European Journal of Social Psychology

# Greater Family Identification – But not Greater Contact with Family Members - Leads to Better Health: Evidence from a Spanish Longitudinal Study



| | |
|---|---|
| Journal: | *European Journal of Social Psychology* |
| Manuscript ID: | EJSP-15-0152.R2 |
| Wiley - Manuscript type: | Short Paper |
| | |

# Greater Family Identification – But not Greater Contact with Family Members - Leads to Better Health: Evidence from a Spanish Longitudinal Study



Word Count (Abstract, Text, and Footnotes 1 and 2): 3,956.

**Abstract**

We investigated the effect of family identification (one's subjective sense of belonging to and commonality with the family) on self-reported ill-health in 206 Valencian undergraduates, with eight months between T1 and T2. While greater family identification T1 predicted lower ill-health T2, ill-health T1 did not predict family identification T2. Family contact T1 (one's intensity of interaction with family) was unrelated to ill-health T2. This shows that family identification impacts positively on health over time (rather than health impacting positively on family identification over time), and this is not reducible to effects exerted by family contact. These findings indicate that encouraging patients to engage in group activities might produce negligible health gains unless the patient identifies with the group in question.

*Keywords:* Social identity, physical health, groups, social contact, social prescription.

## Introduction

A range of evidence from numerous academic disciplines indicates that joining and participating in social groups (e.g., the family, tribe, community, sports group, etc.) is a vitally-important facet of the human experience (e.g., Tomasello, 2009, Tuomela, 2007, Cacioppo & Patrick, 2008). Groups play a central role in the lives of almost all people, with various researchers highlighting the key evolutionary benefits that our socially-oriented existence could afford (e.g., Tomasello, 2014). The benefits of this sociality can also be seen in our day-to-day lives: large bodies of literature within psychology, psychiatry, and medicine now suggest there are a myriad of health-related benefits to be obtained from a socially integrated life, from being more able to fight off viruses (Cohen, Doyle, Skoner, Rabin, & Gwaltney, 1997) to being less likely to be depressed (Glass, Mendes de Leon, Bassuk, & Berkman, 2006).

While such studies are important in their own right, it has also been noted that the concept of social integration (i.e., the number of groups to which one belongs and/or the quantity of contact that one has with members of these groups; Cohen, 2004) can be problematic. One key limitation of the concept is that it fails to consider how it *feels* to be a member of the group in question. Personal experience tells us that not all group memberships are created equal: while some groups feel as though they are core to who we are as individuals, others feel as though they have little significance to our lives. Similarly, while the prospect of interacting with members of some groups fills us with joy, the prospect of interacting with members of other groups fills us with dread. It is unlikely that groups with which we feel little sense of connection are going to provide us with health benefits, regardless of the quantity of contact we have with their members. Indeed, there is evidence that large amounts of contact with such groups can be a source of negative affect, thereby having potentially detrimental health effects (e.g., Rook, 1984). This suggests that it is not sufficient to consider the extent of one's quantitative contact with social groups: we must determine the extent of one's qualitative sense of *group identification* - a subjective sense of belonging to the group,

coupled with a subjective sense of commonality with its members (Sani, Madhok, Norbury, Dugard, & Wakefield, 2015a; b).

A growing body of research suggests that it is groups with which we identify that are particularly beneficial for health and well-being (Jetten, Haslam, & Haslam, 2012). For instance, Reicher and Haslam (1996a; b) asked participants to adopt the roles of prisoners and guards within a purpose-built 'prison', and found that identification with either the group of prisoners or the group of guards was related to lower levels of depression and physiological stress. These findings are corroborated and extended by studies involving real groups. For instance, Sani, Magrin, Scrignaro, and McCollum (2010) studied a sample of Italian prison guards and found that higher levels of identification with the group of prison guards was associated with lower levels of psychiatric disturbance. Similarly, a study involving people with multiple sclerosis attending support groups revealed that greater support group identification predicted lower levels of depression and anxiety, and higher levels of satisfaction with life (Wakefield, Bickley, & Sani, 2013). Furthermore, Wegge, van Dick, Fisher, Wecking, and Moltzen (2006) found that call centre agents with higher levels of organisational identification reported fewer health complaints and less emotional exhaustion than agents with lower organisational identification, while Khan et al. (in press) found that identification with a religious group (Hindu) was associated with increased self-rated health among pilgrims during a large religious event, even in inhospitable conditions.

