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Home is where you hang your hat: Host town identity, but not hometown identity, protects  
against mental health symptoms associated with financial stress

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## Abstract

Debt and financial insecurity are associated with stress, low self-worth and poor health. Joining and identifying with social groups (social identification) promotes better health and higher self-esteem. Here, we examined whether identifying with one's local neighbourhood protected people from developing mental health symptoms associated with financial stress. We analysed data from a general population survey (Study 1, N=4319) and a student mental health survey (Study 2, N=612) conducted in the North West of England. We administered measures of financial stress, self-esteem, neighbourhood identity and mental health, and conducted moderated mediation analyses to test our predictions. Study 1 (population survey) demonstrated that stronger identification with one's local neighbourhood attenuated the adverse effects of financial stress on self-esteem and subsequent mental health. Study 2 (student survey) showed that strong host town identities buffered students from mental health symptoms related to financial stress. Strong hometown identities, however, showed no buffering effect. The findings suggest that one way financial stress impacts mental health is by eroding self-esteem. Identifying with one's current place of residence appears to disrupt this pathway, whilst identifying with one's previous place of residence does not provide the same psychological protection.

**Keywords:** identity, financial stress, self-esteem, mental health symptoms

## **Background**

The need to belong to groups has been described as a fundamental human drive (Baumeister & Leary, 1995). Incorporating social groups into one's sense of self, through the process of social identification, has been shown to protect people against poor mental health and low well-being (Haslam, Jetten & Waghorn, 2009). There is also evidence to suggest that identifying with social groups reduces stress and shapes the way people appraise stressful situations (Haslam, O'Brien, Jetten, Vormedal & Penna, 2005). Identification may thus provide psychological resilience during times of stress and adversity, such as unemployment or rising debt. Indeed, stress and associated mental health issues stemming from economic deprivation represent a global problem (Lund et al., 2010) that is likely to worsen if economic inequalities persist. It is therefore imperative that we understand the processes that lead from financial stress to mental health difficulties, and how we can disrupt this pathway to prevent mental illness.

According to Lazarus and Folkman (1984), stress can be conceptualized as an appraisal of harm, threat or challenge. Research has reported consistent associations between stressful life experiences and poor mental health (Williams, Yu, Jackson & Anderson, 1997; Meyer, 2003), and the effects can be severe enough to lead to depression, suicidal ideation, and psychosis (Hovey & King, 1996; Ciarrochi, Deane & Anderson, 2002; Wilburn & Smith, 2005; Richardson, Elliot & Roberts, 2013). At the present time, there is good reason for concern about the prevalence and impact of financial stress. Indeed, despite more cautious borrowing since the 2008 financial crises in the US and Europe, global private liabilities have continued to increase and totalled EUR 35.2 trillion in 2014 (Brandmeir, Grimm, Heise, & Holzhausen, 2015). The negative health consequences of this kind of unsecured debt have been well documented (see Richardson et al. 2013). The factors that explain and mitigate these effects, however, are not well understood. In the present research, we examine whether identifying with one's local neighbourhood protects against the adverse effects of financial

stress on mental health. Further, we test whether hometown neighbourhood identities provide similar psychological resilience during financial strain.

### **The impact of financial stress on self-esteem and mental health**

It has been suggested that self-esteem represents a disparity between the actual and ideal self (Harter, 1990; Block & Robins, 1993), which is reflected in an individual's positive or negative self-evaluations (Rosenberg, Schooler, Schoenbach, & Rosenberg, 1995). Past research has identified links between low self-esteem and poor mental health, including anxiety and depression (Brandmeir et al., 2015). For example, adolescents with low self-esteem suffer from worse mental health symptoms compared with their counterparts with higher self-esteem (Roberts, Gotlib & Kassel, 1996). Moreover, in studies examining symptoms of psychosis, patients with paranoid symptoms (persecutory beliefs) have been found to have low (Wickham, Sitko & Bentall, 2015) and highly unstable (Thewissen, Bentall, Lecomte, van Os, & Myin-Germeys, 2008) self-esteem. These negative beliefs about the self maintain paranoia over time (Fowler et al., 2011) and predict poorer recover from symptoms (Trzesniewski et al., 2006). Critically, fluctuations in self-esteem have been shown to precede episodes of paranoia, suggesting a potential causal pathway from low self-esteem to poor mental health (Thewissen et al., 2008).

It is plausible that some of the effects of financial stress on mental health are mediated by the deterioration of self-esteem. The evidence relating to debt and self-esteem has been inconsistent. Some studies suggest that absolute level of debt may be unrelated to self-esteem (Crocker & Luhtanen 2003; Pinto, Mansfield, & Parente, 2004). Dwyer, McCloud and Hodson (2011) suggest that debt increases self-esteem because debt is often the result of a positive investment. However, stress associated with debt is more consistently associated with lower self-worth (Krause, Jay & Liang 1991; E. Diener, & M. Diener, 1995; Mayhew, & Lempers, 1998). In a prospective study of veterans aged between 35 and 60 years, self-esteem and mental health was measured in groups of employed and unemployed men,

respectively (Linn, Sandifer, & Stein, 1985). Unemployment was found to be associated with higher levels of depression and anxiety; however, wide variation in the self-esteem of unemployed participants suggested that some men were more resilient to self-esteem deficits following unemployment. The study we undertook sought to determine whether social identification might play a part in promoting reliance to the potential impact of financial stress.

