identity Approach, which posits that people's membership of social groups is consequential for their thoughts and behaviour. Specifically, it was predicted that people's strength of identification with their local community (a social group that came to particular prominence during the pandemic) would positively predict their willingness to engage in community-related prosocial normative behaviour (i.e., their perceived sense of duty, as a community member, to get vaccinated) and that this, in turn, would predict higher levels of vaccination willingness. Participants ($N = 130$) completed an online survey, which supported the hypothesized mediation model, even after controlling for subjective neighbourhood socio-economic status and age (two variables that are particularly likely to impact upon vaccination willingness). To our knowledge, this is the first study to apply Social Identity Approach principles to the study of COVID-19 vaccination willingness.

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The implications of the findings for governments' efforts to boost vaccine uptake are discussed. Please refer to the Supplementary Material section to find this article's Community and Social Impact Statement.

KEYWORDS

community identification, COVID-19, norms, social cure, social identity, vaccination hesitancy, vaccine

1 | INTRODUCTION

The COVID-19 pandemic has been (and continues to be) a huge social, economic and health-related challenge for communities across the world. Vaccines offer the best hope for controlling its deleterious effects, with experts currently suggesting that at least 70% of the population will need to be vaccinated to ensure herd immunity (e.g., Mendes, 2021). However, not everybody is willing to receive the vaccine, as seen in the rise of online anti-vaccination groups (Burki, 2020), as well as anti-vaccination protests (BBC News, 2021a). Social psychologists therefore have an important role to play in exploring what predicts people's willingness (or otherwise) to get vaccinated against COVID-19, as well as using this knowledge to suggest how to boost vaccination willingness.

Much of the pre-existing work on predictors of COVID-19 vaccination willingness has explored demographic variables such as age and ethnicity (e.g., Lazarus et al., 2021) and psychological variables such as perceived vaccine safety, perceived disease severity (Karlsson et al., 2021), levels of state reactance, trust in information sources and endorsement of alternative medicine (Soveri, Karlsson, Antfolk, Lindfelt, & Lewandowsky, 2021). These results can be considered in the context of the Health Belief Model (HBM; e.g., Glanz, Rimer, & Viswanath, 2008), which is one of the best-known models of health behaviour change. In the context of vaccination, the model posits that demographic and psychological variables predict outcomes such as perceived disease severity and perceived disease susceptibility, as well as perceived benefits of and barriers to vaccination, which in turn predict vaccination willingness. Indeed, some work has provided initial support for the applicability of the HBM to the context of COVID-19 vaccination (e.g., Wong, Alias, Wong, Lee, & AbuBakar, 2020; Zampetakis & Melas, 2021). As important as this work is in helping us understand predictors of COVID-19 vaccination willingness, it is limited due to its neglect of the important roles played by social context and group memberships in determining people's thoughts and behaviour (which various authors have noted as being vital to appreciate in order to gain a full understanding of the pandemic, e.g., Drury et al., 2021; Jetten, Reicher, Haslam, & Cruwys, 2020). The present study is designed to remedy this shortcoming, as well as to address the call for more work exploring COVID-19 vaccine hesitancy (e.g., Sallam, 2021).

1.1 | Applying the social identity approach to understand health behaviour

The Social Identity Approach (SIA; e.g., Tajfel & Turner, 1979; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987) is a useful lens through which to explore the social determinants of health behaviour because it addresses the complex interplay between inter-/intra-group processes and how people think and act. Specifically, the SIA posits that as well as possessing a personal identity, we each possess *social identities*, which are derived from the social groups to which we belong (e.g., Tajfel & Turner, 1986). At any particular time, one of these group memberships can become *salient* (or psychologically conspicuous), and we will start to think and act in a manner which is consistent with the norms and values of that specific group (Turner et al., 1987). This means that, for example, a person is likely to think and behave differently when their "psychologist" identity is salient, compared to when their "football fan" identity is

salient. Moreover, when a group membership is salient, the extent to which the person engages in group norm-consistent behaviour will be a function of their *strength of identification* with the group (i.e., the extent to which they experience a subjective sense of belonging to the group, and a sense of commonality with its members; Sani, Madhok, Norbury, Dugard, & Wakefield, 2015). Moreover, strong group identifiers are more likely have their thoughts and behaviour influenced by fellow group members (Turner, 1991), as well as being more likely to mutually exchange help and support with fellow ingroup members (e.g., Levine & Manning, 2013). These observations have important implications for predicting health behaviour, including COVID-19 vaccination willingness. This important relationship between group identification and health has received much attention in recent years via the Social Identity Approach to Health (or the “Social Cure” approach, e.g., Haslam, Jetten, Dingle, & Haslam, 2018; Wakefield, Bowe, Kellezi, McNamara, & Stevenson, 2019).