Although researchers investigating the relationship between group identification and health have undoubtedly created an important body of literature, we feel that the majority of studies in this area suffer from a number of significant limitations. Perhaps most importantly, only five papers investigating the relationship between group identification and health have utilized a longitudinal design, meaning there is little evidence to indicate whether greater group identification leads to better health, or vice versa. Moreover, three of these papers involved measuring group identification and health/well-being at the same time-point. This includes a study where the authors recruited individuals starting university and investigated factors at Time 1 (pre-university) that may predict

later student identification (Iyer, Jetten, Tsivrikos, Postmes, & Haslam, 2009). This meant that student identification and self-rated depression were both measured at Time 2 (during university). Similarly, Gleibs, Haslam, Haslam, and Jones (2011) assessed care home residents' well-being before and after an eight-week 'water club' intervention (small groups of residents meeting weekly to drink water and discuss the resultant benefits). The authors show that the social support residents received from attending these clubs helped enhance their identification with the other care home residents, which in turn led to higher self-rated quality of life. However, again, the variables included in the model were all measured at Time 2 (post-intervention). Finally, Cruwys et al. (2014) undertook two longitudinal intervention studies: one where individuals at risk of depression joined a recreational group (Study 1), and one where individuals diagnosed with depression joined a psychotherapy group (Study 2). Depression severity was measured on the day of joining (Time 1), and again three months (Study 1)/ four weeks (Study 2) later (Time 2). After controlling for Time 1 depression severity, frequency of group attendance, and group type, the authors found that higher (as opposed to lower) identification with the recreational/therapy group predicted less severe depression, with both variables being measured at Time 2.

Focussing on the two papers where identification and health/well-being were measured at different times, Haslam, Jetten, and Waghorn (2009) investigated group identification over five time-periods in two theatre production teams as they prepared for their respective plays. The authors found that those who identified more with their theatre production team at the outset (compared to those who identified less) were less likely to report experiencing burnout during demanding phases (e.g., dress rehearsal). Additionally, Khan et al. (in press) assessed self-rated mental and physical health in Hindu pilgrims before, during, and after they attended a month-long Indian pilgrimage event. The authors found that pilgrims' post-event self-rated health was partially explained by their sense of shared social identity during the event.

Four other limitations can be observed within this literature. First, one shortcoming of both Haslam et al. (2009) and Khan et al. (in press) is that neither examine the possibility of reciprocal

causality (i.e., health affecting identification over time). Although Cruwys and colleagues (2014) do, we have already noted this paper's limitation of measuring identification and depression at the same time-period.

Second, none of these studies investigated the health-related effects of identifying with what is arguably one of the most significant groups: the family. It is important to confirm that group identification predicts health in this group too, particularly since Fischer et al. (2009) observed in their cross-cultural study that family was the most important group in their participants' lives. This suggests that increased family identification may have the potential to improve health in the majority of individuals. A variety of literature indicates that this fundamental social group can have important effects on well-being (e.g., Segrin & Flora, 2014), so we feel it is particularly relevant to consider the role of identification in this context.

Third, the social integration literature discussed earlier suggests that the intensity of within-group contact (e.g., frequent interactions with group members) is likely to have positive health effects (e.g., Cohen et al., 1997). Although we have already discussed the potential limitations of the concept of social integration, this literature does raise the possibility that within-group contact is the factor truly responsible for health improvement, while group identification is a mere by-product of such contact. This topic has been addressed in previous research: Cruwys et al. (2014) controlled for frequency of group attendance in their study, while Sani, Herrera, Wakefield, Boroch, and Gulyas (2012) found evidence to suggest that group identification predicts mental health even after controlling for within-group contact. However, the former's limitations have been discussed above, while the latter was cross-sectional.

Fourth, all these studies (except Khan et al., in press) have only investigated mental health. We therefore consider it important to examine physical health in our study.

**The Current Study**

The current study tests the effects of group identification on self-rated health, addressing all the limitations outlined above. First, the study is longitudinal, and is designed to investigate the

effect of Time 1 family identification on Time 2 health. Second, the possibility of reciprocal causality will be considered. Third, it concerns identification with the family. Fourth, it investigates the extent to which within-group contact is an independent predictor of self-rated health. Fifth, it investigates physical health. To our knowledge, this study is the first to explore the impact of family identification on self-rated physical health over time whilst controlling for within-group contact.

Based on previous findings, we hypothesize that family identification will predict health over time, but that health will not predict family identification over time. Additionally, we predict that once family identification is controlled for, extent of family contact will have no effect on health over time.

## Method

### Participants and Procedure

Two-hundred and six first- and third-year undergraduates (45 males; $M_{age}$ = 21.02 years, SD = 2.09, range = 18-25) at the University of Valencia volunteered to completed the same questionnaire twice, with an eight-month time-lag between Time 1 (T1, which took place in mid-September) and Time 2 (T2, which took place in mid-May). Both questionnaires were completed after a mandatory practical class, leading to high completion rates. Two-hundred and two participants completed both questionnaires (98.06%).

### Measures

*Family identification* was measured with the four-item Group Identification Scale (GIS; Sani et al., 2015a), (e.g., "I feel a bond with my family"; 1 = "I totally disagree", 7 = "I totally agree"). Items were averaged to create an overall measure at T1 (α = .85) and T2 (α = .86). Participants were asked to define family "in any way you wish (e.g., immediate family or extended family, etc.)".

