Social group memberships protect against future depression, alleviate depression symptoms and prevent depression relapse

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ABSTRACT

A growing body of research suggests that a lack of social connectedness is strongly related to current depression and increases vulnerability to future depression. However, few studies speak to the potential benefits of fostering social connectedness among persons already depressed or to the protective properties of this for future depression trajectories. We suggest that this may be in part because connectedness tends to be understood in terms of (difficult to establish) ties to specific individuals rather than ties to social groups. The current study addresses these issues by using population data to demonstrate that the number of groups that a person belongs to is a strong predictor of subsequent depression (such that fewer groups predicts more depression), and that the unfolding benefits of social group memberships are stronger among individuals who are depressed than among those who are non-depressed. These analyses control for initial group memberships, initial depression, age, gender, socioeconomic status, subjective health status, relationship status and ethnicity, and were examined both proximally (across 2 years, $N = 5055$) and distally (across 4 years, $N = 4087$). Depressed respondents with no group memberships who joined one group reduced their risk of depression relapse by 24%; if they joined three groups their risk of relapse reduced by 63%. Together this evidence suggests that membership of social groups is both *protective* against developing depression and *curative* of existing depression. The implications of these results for public health and primary health interventions are discussed.

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Introduction

Considerable research points to strong and consistent relationships between social connectedness and depression. For example, in a series of studies, Cacioppo et al. (Cacioppo, Fowler, & Christakis, 2009; Cacioppo, Hawkley, & Thisted, 2010; Cacioppo, Hughes, Waite, Hawkley, & Thisted, 2006) have demonstrated that perceived social isolation is a strong longitudinal predictor of depressive symptomatology within general community samples, even when controlling for an array of demographic and social factors that might account for such a link. Furthermore, low social support predicts poor response to depression treatment and early drop-out (Trivedi, Morris, Pan, Grannemann, & Rush, 2005) and low social functioning increases the risk of relapse (Backs-Dermott, Dobson, & Jones, 2010; George,

Blazer, Hughes, & Fowler, 1989; Paykel, Emms, Fletcher, & Rassaby, 1980). There is also evidence that interventions aimed at increasing social interaction can reduce depression symptoms (Cattan, White, Bond, & Learmouth, 2005; Perese & Wolf, 2005). The association between social isolation and depression has proved to be robust, despite considerable variation in the measures that researchers use (e.g., assessing a person's number of friends, intensity of social activity, perceived loneliness; Harpham, Grant, & Thomas, 2002; Kikuchi & Coleman, 2012).

Disappointingly, however, this evidence has had little impact on the clinical practice of health professionals. General practitioners rarely question patients about their social group memberships and typically do not advise them to join more groups. Similarly, psychologists do not routinely prioritize efforts to increase patients' social support. Unfortunately too, prevailing treatments are only moderately successful in ameliorating depression (Elkin et al., 1995).

A recognized weakness of current treatment is its general failure to prevent relapse (Shea et al., 1992), as the lifetime risk of experiencing another episode of depression exceeds 80 per cent (Judd,

1997). Even among patients who receive the gold-standard treatment — comprising a combination of antidepressant medication and cognitive-behavioural therapy — 25 per cent are expected to relapse within two years (Fava, Rafanelli, Grandi, Conti, & Belluardo, 1998). Partly as a result of this, depression remains the leading cause of disability worldwide (World Health Organisation, 2012).

Clearly the gold standard can be improved, and drawing on insights from social connectedness research may provide the critical perspective needed to optimize treatment outcomes. But to do so, practitioners must be convinced of the relevance of such research. Evidence of the negative correlation between social connectedness and depression in largely non-depressed *community* samples may not be particularly relevant to healthcare practitioners, who work in primary healthcare environments with patients experiencing acute symptoms. There is also a need for evidence of the *curative*, and not only the preventative, capacity of social group membership. Put simply, can an individual who is already clinically depressed *and* socially isolated benefit from enhanced social connectedness? Or is it too late?

The present research addresses these questions by directly comparing the relative strength of the association between social connectedness and depression in a clinically depressed sample relative to a non-depressed sample. In doing so, it addresses a significant gap in the literature by examining the benefits of social connectedness for individuals both with and without clinical depression (as established by means of a conservative cut-off).

