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ARTICLE

Identity-based social support predicts mental and physical health outcomes during COVID-19

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Abstract

During the COVID-19 pandemic, the United Kingdom implemented physical distancing measures to minimize viral transmission, which may have adversely impacted health and wellbeing. Evidence suggests that social support may be key to mitigating against adverse health impacts of such measures, particularly when such social support is identity-based. In this longitudinal study, we examined the role of social identity and perceived social support in mental and physical health outcomes during the COVID-19 pandemic. Participants completed a survey at 4 time points during the first year of the pandemic: May/June 2020 (T1; N = 443); September/October 2020 (T2; N = 235); December 2020/January 2021 (T3; N = 243); and April 2021 (T4; N = 206). Results showed that at each time point, social support was predicted by identification with multiple groups before COVID-19, identity continuity, and identification with communities. Higher identity continuity and identification with communities both predicted greater mental and physical health at the same time point, mediated by perceived social support. Interestingly, higher identity continuity and identification with communities predicted higher social support at the same time point, which in turn predicted worse mental and physical health outcomes at the subsequent time point. Findings are discussed in relation to the context of the first year of the pandemic and the changing nature of societal restrictions across the four survey time points.

KEYWORDS

COVID-19, mental health, physical health, social identity, social support

Holly Carter and Amelia Dennis are joint first authors, these authors contributed equally to this work.

INTRODUCTION

The World Health Organization (WHO) declared COVID-19 to be a pandemic in March 2020 (WHO, 2020). In the United Kingdom, public health strategies to control the spread of COVID-19 included asking people to stay at home for all but essential reasons (i.e. obtaining food or medicine, or undertaking essential work), staying 2 metres away from others when outside the home (social distancing), and case tracking and isolating (HM Government, 2020). Such restrictions may have an adverse impact on mental health and wellbeing (Ford, 2021; Marroquín et al., 2020).

It has been suggested that social support may play a key role in mitigating the distress experienced as a result of both the effects of COVID-19, and the measures put in place to manage COVID-19 (Brooks et al., 2020; Saltzman et al., 2020). Social support comprises both emotional support (a sense of acceptance and self-esteem) and material support (resources that help an individual to overcome any difficulties that they face; Cohen & McKay, 1984). Social support has been associated with increased well-being, better sleep and reduced depression during the COVID-19 pandemic (Chen et al., 2021; Grey et al., 2020; Simon et al., 2021). This is in line with research into the impact of other disasters and emergencies, which shows that social support is a predictor of resilience and post-traumatic growth (Hall et al., 2010; Saltzman et al., 2018; Xu & Ou, 2014) and buffers against negative health outcomes (for a review see Taylor, 2011). When understanding the role of social support in promoting positive mental and physical health outcomes, it is important to understand the nature of the relationship between the person providing support and the person receiving support.

The role of social identity in facilitating perceptions of social support

Research suggests that social support is more likely to be perceived as intended to the extent that the giver and receiver of social support share a sense of social identity (Drury et al., 2016; Haslam et al., 2005; Haslam & Reicher, 2006). The concept of shared social identity comes from the social identity approach, which is comprised of social identity theory (Tajfel & Turner, 1979) and self-categorization theory (Turner et al., 1987). The social identity approach suggests that individuals experience social, as well as personal identities, and that social identities are based on group memberships. This approach also offers an explanation for what determines when an individual moves from a personal to a social identity, and why certain identities become salient in different contexts. When a person categorizes themselves as part of a group (and therefore experiences a shared social identity with other group members), it results in the individual perceiving that group members are similar, that group members will behave in line with group norms and that all group members will work together for the good of the group. Identifying with a group therefore results in a perception that one can expect to receive help and support from other group members, as well as greater belief that the support received will be effective at meeting an individual's needs (Drury et al., 2016; Haslam et al., 2018; Levine et al., 2005). Shared social identity also increases the likelihood that any support given will be interpreted positively, with social support more likely to be perceived as intended to the extent that the giver and receiver of social support share a social identity (Haslam et al., 2018; Levine et al., 2005).

The impact of social identity and social support on mental and physical health

In recent years, there has been an increasing awareness of the potential for social identity to impact on an individual's health and wellbeing. The social identity approach to health (Haslam et al., 2009; Jetten et al., 2012) outlines that the greater an individual's identification with a group, the more they will expect to receive support from, and provide support to, other members of the group; this in turn will increase wellbeing. Research has examined the relationship between social identity and various positive health outcomes, including reduced levels of stress (Haslam et al., 2005; Haslam & Reicher, 2006), reduced anxi-

ety and depression (Bizumic et al., 2009; Haslam et al., 2008; McIntyre et al., 2018) and improved overall wellbeing (Bailis et al., 2008). This research has demonstrated that social identity can have a positive impact on various aspects of an individual's health and wellbeing, across a variety of different settings and contexts.

Understanding social identity, health, and wellbeing during COVID-19

The role of pre-existing identities

Research has also explored the role of social identity in predicting mental and physical health outcomes during times of social change (e.g. loss of a job, or illness). Where individuals are able to maintain pre-existing group memberships and social identities during life transitions, they are likely to experience greater wellbeing (Haslam et al., 2008; Praharso et al., 2017; Steffens et al., 2016). Conversely, the loss of social identity during such times has been shown to negatively impact an individual's wellbeing (Jetten et al., 2002). In light of this, it has been suggested that identifying with more groups renders an individual less vulnerable to the effects of social change, as their sense of identity is invested in more than one group membership (Haslam et al., 2008).

COVID-19 represented a life-changing event for people worldwide. Disasters and mass emergencies (including COVID-19) represent a substantial threat to mental and physical health, not just in terms of their physical impact but also in terms of the disruption they can cause to existing social identities and sources of social support (e.g. through deaths, loss of jobs, changes to normal routine; Kaniasty et al., 1990; Kaniasty & Norris, 1993). There has been some suggestion that social support, and mental health needs, are usually met by family and friends following a disaster (Stanke et al., 2012). However, in the case of COVID-19, the measures in place to manage the pandemic may have made it difficult for this type of support to be provided. The requirement for people to distance themselves from one another (at least physically), and the substantial impact on daily routine, may have resulted in loss of social identity and subsequent reduced perceptions of social support (Jetten et al., 2020; van Bavel et al., 2020). COVID-19 therefore represented a substantial threat to existing social identities and sources of social support, and therefore to mental and physical health outcomes. Based on the evidence above, it would be expected that the more individuals were able to maintain their existing identities during COVID-19, the better their mental and physical health outcomes would be.

The role of emergent identities

While disasters have the potential to be disruptive to existing sources of shared social identity, as noted above, they also have the potential to facilitate new, emergent identities (Drury et al., 2009; Ntontis et al., 2018), which then form a basis for the provision of social support. Such emergent identities may therefore buffer any impact that the loss of existing identities may have on mental and physical health outcomes. Emergent identities often arise as a result of the sense of 'common fate' that people experience in relation to the disaster (Drury et al., 2019). One such form of emergent identity is community identity, which has been shown to develop during 'rising tide' disasters (disasters from which the impact is felt over a number of days or months, such as floods or pandemics; Ntontis et al., 2018). During COVID-19, research has demonstrated the role of increased identification with one's community in predicting greater wellbeing and reduced depression and anxiety during COVID-19 (Bowe et al., 2022). Such increased community identification has additionally been shown to result in increased giving and receiving of pandemic-related support, mediated by perceptions of community support (Stevenson et al., 2021).