*Family contact* was assessed with three questions. Two questions asked about the typical number of family members with whom the respondent has a face-to-face conversation each day (first question), and a telephone conversation each day (second question). The third question

concerned the number of family-related events (e.g., dinners, trips) in which the respondent takes part in an average month. Answers were *Z*-scored then summed, forming an overall score at T1 (α = .45) and T2 (α = .45).[1] This measure was adopted from Sani et al. (2012) and Sani et al. (2015a; b).

*Ill-health* was measured with four items ("Overall, how would you define your health over the last few months?": 1 = "poor", 4 = "very good" (reverse coded); "How much difficulty did you have studying because of your physical health over the last few months?": 1 = "none at all", 4 = "could not study"; "How much did physical health problems limit your usual physical activities (e.g. walking, running) over the last few months?": 1 = "not at all", 4 = "could not do physical activities"; "How much bodily pain (e.g., back-pain, neck-pain, headache) have you had over the last few months?": 1 = "none", 4 = "severe"). These items were adapted from a variety of studies examining students' self-rated health (e.g., Mikolajczyk et al., 2008). Items were averaged to create an overall measure at T1 (α = .72) and T2 (α = .69).

Finally, participants indicated their *age* and *gender* (female = 0, male = 1).

## Results

### Descriptive Statistics

Table 1 shows the means, standard deviations, and inter-correlations for all variables.

**********

Table 1

**********

As expected, there were statistically significant positive correlations between T1 and T2 family identification, T1 and T2 family contact, and T1 and T2 ill-health. In addition, family identification T1 and T2 were both negatively correlated with ill-health T1 and ill-health T2, with the correlation between family identification T1 and ill-health T2 being strongest. None of the correlations between family contact and ill-health were significant. Being female was significantly associated with greater family identification and greater family contact, but had no relationship with

ill-health. Age did not correlate with any variable. Finally, family identification was positively correlated with family contact.

**Mean Differences Between T1 and T2**

Three repeated measures *t*-tests (with a Bonferroni corrected alpha level of $p < .016$; i.e., .05/3) were conducted to determine if there were across-time mean differences on family identification, family contact, and ill-health. No differences were found for family identification, $t(201) = -0.76$, $p = .45$, family contact, $t(201) = -0.32$, $p = .75$, or ill-health, $t(201) = 1.39$, $p = .17$.

**Cross-Lagged Model**

Finally, we tested our predictions in a cross-lagged path analysis model using AMOS 20.0 (Arbuckle, 2011), which included family identification T1 and T2, ill-health T1 and T2, and family contact T1 and T2: see Figure 1. We chose not to include gender or age in the model for reasons of parsimony (specifically because neither correlated with ill-health).[2] In order to meet assumptions, this analysis only included participants with no missing data ($n = 202$). Family contact items were re-standardized after removing cases with missing data. All regression weights are standardized, and all confidence intervals (CIs) for regression weights are 95%.

**********

Figure 1

**********

The analysis revealed excellent model fit, as can be expected when all possible paths (except for those between dependent variables) are included, $X^2(3) = 3.30$, $p = .35$; CFI = .998; RMSEA = .022 (Lower 90% CI = .00, Upper 90% CI = .12); SRMR = .022. As hypothesized, family identification T1 predicted ill-health T2 (-.39, $p < .001$; Lower CI = -.50, Upper CI = -.26), but ill-health T1 did not predict family identification T2 (-.04, $p = .54$; Lower CI = -.18, Upper CI = .09). Indeed, family identification TI predicted ill-health T2 more strongly than ill-health T1 predicted ill-health T2 (.24, $p < .001$; Lower CI = .12, Upper CI = .37). Additionally (and also as

hypothesized), family contact T1 was unrelated to ill-health T2 (.01, $p$ = .87; Lower CI = -.13, Upper CI = .14), while ill-health T1 was unrelated to family contact T2 (-.03, $p$ = .63; Lower CI = -.16, Upper CI = .09). The $R^2$ values for ill-health T2, family identification T2, and family contact T2 were .26, .21, and .16 respectively, indicating that the T1 predictors explained 26%, 21%, and 16% of the variance in the three outcome variables respectively. Overall, family identification exerted a statistically significant positive effect on health over time, but not vice-versa. Moreover, family contact had no effect on health over time.[3]

## Discussion

The results confirm our key hypothesis: while greater family identification leads to better self-rated health over time, self-rated health has relatively small (and statistically non-significant) effects on family identification over time. Previous studies have shown a positive association between group identification and health (e.g., Cruwys et al., 2014; Sani et al., 2010; Wakefield et al., 2013; Wegge et al., 2006). Our study goes beyond this evidence in showing: (a) that there was no reciprocal causality (i.e., T1 health did not reduce T2 family identification), and (b) that after controlling for T1 health, T1 identification is associated with T2 health improvements.