Importantly too, the present study addresses problems in the conceptualization of social connectedness; operationalizing this as the number of *social group memberships* that an individual reports that they have. This choice of measure is largely informed by research in the social identity tradition which argues that people's group memberships are an important component of their sense of self (Tajfel & Turner, 1979; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987; Turner, Oakes, Haslam, & McGarty, 1994), and that group memberships are an important determinant of social behaviour (Levine, Prosser, Evans, & Reicher, 2005; Platow, Grace, & Smithson, 2011; Platow et al., 2007).

Speaking to the importance of social identity for issues of health, a growing body of research has shown that multiple group memberships can become the basis of a 'social cure' (after Haslam, Jetten, Postmes, & Haslam, 2009; Jetten, Haslam, & Haslam, 2012) by playing a protective role in recovery from a range of medical conditions, including stroke (Haslam et al., 2008) and brain injury (Jones et al., 2012). Particularly relevant to the present study is evidence from a series of small-sample survey and experimental studies (e.g., Gleibs et al., 2011; Haslam & Reicher, 2006) which shows that group membership, and the sense of social identification derived from this, is a strong predictor of depressive symptoms (Cruwys, Haslam, Dingle, Haslam, & Jetten, 2013) and a better predictor than social contact alone (Sani, Herrera, Wakefield, Boroch, & Gulyas, 2012).

As such, the benefits of social group membership are not reducible to the physical opportunities for social interaction they afford, but also stem from their capacity to furnish individuals with a more abstract sense of shared identity with others. Partly because of this, group memberships serve as instantiations of social connectedness that are at the same time both more concrete and more malleable than many other connectedness-related constructs (e.g., social support or loneliness). Accordingly, to the extent that they have been implicated in depression, group memberships seem likely to serve as a useful and realistic target for remedial intervention.

The present research

The aim of the present research was to explore the potential benefits of social group membership for both addressing current depression and preventing future depression. To do this, we drew on data collected for the English Longitudinal Study of Ageing (Banks, Nazroo, & Steptoe, 2012; Marmot et al., 2013). This data source was chosen for three reasons. First, it is a large-scale, nationally representative dataset with a moderately high-risk group (i.e., older adults: Mojtabai & Olfson, 2004). Second, it contains suitable and standardized measures of clinical depression and of social group memberships as well as relevant covariates. Third, following the recent release of Wave 5, this dataset has many years of follow-up data available for analysis and this provides a substantial time period over which to examine depression trajectories as a function of social group membership.

In order to provide evidence for the benefits of social group memberships over a shorter (two year) and longer (four year) period, our analysis centres on two models that we will refer to as the *proximal* and *distal* models, respectively. The proximal model is presented as a model of *recovery*, given that depression resolves within two years in 80% of cases, but a minority of cases can be chronic (Melartin et al., 2004; Spijker, 2002). The distal model is particularly attuned to issues of *relapse*, as it allows us to establish whether rates of recovery from a depressive episode are sustained over an extended period. As noted above, this is important to examine since current psychological and pharmacological treatments for depression are more effective in treating acute symptoms than preventing future depressive episodes (Teasdale et al., 2000), and the typical person with a history of depression can expect to experience approximately four major episodes during their lifetime (Judd, 1997).

In sum, the goal of this study was to investigate the effect of group memberships on depression symptomatology over time. In this regard, the study tested two key predictions:

1. Increases in individuals' number of group memberships will lead to reductions in their symptoms of depression (controlling for initial depression and initial group memberships).
2. Increases in number of group memberships will be beneficial for both depressed and non-depressed individuals, such that:
   a. group memberships will protect against the development of depression among non-depressed individuals.
   b. group memberships will predict recovery from depression (in the proximal model) and reduced risk of relapse (in the distal model) among depressed individuals.

Importantly, there is little previous work that speaks to the second hypothesis, and consequently no specific prediction was made about the relative size of effects for individuals with and without depression.