Another form of identity which may emerge during disasters and emergencies is identification with the authorities who are managing the emergency. This is particularly likely if authorities communicate

honestly and openly with members of the public and foster a sense that their actions are legitimate and in the public interest (Carter et al., 2020). Such shared identity with authorities has been shown to reduce anxiety during mass emergencies (Carter et al., 2015); when considered alongside research which demonstrates the role of identification with leaders in predicting greater wellbeing (Krug et al., 2021): identification with authorities has the potential to result in improved wellbeing during disasters and emergencies.

It is therefore important to understand more about the role of both existing and emergent identities in predicting social support, and subsequently promoting positive mental and physical health outcomes, during COVID-19. This will enable a better understanding of the unique roles of emergent and existing identities in fostering social support and mental and physical health outcomes during disasters and emergencies and will facilitate an optimized response to future incidents.

Aims and hypotheses

In the current study, we aimed to identify the role of social identity and social support in promoting positive physical and mental health outcomes during the first year of the COVID-19 pandemic. Specifically, we aimed to examine both the role of the continuation of existing identities, and the role of emergent identities, in predicting positive mental and physical health outcomes. To do this, we carried out a longitudinal survey in which we measured key outcomes every 3 months during the first year of the COVID-19 response (May 2020 to April 2021). Responses were collected at four time points, and at each time point, we included measures of social identity (identity continuity, pre-COVID multiple group memberships, number of group memberships, identification with communities, identification with authorities), perceived social support, three mental health outcomes (depression, anxiety, post-traumatic growth) and two physical health outcomes (physical symptoms, perceived health).

We hypothesized that increased social support would be predicted by both maintenance of existing identities (identity continuity, pre-COVID multiple group memberships, number of group memberships; Hypothesis 1), and increased identification with emergent groups (identification with communities, identification with authorities; Hypothesis 2). Additionally, we hypothesized that increased social support would predict improved mental and physical health outcomes (Hypothesis 3). We also hypothesized that social support would mediate the relationship between increased social identity (both existing and emergent) and improved physical and mental health outcomes at the same time point (Hypothesis 4). At last, we hypothesized that increased social identity would result in increased social support at the same time point, which would in turn predict improved mental and physical health outcomes at the subsequent time point (Hypothesis 5).

METHODS

Design

We used an online questionnaire with a four-wave longitudinal design: Time 1, initial survey; Time 2, after 3 months; Time 3, after 6 months; and Time 4, after 9 months.

Participants and procedure

Participants were recruited using social media advertising between 28th May and 18th July 2020 (T1). Participants were eligible if they were over 16 years old, spoke fluent English and resided in the UK. A priori G*Power (Faul et al., 2007) analysis indicated a sample size of 149 was required to yield a small-to-medium effect size (80% power, alpha of .05, for five predictors). We wanted to recruit more participants than this to account for dropouts over the four time points. At T1, we recruited 460 partic-

TABLE 1 Participants demographics at each time point

	Time 1, *n* = 443		Time 2, *n* = 235		Time 3, *n* = 243		Time 4, *n* = 209	
	n	**%**	***n***	**%**	***n***	**%**	***n***	**%**
Age								
16–24	47	10.6	8	7.7	11	4.5	10	4.8
25–34	79	17.8	34	14.5	35	14.4	25	12.0
35–44	105	23.7	51	21.7	52	21.4	36	17.2
45–54	95	21.4	51	21.7	54	22.2	53	25.4
55–64	85	19.2	59	25.1	65	26.7	55	26.3
65–74	29	6.5	19	8.1	23	9.5	27	12.9
75+	3	0.7	3	1.3	3	1.2	3	1.4
Gender								
Woman	350	79.9	186	80.2	190	78.8	166	79.8
Man	86	19.6	44	19.0	51	21.1	40	19.2
Prefer not to say	2	0.5	2	0.9	0	0	1	1.0
Employment								
Higher managerial	62	14.0	42	18.6	42	18.0	37	18.2
Intermediate managerial	158	35.7	85	37.6	94	40.3	71	35.0
Junior managerial	123	27.8	67	29.6	58	24.9	66	32.5
Skilled manual worker	24	5.4	7	3.1	11	4.7	9	4.4
Semi-skilled manual worker	26	5.9	10	4.4	11	4.7	8	3.9
Unemployed	8	1.8	5	2.2	11	4.7	4	2.0
Student	10	2.3	5	2.2	1	0.4	2	1.0
Retired	4	0.9	5	2.2	5	2.1	6	3.0

ipants, and 17 participants were removed for not giving an email address, leaving a final sample of 443. Approximately three months later (T2: 3rd September–16th October 2020), all participants were invited to complete the second survey. At T2, we received 235 responses. Approximately another three months later (T3: 18th December 2020–6th January 2021), 243 participants completed the third survey. At last, another three months later (T4: 8th April 2021–28th April 2021), 206 completed the final survey. See Table 1 for an overview of participant demographics at each wave.

Participants completed the study online through Select Survey. In exchange for their participation, participants were entered into a prize draw each time they completed the survey and provided their email address. At each time point, participants had the opportunity to win high street gift vouchers (one participant won £500, two participants won £250). Participants were entered into the prize draw each time they completed the survey. At T1 participants completed measures relating to the types of groups they identified with, the number of groups they identified with, the continuity of their identities from before COVID-19 to present, their identification with authorities, their identification with their community, their perceived social support, their physical health (perceived health and physical symptoms) and their mental health (depression, anxiety and post-traumatic growth). At T2, T3 and T4, participants who had completed T1 were contacted via email, asking them to complete the next wave of the survey. Participants were sent the initial email, and two email reminders, before being excluded from that wave of the study. All participants who took part at T1 were emailed to complete each subsequent wave of the survey, whether they had completed the previous wave or not. The only exception to this was when a participant specifically requested not to receive further survey invites. At T2, T3 and T4, the survey included similar measures to T1 relating to number and type of groups identified with, identity continuity, identifica-

TABLE 2 Restrictions at each wave

	T1 (May–July 2020)	T2 (September–October 2020)	T3 (December 2020–January 2021)	T4 (April 2021)
Stay at home order	No	No	Dependant on local tier	No but recommended
School closure	Partial	No	No	No
Household mixing outdoors	Yes (with restrictions)	Yes (with restrictions)	Dependant on local tier	Yes (with restrictions)
Household mixing indoors	From 4th July 2020 with restrictions	Yes (with restrictions)	Dependant on local tier	No
Non-essential shop closure	No	No	Dependant on local tier	Opened 12th April
Restaurant closure	Re-opened 4th July 2020	No (with time restrictions)	Dependant on local tier	Opened 12th April
Public events cancelled	Yes	Yes	Yes	Yes

tion with authorities, identification with communities, perceived social support, perceived health, physical symptoms, depression, anxiety and post-traumatic growth.