Our second hypothesis was also supported: the impact of family identification on health was largely independent from the impact of family contact on health (i.e., frequency of interaction with family members/participation in family-related activities). Indeed, the correlations between identification and contact were modest, suggesting these concepts tap into qualitatively distinct areas of social life. We can therefore rule out the possibility that the effects of family identification on health are a mere by-product of engaging in high levels of family contact. These results confirm and extend Cruwys et al.'s (2014) finding that, even after controlling for frequency of group attendance, higher T2 identification predicted less severe T2 depression. These results also support Sani et al.'s (2012) cross-sectional finding that mental well-being is more strongly associated with group identification than with group contact. Indeed, family contact appears to have had negligible impact on health in the present study. This probably relates to the key limitation of the concept of

social integration: that the amount of contact one has with group members tells us nothing about the quality of that contact. This contact may therefore either be positive (framed by support/empathy) or negative (framed by misunderstanding/stress). Presumably, the positive health implications of positive contact and the negative health implications of negative contact tend to balance out over time, thereby making general contact non-predictive of health (Haslam, Reicher, & Levine, 2012). This suggests that contact with group members is only likely to benefit health when it occurs within the context of a group with which one identifies.

**Limitations and Future Directions**

An important limitation of the current study is the lack of investigation of variables that may mediate the relationship between family identification and health over time. There is no definite agreement on how group identification impacts upon health, but various suggestions have been proposed, and it is likely that these processes (and others) work in combination to enhance well-being. First, stronger group identification is known to heighten expectations that other group members will offer *social support* (e.g., emotional, financial, or informational assistance) in times of need (e.g., Haslam, Jetten, Postmes, & Haslam, 2009; Haslam, O'Brien, Jetten, Vormedal, & Penna, 2005). The belief that social support will be forthcoming during difficult times has the potential to reduce the damaging amount of stress associated with such situations (Wegge, Schuh, & van Dick, 2011), which in turn can enhance the functioning of the endocrine, cardiovascular, and immune systems.

A second (albeit related) explanation is that group memberships are important psychological resources. Some theorists argue that just as people who lack more material resources (e.g., sufficient money or employment opportunities) often experience ill-health because of their stressful existence (e.g., Adler & Snibbe, 2003), those who lack group memberships (or, more importantly, groups with which they identify) are particularly likely to face health problems. For instance, drawing on and extending the conclusions of the social support literature, Jones and Jetten (2010) suggest that multiple group memberships provide individuals with more (and more varied) psychological

resources during crisis; a theme also identified by Miller, Wakefield, and Sani (2015) in their investigation of the relationship between multiple group identifications and adolescent mental health.

Third, identifying with groups can encourage people to behave more healthily (e.g., to drink moderately, not to smoke, to eat healthy, or to exercise; Sani et al., 2015a). This may be because group identification provides individuals with a sense of meaning in life, and/or a sense of responsibility towards the group, which promotes a desire to be able to help the group achieve its goals. Both aspects have the potential to promote healthy behaviour (e.g., Brassai, Piko, & Steger, 2011; Umberson, Crosnoe, & Reczek, 2010).

However, group members' behaviour is also often guided by group norms, and while some groups promote healthy behaviour through their norms (such as regular exercise and sunscreen use amongst Australian university students; Schofield, Pattison, Hill, & Borland, 2001), other groups can promote unhealthy behaviour (such as eating junk food amongst American racial ethnic-minority university students; Oyserman, Fryberg, & Yoder, 2007). Even individuals' personal perceptions of their group have been found to influence health behaviour, such as older people with more positive attitudes towards ageing being more likely to engage in health prevention behaviours than those with less positive attitudes (Levy & Myers, 2004).While group norms and members' group perceptions will undoubtedly influence well-being by affecting behaviour, the health-related benefits of group identification are still important and powerful. Nonetheless, future research could involve investigating the interactions between group identifications and group norms in the context of health and health behaviour.

Relatedly, it would be worthwhile to conduct further research to examine the types of family relationships that are more or less likely to foster a sense of identification. For instance, although our participants were invited to define 'family' however they chose, Fischer et al. (2009) found the nuclear family to be the most important group in their participants' lives. Future work that considers

the relationship between family type and identification would therefore be an important contribution to the literature.

Finally, it is important to note that we used a self-report measure of health, and that we obtained our items from various studies. Although self-report health measures are generally valid and tend to correlate with medical assessments (e.g., Miilunpalo, Vuori, Oja, Pasanen, & Urponen, 1997), future research should use a validated self-rated health measure (e.g., the EuroQol EQ-5D-3L; Brooks, 1996), and perhaps combine this with objective health indicators (e.g., blood pressure or Body Mass Index).

**Implications**

We believe our findings have important implications. First, they have practical relevance, as they may provide useful suggestions on how to implement a *social cure* (Jetten et al., 2012). In particular, practitioners should be aware that favouring within-group interaction and active participation in group activities might produce negligible health gains, if any, unless the type of social contact that is facilitated contributes to increased group identification.

Second, our findings have methodological implications, as they suggest that when investigating the effects of group life on health, researchers should include group identification among their predictors. It is important to emphasise this point because, while occasionally acknowledging that the way ingroups are subjectively experienced is a central aspect of social integration (Brissette, Cohen, & Seeman, 2000) research about social integration and health has almost always ignored the subjective aspect of group life.