Method

Participants

Participants were respondents in the English Longitudinal Study of Ageing (ELSA) who did not have missing data on key variables and waves of interest to the study. The ELSA sample was drawn from households previously responding to the Health Survey for England, with all respondents born before March 1952. The English Longitudinal Study of Ageing commenced in 2002—2003, constituting Wave 1, with respondents invited to participate every two years. The most recent release of data was collected in 2010—2011 (Wave 5). All participants were aged 50 years or more and were residing in England when surveyed.

Demographics for the proximal sample ($N = 5055$, Waves 3, 4 and 5) and the distal sample ($N = 4087$; Waves 2, 3 and 5) are included in Table 1.

Table 1
Descriptive Statistics for proximal sample (initial measurement at Wave 3) and distal sample (initial measurement at Wave 2).

	Proximal $N = 5055$	Distal $N = 4087$
	Results at Wave 3 (2006) unless otherwise specified	Results at Wave 2 (2004) unless otherwise specified
Age (top-coded at 90)	63.32 (9.81)	64.52 (8.40)
Sex	54.9% female	55.8% female
Ethnicity	98.3% white	99.1% white
Relationship status	68.4% married, 4.1% cohabiting, 27.5% neither (single, divorced or widowed)	69.3% married, 3.1% cohabiting, 27.6% neither (single, divorced or widowed)
Subjective health status (1 = "Excellent"; 5 = "Poor")	2.03 (.84)	2.61 (1.06)
Socioeconomic status (1–10 decile)	5.94 (2.86)	5.99 (2.88)
Depression (CES-D 8)	1.28 (1.79)	1.35 (1.82)
	W5: 1.36 (1.85)	*W5*: 1.39 (1.86)
Number of groups (range 0–8)	1.62 (1.39)	1.71 (1.45)
	W4: 1.55 (1.39)	*W3*: 1.65 (1.39)

Measures

Depression

ELSA includes a shortened eight-item version of the Centre for Epidemiologic Studies – Depression scale (CES-D). This is a standardized scale with established reliability and validity in identifying clinically depressed people in community samples (Beekman et al., 1997; Radloff, 1977; Turvey, Wallace, & Herzog, 1999). It contains eight questions about depressive symptoms experienced during the week before the ELSA interview, e.g., "I felt that everything I did was an effort." Each item was answered with a yes/no response, and responses were summed to create a score ranging from 0 to 8.

The CES-D is treated in our analysis as both a continuous indicator (severity of depression symptoms, the dependent variable in our analyses) and a categorical indicator (to differentiate between depressed and non-depressed subsamples). Various cut-offs for clinical depression have been suggested, including 3 (Chou, 2007), 4 (Han, 2002; Steffick, 2000) and 5 (Polsky et al., 2005) out of 8 symptoms endorsed. Here, we use the most conservative of these (5 out of 8), so as to be as confident as possible that the clinically depressed group does not contain non-depressed persons (in other words, this cut-off was chosen for *specificity* rather than *sensitivity*).[1]

Group memberships

The measure of number of group memberships included in ELSA was a single question asking respondents: "Are you a member of any of the following organisations, clubs or societies?" Respondents could tick any or all of eight response options (e.g., "sports clubs, gyms, or exercise classes"); see all options along with their frequencies in Table 2. Respondents could also tick a final box: "No I am not a member of any organisations, clubs or societies." Responses were summed to create a continuous scale ranging from 0 to 8.

Covariates

Age (top-coded at 90 years), gender, relationship status (married, cohabiting, or neither), socioeconomic status (based on decile of annual reported income), ethnicity (white vs. non-white), and subjective health status ("Would you say your health is… excellent, very good, good, fair or poor") were included in the analyses as control variables on the basis of three criteria. First, as a group they covered a wide range of demographic constructs that previous literature has suggested are relevant to depression (Kendler, Myers, & Prescott, 2005; Radloff, 1975; World Health Organisation, 2006). Second, they were consistent with covariates typically used in similar longitudinal analyses in the literature (Cacioppo et al., 2010; Glass, De Leon, Bassuk, & Berkman, 2006; Peirce, Frone, Russell, Cooper, & Mudar, 2000). Third, they were measured in the ELSA dataset at both Waves 2 and 3, using standardized instruments and with minimal missing data. All control variables were measured at the initial wave (Wave 3 for proximal analysis and Wave 2 for distal analysis).