Importantly, the norms associated with a specific group can involve health-related behaviours, which means that strong identifiers will be particularly likely to engage in these behaviours (with potential implications for their health). For instance, Terry and Hogg (1996) found that participants who identified strongly with the group “friends and peers at university” and who perceived regular exercise (Study 1) or sun-protective behaviour (Study 2) to be a normative behaviour of that group were more likely to report intentions to engage in regular exercise/sun-protective behaviour than strong identifiers who did not perceive that behaviour to be normative of the group. Health-related group norms can also be negative: for instance, Johnston and White (2003) showed that students indicated stronger binge-drinking intentions if they perceived this behaviour as normative of the student group, especially if they identified strongly with that group.

This relationship between group identification, normative perceptions and health behaviour has also been shown in the context of vaccination intentions: Falomir-Pichastor, Toscani, and Despointes (2009) showed that there was a positive relationship between nurses' strength of identification with their nurse identity and their willingness to get a flu vaccination. Moreover, the authors hypothesized that group identification would positively predict willingness to engage in normative behaviour, and this was supported by the data: the relationship between group identification and vaccination willingness was mediated by participants' belief that it is a nurse's professional responsibility to get a flu vaccination (which the authors defined as a core norm of the nurse identity). While the present study involves recruiting participants from the general population (rather than nurses), we also intend to explore the extent to which vaccine willingness is predicted by identification with a specific social group and its associated norms: the local community.

1.2 | The role of local community identity

One group that has been particularly relevant during the COVID-19 pandemic is the local community/neighbourhood. Physical distancing and lockdown measures have meant that, for many individuals, local residents have been the only people with whom they have interacted on a relatively regular basis. In the UK, this neighbourly interaction and connection was facilitated by “Clap for Carers”, a 10-week activity where people came out of their front doors at 8 p.m. each Thursday evening to show their shared appreciation for healthcare and frontline workers through applause and noise-making (Morgan, 2020). In many communities, the Clap for Carers ethos was reinforced and extended by people putting pictures of rainbows (which were used to symbolize support for the National Health Service) in their front windows, again indicating shared neighbourhood ideals and mutual support for those within the community who were on the frontline of the pandemic (BBC News, 2020).

These observations suggest that, to a significant extent, the pandemic has been understood and addressed by people at a local community level: a conclusion that has been reinforced further by the rise of COVID-19 mutual aid groups (Bowe et al., 2021; Tiratelli & Kaye, 2020; Wakefield, Bowe, & Kellezi, 2021). These groups involve volunteers working together to support the most vulnerable in their community (e.g., the elderly, those with chronic illness, and others who were advised to shield themselves fully from the virus) by delivering food and medicine,

sharing information and providing practical and emotional support (Mao, Fernandes-Jesus, Ntontis, & Drury, 2020). A range of work which has explored the collective provision of support in the aftermath of disasters has concluded that this behaviour tends to emerge from a shared sense of social identity (for a review, see Drury, 2018). While this can involve the creation of a novel identity (e.g., “We are earthquake survivors”), it can also draw on well-established pre-existing identities, particularly that of the local community (Drury, Carter, Ntontis, & Guven, 2021). Moreover, consistent with previously discussed literature, evidence supports the idea that those who identify strongly with their community are particularly likely to engage in these pro-community helping behaviours. For instance, Vignoles, Jaser, Taylor, and Ntontis (2021) showed that community identification positively predicted helping behaviour during the pandemic, while Stevenson, Wakefield, Drury, and Felsner (2021) showed that community identification positively predicted participants' belief that support was available from their community if they needed it, which positively predicted their giving and receiving of pandemic-related emotional support over time. In turn, this giving and receiving of support positively predicted participants' adherence to lockdown rules (a behaviour that can be perceived as a collective act of community solidarity; Vignoles et al., 2021). When applied to the context of vaccination, this suggests that there will be a positive relationship between community identification and COVID-19 vaccination willingness.