At all four time points COVID-19 restrictions were in place in the United Kingdom (Tatlow et al., 2020): see Table 2 for an overview. At T1, lockdown restrictions were easing as people could meet outside with a restriction on numbers and non-essential shops could open, but meeting others indoors was still not possible and large public events were cancelled. At T2, while restrictions were easing, there were some restrictions in place on the number of people that could meet, as well as restrictions on opening hours of restaurants, and the cancellation of large public events. At T3, regional restrictions were in place that required those in some areas to stay at home. At T4, lockdown restrictions were beginning to ease across the UK.

Materials

See Table 3 for an overview of descriptive statistics and internal reliability estimates for measures at each wave.

Identity continuity

We assessed the extent to which participants had maintained their pre-COVID-19 identities through an adapted version of the maintenance of group membership scale (Haslam et al., 2008). The scale includes four items (e.g. "I still join in the same group activities as I did before the start of the COVID-19 pandemic"), which were measured on a scale from 1 (Do not agree at all) to 7 (Completely agree).

Pre-COVID multiple group membership

We used an adapted version of Haslam et al.'s (2008) multiple group membership scale to measure the extent to which participants belonged to multiple groups before COVID-19. The scale includes four items (e.g. "Before the COVID-19 pandemic, I had strong ties with lots of different groups") that were rated on a scale from 1 (Do not agree at all) to 7 (Completely agree).

Social support

Social support was measured using an adapted measure of the four-item social isolation scale (Reicher & Haslam, 2006) that included items such as "Do you have someone close in whom you can confide?". We

TABLE 3 Descriptive statistics and reliability estimates at each time point

	T1			T2			T3			T4		
	M	*SD*	α	*M*	*SD*	α	*M*	*SD*	α	*M*	*SD*	α
Identity continuity	4.07	1.61	.83	4.54	1.75	.89	4.17	1.65	.82	4.37	1.72	.87
Identification with communities	4.03	1.58	.80	3.97	1.46	.76	4.03	1.50	.82	3.97	1.37	.89
Identification with authorities	3.61	1.66	.93	3.47	1.54	.92	3.89	1.68	.90	3.93	1.57	.90
Pre-COVID multiple group membership	3.71	1.83	.95									
Number of group Membership	1.62	1.86		2.19	1.52		2.28	1.55		2.16	1.49	
Depression	15.9	5.61	.89	15.7	6.74	.93	15.5	5.65	.89	14.9	5.68	.90
Anxiety	12.8	5.36	.92	12.5	5.83	.94	12.1	5.24	.92	11.7	5.14	.92
Post-traumatic growth	26.4	9.98	.88	25.4	10.7	.90	24.7	9.67	.88	25.2	9.96	.90
Perceived health	3.67	1.00		3.64	1.01		3.62	1.10		3.68	0.98	
Physical symptoms	24.0	6.98	.81	23.7	7.46	.84	24.0	7.22	.83	23.7	7.21	.82
Social support	5.37	1.17	.88	5.31	1.21	.88	5.39	1.24	.90	5.24	1.25	.90

also used the four-item social support scale (Haslam et al., 2005) that included questions such as "Do you get the emotional support you need from other people?". All items were rated on a scale from 1 (Not at all) to 7 (Completely). The two scales were combined due to an exploratory factor analysis identifying one factor (eigenvalue >1) and high Cronbach's alpha (a = .88–.90).

Number of group memberships

As in Haslam et al. (2008), participants were asked to list the groups they currently belonged to. We then computed the number of groups that participants belonged to.

Identification with authorities and communities

We adapted previous identification measures (Carter et al., 2015) to measure identification with authorities and identification with communities. Two-items were used to measure identification with authorities ("I identify with the national authorities who are managing the COVID-19 pandemic"; "I identify with the local authorities who are managing the COVID-19 pandemic") and identification with communities ("I identify with others in my local community"; "I feel strong ties with others in my local community"). Both scales were rated on a scale from 1 (Strongly disagree) to 7 (Strongly agree).

Depression

Depression was measured using the 9-item Patient Health Questionnaire (PHQ-9; Kroenke et al., 2001), in which participants rate the frequency of depression symptoms, for example "Feeling down, depressed or hopeless." The items were rated on a scale from 0 (Not at all) to 3 (Nearly every day).

Anxiety

Anxiety was measured using the 7-item Generalized Anxiety Disorder Assessment (GAD-7; Spitzer et al., 2006). This included symptoms such as "Not being able to stop or control worrying" and was measured on a scale from 0 (Not at all) to 3 (Nearly every day).

Post-traumatic growth

Post-traumatic growth was measured using the 10-item post-traumatic growth inventory short form (PTGI-SF; Cann et al., 2010). Participants rated items (e.g. "I have greater appreciation for the values of my own life") on a scale from 0 (Not at all) to 6 (A very great amount).

Physical symptoms

Physical symptoms were measured using the 13-item version of the physical symptom inventory (PSI; Spector & Jex, 1998). The PSI measures 13 symptoms over the past 30 days (such as "An upset stomach or nausea"). Participants rated these symptoms on a scale from 1 (Not at all) to 5 (Everyday).

Perceived physical health

Participants also rated their perceived health on a scale from 1 (Very Unhealthy) to 5 (Very Healthy).

RESULTS

Missing data analysis

Chi-square analyses were conducted to compare the age, gender and occupations of people who completed all waves versus those who did not complete all waves. There was no difference in gender ($p = .993$) and income ($p = .465$) between those who completed all waves and those who did not. Age did significantly differ between those who completed all waves versus those who did not, $X^2(6) = 22.33$, $p < .01$, with older adults more likely to complete all waves. Then, to assess if any of the data was missing at random, we performed a Little's MCAR test. We ran the test on the variables of identity continuity, identification with communities, identification with authorities, group membership, social support, depression, anxiety, post-traumatic growth, perceived health and health symptoms (at all waves). The result was non-significant, $X^2(28) = 25.99$, $p = .574$, suggesting that the missing data was random.

Predictors of social support

To test Hypotheses 1 and 2, we conducted regression analyses for each of the four time points to identify identity-related predictors of social support. For each time point, we entered identity continuity, identification with communities, identification with authorities, pre-COVID multiple group membership (only T1) and group membership as predictors of social support; all variables were from the same time point (see Table 4).