In addition to these six demographic covariates, two other covariates were included in our analyses. Initial number of group memberships was included as a control variable so that our predictor measure of subsequent group memberships best approximated what a change (or intervention) to social group membership would do. In addition, this covariate controlled for any confounding due to prior group memberships (e.g., individual differences in sociability would likely be associated with initial group

Table 2
Measure of number of group memberships used in the English Longitudinal Study of Ageing.

Are you a member of any of these organisations, clubs or societies? Tick all that apply[a]	Percentage of sample that endorsed each group type at Wave 4
Political party, trade union or environmental groups	11.5%
Tenant groups, resident groups, Neighbourhood Watch	12.6%
Church or other religious groups	16.2%
Charitable associations	14.7%
Education, arts, music groups or evening classes	9.7%
Social clubs	14.2%
Sports clubs, gyms, exercise classes	18.7%
Any other organisations, clubs or societies	18.4%
No, I am not a member of any organisations, clubs or societies	

[a] 8 response options were summed (0–8), final question was coded as 0.

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[1] The ELSA dataset also includes information about whether respondents have a formal diagnosis of depression from a medical practitioner. We considered using this variable to identify depressed and non-depressed samples, however, it was found to be inadequate for two reasons. First, many of the respondents who endorsed a depression diagnosis did not have elevated scores on the CES-D, presumably in many cases because their diagnosis was made some time previously and they had subsequently recovered. Second, the number of respondents who reported a formal diagnosis was quite low (5.9% of the proximal sample), consistent with evidence that only a minority of people with a mental illness receive treatment (Goldman, Nielsen, & Champion, 1999; Simon, Fleck, Lucas, & Bushnell, 2004).

Table 3
Results of the proximal and distal hierarchical regression models predicting depression symptoms at Wave 5 (2010).

	Proximal model				Distal model			
	R^2 change	b	SE	Semi-partial r	R^2 change	b	SE	Semi-partial r
Step 1	.26*				.27*			
Age		.01	<.01	.04*		.02	<.01	.07*
Sex		.27	.05	.07*		.20	.05	.05*
Subjective health status		.32	.03	.13*		.25	.03	.13*
Ethnicity		.10	.10	.01		.11	.27	.01
Relationship status		.06	.03	.03*		.04	.03	.02
Socioeconomic status		−.01	.01	.01		−.03	.01	.05*
Initial depression		.41	.01	.36*		.42	.02	.37*
Initial number of groups		.01	.02	.00		.01	.02	.00
Subsequent number of groups		−.09	.02	.04*		−.08	.03	.04*
Step 2	.01*				.01*			
Initial depression × Subsequent groups		−.03	.01	.03*		−.05	.01	.07*

Notes Entries are for variables at the stage at which they are entered into the model.
*p < .01.

memberships). Finally, initial depression symptoms was included as a control variable to reduce the possibility that our results could be explained by reverse causation − that is, depression causing withdrawal from social groups rather than the opposite (e.g., see Maselko, Hayward, Hanlon, Buka, & Meador, 2012; VanderWeele, Hawkley, Thisted, & Cacioppo, 2011).

Procedure

ELSA data collection consists of two separate modules: an interview, conducted in-person using computer-assisted interviewing, and a questionnaire which participants complete independently. The more sensitive and/or subjective questions, including the measures of group memberships and depression, were asked as part of the self-completed questionnaire.

Results

In order to test Hypothesis 1 a multiple regression analysis was conducted for both proximal and distal models. The results of this analysis are presented in Table 3. Note that the proximal model includes Waves 3 ("initial"), 4 ("subsequent") and 5 ("final"), whereas the distal model includes Waves 2 ("initial"), 3 ("subsequent") and 5 ("final"). The most recent waves of the dataset were used to ensure equivalency in the dependent variable across the models and to make use of the most up-to-date data.[2]

Of the covariates included in the analyses, age, sex, and subjective health status significantly predicted depression symptoms in both models. Relationship status was only significant in the proximal model, socioeconomic status was only significant in the distal model, and ethnicity did not contribute to either model. Depression risk was higher for respondents who were older, female, and single, with low socioeconomic status and poor subjective health. Initial depression was a strong predictor in both analyses (proximal $r_p = .36$; distal $r_p = .37$).