**Conclusions**

Group life is a central dimension of human existence. People are born as members of particular groups and keep affiliating with groups for their entire lives. Research has increasingly shown that subjective group identification is a pre-condition for mutual attraction and reciprocal support within that group (Haslam, 2004). This paper confirms that family identification impacts positively on health over time, and that such impact is not reducible to the influence exerted by

mere interpersonal exchanges with other family members. This, we believe, is an important step forward in our understanding of the interplay between our social existence and health.

## References

Adler, N. E., & Snibbe, A. C., (2003). The role of psychosocial processes in explaining the gradient between socioeconomic status and health. *Current Direction in Psychological Science, 12*, 119-123. doi: 10.1111/1467-8721.01245.

Arbuckle, J. L. (2011). *IBM SPSS Amos 20 user's guide*. IBM Corporation, Armonk.

Bech, P., Rasmussen, N.-A., Olsen, L. R., Noerholm, V., & Abildgaard, W. (2001) The sensitivity and specificity of the Major Depression Inventory, using the Present State Examination as the index of diagnostic validity. *Journal of Affective Disorders, 66*, 159-164. doi: 10.1016/S0165-0327(00)00309-8.

Brassai, L., Piko, B. F., & Steger, M. F. (2011). Meaning in life: Is it a protective factor for adolescents' psychological health? *International Journal of Behavioral Medicine, 18*, 44-51. doi: 10.1007/s12529-010-9089-6.

Brissette, I., Cohen, S., & Seeman, T. E. (2000). Measuring social integration and social networks. In S. Cohen, L. G. Underwood, & B. H. Gottlieb (Eds.), *Social support measurement and intervention: A guide for health and social scientists* (pp. 53-85). Oxford: Oxford University Press.

Brooks, R. (1996). EuroQol: The current state of play. *Health Policy 37*, 53-72. doi: 10.1016/0168-8510(96)00822-6.

Cacioppo, J. T., & Patrick, W. (2008). *Loneliness: Human nature and the need for social connection*. New York: W. W. Norton & Company.

Cohen, S. (2004). Social relationships and health. *American Psychologist, 59*, 676-684. doi: 10.1126/science.3399889.

Cohen, S., Doyle, W. J., Skoner, D. P., Rabin, B. S., & Gwaltney, J.M. (1997). Social ties and susceptibility to the common cold. *Journal of the American Medical Association, 227*, 1940-1944. doi: 10.1001/jama.1997.03540480040036.

Cruwys, T., Haslam, S. A., Dingle, G. A., Jetten, J., Hornsey, M. J., Chong, E. M. D., & Oei, T. P. S. (2014). Feeling connected again: Interventions that increase social identification reduce depression symptoms in community and clinical settings. *Journal of Affective Disorders, 159*, 139-146. doi: 10.1016/j.jad.2014.02.019.

Fischer, R., Ferreira, M. C., Assmar, E., Redford, P., Harb, C., Glazier, S.,…Achoui, M. (2009). Individualist-collectivism as descriptive norms: Development of a subjective norm approach to culture measurement. *Journal of Cross Cultural Psychology, 40*, 187-213. doi: 10.1177/0022022109332738.

Glass, T. A., Mendes de Leon, C. F., Bassuk, S. S., & Berkman, L. F. (2006). Social engagement and depressive symptoms in late life. *Journal of Aging and Health, 18*, 604-628.

Gleibs, I. H., Haslam, C., Haslam, S. A., & Jones, J. M. (2011). Water clubs in residential care: Is it the water or the club that enhances health and well-being? *Psychology & Health, 26*, 1361-1377. doi: 10.1080/08870446.2010.529140.

Haslam, S. A. (2004). *Psychology in organizations: The social identity approach*. London: Sage.

Haslam, S. A., Jetten, J., Postmes, T., & Haslam, C. (2009). Social identity, health and well-being: An emerging agenda for applied psychology. *Applied Psychology, 58*, 1-23. doi: 10.1111/j.1464-0597.2008.00379.x.

Haslam, S. A., Jetten, J., & Waghorn, C. (2009). Social identification, stress and citizenship in teams: A five-phase longitudinal study. *Stress and Health, 25*, 21-30. doi: 10.1002/smi.1221.

Haslam, S. A., O'Brien, A., Jetten, J., Vormedal, K., & Penna, S. (2005). Taking the strain: Social identity, social support, and the experience of stress. *British Journal of Social Psychology, 44*, 355-370. doi: 10.1348/014466605X37468.

Haslam, S. A., Reicher, S. D., & Levine, M. (2012). When other people are heaven, when other people are hell: How social identity determines the nature and impact of social support. In

J. Jetten, C. Haslam, & S. A. Haslam (Eds.), *The social cure: Identity, health and well-being* (pp. 157-174). New York: Psychology Press.