At *T*1, identification with community, identification with authorities and pre-COVID multiple group membership all positively predicted social support, with the strongest predictor being pre-COVID multiple group membership. The overall model accounted for 18.5% of the variance in social support ($F = 17.3$, $p < .001$). At *T*2, identity continuity positively predicted social support, with the overall model accounting for 11.6% of the variance in social support ($F = 5.88$, $p < .001$). At *T*3, identification with communities and group membership positively predicted social support, with the strongest predictor being identification with communities. The overall model accounted for 17.4% of the variance in social

TABLE 4 Predictors of social support at each time point

	T1 social support		T2 social support		T3 social support		T4 social support	
	B	**95% CI**	***β***	**95% CI**	***β***	**95% CI**	***β***	**95% CI**
Identity continuity	0.06	(−0.04, 0.16)	.22**	(0.06, 0.38)	.15	(−0.01, 0.30)	.17	(−0.00, 0.34)
Identification with communities	0.16**	(0.05, 0.27)	.15	(−0.02, 0.31)	.29**	(0.09, 0.41)	.25**	(0.07, 0.43)
Identification with authorities	0.15**	(0.05, 0.25)	.07	(−0.09, 0.23)	.15	(−0.01, 0.31)	.05	(−0.12, 0.22)
Number of group membership	0.01	(−0.10, 0.12)	.14	(−0.02, 0.29)	.15*	(0.00, 0.30)	.04	(−0.13, 0.20)
Pre-COVID multiple group membership	0.28**	(0.17, 0.39)						
Adjusted R^2	.185		.116		.174		.110	
p	<.001		<.001		<.001		<.001	
F	17.3		5.88		9.03		5.07	

Note: Values are standardized regression *β*-coefficients. *$p < .05$, **$p < .01$.

support ($F = 9.03$, $p < .001$). At *T*4, identification with communities positively predicted social support, with the overall model accounting for 11% of the variance in social support ($F = 5.07$, $p < .001$).

Does social support predict mental and physical health?

To test Hypothesis 3, we then used a series of regression models with social support as the predictor and the separate mental and physical health outcome variables of depression, anxiety, post-traumatic growth, physical symptoms, and perceived health; all variables were from the same time point (see Table 5). At each time point, increased social support predicted reduced depression, anxiety and physical symptoms, and increased post-traumatic growth and perceived health.[1]

Does identity predict mental and physical health through social support?

To test Hypotheses 4 and 5, we then assessed whether identity continuity or identification with communities predicted mental and physical health through social support, using Amos 26. We conducted cross lagged path analysis using a model that integrated paths between variables across time points, see Figure 1 for the model. We created a separate model for each of the five health outcomes (depression, anxiety, post-traumatic growth, physical symptoms, perceived health). We entered both identity continuity and identification with communities as predictors in each of the models, as these were consistently the strongest predictors of social support. While pre-COVID multiple group membership was a strong predictor of social support at T1, this was not measured at other time points, and it was therefore not possible to include this in the cross lagged models.

The models examined the impact of identity continuity and identification with communities on each health outcome, with social support as a mediator at the same time point, while taking into account the role of social support and health outcomes at the previous time point. It was predicted that the identity variables would result in increased social support at the same time point, which would in turn predict mental and physical health outcomes at the same (Hypothesis 4), and the subsequent (Hypothesis 5), time

[1]We also assessed age and gender differences in mental and physical wellbeing through ANOVAs and *t*-tests. We found main effects of age on physical symptoms, depression, anxiety and post-traumatic growth. We found gender differences on physical symptoms, depression, anxiety, post-traumatic growth and perceived health. See Supporting Information for statistics.

TABLE 5 Social support as predictors of mental and physical health at each wave

	Depression		Anxiety		Post-traumatic growth		Physical symptoms		Perceived health	
	β	**95% CI**	***β***	**95% CI**	***β***	**95% CI**	***β***	**95% CI**	***β***	**95% CI**
T1 social support	−.41***	(−0.50, −0.31)	−.30***	(−0.39, −0.20)	.26***	(0.16, 0.36)	−.23***	(−0.33, −0.13)	.28***	(−0.18, −0.18)
Overall										
Adjusted R^2	.16		.08		.06		.05		.07	
F	72.5		34.8		26.2		19.6		30.8	
p	<.001		<.001		<.001		<.001		<.001	
T2 social support	−0.44***	(−0.57, −0.32)	−0.32***	(−0.45, −0.18)	0.18*	(0.04, 0.32)	−0.22**	(−0.36, −0.08)	0.27***	(−0.41, −0.13)
Overall										
Adjusted R^2	.19		.10		.26		.04		.07	
F	47.5		21.7		6.38		9.55		15.3	
p	<.001		<.001		.012		.002		<.001	
T3 social support	−0.41***	(−0.53, −0.28)	−0.32***	(−0.45, −0.19)	0.25***	(0.12, 0.38)	−0.28***	(−0.41, −0.14)	0.27***	(−0.41, −0.14)
Overall										
Adjusted R^2	.16		.10		.06		.07		.07	
F	41.5		24.1		13.7		16.9		16.6	
p	<.001		<.001		<.001		<.001		<.001	
T4 social support	−0.51***	(−0.64, −0.38)	−0.35***	(−0.49, −0.21)	0.25**	(0.10, 0.39)	−0.27***	(−0.42, −0.13)	0.22**	(−0.37, −0.07)
Overall										
Adjusted R^2	.25		.12		.05		.07		.04	
F	59.8		23.9		11.1		13.4		8.91	
p	<.001		<.001		.001		<.001		.003	

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

points. These models therefore enabled the mediating role of social support between social identity variables and health outcomes to be explored, while taking into account the role of social support and mental and physical health outcomes at the previous time point. The models also included an assessment of the bidirectional association between social identities (identity continuity and identification with communities) across time points. The results for each of the five path models are reported below. All estimates reported are standardized estimates.

Depression

The findings for the depression model (see Figure 2) show that the hypothesized model fitted the data adequately, $x^2(71) = 242.83$, $p < .001$, CFI = .91, RMSEA = .07 (90% CI [0.06, 0.08]). In addition, the R of each endogenous variable ranged between 0.11 and 0.71.

For *T*1, increased identification with communities predicted greater social support ($\beta = .28$, $p < .001$), in turn increased social support predicted reduced depression ($\beta = -.40$, $p < .001$). Cross lagged paths show, T1

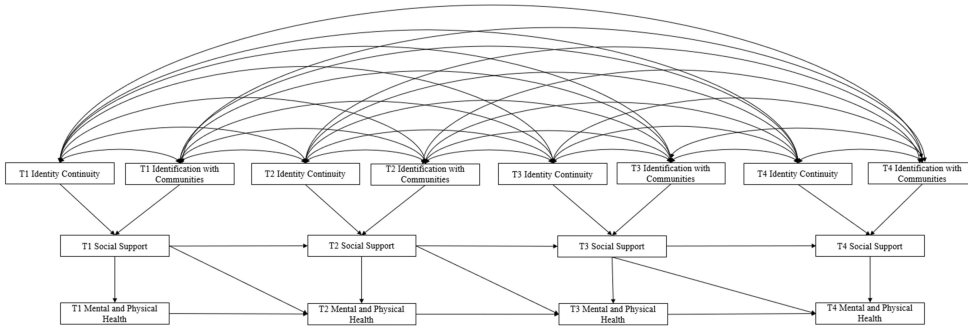

FIGURE 1 Cross lagged model of social identity, social support, and health.

social support predicted increased T2 social support ($\beta = .76, p < .001$) and increased T2 depression ($\beta = .31$, $p < .001$). In addition, T1 depression predicted T2 depression ($\beta = .74, p < .001$). At *T*2, there was a significant path between identity continuity and social support ($\beta = .16, p < .001$), in turn social support predicted reduced depression ($\beta = -.41, p < .001$). Then, cross lagged effects show significant paths between T2 social support and T3 social support ($\beta = .81, p < .001$) and between T2 depression and T3 depression ($\beta = .73$, $p < .001$). At *T*3, there were significant paths between identity continuity and social support ($\beta = .09, p < .05$), and in turn social support and reduced depression ($\beta = -.18, p < .05$). Cross lagged effects show significant paths between T3 social support and T4 social support ($\beta = .81, p < .001$), and T3 depression and T4 depression ($\beta = .78, p < .001$). At *T*4, there were significant paths between identification with communities and social support ($\beta = .10, p < .001$), and in turn social support and reduced depression ($\beta = -.32, p < .001$).