### **Social identification as a protective factor**

The term social identity refers to the sense of self that develops when thinking about oneself as part of a social group (Tajfel, 1972). When people feel connected to positive and cohesive social groups, and incorporate those groups into their identity, it provides a sense of purpose and meaning (Dingle, Brander, Ballantyne, & Baker, 2013). Research on the effects of social identification on health has increased exponentially over the last decade, and findings suggest that joining and identifying with groups is associated with better physical health and improved well-being (Haslam, Jetten & Waghorn, 2009) and cognitive functioning (C. Haslam, Cruwys, Milne, Kan, & S. A. Haslam, 2016), as well as a lower risk of depression (Cruwys et al., 2013; Cruwys, Haslam, Dingle, Haslam, & Jetten, 2014) and paranoia (McIntyre, Wickham, Barr, & Bentall, 2017; Sani, Wakefield, Herrera, & Zeybek, 2017).

It is likely that the positive effects of identity on mental health are the result of the boost to self-esteem experienced by high identifiers. As originally proposed by Tajfel and Turner (1979), being part of a group that is personally important provides an individual with a more positive sense of self. Consistent with this assertion, in a study comprising African American participants it was found that identifying with groups that are valued increased both personal and collective self-esteem (Branscombe, Schmitt, & Harvey 1999). Similar results have been observed among older adults, children, and homeless people (Jetten et al., 2015), as well as in a longitudinal study assessing students' self-esteem (Iyer, Jetten,

Tsivrikos, Postmes, & Haslam, 2009). Thus, past research suggests that social identities buffer against mental health difficulties by fostering self-esteem.

Whereas previous research has explored the relationships that aspects of health and wellbeing have with the extent to which people identify with groups such as families, sporting teams, workplaces, recreation groups, and universities (see Cruwys et al., 2014), comparatively little research has focused on the impact of location-based identities on health and wellbeing. With substantial sections of the population lacking financial resources and confidence to join recreation groups, and/or having no access to occupational or educational settings, neighbourhood identification may be one form of society identify that people retain access to.

### **The present research**

Here, we aimed to assess whether neighbourhood identification attenuated the negative effects of financial stress on self-esteem and mental health. We tested our hypothesis using two existing datasets. The first was a large household health survey conducted in North West England (Study 1), and the second was a student mental health survey conducted in Universities in England and Wales (Study 2). Given the reviewed evidence that social identification improves mental health by bolstering self-esteem, and that financial stress is associated with negative self-concepts and poor mental health, we predicted that strong neighbourhood identification would attenuate the negative impact of financial stress on self-esteem and subsequent mental health.

## **Study 1 Data and Methods**

### **Participants and design**

The survey was conducted as part of the National Institute of Health Research Collaboration for Leadership in Applied Health Research and Care North West Coast (NIHR CLAHRC NWC). In conjunction with local authorities, NHS partners and public advisors,

we designed a comprehensive health and wellbeing survey. A total of 4319 participants from households across the North West of England were recruited between August 2015 and January 2016. The sample consisted of 1854 (43%) men and 2465 (57%) women whose ages ranged from 18 to 95 years ( $M = 49.12$ ,  $SD = 19.13$ ). The adjusted response rate (excluding addresses where no one was home) for the study was 61%. The majority of participants (89%) indicated that they were of White European ethnic background. All respondents were reimbursed with a £10 (US\$ 14) voucher in return for their participation.

### **Sampling procedure**

The NIHR CLAHRC NWC survey was conducted to provide a baseline assessment to support the development and evaluation of area-based interventions that promote health and wellbeing. The sampling procedure reflected this objective. A random probability sample was taken from 10 high deprivation intervention areas, 10 matched comparator high deprivation areas, and 8 low deprivation areas. Three times as many addresses as was required to achieve the target sample for each area were randomly selected using the postcode address file. Sample targets were 200 for the intervention areas, 150 for the high deprivation comparator areas, and 100 for the low deprivation areas. These sample targets were met within a 5% tolerance (see McIntyre et al., 2017 for a more detailed description of the sampling procedure).

### **Measures**

**Financial stress.** Financial stress was measured with an item sourced from the Work, Attitudes, and Spending Survey (WAS; Office for National Statistics, 2016). Participants were asked to indicate on a three-point scale how well their household was managing financially these days. Response options were: 1 = doing well, 2 = getting by, 3 = struggling.

**Neighborhood identity.** Neighborhood identity was measured using a single item from the UK Community Life Survey (2015). Participants indicated on a four-point scale the extent to which they felt they belonged to their immediate neighborhood, with neighborhood



defined to participants as “your street or block”. Response options ranged from 1 = not at all strongly to 4 = very strongly. The item taps into the sense of group belonging, which has been implicated in the centrality (Sellers, Smith, Shelton, Rowley, & Chavous, 1998), satisfaction (Luhtanen & Crocker, 1992) and solidarity (Ellemers, Kortekaas, & Ouwerkerk, 1999) components of social identification.

**Self-esteem.** Participants completed the single-item self-esteem scale (Robins, Hendin, & Trzesnieeski 2001) . Participants indicated on a seven-point scale how true or untrue the statement “I have high self-esteem” was for them, 1 = not very true of me, 7 = very true of me.

**Paranoia.** Paranoia was assessed with five items taken from the persecution subscale of the persecution and deservedness scale (PaDS; Melo, Corcoran, Shryane, & Bentall, 2009). Participants rated their agreement on a five-point scale with statements such as “I’m often suspicious of other people’s intentions towards me” and “You should only trust yourself”. Response options ranged from 1 = strongly disagree to 5 = strongly agree. The level of internal consistency for the scale was satisfactory ( $\alpha=.84$ ).

**Depression.** Depression was assessed with the nine item Patient Health Questionnaire (PHQ-9; Kroenke & Spitzer, 2002). Participants were asked to indicate how often they had been bothered by problems such as “feeling down, depressed, or hopeless” and “thoughts that you would be better off dead, or hurting yourself in some way” over the last two weeks. Response options ranged from 1 = not at all to 4 = nearly every day,  $\alpha=.90$ .