Iyer, A., Jetten, J., Tsivrikos, D., Postmes, T., & Haslam, S. A. (2009). The more (and the more compatible) the merrier: Multiple group memberships and identity compatibility as predictors of adjustment after life transitions. *British Journal of Social Psychology*, *48*, 707-733. doi: 10.1348/014466608X397628.

Jetten, J., Haslam, C., Haslam, S. A. (2012). *The social cure: Identity, health and well-being*. New York: Psychology Press.

Jones, J. M., & Jetten, J. (2010). Recovering from strain and enduring pain: Multiple group memberships promote resilience in the face of physical challenges. *Social Psychological and Personality Science, 2*, 239–244. doi:10.1177/1948550610386806.

Khan, S. S., Hopkins, N., Reicher, S., Tewari, S., Srinivasan, N., & Stevenson, C. (in press). Shared identity and well-being in mass gatherings. *Group Processes and Intergroup Relations*. doi: 10.1177/1368430214556703.

Khan, S. S., Hopkins, N., Reicher, S., Tewari, S., Srinivasan, N., & Stevenson, C. (2015). How collective participation impacts social identity: A longitudinal study from India. *Political Psychology*. doi: 10.1111/pops.12260.

Levy, B. R., & Myers, L. M. (2004). Preventative health behaviors influences by self-perceptions of aging. *Preventative Medicine, 39*, 625-629. doi: 10.1016/j.ypmed.2004.02.029.

Miilunpalo, S., Vuori, I., Oja, P., Pasanen, M., & Urponen, H. (1997). Self-rated health status as a health measure: The predictive value of self-reported health status on the use of physician services and on mortality in the working-age population. *Journal of Clinical Epidemiology, 50*, 517-528. doi: 10.1016/S0895-4356(97)00045-0.

Mikolajczyk, R. T., Brzoska, P., Maier, C., Ottova, V., Meier, S, Dudziak, U.,…El Ansari, W. (2008). Factors associated with self-rated health status in university students: A cross-sectional study in three European countries. *BMC Public Health, 8*, 215. doi: 0.1186/1471-2458-8-215.

Miller, K., Wakefield, J. R. H., & Sani, F. (2015). Identification with social groups is associated with mental health in adolescents: Evidence from a Scottish community sample. *Psychiatry Research*. doi: 10.1016/j.psychres.2015.05.088.

Oyserman, D., Fryberg, S. A., & Yoder, N. (2007). Identity-based motivation and health. *Journal of Personality and Social Psychology, 93*, 1011-1027. doi: 10.1037/0022-3514.93.6.1011.

Reicher, S. D., & Haslam, S. A. (1996a). Tyranny revisited: Groups, psychological well-being and the health of societies. *The Psychologist*, *19*, 146-150.

Reicher, S. D., Haslam, S. A. (1996b). Rethinking the psychology of tyranny: The BBC Prison Study. *British Journal of Social Psychology, 45*, 1-40. doi: 10.1348/014466605X48998.

Rook, K. S. (1984). The negative side of social interaction: Impact on psychological well-being. *Journal of Personality and Social Psychology, 46*, 1097-1108. doi: 10.1037/0022-3514.46.5.1097.

Sani F., Herrera M., Wakefield, J. R. H., Boroch, O., & Gulyas, C. (2012). Comparing social contact and group identification as predictors of mental health. *British Journal of Social Psychology, 51*, 781-790. doi: 10.1111/j.2044-8309.2012.02101.x.

Sani, F., Madhok, V., Norbury, M., Dugard, P., & Wakefield, J. R. H. (2015a). Greater number of group identifications is associated with healthier behaviour: Evidence from a Scottish community sample. *British Journal of Health Psychology*. doi: 10.1111/bjhp.12119

Sani, F., Madhok, V., Norbury, M., Dugard, P., & Wakefield, J. R. H. (2015b). Greater number of group identifications is associated with lower odds of being depressed: Evidence

from a Scottish community sample. *Social Psychiatry and Psychiatric Epidemiology*. doi: 10.1007/s00127-015-1076-4.

Sani, F., Magrin, M. E., Scrignaro, M., & McCollum, R. (2010). In-group identification mediates the effects of subjective in-group status on mental health. *British Journal of Social Psychology, 49*, 883-893. doi: 10.1348/014466610X517414.

Schofield, P. E., Pattison, P. E., Hill, D. J., & Borland, R. (2001). Youth culture and smoking: Integrating social group processes and individual cognitive processes in a model of health-related behaviours. *Journal of Health Psychology, 8*, 291-306. doi: 10.1177/13591053030083001.

Segrin, C., & Flora, J. (2014). *Family communication*. Mahwah, N.J.: Routledge.

Tomasello, M. (2014). The ultra-social animal. *European Journal of Social Psychology 44*, 187-194. doi: 10.1002/ejsp.2015.

Tomasello, M. (2009). *Why we cooperate*. Cambridge, M. A.: Boston Review.

Tuomela, R. (2007). *The philosophy of sociality: The shared point of view*. Oxford: University Press.