The critical test of Hypothesis 1 was the subsequent group memberships variable. This is equivalent to a measure of *change* in group memberships across the time period, as the initial measure of this variable was retained in the model. Change in group memberships was a significant predictor of final depression in both models ($r_p = .04$; $p < .001$). Therefore Hypothesis 1 was supported.

Three follow-up analyses were run to provide more conservative tests of Hypothesis 1. The first replaced the initial depression measure with depression measured *subsequent* to initial group memberships (Wave 4 in the proximal analysis and Wave 3 in the distal analysis). This reduced the likelihood that recovery from depression between the initial and subsequent time-points was responsible for any change in group memberships (and thus final depression). In this analysis, the predictive utility of subsequent group memberships was robust and remained significant for both the proximal and distal models ($r_p = .03$, $p < .05$).

The second follow-up analysis removed sports clubs, gyms and exercise classes from the composite measure of group memberships. This was conducted because some studies have shown that exercise can be beneficial for depression (although findings have been inconsistent, see Josefsson, Lindwall, & Archer, 2013; Krogh, Nordentoft, Sterne, & Lawlor, 2011 for reviews). Subsequent group memberships remained a significant predictor of depression in both the distal ($r_p = .05$, $p < .001$) and proximal ($r_p = .04$, $p < .05$) models.

The third follow-up analysis utilized logistic regression to determine whether subsequent group membership could also predict depression *status* two and four years later. In models with identical predictors to the regressions outlined above, subsequent group memberships was a significant predictor in both the proximal (Wald's $F(1, 5045) = 7.04$, $p < .01$, Odds Ratio (OR) = .84) and
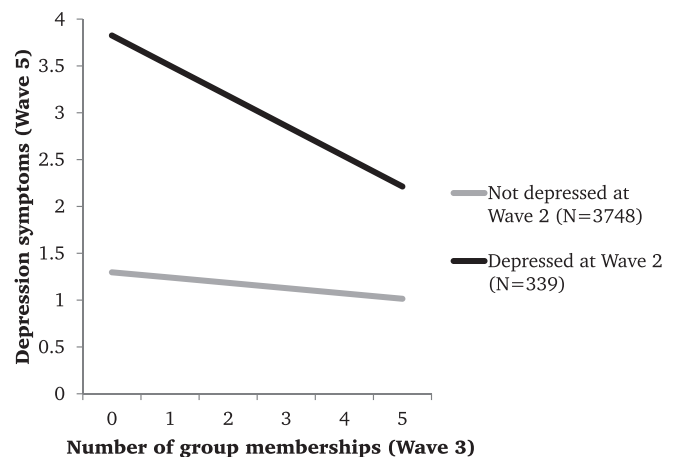

Fig. 1. Number of social group memberships is a more powerful predictor of depression symptoms 6 years later for those with a depression history than those without. Wave 2 (2004); Wave 3 (2006); Wave 5 (2010).