**Anxiety.** The Generalized Anxiety Disorder-7 (GAD-7; Spitzer, Kroenke, Williams, & Löwe, 2006) is a seven-item instrument that assesses the frequency of events such as “worrying too much about different things” and “being so restless that it is hard to sit still”. Respondents indicated the frequency of each symptom over the past two weeks on a scale ranging from 0 = not all to 3 = nearly every day,  $\alpha=.93$ .

**Demographic variables.** Participants were asked to indicate their age (1 to 10 in age bands), sex (coded as 1 = male, 2 = female), ethnicity (coded as 0 = UK/White, 1 = Black and ethnic minority; due to the large proportion of White respondents), employment status (coded as 0 = not employed, 1 = employed), and education level (coded as 0 = no degree, 1 = degree). We also controlled for the sampling of high (-1) and low (1) deprivation neighborhoods.

## **Study 1 Results**

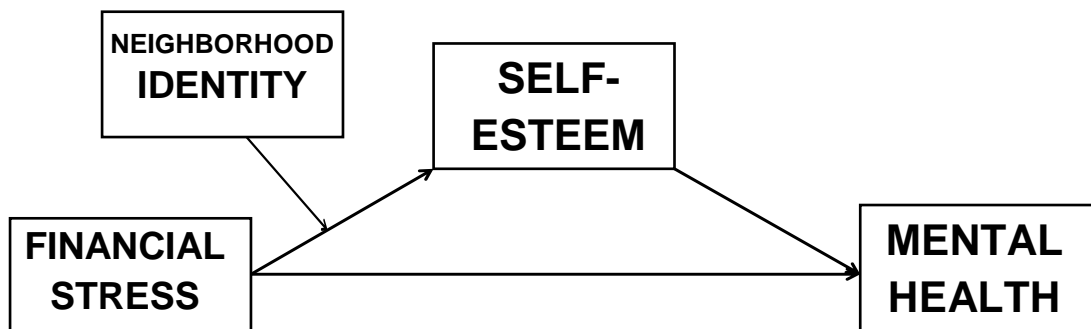
### **Preliminary analyzes**

Means, standard deviations and zero-order correlations are presented in Supplementary Table 1 (Appendix A). Financial stress was associated with lower self-esteem and higher scores on all three mental health symptoms (paranoia, depression and anxiety). Neighbourhood identity was associated with higher self-esteem and lower mental health symptoms. Paranoia was moderately associated with higher depression and anxiety, and depression and anxiety were highly positively correlated with each other. All three mental health symptoms were associated with lower self-esteem.

Given the high comorbidity of symptoms associated with depressive and psychotic disorders and the high correlation between depression and anxiety observed in this study, we conducted a principle component analysis (PCA) using item scores of the scales to test whether symptoms were best represented by separate factors. We specified a rotated component solution (varimax rotation) with extraction restricted to eigenvalues > 1. The rotated component matrix and scree plot indicated three distinct components that mapped identically onto the pre-existing symptom scales of anxiety (accounting for 49% of the variance), depression (accounting for 9% of the variance) and paranoia (accounting for 5% of the variance). Thus, each symptom was examined as a separate dependent variable.

### **Moderated mediation analyzes**

As shown in Table 1, we conducted three moderated mediation analyzes using model 7 in the PROCESS extension to SPSS (Hayes, 2012) to test whether the indirect effect of financial stress on mental health symptoms (paranoia (Model A), depression (Model B) and anxiety (Model C)) through self-esteem was moderated by neighbourhood identity (see Figure 1). Indirect effects were calculated via bootstrapping with 1000 resamples and are reported at +/- 1 SD of neighbourhood identity. Confidence intervals for the index of moderated mediation (IMM) did not cross zero for all three mental health symptoms. Inspection of the coefficients revealed that the positive indirect effect of financial stress on mental health via self-esteem was attenuated at high levels of neighbourhood identification.



**Figure 1.** Conceptual model of moderated mediation effect in Study 1

**Table 1.** Unstandardized direct and indirect effects between financial stress, self-esteem, and mental health symptoms at low (-1 SD) and high (+ 1 SD) Neighborhood identity in Study 1.

			B	(S.E.)	(95% CI)
<b>Model A: Paranoia</b>					
Path a					
Self-esteem	On	Financial stress	-1.01***	.16	-1.33, -.69
		Neighborhood ID	-.12	.10	-.32, .08

		Sex	-.13*	.05	-.23, -.03
		Ethnicity	.12**	.04	.04, .19
		Age	-.07***	.01	-.09, -.04
		Deprivation	.16***	.03	.09, .22
		Financial Stress X Neighbourhood ID	.14**	.05	.05, .24
Path b					
Paranoia	On	Self-esteem	-.13***	.01	-.14, -.11
Path c					
Paranoia	On	Financial stress	.30***	.02	.26, .35
		Sex	-.05*	.03	-.10, -.01
		Ethnicity	-.02	.02	-.05, .02
		Age	-.03***	.01	-.04, -.01
		Deprivation	-.08***	.02	-.11, -.04
Bootstrapped indirect effect at <b>low</b> Neighborhood ID			.09*	.01	.07, .11
Financial stress → Self-esteem → Paranoia					
Bootstrapped indirect effect at <b>high</b> Neighborhood ID			.06*	.01	.04, .07
Financial stress → Self-esteem → Paranoia					
Index of moderated mediation			-.02*	.01	-.03, -.005
<b>Model B: Depression</b>					
Path a					
Self-esteem	On	Financial stress	-1.00***	.16	-1.32, -.68
		Neighborhood ID	-.12	.10	-.32, .09
		Sex	-.13*	.05	-.23, -.02
		Ethnicity	.11**	.04	.04, .19
		Age	-.07***	.01	-.09, -.04
		Deprivation	.16***	.03	.09, .22
		Financial Stress X Neighbourhood ID	.13**	.05	.04, .24
Path b					