Umberson, D., Crosnoe, R., & Reczek, C. (2010). Social relationships and health behavior across life course. *Annual Review of Sociology, 36*, 139-157.

Wakefield, J. R. H., Bickley, S., & Sani, F. (2013). The effects of identification with a support group on the mental health of people with multiple sclerosis. *Journal of Psychosomatic Research, 74*, 420-426. doi: 10.1016/j.jpsychores.2013.02.002.

Wegge, J., van Dick, R., Fisher, G.K., Wecking, C., & Moltzen, K. (2006). Work motivation, organizational identification, and well-being in call centre work. *Work & Stress*, 20, 60-83. doi: 10.1080/02678370600655553.

Wegge, J., Schuh, S. C., & van Dick, R. (2011). 'I feel bad', 'We feel good'?- Emotions as the driver for personal and organizational identity and organizational identification as a resource for serving unfriendly customers. *Stress and Health*, *28*, 123-136. doi: 10.1002/smi.1412

## Footnotes

[1]Although these alphas are low, reliability is largely irrelevant in this case. This is because the contact items were not intended to tap the same construct, and were instead designed to be additive: e.g., some people talk to many family members face-to-face, talk to no family members on the telephone, and go to a few family-related events, so these three variables do not have to be related to each other in any way (see Khan et al.'s (2015) discussion of this issue with regards to their measure of religious practices in Hindu pilgrims, as well as Sani et al. (2015a, 2015b), both of which operationalized contact in the same manner as the present study).

[2]If gender and age are included, the pattern of results does not change (although model fit is somewhat poorer than that reported).

[3] It should be noted that our questionnaire contained a large number of measures aimed at investigating other issues. Therefore, these measures are not reported in this manuscript. However, one of these measures - the Major Depression Inventory (e.g., Bech, Rasmussen, Olsen, Noerholm, & Abildgaard, 2001) - may actually be of relevance to the current study. This is because, as noted in the Introduction, previous research by Haslam et al. (2009) and Khan et al. (in press) has established a longitudinal link between group identification at Time 1 (the theatre production company group and the Hindu religious group respectively) and mental health at a later time-point (lower likelihood of burnout and improved self-rated mental wellbeing respectively). However, neither of these papers examined the possibility of reciprocal causality, nor did they examine the relationship with regards to the family group. With these issues in mind, we conducted some additional analyses that we summarise below.

We found that, as expected, there was a significant negative correlation between T1 and T2 depression ($p < .001$), and that family identification T1 and T2 and ill-health T1 and T2 were all negatively correlated with depression T1 and T2 ($ps < .001$). Family contact T2 correlated negatively with both T1 and T2 depression ($ps < .01$), but family contact T1 did not ($ps > .09$). Being male was associated with higher depression at T1 and T2 ($ps < .01$).

For completeness, we also re-ran our cross-lagged panel analysis model so that it included the T1 and T2 depression variables. Model fit was poorer than that obtained when depression was not included in the

model, although this would be expected, since both models include all possible paths (except for those between dependent variables) , $X^2(6) = 16.80$, $p = .01$; CFI = .964; RMSEA = .095 (Lower 90% CI = .043, Upper 90% CI = .150); SRMR = .034. The nature of the relationships between family identification, family contact, and ill-health did not change from the model presented in the manuscript. Additionally, family identification T1 predicted depression T2 (-.34, $p < .001$; Lower CI = -.51, Upper CI = -.16), but depression T1 did not predict family identification T2 (-.11, $p = .12$; Lower CI = -.29, Upper CI = .06). Indeed, family identification TI predicted depression T2 more strongly than depression T1 predicted depression T2 (.30, $p <.001$; Lower CI = .12, Upper CI = .48). Additionally, family contact T1 was unrelated to depression T2 (-.01, $p = .91$; Lower CI = -.13, Upper CI = .11), although depression T1 predicted family contact T2 (-.16, $p = .03$; Lower CI = -.27, Upper CI = -.03). Ill-health T1 was unrelated to depression T2 (.09, $p = .16$; Lower CI = -.05, Upper CI = .21), although depression T1 predicted ill-health T2 (.14, $p = .03$; Lower CI = -.01, Upper CI = .30). The $R^2$ values for depression T2, ill-health T2, family identification T2, and family contact T2 were .33, .28, .21, and .18 respectively, indicating that the T1 predictors explained 33%, 28%, 21%, and 18% of the variance in the four outcome variables respectively. Overall, this model shows that family identification exerted a statistically significant negative effect on depression and ill-health over time, but not vice-versa. Moreover, family contact had no effect on depression or ill-health over time.