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[2] These analyses were repeated across a number of other waves (e.g., 1–5, 4–5) and found to be robust.
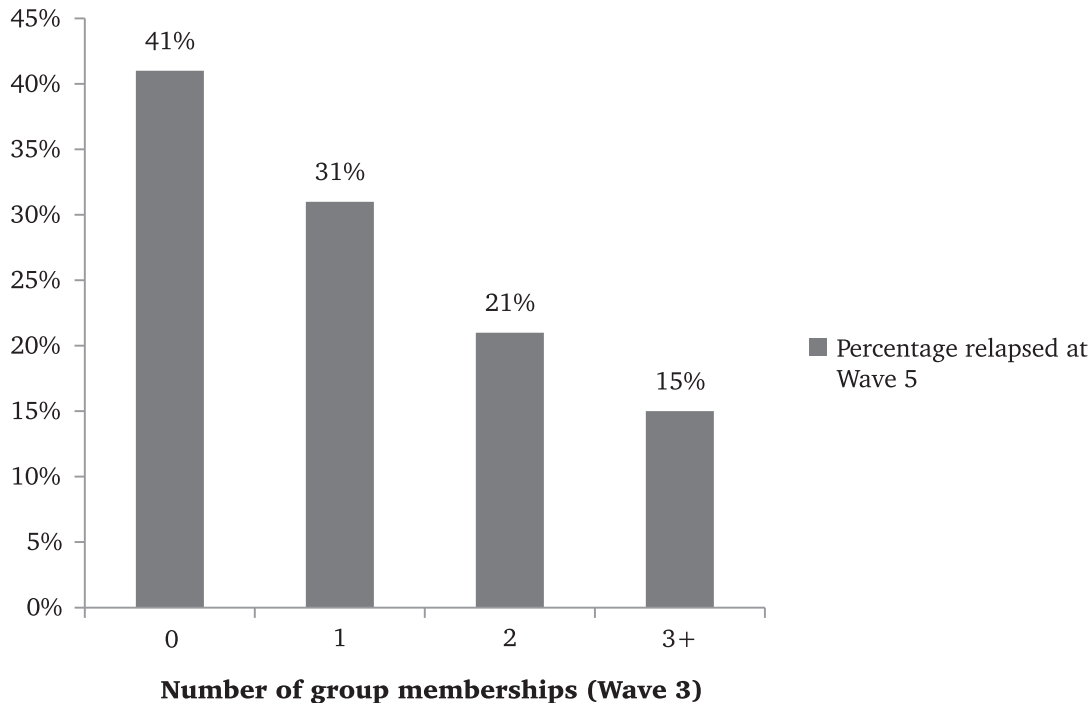
Fig. 2. Number of social group memberships predicts likelihood of relapse 6 years later among a sample with a history of depression ($N = 339$). Wave 3 (2006); Wave 5 (2010). This analysis refers to the predicted probability of relapse in a binary logistic regression that controls for age, sex, socioeconomic status, subjective health status, relationship status, ethnicity, severity of initial depression and initial number of group memberships.

distal (Wald's $F(1, 4077) = 10.02$, $p < .01$, $OR = .82$) models. People with more group memberships were less likely to be classified as depressed two or four years later.

Hypothesis 2 was examined by adding a final step to the regression models (see Table 3). This step included the interaction between the severity of initial depression and subsequent number of group memberships. If this interaction is significant, this indicates that group memberships are *not* equally important across levels of initial depression symptoms. The interaction significantly improved both models (Proximal $F_{change}(1,5044) = 6.62$, $p < .01$; Distal $F_{change}(1,4076) = 13.63$, $p < .001$). Simple slopes analyses (Aiken & West, 1991) were conducted to investigate the interactions further. The direction of this effect (see Fig. 1) suggested that group memberships were particularly powerful in reducing the risk of future depression for respondents with a history of depression symptoms. Importantly, group membership remained a significant predictor of future depression among respondents who were not initially depressed (Proximal $\beta = -.08$, $p < .001$; Distal $\beta = -.06$, $p < .05$), but this effect was substantially stronger among the respondents who were initially depressed (Proximal $\beta = -.21$, $p < .001$; Distal $\beta = -.32$, $p < .001$). To illustrate the size and linearity of this effect, and to provide statistics that allow direct comparison to remission and relapse rates of established treatment protocols (e.g., Evans et al., 1992; Fava et al., 1998), Fig. 2 provides the percentage break-down by number of group memberships (4 years previously). This was calculated using a binary logistic regression (as above with all covariates) to predict relapse among the distal depressed subsample. Among respondents with a history of depression, this effect was such that 41% of people who reported no group memberships had relapsed 6 years later, compared to only 15% of people with 3 or more groups.

These findings provide clear support for Hypothesis 2. Unexpectedly, however, it is also clear that among individuals with a history of depression, group memberships proved to be substantially more potent in staving off the condition than was the case for those without depression — particularly over a longer timescale.

Discussion

This study of the relationship between social group memberships and depression revealed three key findings. First, the number of groups that an individual belongs to is a significant predictor of depression, both when measured across a two-year period (in a proximal model) and when measured across a four-year period (in a distal model). This finding is robust and holds when controlling for demographic variables, subjective health status, initial depression and initial group memberships.