Importantly, the widespread development of community-focussed support initiatives such as Clap for Carers, rainbow posters and mutual aid groups also has important implications for the norms and values that people attach to their communities: the “group contents” that are so important for guiding (strongly identifying) group members' behaviour (Turner et al., 1987). Specifically, the observation of other group members engaging in prosocial behaviours has the potential to create an ingroup prosocial norm: one that is particularly likely to lead to prosocial behaviour in strong identifiers (Drury, Brown, González, & Miranda, 2016). This suggests that observing fellow community members engaging in collective prosocial acts during the pandemic will have led to the development of a prosocial norm within local communities, and that there is likely to be a positive relationship between people's strength of identification with their local community and their desire to enact this prosocial norm.

1.3 | The present study

Our goal for the present study was to draw these strands of literature together in order to formulate predictions regarding people's vaccination willingness. In line with the finding that observing other group members engaging in helping behaviour facilitates the development of a prosocial norm (Drury et al., 2016), we expect (although we do not directly test the idea) that local communities possess a prosocial norm due to the mutual support and solidarity that has occurred since the start of the pandemic: a sense of one having a duty, as a member of the community, to behave prosocially. Thus, consistent with Falomir-Pichastor et al.'s (2009) finding that willingness to engage in ingroup normative behaviour (i.e., to fulfil a normative sense of professional duty to one's patients) mediated the relationship between nurse identification and flu vaccination willingness, we predict that the relationship between community identification and COVID-19 vaccination willingness will be mediated by participants' willingness to engage in community-based normative behaviour (i.e., their perceived sense of duty, as a member of their community, to get vaccinated). Specifically, we expect that community identification will positively predict sense of duty to the community to get vaccinated, which in turn will positively predict vaccine willingness. Here, it is important to note a limitation in how Falomir-Pichastor et al. (2009) worded their normative behaviour items (e.g., “To be vaccinated against flu is part of the professional role of the nurse”). We feel that this measure taps into how participants define nurse-related norms (i.e., the extent to which they perceive getting the flu vaccination as a normative nurse behaviour), rather than whether they feel that that it is their personal duty (as a member of the nurse group) to engage in this normative behaviour. To this end, we have ensured that the wording of our measure specifically asks participants whether they consider that it would be their personal duty (as a member of their community) to get a COVID-19 vaccination.

To test our hypothesis, we gathered online survey data from UK residents in late 2020/early 2021, just as the UK's COVID-19 vaccination programme was rolling out (it began on December 8th 2020), and vaccinations were being offered to only the most elderly and vulnerable. In order to increase the response rate (especially since participants were not financially reimbursed for their participation), we kept the survey as short as possible by using single-item measures of perceived personal duty to the community to get vaccinated and vaccination willingness.

It is important to note that evidence gathered in late 2020 indicated that certain demographic groups are less willing to get the vaccine, including ethnic minorities, those with lower incomes (Royal Society for Public Health, 2020) and younger people (Lazarus et al., 2021). To address this in a parsimonious manner in the present study, we controlled for participants' age and their subjective neighbourhood socio-economic status (since neighbourhood status is likely to intersect with demographic categories such as ethnicity and income level; GOV.UK, 2020).

2 | METHOD

2.1 | Participants and procedure

One hundred and thirty-three British adults were recruited through opportunity sampling and were asked to complete a short online survey during December 2020/January 2021. Participants were not paid for their participation. One participant accessed the survey but did not enter any data beyond their age and gender, while two other participants failed to provide data for one or more of the study's key variables, so all three participants were removed from the data-file, leading to a total sample size of 133 (39 males, 91 females, $M_{\text{age}} = 38.19$ years, $SD = 17.22$, $\text{range} = 18-86$).

An a priori power analysis in GPOWER (Erdfeuler, Faul, & Buchner, 1996) which assumed a medium effect size, power of .95 and four predictors (our mediation model features one predictor, one mediator and two control variables) indicated that a minimum sample-size of 129 was required.