Paranoia	On	Self-esteem	-.10***	.01	-.11, -.09
Path c					
Paranoia	On	Financial stress	.26***	.02	.23, .29
		Sex	-.02	.02	-.06, .02
		Ethnicity	-.06***	.01	-.09, -.04
		Age	-.03***	.005	-.04, -.02
		Deprivation	-.05***	.01	-.07, -.03
Bootstrapped indirect effect at <b>low</b> Neighborhood ID			.07*	.01	.05, .09
Financial stress → Self-esteem → Paranoia					
Bootstrapped indirect effect at <b>high</b> Neighborhood ID			.05*	.01	.03, .06
Financial stress → Self-esteem → Paranoia					
Index of moderated mediation			-.01*	.006	-.02, -.004

**Model C: Anxiety**

Path a

Self-esteem	On	Financial stress	-1.00***	.16	-1.31, -.68
		Neighborhood ID	-.11	.10	-.32, .09
		Sex	-.13*	.05	-.23, -.02
		Ethnicity	.12**	.04	.04, .19
		Age	-.07***	.01	-.10, -.04
		Deprivation	.16***	.03	.09, .22
		Financial Stress X Neighbourhood ID	.14**	.05	.04, .24

Path b

Paranoia	On	Self-esteem	-.12***	.01	-.13, -.11
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Path c

Paranoia	On	Financial stress	.28***	.02	.25, .31
		Sex	.02	.02	-.02, .06
		Ethnicity	-.08***	.01	-.11, -.06
		Age	-.04***	.01	-.05, -.03
		Deprivation	-.03*	.01	-.06, -.01

Bootstrapped indirect effect at <b>low</b> Neighborhood ID Financial stress → Self-esteem → Paranoia	.08*	.01	.07, .10
Bootstrapped indirect effect at <b>high</b> Neighborhood ID Financial stress → Self-esteem → Paranoia	.05*	.01	.04, .07
Index of moderated mediation	-.02*	.01	-.03, -.005

\* p < .05, \*\* p < .01, \*\*\* p < .001

### Study 2 Background

Study 1 found that the mediated effect of financial stress on mental health symptoms through self-esteem was significantly reduced, although not completely eliminated, when individuals from a general population sample identified strongly with their neighbourhoods.

People typically move between neighbourhoods during their lifetimes, and this may present challenges to neighbourhood identification. We therefore sought to study this effect in university students, a group that are particularly vulnerable to mental health issues (see Storrie, Ahern, & Tuckett, 2010). In the UK, students typically move some distance away from home to study and it has been observed that, when students make this transition, it may take them some time to establish their identity in their new environment (Iyer et al., 2009; Praherso, Tear, & Cruwys, 2017). However, according to the Social Identity Model of Identity Change (SIMIC; Jetten & Pachana, 2012), the potential negative impact of life transitions on health and well-being can be attenuated by positive social relationships. We, therefore, tested whether new (or host town) identities were more protective than hometown identities against the adverse effects of financial stress after the major life transition of starting university.

### Study 2 Data and Methods

## Participants

A total of 612 students attending university in Northern England and Wales completed the survey online. Women comprised sixty-four percent of the sample and the age of respondents ranged from 17 to 53 years ( $M = 21.61$ ,  $SD = 3.65$ ). Fourteen percent of the sample identified as black or belonging to another minority ethnic group. All participants who completed the survey were entered into a prize draw to win a gift voucher.

## Measures

**Financial stress.** The Debt Worry Scale (Cooke, Barkham, Audin, Bradley, & Davy, 2004) consists of two items: “Are financial concerns a current issue?” and “To what extent does your debt worry you?”. Participants responded on a five-point scale ranging from 1 = not at all to 5 = a lot. The two items were highly correlated  $r(552) = .74$ .

**Hometown and host town identity.** Participants responded to three items for each identity. The first two were derived from Doosje, Ellemers and Spears (1995): “I identify with [host town/hometown]” and “I feel strong ties with [host town/hometown]”. The third item was taken from Study 1 and involved group belonging (“I feel a sense of belonging to [host town/hometown]”). Host town was defined as the town or city where participants currently attended university. Hometown was defined as the town or city where participants had spent “the majority of your life”. Both host town identity ( $\alpha = .91$ ) and hometown identity ( $\alpha = .92$ ) showed high internal consistency.

**Self-esteem.** The Brief Core Schema Scale (Fowler et al., 2006) assesses positive and negative attitudes about the self and others. This scale is designed to be used with healthy participants and patients with psychosis. It has been used in many studies assessing beliefs about the self and others (e.g. Wearden, Peters, Berry, Barrowclough, & Liversidge, 2008). We limited our analyzes to the twelve self-relevant items, which included six positive descriptors (e.g., “I am respected”) and six negative descriptors (e.g., “I am weak”).

Participants responded on a five-point scale ranging from, 0 = do not believe to 4 = believe it totally,  $\alpha=.91$ .

**Mental health.** Participants completed the same depression ( $\alpha=.87$ ), anxiety ( $\alpha=.90$ ) and paranoia ( $\alpha=.80$ ) scales reported in Study 1.

**Demographic variables.** Demographic control variables were consistent with Study 1 with the exception of age which was measured continuously in years rather than in age bands. We also coded whether participants attended university in a different town to the place they reported as their hometown (0 = same town, 1 = different town).