Second, having a greater number of group memberships appears to be both *protective* against the development of depression among an initially non-depressed sample, and *curative* of depression symptoms among an initially depressed sample. This is significant because previous research has tended to focus on the protective benefits of social connectedness in non-depressed samples, and it has rarely been examined through a comparison of those with and without depression.

Third, and unexpectedly, being a member of more groups proves to be a more powerful predictor of future depression symptoms among individuals with, rather than without, a history of depression. This was true both in a model of recovery, which models the likelihood of recovery over a two-year period, and in a model of relapse, which models the likelihood of relapse over a four-year period. Indeed, these data suggest that once a person presents with depression it is not "too late" to address their social isolation. On the contrary, increasing social activity — specifically through acquiring group memberships — may be a vital, curative ingredient in treatment. In showing this, the present findings lend strong

support to recent claims that group memberships, and the social identities that they provide individuals with, are the source of a potent 'social cure' (Haslam et al., 2009; Jetten et al., 2012).

Implications

This study provides further evidence that reduced social connectedness often precedes the development of depressive symptomatology. In contrast, social withdrawal tends only to be assessed or considered for intervention once symptoms of depression are evident. Speaking to the need for such practices to be part of preventative rather than merely remedial practice, this study provides evidence that social withdrawal should be considered as a significant risk factor in its own right that warrants screening and intervention in the general community.

This study also has a number of broader implications for the study of social connectedness in depression. Most importantly, social connectedness should not be conceptualized, as it typically is, simply in terms of interpersonal bonds of affiliation between individuals. Rather, and consistent with social-psychological theorizing (Iyer, Jetten, Tsivrikos, Postmes, & Haslam, 2009; Turner et al., 1994), there are reasons to regard social connectedness as the outcome of a psychological process whereby an individual comes to see themselves as "part of something bigger" — thereby defining the self in terms of social identity (a sense of 'us') rather than just personal identity (a sense of 'I'). Clearly, this sense of 'us-ness' can be derived from a range of group memberships (e.g., a community choir, a sports team, a work group). It appears that, whatever its source, membership of groups typically confers benefits to mental health (Dingle, Brander, Ballantyne, & Baker, 2012), and that the more of these sources there are, the merrier (or the less depressed) the individual is (Iyer et al., 2009).

Although other forms of social connectedness are certainly not irrelevant, there are several benefits to regarding social group membership as a central source of social connectedness. First, decades of research in social psychology demonstrates that seeing oneself as a member of a social group is a powerful predictor of behaviour, attitudes, and perception. This is because social identification structures not only a person's social life, but also their self-concept (Turner, 1982). As a result, it has been shown to predict behaviours as diverse as helping (Levine et al., 2005; Platow et al., 1999) and eating (Cruwys et al., 2012), racism (Reynolds, Turner, Haslam, & Ryan, 2001) and rioting (Reicher., 1984), littering (Cialdini, Reno, & Kallgren, 1990) and obeying the law (Smith and Tyler, 1996). The present findings thus strengthen previous claims (e.g., Cruwys et al., 2013; Reicher & Haslam, 2006; Sani et al., 2012) that the social identity framework provides a set of potent analytic tools with which to enrich depression research and practice. Critically, though, in contrast to the present investigation, such conclusions have previously been based only on studies with small non-representative samples.

A second benefit to making greater use of social group membership as a key measure of social connectedness is the relative ease with which it can be assessed. Social group membership can be assessed more concretely and with simpler measurement tools (e.g., through the use of single-item measures, Jetten, Haslam, Haslam, & Branscombe, 2009; Postmes, Haslam, & Jans, 2012) than, say, loneliness or social support, and this is likely to increase its usefulness in both research and clinical settings. Monitoring social group membership, for instance in an intervention trial, therefore need not be resource intensive (e.g., see Haslam et al., 2010). Furthermore, an intervention to bolster existing group memberships or facilitate new group memberships need not be large-scale and might be more easily incorporated into existing treatment settings than, say, social skills training or relationship counselling.