2.2 | Measures

Community identification was measured with Doosje, Ellemers, and Spears's (1995) four-item measure of group identification (e.g., "I identify with the members of my local community"). Participants rated each item on a scale ranging from 1 ("I strongly disagree") to 7 ("I strongly agree") and were asked to define local community in the way that was most meaningful for them (e.g., neighbourhood, village, city area, etc.). The mean of the items was found, with higher values indicating stronger community identification ($\alpha = .93$).

Duty to the community to get vaccinated was measured with a single item adapted from Falomir-Pichastor et al. (2009): "If a COVID-19 vaccine was available, it would be my duty to get it as a member of my community". Participants rated their agreement with the item on a scale ranging from 1 ("I strongly disagree") to 7 ("I strongly agree").

Willingness to get vaccinated was measured with a single item adapted from Wong et al. (2020): "If a vaccine against COVID-19 infection was available, would you take it?". Participants rated the item on a scale ranging from 1 ("definitely not") to 5 ("Yes, definitely").

Subjective neighbourhood socio-economic status (SES) was measured with an adaptation of Adler, Epel, Castellazzo, and Ickovics's (2000) measure. Participants were asked to "Imagine a ladder with 10 rungs, at the top of the ladder are the neighbourhoods in the UK that are best off: those which have the most money, most educated inhabitants and inhabitants with the best jobs. At the bottom are the neighbourhoods in the UK that are worst off: those who have the least money, least educated inhabitants and inhabitants with the worst jobs or no jobs. Please indicate

TABLE 1 Descriptive statistics and intercorrelations

Variable	Scale range	M (SD)	1	2	3	4	5
1. Community identification	1–7	4.98 (1.34)	–				
2. Duty to community to get vaccinated	1–7	5.45 (1.74)	.30***	–			
3. Vaccination willingness	1–5	4.22 (1.12)	.19*	.78***	–		
4. Subjective neighbourhood SES	1–10	6.76 (1.55)	.23**	.32***	.29***	–	
5. Age	18–86	38.19 (17.22)	.31**	.36***	.40***	.37***	–

Note: *** $p \leq .001$, ** $p \leq .01$, * $p < .05$.

which rung represents where you think your neighbourhood stand on the ladder". Participants received a value between 1 (if they selected the bottom rung) and 10 (if they selected the top rung).

Demographic variables were also measured: age and gender (1 = male, 2 = female). Gender did not correlate with any other variable, so is not included in any of the analyses.

3 | RESULTS

3.1 | Descriptive statistics and intercorrelations

Table 1 shows the descriptive statistics for each of the variables, as well as their intercorrelations. Community identification correlated positively with vaccine willingness ($p = .035$) and with duty to the community to get vaccinated ($p < .001$). Duty to the community to get vaccinated correlated positively with vaccine willingness ($p < .001$), while subjective neighbourhood SES and age correlated positively with all three variables ($ps < .011$).

3.2 | Indirect effects analysis

Model 4 in version 3.5 of Hayes' (2018) PROCESS macro was used to test the hypothesis that duty to the community to get vaccinated will mediate the relationship between community identification and vaccine willingness. The model involved 5,000 bootstrapping samples with 95% confidence intervals (LLCI/ULCI), using the percentile method. Participants' subjective neighbourhood SES and age were controlled for in the analysis.

A significant indirect effect of community identification on vaccination willingness was found via duty to the community to get vaccinated, $Effect = 0.12$, $Boot SE = 0.06$, $Boot LLCI = 0.0008$, $Boot ULCI = 0.23$. Community identification was a positive predictor of duty to the community to get vaccinated, $b = 0.24$, $SE = 0.11$, $t = 2.20$, $p = .03$, $LLCI = 0.02$, $ULCI = 0.46$, while duty to the community to get vaccinated was a positive predictor of vaccine willingness, $b = 0.48$, $SE = 0.04$, $t = 12.31$, $p < .001$, $ULCI = 0.41$, $ULCI = 0.56$. The total effect of community identification on vaccine willingness was non-significant, $Effect = 0.04$, $SE = 0.07$, $t = 0.60$, $p = .55$, $LLCI = -0.10$, $ULCI = 0.18$ and remained non-significant once the mediator was accounted for (direct effect), $Effect = -0.07$, $SE = 0.05$, $t = -1.49$, $p = .14$, $LLCI = -0.17$, $ULCI = 0.02$, indicating indirect-only mediation (Zhao, Lynch Jr, & Chen, 2010). Values for all paths can be seen in Table 2. For completeness, the model was re-run with the mediator and outcome variables reversed (i.e., with vaccination willingness as the mediator and duty to the community to get vaccinated as the outcome). The indirect effect of community identification on duty to the community to get vaccinated via vaccination willingness was non-significant, $Effect = 0.05$, $Boot SE = 0.09$, $Boot LLCI = -0.14$, $Boot ULCI = 0.22$. As can be seen in Table 3, this was due to community identification not predicting vaccination willingness, thus indicating our predicted model fit the data better.