The model showed non-significant paths between: T1 identity continuity and T1 social support ($\beta = .10, p = .062$); T2 identification with communities and T2 social support ($\beta = .01, p = .856$); T3 identification with communities and T3 social support ($\beta = .05, p = .257$); T2 social support to T3 depression ($\beta = .08, p = .415$); T3 social support and T4 depression ($\beta = .16, p = .063$); T4 identity continuity with T4 social support ($\beta = .01, p = .922$).

Anxiety

The findings for the anxiety model (see Figure 3) show that the hypothesized model fitted the data adequately, $x^2(71) = 223.42, p < .001$, CFI = .92, RMSEA = .07 (90% CI [0.06, 0.08]). In addition, the R of each endogenous variable ranged between 0.11 and 0.78.

For *T*1, increased identification with communities predicted greater social support ($\beta = .28, p < .001$), and in turn increased social support predicted reduced anxiety ($\beta = -.28, p < .001$). Cross lagged paths show that T1 social support predicted increased T2 social support ($\beta = .76, p < .001$) and increased T2 anxiety ($\beta = .19, p < .05$). In addition, T1 anxiety predicted T2 anxiety ($\beta = .74, p < .001$). At *T*2, there was a significant path between identity continuity and social support ($\beta = .17, p < .05$), and in turn social support predicted reduced anxiety ($\beta = -.27, p < .001$). Then, cross lagged effects show significant paths between T2 social support and T3 social support ($\beta = .81, p < .001$) and between T2 anxiety and T3 anxiety ($\beta = .75, p < .001$). At *T*3, there were significant paths between identity continuity and increased social support ($\beta = .09, p < .05$). Cross lagged effects show significant paths between T3 social support and T4 social support ($\beta = .81, p < .001$), and T3 anxiety and T4 anxiety ($\beta = .87, p < .001$). At *T*4, there were significant paths between identification with communities and increased social support ($\beta = .10, p < .001$), and in turn increased social support and reduced anxiety ($\beta = -.15, p < .05$).

However, the model showed non-significant paths between: T1 identity continuity and T1 social support ($\beta = .09, p = .064$); T2 identification with communities and T2 social support ($\beta = .00, p = .932$); T3 identification with communities and T3 social support ($\beta = .05, p = .228$); T2 social support and T3

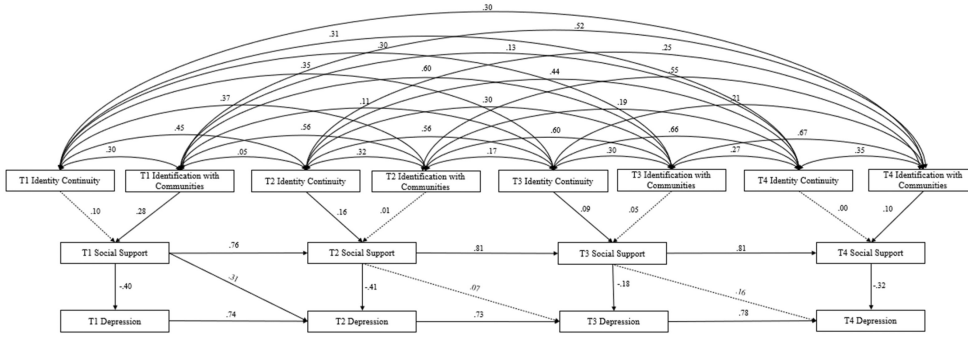

FIGURE 2 Cross lagged model of social identity and social support on depression. *Note*: Solid lines show significant ($p < .05$) paths and dashed lines shown non-significant paths.

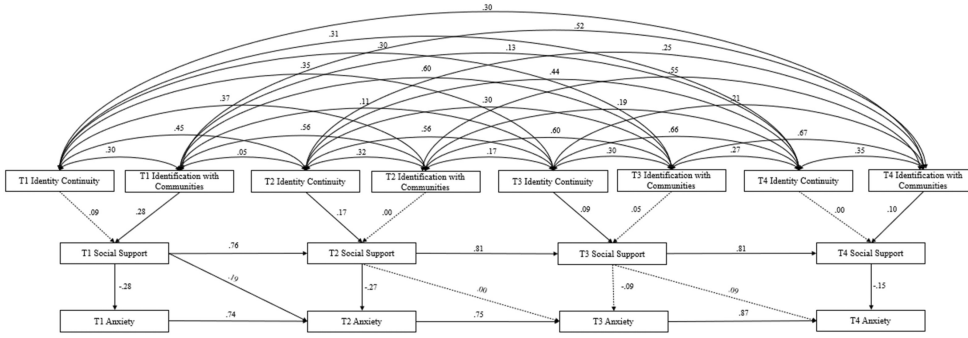

FIGURE 3 Cross lagged model of social identity and social support on anxiety. *Note*: Solid lines show significant ($p < .05$) paths and dashed lines shown non-significant paths.

anxiety ($\beta = -.08$, $p = .094$); T3 social support and T4 anxiety ($\beta = .09$, $p = .239$); T3 social support and T3 anxiety ($\beta = -.08$, $p = .310$); T4 identity continuity and T4 social support ($\beta = .00$, $p = .980$).

Post-traumatic growth

The findings for the post-traumatic growth model (see Figure 4) show that the hypothesized model fitted the data adequately, $x^2(71) = 304.26$, $p < .001$, CFI = .87, RMSEA = .09 (90% CI [0.08, 0.10]). In addition, the R of each endogenous variable ranged between 0.07 and 0.70.

For *T*1, increased identification with communities predicted greater social support ($\beta = .28$, $p < .001$), and in turn increased social support predicted greater post-traumatic growth ($\beta = .26$, $p < .001$). Cross lagged paths show a significant path between T1 social support and T2 social support ($\beta = .76$, $p < .001$). In addition, T1 post-traumatic growth predicted T2 post-traumatic growth ($\beta = .71$, $p < .001$). At *T*2, there was a significant path between identity continuity and social support ($\beta = .16$, $p < .001$). Then, cross lagged effects show significant paths between T2 social support and T3 social support ($\beta = .80$, $p < .001$) and between T2 post-traumatic growth and T3 post-traumatic growth ($\beta = .70$, $p < .001$). At *T*3, there were significant paths between identity continuity and social support ($\beta = .11$, $p < .05$). Cross lagged effects show significant paths between T3 social support and T4 social support ($\beta = .81$, $p < .001$), and T3 post-traumatic growth and T4 post-traumatic growth ($\beta = .70$, $p < .001$). At *T*4, there was a significant path between identification with communities and social support ($\beta = .10$, $p < .05$).