## Study 2 Results

### Preliminary analyzes

Means, standard deviations and zero-order correlations are reported in Supplementary Table 2 (Appendix B). Of note, 455 (74%) of the 612 participants indicated that they attended university in a different town to their hometown. Correlation analyzes indicated that financial stress was associated with lower self-esteem and higher scores on all three mental health symptoms.

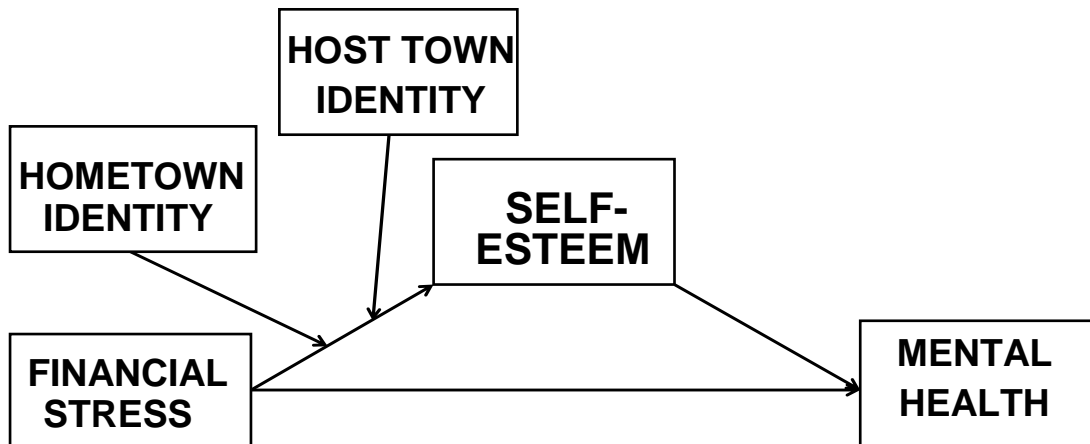
Higher financial stress was also associated with weaker hometown identity but was unrelated to host town identity. Both host town and hometown identities were associated with higher self-esteem and lower paranoia and depression. However, both types of identity were unrelated to anxiety. As in Study 1, paranoia was moderately associated with higher depression and anxiety. Depression and anxiety were highly positively correlated and higher self-esteem was associated with lower scores on all three mental health measures.

### Moderated mediation analyzes

We conducted twelve moderated mediation analyzes (4 identity combinations x 3 symptoms) to test whether the indirect effect of financial stress on mental health symptoms



(paranoia, depression and anxiety) through self-esteem was moderated by specific combinations of host town and hometown neighbourhood identity (see Figure 2).



**Figure 2.** Conceptual model of moderated mediation effect in Study 2

We used model 9 of the PROCESS extension in SPSS (Hayes, 2012). This model allows the assessment of conditional indirect effects at different levels of two moderators (mods) entered simultaneously (i.e., indirect effects at: low mod1/low mod2, low mod1/high mod2, high mod1/low mod2, and high mod1/high mod2) As in Study 1, indirect effects were calculated via bootstrapping with 1000 resamples and are reported at low (-1 SD) and high (+1 SD) levels of host town and hometown identity. Age, sex, ethnicity (white/BME) and whether participants did or did not attend university in their hometown were included in the models as covariates.

As shown in Table 2, results indicated that the mediated effect of financial stress on all three symptoms through self-esteem was significant when host town identity was low, irrespective of hometown identification levels. However, there was no effect of financial stress on mental health symptoms via self-esteem when host town identity was high,

irrespective of hometown identity levels. The strongest effect of financial stress on mental health was observed when there was a combination of low host town identity and high hometown identity. It should be noted that we reran these analyzes excluding people who reported the same hometown and host town, rather than controlling for this variable. This did not affect the significance or the relative strengths of the effects. That is, the strongest mediated effect remained at low host town/high hometown neighbourhood identity for all three mental health symptoms.

**Table 2.** Unstandardized indirect effects between financial stress, self-esteem, and mental health symptoms at low (-1 SD) and high (+ 1 SD) identity (ID) in Study 2.

	B	(S.E.)	(95% CI)
<b>Indirect effect at low host town ID and low hometown ID</b>			
Financial stress → Self-esteem → Paranoia	.21*	.09	.04, .39
Financial stress → Self-esteem → Depression	.30*	.12	.06, .56
Financial stress → Self-esteem → Anxiety	.22*	.09	.05, .41
<b>Indirect effect at low host town ID and high hometown ID</b>			
Financial stress → Self-esteem → Paranoia	.34*	.10	.16, .54
Financial stress → Self-esteem → Depression	.49*	.14	.23, .77
Financial stress → Self-esteem → Anxiety	.35*	.10	.16, .55
<b>Indirect effect at high host town ID and low hometown ID</b>			
Financial stress → Self-esteem → Paranoia	.02	.10	-.18, .20
Financial stress → Self-esteem → Depression	.02	.14	-.25, .29
Financial stress → Self-esteem → Anxiety	.02	.10	-.18, .20
<b>Indirect effect at high host town ID and high hometown ID</b>			
Financial stress → Self-esteem → Paranoia	.14	.08	-.01, .32

Financial stress → Self-esteem → Depression	.21	.12	-.02, .44
Financial stress → Self-esteem → Anxiety	.15	.09	-.01, .33

\* 95% CIs do not include zero.