TABLE 2 Values for all paths in predicted model

Outcome: Duty to community to get vaccinated (Model's mediator variable)						
Variable	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>	LLCI	ULCI
Constant	1.93	0.73	2.64	.01**	0.48	3.37
Community identification	0.24	0.11	2.20	.03*	0.02	0.46
Subjective neighbourhood SES	0.21	0.10	2.17	.03*	0.02	0.40
Age	0.02	0.01	2.65	.01**	0.006	0.04
Outcome: Vaccination willingness (Model's outcome variable)						
Variable	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>	LLCI	ULCI
Constant	1.48	0.33	4.48	<.001***	0.83	2.14
Community identification	-0.07	0.05	-1.49	.14	-0.17	0.02
Duty to community to get vaccinated	0.48	0.04	12.31	<.001***	0.41	0.56
Subjective neighbourhood SES	0.02	0.04	0.38	.70	-0.07	0.10
Age	0.01	0.004	2.35	.02	0.002	0.02

Note: *** $p < .001$, ** $p \leq .01$, * $p < .05$.

TABLE 3 Values for all paths in alternative model

Outcome: Vaccination willingness (Model's mediator variable)						
Variable	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>	LLCI	ULCI
Constant	2.41	0.48	5.06	<.001***	1.47	3.36
Community identification	0.04	0.07	0.60	.55	-0.10	0.18
Subjective neighbourhood SES	0.12	0.06	1.87	.06†	-.01	0.24
Age	0.02	0.01	3.59	.001***	0.01	.03
Outcome: Duty to community to get vaccinated (Model's outcome variable)						
Variable	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>	LLCI	ULCI
Constant	-0.81	0.54	-1.49	.14	-1.88	0.26
Community identification	0.19	0.07	2.60	.01**	0.05	0.34
Vaccine willingness	1.13	0.09	12.31	<.001***	0.95	1.32
Subjective neighbourhood SES	0.08	0.07	1.15	.25	-0.05	0.21
Age	-0.0001	0.01	-0.01	.99	-0.01	0.01

Note: *** $p \leq .001$, ** $p \leq .01$, † $p < .10$.

4 | DISCUSSION

In this study, we aimed to test the prediction that the relationship between strength of community identification and people's willingness to get a COVID-19 vaccination would be mediated by participants' willingness to engage in community-related prosocial normative behaviour (i.e., their perceived sense of duty, as a community member, to get vaccinated). Our hypothesis was supported: a significant indirect effect of community identification on vaccine willingness via sense of duty to the community to get vaccinated was found, even after controlling for participants' age and subjective neighbourhood SES (which, based on vaccine opinion surveys, e.g., Lazarus et al., 2021; Royal Society for Public Health, 2020) and our own correlational data, are important predictors of vaccine willingness). In

sum, this indicates that while community identification itself is not a unique predictor of COVID-19 vaccine willingness (i.e., the total effect of community identification on vaccination willingness was non-significant), the willingness to engage in community-related prosocial normative behaviour that it positively predicts is itself an important positive predictor of COVID-19 vaccine willingness.