The model showed non-significant paths between: T1 identity continuity and T1 social support ($\beta = .10$, $p = .062$); T2 identification with communities and T2 social support ($\beta = .01$, $p = .879$); T2 social support

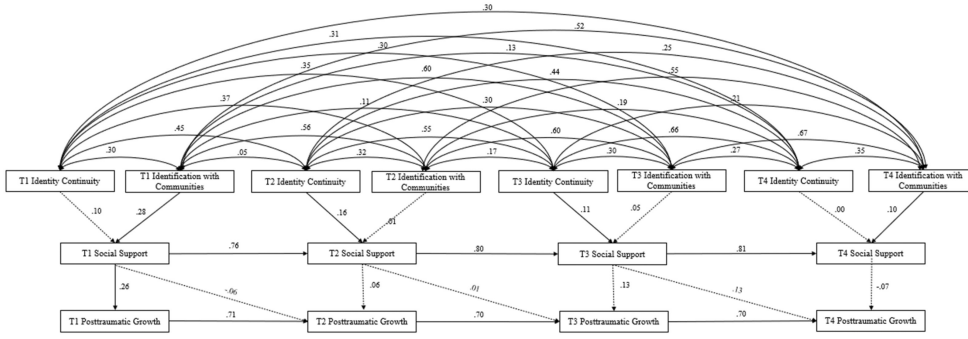

FIGURE 4 Cross lagged model of social identity and social support on post-traumatic growth. *Note*: Solid lines show significant ($p < .05$) paths and dashed lines shown non-significant paths.

and T2 post-traumatic growth ($\beta = .06$, $p = .474$); T1 social support and T2 post-traumatic growth ($\beta = -.06$, $p = .443$); T3 identification with communities and T3 social support ($\beta = .05$, $p = .252$); T3 social support and T3 post-traumatic growth ($\beta = .13$, $p = .153$); T2 social support and T3 post-traumatic growth ($\beta = .01$, $p = .910$); T4 identity continuity and T4 social support ($\beta = .00$, $p = .993$); T3 social support and T4 post-traumatic growth ($\beta = .13$, $p = .239$); T4 social support and T4 post-traumatic growth ($\beta = -.07$, $p = .531$).

Physical symptoms

The findings for the physical symptoms model (see Figure 5) show that the hypothesized model fitted the data adequately, $x^2(71) = 233.87$, $p < .001$, CFI = .92, RMSEA = .07 (90% CI [0.06, 0.08]). In addition, the R of each endogenous variable ranged between 0.06 and 0.77.

For *T*1, increased identification with communities predicted greater social support ($\beta = .28$, $p < .001$), and in turn increased social support predicted fewer physical symptoms ($\beta = -.24$, $p < .001$). Cross lagged paths show that T1 social support predicted increased T2 social support ($\beta = .76$, $p < .001$) and increased T2 physical symptoms ($\beta = .18$, $p < .01$). In addition, T1 physical symptoms predicted T2 physical symptoms ($\beta = .81$, $p < .001$). At *T*2, there was a significant path between identity continuity and social support ($\beta = .16$, $p < .001$), and in turn social support predicted fewer physical symptoms ($\beta = -.22$, $p < .001$). Then, cross lagged effects show significant paths between T2 social support and T3 social support ($\beta = .81$, $p < .001$) and between T2 physical symptoms and T3 physical symptoms ($\beta = .83$, $p < .001$). At *T*3, there was a significant path between identity continuity and social support ($\beta = .09$, $p < .01$). Cross lagged effects show significant paths between T3 social support and T4 social support ($\beta = .81$, $p < .001$), and T3 physical symptoms and T4 physical symptoms ($\beta = .85$, $p < .001$). At *T*4, there was a significant path between identification with communities and increased social support ($\beta = .09$, $p < .05$).

The model showed non-significant paths between: T1 identity continuity and T1 social support ($\beta = .10$, $p = .064$); T2 identification with communities and T2 social support ($\beta = .01$, $p = .917$); T2 social support and T3 physical symptoms ($\beta = -.08$, $p = .284$); T3 identification with communities and T3 social support ($\beta = .05$, $p = .252$); T3 social support and T3 physical symptoms ($\beta = .02$, $p = .791$); T3 social support and T4 physical symptoms ($\beta = .02$, $p = .761$); T4 identity continuity and T4 social support ($\beta = .00$, $p = .951$); T4 social support and T4 physical symptoms ($\beta = -.13$, $p = .097$).

Perceived health

The findings for the perceived health model (see Figure 6) show that the hypothesized model fitted the data adequately, $x^2(71) = 220.40$, $p < .001$, CFI = .92, RMSEA = .07 (95% CI [0.06, 0.08]). In addition, the R of each endogenous variable ranged between 0.07 and 0.70.

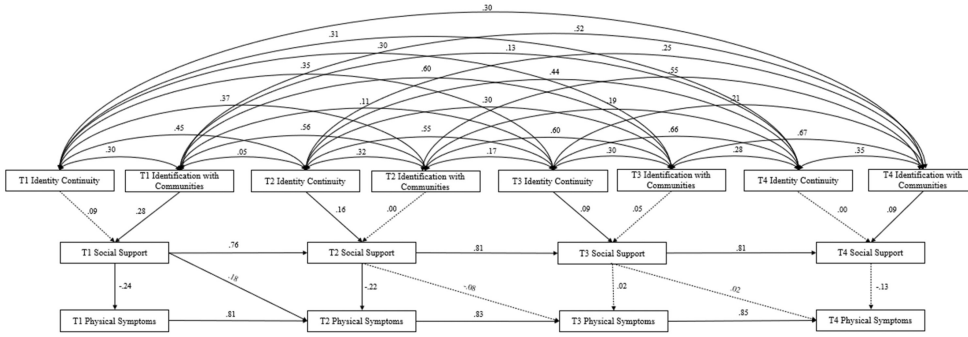

FIGURE 5 Cross lagged model of social identity and social support on physical symptoms. *Note*: Solid lines show significant ($p < .05$) paths and dashed lines shown non-significant paths.

At *T*1, increased identification with communities predicted greater social support ($\beta = .28, p < .001$), and in turn increased social support predicted increased perceived health ($\beta = .27, p < .001$). Cross lagged paths show, T1 social support predicted increased T2 social support ($\beta = .76, p < .001$) and reduced T2 perceived health ($\beta = -.19, p < .05$). In addition, T1 perceived health predicted T2 perceived health ($\beta = .68, p < .001$). The results from *T*2, show there was a significant path between identity continuity and social support ($\beta = .17, p < .001$), and in turn social support predicted greater perceived health ($\beta = .29, p < .001$). Then, cross lagged effects show significant paths between T2 social support and T3 social support ($\beta = .80, p < .001$) and between T2 perceived health and T3 perceived health ($\beta = .68, p < .001$). At *T*3, there was a significant path between identity continuity and social support ($\beta = .09, p < .05$). Cross lagged effects show significant paths between T3 social support and T4 social support ($\beta = .81, p < .001$), and T3 perceived health and T4 perceived health ($\beta = .79, p < .001$). At *T*4, there was a significant path between identification with communities and increased social support ($\beta = .10, p < .05$).