In this regard, it is important to observe that dominant models of depression (and hence depression treatment) are biomedical in orientation, assuming that pathology resides in the individual as a result of either biological dysfunction (suggestive of psychopharmacological treatment) or psychological dysfunction (suggestive of psychotherapeutic treatment; Dar-Nimrod & Heine, 2011; Phelan, Yang, & Cruz-Rojas, 2006), or a combination of both (Dingle, Oei, & Young, 2010). However, the present study adds to a significant body of evidence suggesting that it is often *social and environmental* dysfunction that precipitates and maintains depression. For example, depression typically follows a stressful life event, most often related to loss of a valued relationship (e.g., divorce or bereavement; Paykel, 1994; Tennant, 2002) and is more common in impoverished communities and nations (World Health Organisation, 2006), places within which group memberships and intergroup relations have considerable scope to impact on individual mental health (Muldoon & Lowe, 2012). Given that the majority of depressed patients prefer non-drug treatments (Dwight-Johnson, Sherbourne, Liao, & Wells, 2000; Gum et al., 2006; Rokke & Scogin, 1995) and find therapy stigmatizing (Crabtree, Haslam, Postmes, & Haslam, 2010; Howard, 2008), this study is valuable in that it bolsters the evidence for alternative, *social* interventions that are likely to prove significantly more appealing for many patients. Future research should prioritize testing such interventions and making them accessible to practitioners and patients alike.

An important practical implication of this analysis is that joining (or maintaining one's membership of) groups that have meaning for an individual is likely to be an effective intervention for depression with long-term *curative* benefits. Indeed, speaking to this potential, if a depressed person belonged to no groups in 2004 but had joined 1 group by 2006, their risk of relapse in 2010 reduced by 24%. If the person had joined three groups, their risk of depression relapse reduced by 63%. To the extent that health practitioners are able to help their depressed patients engage in social clubs, organizations and societies (either as a medium for, or as an adjunct to treatment), then it would appear that the treatment they provide is likely to be more effective. This is a particularly important finding as joining groups is a therapeutic initiative that is clearly both *practical* and *concrete* (Helliwell & Putnam, 2004; Putnam, 2001). Moreover, it is *cost-effective* because social groups do not need to be administered by trained health practitioners. The present research does, however, speak to the important role that community health and social workers (as well as various charitable and volunteer organizations) can play in scheduling and facilitating engagement with social activities — a role which (with some notable exceptions) has tended to be deprioritized as a result of prevailing treatment models and social policy (Haslam, Jetten, & Haslam, 2012).

Strengths and limitations

As noted above, a major strength of this study is its large, representative and longitudinal sample. This allowed for a robust test of hypotheses that included control variables, change variables, and sensitivity analyses. In particular, the large sample of respondents who meet a conservative cut-off for depression is unusual in the literature. However, several weaknesses should also be noted.

Due to the nature of the pre-existing dataset, it was not possible to include other variables of interest, both in terms of additional predictors (e.g., measures of social identification) and additional outcomes (e.g., suicidality). All respondents in the sample were over 50 years of age, and almost all white, which may limit the generalizability of the findings beyond this population. In addition,

we did not have adequate information about any treatment for depression that respondents may have received, although the small percentage of respondents who reported a formal diagnosis of depression suggests that treatment was not widespread. Similarly, we were not able to confirm respondents' diagnostic status with regard to depression via interview and instead had to rely on a short self-report (albeit well-validated) scale. It is worth noting, though, that these shortcomings are addressed in many of the small-scale studies that have previously been reported and that, in correcting for the limitations of these, the present study fills what, at present, is the most significant gap in our understanding of the role of social relationships in depression (e.g., as reviewed by Cruwys et al., 2013).

Conclusion

This study has provided a strong demonstration of the power of social group memberships to protect against the development of depression, to alleviate symptoms of depression and to reduce the risk of depression relapse. Using a large sample of older adults, we tested the effects of social group membership on depression controlling for many covariates as well as initial measurement of number of groups and depression. Understood in the context of the theoretical model that they test and support, the findings, we suggest, have profound implications for researchers and health practitioners who continue to strive for ways to reduce the substantial burden that depression places on society and individuals. Most particularly, this is because they suggest not only that depression can be prevented through group memberships, but also that group memberships provide a 'social cure' for people already suffering depression.

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