## Discussion

In two studies we tested the hypothesis that social identification attenuates the negative effects of financial stress on self-esteem and subsequent mental health. In Study 1, we analysed data from a large sample of UK residents and found that the mediated effect of financial stress on mental health symptoms through self-esteem was attenuated at high levels of neighbourhood identification. In Study 2, we assessed data from a student mental health survey conducted in universities in England and Wales. Results showed that the mediated effect of financial stress on mental health symptoms via self-esteem was no longer present when people identified highly with their town of residence, but not when they identified highly with their hometown neighbourhood. The results also provided suggestive evidence that possessing a strong hometown identity may even be harmful when combined with low host town identity. Overall, the findings indicate that feeling identified with the place where you live protects against the harmful effects of financial stress on mental health. However, hometown identification has no protective value, and may even be harmful in this context. Therefore, whilst social identity is an important determinant of mental health, not all identities are equal. Indeed, identities associated with one's current neighbourhood or town loom large in terms of fortifying people against poor mental health in times of financial struggle.

Our findings support previous research that has suggested social identification increases self-esteem and improves mental health (Haslam, Jetten & Waghorn, 2009; Haslam, Cruwys, Haslam, Dingle, & Chang, 2016). The SIMIC model is also supported in it's

implication that social groups help individuals to develop a sense of purpose and self worth during life transitions, such as moving to a new town to attend university. It is well known that psychological symptoms are more apparent in individuals with low self-esteem and, in line with past research, we found that low self-esteem was associated with anxiety and depression (Fowler et al., 2011; Roberts et al., 1996), as well as paranoia (Fowler et al., 2011; Thewissen et al., 2008; Wickham et al., 2015), in both general population and student samples.

It has been argued that groups provide their members with purpose and meaning (Dingle et al. 2013; S.A. Haslam, Jetten, Postmes, & C. Haslam, 2009). However, as this study highlights, although hometown neighbourhood identities are valued and may, on the surface, seem important and meaningful, they do not appear to be relevant to mental health once a person has moved away from home. This finding appears to conflict with a model of immigrant mental health that categorizes the process of acculturation (adopting a new culture) into four outcomes based on identification with culture of origin and host culture, two of which are particularly relevant to our research (Berry, 1997). Specifically, Integration occurs when immigrants embrace their new culture whilst also maintaining their birth culture; Assimilation, on the other hand, refers to the process of embracing a new culture whilst de-identifying with one's original culture. This model suggests that the most positive mental health outcomes will be evident among people who integrated rather than assimilated (i.e. maintained strong identities with both host town and home town) whereas, in our study, assimilation had the best outcome. However, it is important to note that our study did not specifically assess international migrants or cultural identities; nor did we attempt to assess the extent to which the identities were consistent or in conflict with each other. It is also possible that the relative effects of the two types of identity will depend on the type of stressor experienced. For example, financial concerns may particularly impact on people's capacity to participate as a full member of a community (Sen, 1997). Further research is

required to determine under which circumstances the two acculturation strategies have the best outcomes amongst migrant populations.

A limitation of the present work is that due to using two pre-existing datasets designed to address varying research questions, the identities measured across studies were not identical. Specifically, neighbourhoods, as measured in Study 1, are geographically smaller than towns, which were assessed in Study 2. Another limitation is the reliance on single-item measures, for example, self-esteem and identity in Study 1. . However, it should also be noted that the self-esteem item has been validated against longer scales and that there was high convergence between the studies. The current cross-sectional studies also only provide a snapshot of the relationships between financial stress, self-esteem, social identity and mental health. A longitudinal design would provide a better understanding of the importance of identities in disrupting the pathway from financial stress to low self-esteem and mental health problems. Moreover, whilst it would be unethical to experimentally manipulate most mental health symptoms, it would be informative to manipulate mild financial stress and examine whether more salient social identities influence the effects of financial stress on social trust and affect, as proxies for mental health symptoms.

It would also be beneficial to carry out further studies assessing whether other types of stress affect mental health symptoms, but are attenuated by strong social identification and also whether different psychological mediating mechanisms (e.g. hopelessness, locus of control) are implicated. As noted in past work, stressful life events such as discrimination and rejection due to sexuality, race or religion are associated with poor mental health outcomes (Williams et al., 1997; Meyer, 2003) Our finding that host town identities are critical to alleviating mental health symptoms during times of stress may lead to novel interventions that aim to improve mental health by promoting psychological resilience. This may be achieved by fostering strong ties between vulnerable individuals and their local neighbourhoods.

In sum, our studies found that financial stress takes a severe toll on people's psychological health and self-esteem. Further, the results supported the notion that identifying with one's local area is protective against mental health symptoms, and demonstrated that the effect did not extend to hometown identities. The results highlight the importance of community cohesion in improving mental health, and provide further understanding about how different combinations of identity impact on mental health symptoms.

## APPENDIX A

**Supplementary Table 1. Descriptive statistics and bivariate correlations between variables in Study 1.**

Variable	M	SD	1	2	3	4	5	6
1. Financial stress	1.88	.59	-	-.22***	-.17***	.27***	.31***	.32***
2. Self-esteem	4.54	1.73	-	-	.10***	-.30***	-.33***	-.35***
3. Neighbourhood identity	3.16	.83	-	-	-	-.14***	-.15***	-.15***
4. Paranoia	1.95	.87	-	-	-	-	.50***	.56***
5. Depression	1.52	.65	-	-	-	-	-	.79***
6. Anxiety	1.50	.71	-	-	-	-	-	-

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

## APPENDIX B

**Supplementary Table 2. Descriptive statistics and bivariate correlations between variables in Study 2.**

Variable	M	SD	1	2	3	4	5	6	7
1. Financial stress	5.61	2.45	-	.04	-.13**	-.10*	.14**	.28***	.24***
2. Host town identity	14.52	4.30	-	-	.12**	.19***	-.16**	-.14**	-.08
3. Hometown identity	14.92	5.01	-	-	-	.15**	-.16**	-.13**	-.07
4. Self-esteem	16.79	5.24	-	-	-	-	-.42***	-.52***	-.37***
5. Paranoia	12.95	5.10	-	-	-	-	-	.53***	.51***
6. Depression	19.14	6.30	-	-	-	-	-	-	.74***
7. Anxiety	15.51	5.79	-	-	-	-	-	-	-

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

## References



Baumeister, R. F., & Leary, M. R. (1995). The need to belong: desire for interpersonal attachments as a fundamental human motivation. *Psychological bulletin*, 117(3), 497.