The model showed non-significant paths between: T1 identity continuity and T1 social support ($\beta = .10, p = .061$); T2 identification with communities and T2 social support ($\beta = .01, p = .883$); T2 social support and T3 perceived health ($\beta = .04, p = .720$), T3 identification with communities and T3 social support ($\beta = .05, p = .212$), T3 social support and T4 perceived health ($\beta = -.01, p = .882$), T3 social support and T3 perceived health ($\beta = .04, p = .675$), T4 identity continuity and T4 social support ($\beta = .00, p = .998$), and T4 social support and T4 perceived health ($\beta = .05, p = .568$).

DISCUSSION

Beginning in March 2020, physical distancing and lockdown restrictions were introduced to reduce COVID-19 transmission in the United Kingdom. These COVID-19 restrictions threaten people's access to their social group resources (Jetten et al., 2020; van Bavel et al., 2020) and have had a negative impact on mental health (Ford, 2021; Marroquín et al., 2020). Given research concerning the social identity approach to health, we suggest these findings may be related; specifically, that social identity may predict mental and physical health, through social support (Bailis et al., 2008; McNamara et al., 2021). To assess this, we conducted a longitudinal survey-based study. We examined whether social support was predicted by existing identities (Hypothesis 1) and identification with emerging groups (Hypothesis 2). We also examined the impact of social support on mental and physical health outcomes (Hypothesis 3). At last, we assessed whether social identity would result in increased social support at the same time point, in turn predicting mental and physical health outcomes at the same time point (Hypothesis 4) and at the subsequent time point (Hypothesis 5). Findings are discussed under each hypothesis, below.

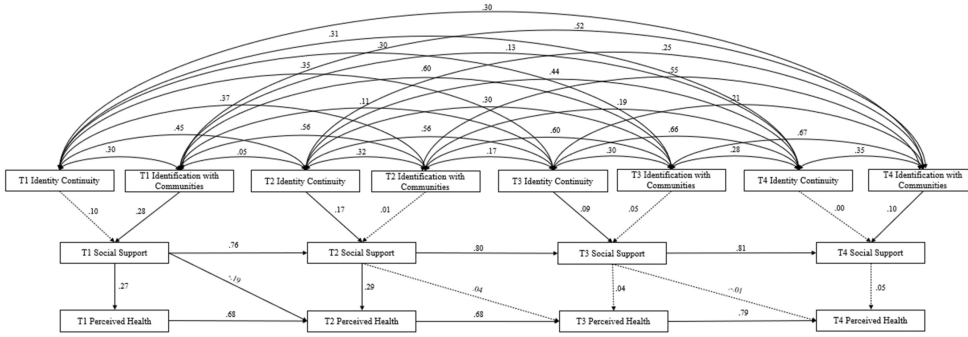

FIGURE 6 Cross lagged model of social identity and social support on perceived health. *Note*: Solid lines show significant ($p < .05$) paths and dashed lines shown non-significant paths.

Does social identity predict social support?

We found that, at each wave, social identity contributed to perceptions of social support. The strongest predictors of social support included pre-COVID multiple group membership (T1), identity continuity (T2) and identification with communities (T3, T4). We therefore found support for Hypotheses 1 and 2 as both emergent identities (identification with communities) and existing identities (pre-COVID multiple group memberships, number of group memberships, identity continuity) predicted increased perceptions of social support. Our findings relating to the role of emergent identities in predicting social support are in line with previous research findings which have shown that identification with communities predicted current and future perceived support, and in turn receipt and provision of support, during the COVID-19 pandemic (Stevenson et al., 2021). Our findings are also in line with research into other types of disasters (e.g. flooding), which has shown that higher identification with communities and other survivors predicted higher expectancies of help (Drury et al., 2016; Ntontis, Drury, Amlôt, Rubin, & Williams, 2020). An emphasis on collective identities during the COVID-19 pandemic has also been suggested to increase individuals' sense of control and in turn result in a more effective response (Greenaway, 2020). We also found that identification with authorities was a predictor of social support at T1. This is in line with previous research which suggests that, during emergencies, those affected may identify with authorities managing the incident (Carter et al., 2020), and that such identification may result in positive outcomes (Carter et al., 2015).

Our findings relating to the role of existing identities in predicting increased perceptions of social support are also consistent with previous research, which demonstrates that having more social identities predicts giving and receiving of support during a life changing event (e.g., retirement; Haslam et al., 2008; Praharso et al., 2017., Steffens et al., 2016).

Our findings, therefore, contribute to a growing body of research that demonstrates the role of social identification in enhancing perceptions of social support (Haslam et al., 2009, 2016; Jetten et al., 2012), and in ensuring that support is perceived as intended (Drury et al., 2016; Haslam et al., 2018; Iyer et al., 2009; Levine et al., 2005). While research has assessed the role of identity continuity in predicting improved health outcomes (Haslam et al., 2008), we are not aware of any research examining the role of identity continuity in predicting increased social support. In this respect, our findings extend previous research by demonstrating that an increased perception of social support is one of the mechanisms by which identity continuity may improve mental and physical health outcomes.

Does social support predict better mental and physical health outcomes?

We found support for Hypothesis 3 that social support would predict more positive health outcomes, with social support predicting improved outcomes on all five aspects of mental and physical health (depres-

sion, anxiety, post-traumatic growth, physical symptoms, and perceived health) at every time point. Our findings are in line with previous research that demonstrates that social support has consistently been shown to increase wellbeing, improve physical health, and reduce psychological distress during times of stress (for a review see Taylor, 2011), as well as being associated with increased wellbeing and reduced depression during the COVID-19 pandemic (Chen et al., 2021; Grey et al., 2020; Simon et al., 2021).

The impact of identity on health through social support

We found support for Hypothesis 4 that social support would mediate the relationship between increased social identity (identity continuity and identification with communities) and improved physical and mental health outcomes at the same time point. For all five health outcomes, we found that at T1, identification with communities predicted more positive health outcomes, mediated by increased social support. We also found that at T2, for four of the five health outcomes (depression, anxiety, physical symptoms, and perceived health) identity continuity predicted improved outcomes, mediated by increased social support. We therefore found that, at T1, emergent identities (identification with communities) predicted the social support that resulted in improved health outcomes. Our results support previous findings relating to the role of emergent identities in fostering social support during disasters and emergencies (Drury et al., 2009; Ntontis et al., 2018). Our findings are also in line with previous research which has shown that increased community identification predicted less depression (Vignoles et al., 2021), reduced anxiety, and improved wellbeing (Bowe et al., 2022) during the COVID-19 pandemic, and that increased community identification results in increased giving and receiving of pandemic-related support, mediated by perceptions of community support (Stevenson et al., 2021).