Our findings have some important theoretical implications. First, they support the SIA literature which highlights the important role played by social group memberships and group identification in predicting health-related behaviours (e.g., Johnston & White, 2003; Terry & Hogg, 1996). Moreover, they confirm the importance of ingroup norms in mediating this relationship: it was the injunctive norm of “sense of duty as a community member to get vaccinated” (i.e., the idea that “as a community member, this is how I should behave”; Cialdini, Reno, & Kallgren, 1990) that was the crucial predictor of COVID-19 vaccine willingness. This supports and extends the nurse-related findings of Falomir-Pichastor et al. (2009) by showing that sense of normative duty is also an important predictor of vaccination willingness in the general public and also by using a measure that explicitly asked participants whether they feel that it is their personal duty as a member of the community group to engage in this normative behaviour (rather than simply asking whether this behaviour is generally normative of community group members). Moreover, it should be noted that Falomir-Pichastor et al.'s (2009) participants rated their agreement with a norm which is couched in intergroup terms: that nurses (the ingroup) have a professional duty to help their patients (an important outgroup). While work on the therapeutic alliance explores the important relationships that exist between healthcare professionals and their patients (e.g., Horvath, Gaston, & Luborsky, 1993), this is not the same as feeling a sense of duty to help fellow ingroup members through one's behaviour, which is the key concept that we explore in the present study. Our work thus suggests that harnessing this sense of “we” within communities is crucial in order to encourage COVID-19 vaccination willingness.

Our findings thus suggest that community leaders and governments should adopt a two-pronged approach when attempting to boost COVID-19 vaccination uptake. First, they should attempt to increase people's sense of identification with their communities (which, in turn, will predict higher willingness to engage in community-related normative behaviour). Second, they should aim to ensure that the prevailing norms that are associated with the community are prosocial and based on the concept of collective solidarity (Vignoles et al., 2021).

In terms of increasing community identification, one potentially fruitful avenue may be to promote formal and informal volunteering. Recent work by Bowe et al. (2020) showed that there was a positive relationship between the number of hours that people spend volunteering and their strength of identification with their community. Moreover, in interviews, participants talked about how their voluntary work helped them to feel more connected to their local community. This dovetails neatly with the rise in COVID-19 mutual aid groups which was discussed in the Introduction, as it suggests that as well as strength of community identification predicting engagement in these aid groups, people's engagement with aid groups might also strengthen their community identification. Indeed, recent work conducted during the pandemic has shown that community-based coordinated help-giving is linked to stronger community identification and, in turn, to a stronger sense of community-based unity (Bowe et al., 2021). People have shown a strong desire to volunteer during the pandemic (such as the million UK people who registered to volunteer with the National Health Service or with volunteer centres; Guardian, 2020), but it will be important for organizations and communities to ensure that the necessary resources are invested in order to encourage volunteer retention by helping volunteers remain engaged with and satisfied by their voluntary work (e.g., Smithson, Rowley, & Fullwood, 2018).

Interestingly, there are also important potential side-effects of the increased sense of community identification that volunteering should encourage. First, it may actually increase the efficacy of the COVID-19 vaccination. This is because, as highlighted by the Social Cure approach (e.g., Wakefield et al., 2019), feeling socially connected confers a number of psychological benefits that have been shown to increase the effectiveness of vaccines by boosting immunity response (Madison, Shrout, Renna, & Kiecolt-Glaser, 2021), including increased social support, stress and loneliness reduction (Haslam et al., 2018; McNamara et al., 2021) and increased incidence of healthy behaviours such as not smoking, drinking less alcohol, eating a better diet and exercising more (Sani et al., 2015). Second, it may have the potential to curb people's endorsement of anti-vaccine conspiracy theories. People who endorse conspiracy theories tend to possess low

levels of trust in their communities (Goertzel, 1994), feelings of powerlessness (Jolley & Douglas, 2014) and have a general sense of disconnection from wider society, as well as experiencing high levels of loneliness and psychological distress (Hornsey, 2020): issues that have the potential to be remedied by increased community identification. Indeed, Greenaway, Haslam, and Bingley (2019) showed that paranoid thinking (which is often at the root of conspiracy theories) is negatively predicted by group identification, and that this relationship occurs via increased trust and sense of control. Boosting community identification through promoting volunteering could be doubly effective because the act of volunteering itself can increase feelings of self-esteem (Klein, 2017) and empowerment (Kulik, 2010), which tend to be low in people who endorse conspiracy theories (Cichocka, Marchlewska, & De Zavala, 2016; Jolley & Douglas, 2014). In sum, these findings suggest that the pandemic-related benefits of increasing community identification through strategies such as promoting volunteering are likely to be numerous and significant.