Berry, J. W. (1997). Immigration, acculturation, and adaptation. *Applied psychology*, 46(1), 5-34.

Block, J., & Robins, R. W. (1993). A longitudinal study of consistency and change in self-esteem from early adolescence to early adulthood. *Child development*, 64(3), 909-923.

Brandmeir, K., Grimm M., Heise M., & Holzhausen A (2015). *Global Wealth Report 2015*. Allianz Public Policy & Economic Research, Munich

Branscombe, N. R., Schmitt, M. T., & Harvey, R. D. (1999). Perceiving pervasive discrimination among African Americans: Implications for group identification and well-being. *Journal of personality and social psychology*, 77(1), 135.

Ciarrochi, J., Deane, F. P., & Anderson, S. (2002). Emotional intelligence moderates the relationship between stress and mental health. *Personality and individual differences*, 32(2), 197-209.

Community Life Survey 2014 To 2015: Data - GOV.UK. (2015). Retrieved 13 October 2017, from <https://www.gov.uk/government/publications/community-life-survey-2014-to-2015-data>

Cooke, R., Barkham, M., Audin, K., Bradley, M., & Davy, J. (2004). Student debt and its relation to student mental health. *Journal of Further and Higher Education*, 28(1), 53-66.

Crocker, J., & Luhtanen, R. K. (2003). Level of self-esteem and contingencies of self-worth: Unique effects on academic, social, and financial problems in college students. *Personality and Social Psychology Bulletin*, 29(6), 701-712.

Cruwys, T., Dingle, G. A., Haslam, C., Haslam, S. A., Jetten, J., & Morton, T. A. (2013). Social group memberships protect against future depression, alleviate depression symptoms and prevent depression relapse. *Social Science & Medicine*, 98, 179-186.

Cruwys, T., Haslam, S. A., Dingle, G. A., Haslam, C., & Jetten, J. (2014). Depression and social identity: An integrative review. *Personality and Social Psychology Review*, 18(3), 215-238.

Diener, E., & Diener, M. (1995). Cross-cultural correlates of life satisfaction and self-esteem. *Journal Of Personality And Social Psychology*, 68(4), 653-663.

Dingle, G. A., Brander, C., Ballantyne, J., & Baker, F. A. (2013). 'To be heard': The social and mental health benefits of choir singing for disadvantaged adults. *Psychology of Music*, 41(4), 405-421.

Doosje, B., Ellemers, N., & Spears, R. (1995). Perceived intragroup variability as a function of group status and identification. *Journal of experimental social psychology*, 31(5), 410-436.

Dwyer, R. E., McCloud, L., & Hodson, R. (2011). Youth debt, mastery, and self-esteem: Class-stratified effects of indebtedness on self-concept. *Social Science Research*, 40(3), 727-741.

Ellemers, N., Kortekaas, P., & Ouwerkerk, J. W. (1999). Self-categorization, commitment to the group and social self-esteem as related but distinct aspects of social identity.

Fowler, D., Freeman, D., Smith, B. E. N., Kuipers, E., Bebbington, P., Bashforth, H., ... & Garety, P. (2006). The Brief Core Schema Scales (BCSS): psychometric properties and associations with paranoia and grandiosity in non-clinical and psychosis samples. *Psychological medicine*, 36(6), 749-759.

Fowler, D., Hodgekins, J., Garety, P., Freeman, D., Kuipers, E., Dunn, G., ... & Bebbington, P. E. (2011). Negative cognition, depressed mood, and paranoia: a longitudinal pathway analysis using structural equation modeling. *Schizophrenia bulletin*, 38(5), 1063-1073.

Harter, S. (1990). *Self and identity development*. Cambridge, MA: Harvard University

Haslam, C., Cruwys, T., Haslam, S. A., Dingle, G., & Chang, M. X. L. (2016). Groups 4 health: evidence that a social-identity intervention that builds and strengthens social group membership improves mental health. *Journal of affective disorders*, 194, 188-195.

Haslam, C., Cruwys, T., Milne, M., Kan, C. H., & Haslam, S. A. (2016). Group ties protect cognitive health by promoting social identification and social support. *Journal of aging and health*, 28(2), 244-266.

Haslam, S. A., Jetten, J., & Waghorn, C. (2009). Social identification, stress and citizenship in teams: a five-phase longitudinal study. *Stress and Health, 25*(1), 21-30.

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), 1-23.

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*(3), 355-370.

Hayes, A. F. (2012). PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling

Hovey, J. D., & King, C. A. (1996). Acculturative stress, depression, and suicidal ideation among immigrant and second-generation Latino adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry, 35*(9), 1183-1192.

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*(4), 707-733.

Jetten, J., Branscombe, N. R., Haslam, S. A., Haslam, C., Cruwys, T., Jones, J. M., ... & Thai, A. (2015). Having a lot of a good thing: Multiple important group memberships as a source of self-esteem. *PloS one*, 10(5), e0124609.

Jetten, J., & Pachana, N. (2012). Not wanting to grow old: A Social Identity Model of Identity Change (SIMIC) analysis of driving cessation among older adults.

Krause, N., Jay, G., & Liang, J. (1991). Financial strain and psychological well-being among the American and Japanese elderly. *Psychology and Aging*, 6(2), 170.