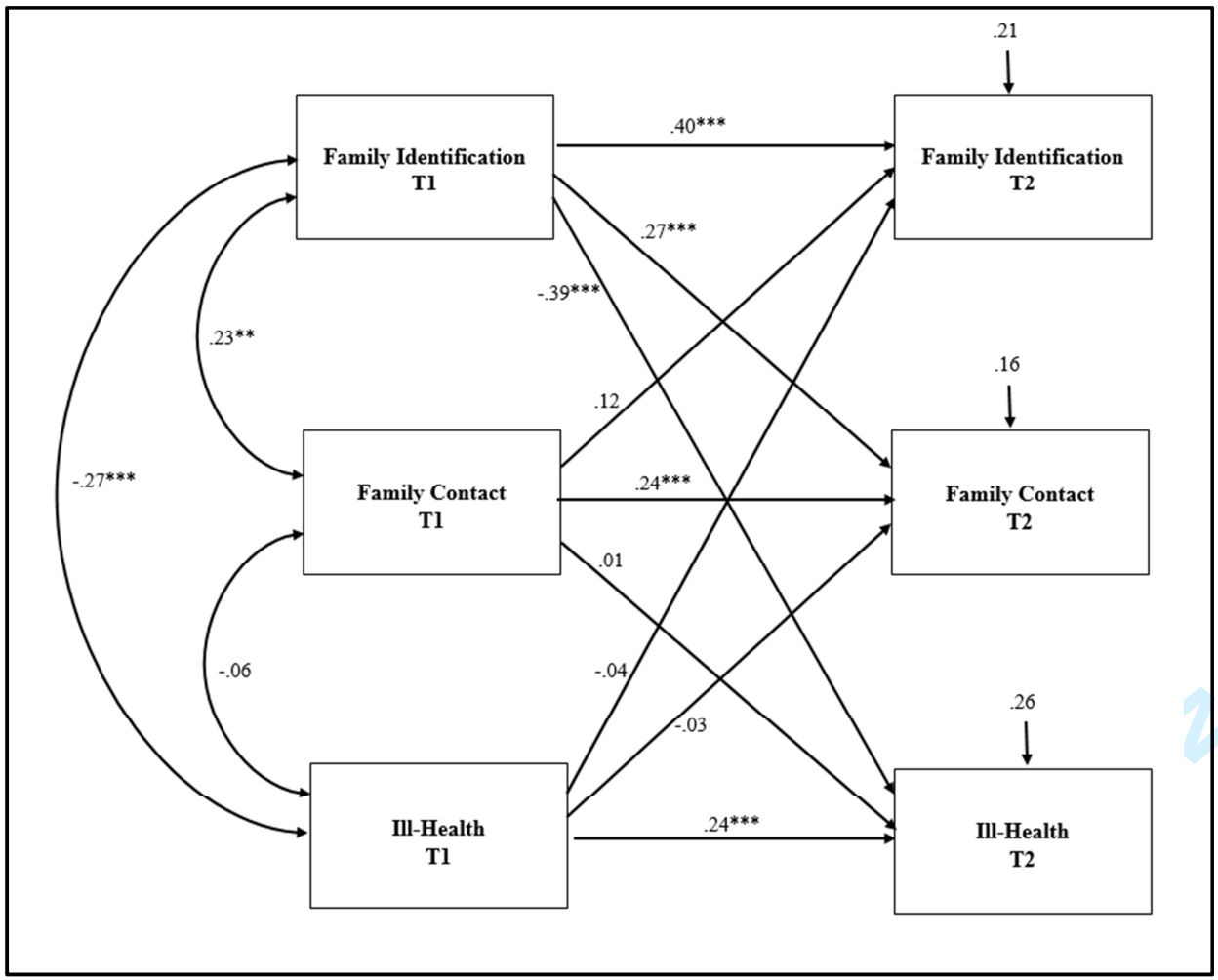
Table 1

*Means and Standard Deviations for Variables at T1 and T2, and Intercorrelations.*

| Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| 1. Family Identification T1 ($M$ = 5.83; $SD$ = 0.90) | - | | | | | | | |
| 2. Family Identification T2 ($M$ = 5.87; $SD$ = 0.97) | .44*** | - | | | | | | |
| 3. Family Contact T1 ($Z$-score) ($M$ = 0.00; $SD$ = 2.07) | .24*** | .21** | - | | | | | |
| 4. Family Contact T2 ($Z$-score) ($M$ = 0.00; $SD$ = 2.07) | .33*** | .25*** | .30*** | - | | | | |
| 5. Ill-Health T1 ($M$ = 1.92; $SD$ = 0.50) | -.27*** | -.16* | -.05 | -.12 | - | | | |
| 6. Ill-Health T2 ($M$ = 1.87; $SD$ = 0.48) | -.45*** | -.26*** | -.09 | -.12 | .35*** | - | | |
| 7. Age T1 ($M$ = 21.02; $SD$ = 2.09) | .09 | .03 | .05 | -.03 | .13 | .03 | - | |
| 8. Gender (Female = 0; Male = 1) | -.31*** | -.21** | -.17* | -.25*** | .07 | .09 | -.04 | - |

*** $p < .001$; ** $p < .01$; * $p < .05$

*Figure 1.* Cross-lagged model testing the relationship between family identification, family contact, and ill-health over time.




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