The community-based promotion of volunteering also has the potential to encourage prevailing norms of prosociality and solidarity. Drury et al. (2016) showed how observing other group members engaging in helping behaviour was an important predictor of participants' provision of emotional and coordinated instrumental social support after an earthquake, which suggests that observing other community members engaging in prosocial activities is likely to promote prosocial community norms. In the particular context of COVID-19 vaccination, seeing other community members get vaccinated and support the vaccine roll-out could be especially beneficial and would also tap into the observation that ingroup members' opinions are particularly likely to be heeded and to lead to attitude change (e.g., Mackie & Queller, 2000; Neville, Templeton, Smith, & Louis, 2021). There is also an important role here for general practitioners (GPs), community nurses and social care workers, who are likely to be simultaneously perceived as members of the local community and as possessing relevant medical knowledge, thus meaning that their opinions are particularly likely to be heeded. It is interesting to note that the UK's Queen recently drew on the concept of duty to one's community by urging vaccine hesitant individuals to "think about other people" (BBC News, 2021b), and our data suggest that the same message should be coming from key figures within local communities.

Although the results of our study suggest some potentially useful implications, it is important to note that our work has limitations. Perhaps most notably, our study involved cross-sectional data gathered from a convenience sample, so we cannot draw conclusions about the temporal ordering of our variables across time, and, although our participants spanned a range of age groups, we cannot claim that our data are representative of the wider population. In the future, longitudinal survey research involving more representative samples should thus be conducted. Second, due to the time at which we gathered the data (just as the vaccine roll-out was beginning), we were only able to measure vaccination willingness, but future work should explore the relationship between group identification, group norms and actual vaccine uptake. Third, it could be argued that our measures of perceived duty to the community to get vaccinated and vaccination willingness possess conceptual overlap, particularly since they correlate strongly (Falomir-Pichastor et al., 2009 also reported a large correlation between nurses' professional duty to be vaccinated and flu vaccination willingness). Nonetheless, it should be noted that when we reversed the order of the perceived duty to the community and vaccination willingness variables in our model, the resultant indirect effect was nonsignificant, which suggests differentiation between the two variables (at least in terms of their relationship with community identification). Although a confirmatory factor analysis could address this issue of potential overlap if the constructs were measured with multiple items, we measured both our predictor and outcome variables with single items, which would mean that the analysis would essentially present a correlation between the two items. Thus, while using single items allowed us to minimize survey length, future work should utilize multi-item measures in order to address the potential issue of conceptual overlap. Finally, while we addressed the issue of vaccine willingness varying between demographic groups by controlling for subjective neighbourhood SES, it could be argued that a subjective measure of neighbourhood SES, such as the participant's neighbourhood score on the English Indices of Deprivation (GOV.UK, 2019) would be a more appropriate measure. Nonetheless, subjective personal SES has been shown to correlate significantly with objective indicators of personal SES and has been shown to be a stronger predictor of health outcomes than objective personal SES (Adler et al., 2000). Moreover, our measure of subjective neighbourhood SES positively correlated with vaccination willingness, which is consistent with findings from studies

which employed objective SES measures to explore vaccination willingness (e.g., Lazarus et al., 2021; Royal Society for Public Health, 2020). Nonetheless, future work could fruitfully include a wider range of socio-economic and demographic control variables, including income level, employment status and ethnicity.

These issues notwithstanding, our study makes an important contribution to the understanding of COVID-19 vaccination hesitancy by highlighting the role played by community identification and its relationship with people's willingness to engage in community-related prosocial normative behaviour in predicting vaccination willingness. Importantly, the benefits of community identification have the potential to stretch much further than this, by possibly helping to increase vaccine efficacy, to reduce the feelings of loneliness and social disconnection that many have felt during the pandemic (e.g., Killgore, Cloonan, Taylor, & Dailey, 2020) and to curb anti-vaccine conspiracy theory endorsement. The community thus has the potential to be a rich and powerful resource, and governments must recognize this in their policies and funding provision if they truly wish to help their citizens recover from the devastating effects of the COVID-19 pandemic.

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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SUPPORTING INFORMATION

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