Kroenke, K., & Spitzer, R. L. (2002). The PHQ-9: a new depression diagnostic and severity measure. *Psychiatric annals*, 32(9), 509-515.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*/Richard S. Lazarus, Susan Folkman: New York: Springer, cop, 1984.

Linn, M. W., Sandifer, R., & Stein, S. (1985). Effects of unemployment on mental and physical health. *American Journal of Public Health*, 75(5), 502-506.

Luhtanen, R., & Crocker, J. (1992). A collective self-esteem scale: Self-evaluation of one's social identity. *Personality and social psychology bulletin*, 18(3), 302-318.

Lund, C., Breen, A., Flisher, A. J., Kakuma, R., Corrigall, J., Joska, J. A., ... & Patel, V. (2010). Poverty and common mental disorders in low and middle income countries: a systematic review. *Social science & medicine*, 71(3), 517-528.

Mayhew, K. P., & Lempers, J. D. (1998). The relation among financial strain, parenting, parent self-esteem, and adolescent self-esteem. *The Journal of Early Adolescence*, 18(2), 145-172.

McIntyre, J. C., Wickham, S., Barr, B., & Bentall, R. P. (2017). Social Identity and Psychosis: Associations and Psychological Mechanisms. *Schizophrenia Bulletin*.

Melo, S., Corcoran, R., Shryane, N., & Bentall, R. P. (2009). The persecution and deservedness scale. *Psychology and Psychotherapy: Theory, Research and Practice*, 82(3), 247-260.

Meyer, I. H. (2003). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: conceptual issues and research evidence. *Psychological bulletin*, 129(5), 674.

Office for National Statistics. Social Survey Division. (2016). Wealth and Assets Survey, Waves 1-4, 2006-2014: Secure Access. [data collection]. 3rd Edition. UK Data Service. SN: 6709, <http://doi.org/10.5255/UKDA-SN-6709-3>

Pinto, M. B., Mansfield, P. M., & Parente, D. H. (2004). Relationship of credit attitude and debt to self-esteem and locus of control in college-age consumers. *Psychological Reports*, 94(3\_suppl), 1405-1418.

Praharso, N. F., Tear, M. J., & Cruwys, T. (2017). Stressful life transitions and wellbeing: A comparison of the stress buffering hypothesis and the social identity model of identity change. *Psychiatry research*, 247, 265-275.

Richardson, T., Elliott, P., & Roberts, R. (2013). The relationship between personal unsecured debt and mental and physical health: a systematic review and meta-analysis. *Clinical psychology review*, 33(8), 1148-1162.

Roberts, J. E., Gotlib, I. H., & Kassel, J. D. (1996). Adult attachment security and symptoms of depression: The mediating roles of dysfunctional attitudes and low self-esteem. *Journal of personality and social psychology*, 70(2), 310.

Robins, R. W., Hendin, H. M., & Trzesniewski, K. H. (2001). Measuring global self-esteem: Construct validation of a single-item measure and the Rosenberg Self-Esteem Scale. *Personality and social psychology bulletin*, 27(2), 151-161.

Rosenberg, M., Schooler, C., Schoenbach, C., & Rosenberg, F. (1995). Global self-esteem and specific self-esteem: Different concepts, different outcomes. *American sociological review*, 141-156.

Sani, F., Wakefield, J. R., Herrera, M., & Zeybek, A. (2017). On the Association Between Greater Family Identification and Lower Paranoid Ideation Among Non-Clinical Individuals: Evidence From Cypriot and Spanish Students. *Journal of Social and Clinical Psychology*, 36(5), 396-418.

Sellers, R. M., Smith, M. A., Shelton, J. N., Rowley, S. A., & Chavous, T. M. (1998). Multidimensional model of racial identity: A reconceptualization of African American racial identity. *Personality and social psychology review*, 2(1), 18-39.

Sen, A. (1997). *Choice, welfare and measurement*. Harvard University Press.

Spitzer, R. L., Kroenke, K., Williams, J. B., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: the GAD-7. *Archives of internal medicine*, 166(10), 1092-1097.

Storrie, K., Ahern, K., & Tuckett, A. (2010). A systematic review: students with mental health problems—a growing problem. *International journal of nursing practice*, 16(1), 1-6.

Tajfel, H. (1972). *Experiments in a vacuum*. Academic Press: London

Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. *The social psychology of intergroup relations*, 33(47), 74.



Thewissen, V., Bentall, R. P., Lecomte, T., van Os, J., & Myin-Germeys, I. (2008). Fluctuations in self-esteem and paranoia in the context of daily life. *Journal of abnormal psychology*, 117(1), 143.

Trzesniewski, K. H., Donnellan, M. B., Moffitt, T. E., Robins, R. W., Poulton, R., & Caspi, A. (2006). Low self-esteem during adolescence predicts poor health, criminal behavior, and limited economic prospects during adulthood. *Developmental psychology*, 42(2), 381.

Wearden, A., Peters, I., Berry, K., Barrowclough, C., & Liversidge, T. (2008). Adult attachment, parenting experiences, and core beliefs about self and others. *Personality and Individual Differences*, 44(5), 1246-1257.

Wilburn, V. R., & Smith, D. E. (2005). Stress, self-esteem, and suicidal ideation in late adolescents. *Adolescence*, 40(157), 33.

Wickham, S., Sitko, K., & Bentall, R. P. (2015). Insecure attachment is associated with paranoia but not hallucinations in psychotic patients: the mediating role of negative self-esteem. *Psychological medicine*, 45(7), 1495-1507.

Williams, D. R., Yu, Y., Jackson, J. S., & Anderson, N. B. (1997). Racial differences in physical and mental health: Socio-economic status, stress and discrimination. *Journal of health psychology*, 2(3), 335-351.

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