However, while emergent identities appeared to play a key role in facilitating social support and improving health outcomes at T1, by T2, pre-existing identities (identity continuity) were key to shaping more positive health outcomes, mediated by social support. The role of existing identities in shaping health outcomes is in line with findings from previous research which indicates that the maintenance of group memberships is associated with increased wellbeing while a reduction in group memberships is associated with worse mental health (Haslam et al., 2008, 2014; Seymour-Smith et al., 2017). The increased importance of pre-existing identities (as opposed to emergent identities) at T2 is likely to be due to the evolution of the pandemic, and the substantial change in societal restrictions from T1 (May–July 2020) to T2 (September–October 2020). At T1, the UK had been under heavy restrictions for at least two months, which were only just beginning to lift. However, by T2, the most severe restrictions had been lifted for over two months, and the public could (largely) resume their normal activities. This may explain why the emergent identities, which played such a key role in shaping social support and promoting positive health outcomes early on in the pandemic became less important, and the role of pre-existing identities became more important, 6 months into the pandemic.

The cross-lagged path models therefore showed that social support at T1 and T2 predicted improved health outcomes at the same time point, consistent with the results relating to Hypothesis 3. However, we also found that for four out of the five outcomes (depression, anxiety, physical symptoms, perceived health) increased social support at T1 predicted reduced health outcomes at T2; Hypothesis 5 was therefore not supported. As described above, this may in part be due to the substantial changes in societal restrictions which occurred between T1 and T2. Those whose identity-based social support was garnered from emergent identities at T1 may have more strongly adopted the norms associated with the 'new' normal (WHO, 2020). While this would have had a positive impact whilst such norms were in line with authorities' guidance and others' behaviour (T1), it may have had a negative impact once society reopened (T2), since the norms associated with their emergent identity (and the social support fostered by this) would now be out of step with the norms and values of others within society. Indeed, 'reopening anxiety' was a concern for many people when restrictions were lifted (NHS, n.d.). For those who identified more strongly with emergent groups and drew their social support from this during the initial lockdown, the reopening may therefore have been associated with greater anxiety (and other associated negative health outcomes). While unexpected, this finding is in line with previous research which shows that social iden-

tities can have a negative, as well as positive, effect on health-related outcomes (Cruwys et al., 2020), and demonstrates the importance of understanding the norms associated with both emergent and pre-existing identities when examining the role of identity-based social support in predicting health outcomes.

At T3 and T4, we found consistent evidence for the role of identity-based social support in predicting more positive mental health outcomes (depression [T3, T4], anxiety [T3]) but did not find support for the same impact on physical health outcomes (physical symptoms, perceived health). Interestingly, at T3, social support was driven by pre-existing identities (identity continuity), while at T4, social support was driven by emergent identities (identification with communities); this held true even for those variables which demonstrated no relationship between social support and health outcomes (perceived health, physical symptoms, post-traumatic growth). This again may be due to the changing societal restrictions at these time points. At T3 (December 2020–January 2021), while restrictions were in place, these were fairly light compared to previous lockdown measures, and had only recently (or not yet) been implemented. At T4 (April 2021), similar to T1, lockdown restrictions had been in place for several months. Taken together, these findings suggest that during times of emergency (illustrated in this case by severity of restriction) emergent identities may be key in shaping health outcomes, via social support. However, such emergent identities may not be sustained, or may no longer have the same role in promoting social support, after the immediate emergency. This in line with previous research which has shown that while emergent identities are key to facilitating social support during an emergency, they decline in the post-emergency period, due to a loss of shared fate (Ntontis, Drury, Amlôt, Rubin, & Williams, 2020).

Overall, our results are in line with the social identity approach to health (Haslam et al., 2009, 2016; Jetten et al., 2012), demonstrating that identity-based social support may play a key role in promoting positive health outcomes. While our findings are in line with previous research, they extend existing evidence in two ways. First, we demonstrate the dual role that emergent identities and pre-existing identities may play in shaping health outcomes, via social support, both in the immediate stages of an emergency and afterwards. The longitudinal nature of this study allowed us to better understand how identities may change during an emergency that continues over a period of months or years, and the impact that this change in identity may have on health outcomes. Second, we show that identity-based social support may not always have a positive impact on health outcomes and may at times result in more adverse health outcomes. This therefore highlights the importance of understanding the norms associated with a particular identity when attempting to understand the role of identity-based social support in predicting health outcomes.

Limitations

Despite the compelling nature of our findings, the study does have limitations that must be considered. First, although our sample was diverse in terms of age, at each wave about 80% of participants were women. There are gender differences in wellbeing (Bleidorn et al., 2016) therefore, the results might not reflect the wider population. Additionally, our study was opt-in across four time points with not everyone completing all four time points. This means there could be differences between those who took part and those who did not take part, and also between those who continued to take part in all the waves and those who dropped out. Despite these limitations, our study provides evidence of the role of both existing and emerging identities in shaping health outcomes during COVID-19. By using a longitudinal design, we were able to explore the relationship between identification, social support, and mental and physical health outcomes over time, including exploring the impact of social identity and social support on mental and physical health outcomes at later time points.

CONCLUSION AND IMPLICATIONS

Our research demonstrates the key role of identity-based social support in shaping mental and physical health outcomes during the first year of the COVID-19 pandemic. Importantly, while both existing

identities (identity continuity) and emergent identities (identification with communities) played a role in promoting perceived social support, and thereby enhancing mental and physical health outcomes, at each time point, the role of each type of identity varied throughout the pandemic, possibly due to the changing nature of the emergency and changing societal restrictions. While emergent identities appeared to play a greater role in promoting positive mental and physical health outcomes during times of greatest restriction, at times when restrictions were lifted, existing identities appeared to be more important. Interventions designed to promote enhanced community identification may therefore be most effective during the early, or most severe, stages of an ongoing disaster (such as a pandemic). Such interventions may focus on developing a narrative to strategically invoke collectivity (e.g. Ntontis et al., 2018); an example of this would be the 'all in this together' messaging used early in the COVID-19 pandemic. While such interventions may be particularly important during the early stages of a disaster, community identification also played a role in promoting mental health outcomes later in the pandemic. Thus, emergent identities are likely to continue to play a role in shaping health outcomes at times of greatest severity; this is likely due to the common fate inherent at such times, which has been shown to enhance perceptions of social support (Drury et al., 2009; Ntontis, Drury, Amlôt, Rubin, & Williams, 2020; Ntontis, Drury, Amlôt, Rubin, Williams, & Saavedra, 2020). Consideration should therefore be given to campaigns which aim to enhance community identity outside of the immediate or early stages of a disaster or emergency. As well as enhancing community identity, consideration should also be given to helping people to maintain their existing identities, since both types of identity played a role in promoting positive mental and physical health outcomes. Crucially, our findings show that it is essential to understand when emergent or existing identities are likely to be salient, as well as understanding the norms associated with such identities; such understanding will enable policy makers to work with and foster salient identities, ensuring that these may have the greatest benefit in enhancing perceived social support and improving health outcomes.

AUTHOR CONTRIBUTIONS

Holly Carter: Conceptualization; methodology; supervision; writing – review and editing. **Amelia Dennis:** Formal analysis; software; writing – original draft. **Natalie Williams:** Conceptualization; writing – review and editing. **Dale Weston:** Conceptualization; writing – review and editing.

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CONFLICT OF INTEREST

No competing interests.

DATA AVAILABILITY STATEMENT

The data from this study are available from the corresponding author upon reasonable request.

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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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