Kill or Cure?
Different Types of Social Class Identification Amplify and Buffer the Relation between Social Class and Mental Health

Mark Rubin and Rebecca Stuart
The University of Newcastle, Australia

Citation: Rubin, M., & Stuart, R. (2018). Kill or cure? Different types of social class identification amplify and buffer the relation between social class and mental health. *Journal of Social Psychology*, *158*, 236-251. doi: 10.1080/00224545.2017.1327405

Abstract

The present research investigated different types of social class identification as moderators of the negative relation between social class and mental health problems. Psychology undergraduates (N = 355) completed an online survey that included measures of social class, mental health and well-being, and three aspects of social class identification: importance of identity, salience of identity, and perceived self-class similarity. Perceived self-class similarity buffered the negative association between social class and depressive symptoms. However, importance and salience of social class identity amplified the associations between social class and anxiety and life satisfaction. These findings contribute to a more sophisticated understanding of the way in which social identification may operate as a social cure.

Keywords: mental health, satisfaction with life, social class; social cure; social identification

Correspondence concerning this article should be addressed to Mark Rubin at the School of Psychology, Behavioural Sciences Building, The University of Newcastle, Callaghan, NSW 2308, Australia. Tel: +61 (0)2 4921 6706. Fax: +61 (0)2 4921 6980. E-mail: Mark.Rubin@newcastle.edu.au Web: http://bit.ly/QgpV4O

Social group membership can provide psychological benefits and costs. Benefits include a sense of belonging and connection with others that nurtures psychological well-being. However, membership in low status groups can also provide a sense of stigma that threatens psychological well-being. The present research considered these contrasting effects of group membership in the context of the association between social class and mental health.

Social Class and Mental Health

Compared to people who belong to higher social class groups, people from lower social class groups tend to have poorer mental health (e.g., Rubin, Evans, & Wilkinson, 2016; Rubin & Kelly, 2015; for reviews, see Fryers, Melzer, & Jenkins, 2003; Lorant et al., 2003; Lund et al., 2010; Muntaner, Eaton, Miech, & O'Campo, 2004). Although this negative association between social class and mental health problems can be explained in terms of objective differences in financial, educational, occupational, and environmental factors, it may also be linked to more subjective psychological factors that are connected with social status differences between different social class groups. By definition, lower class groups have less social status than higher class groups (Adler, Epel, Castellazzo, & Ickovics, 2000), and low social status can lead to low self-esteem (Twenge & Campbell, 2002), which is associated with poorer mental health (Sowislo & Orth, 2013). Hence, the association between social class and mental health may be connected to the social statuses of the social class groups involved.

The present research investigated the social status explanation of the social class-mental health relation from the perspective of social identity theory (SIT; Tajfel & Turner, 1979). In particular, it considered *social class identification* as a potential moderator of this relation. Two SIT-based predictions were considered: The *amplification hypothesis* predicts that greater social class identification should *increase* the negative association between social class status and mental health problems. In contrast, the *buffering hypothesis* predicts that greater social class identification should *decrease* this association. We describe the theoretical rationale for each of these hypotheses below.

The Amplification Hypothesis

SIT proposes that a group's social status is associated with its members' sense of self-esteem via members' psychological connection with that group or their *social identity*. SIT researchers have proposed that the more people identify with a social group and believe it to be an important part of their self-concept, the stronger the psychological connection between their group's social status and their own self-esteem (Crabtree, S. A. Haslam, Postmes, & C. Haslam, 2010, p. 564; Ellemers, Kortekaas, & Ouwerkerk, 1999; Martiny & Rubin, 2016; McCoy & Major, 2003; Rubin & Hewstone, 1998, 2004). In other words, the positive relation between a group's social status and its members' self-esteem and psychological well-being should increase as a positive function of members' social identification because people who identify strongly with their group are more likely to be psychologically affected by its (positive or negative) social status. We describe this prediction as the amplification hypothesis.

According to the amplification hypothesis, the negative relation between social class and mental health problems should be *strongest* among people who identify *strongly* with their social class group. This is because people who identify strongly with their social class group are more likely to be affected by its (positive or negative) social status (for conceptually similar predictions, see Elliott & Doane, 2015; McCoy & Major, 2003, p. 1007; Quinn & Chaudoir, 2009). This amplification hypothesis can be contrasted with an alternative buffering hypothesis.

The Buffering Hypothesis

SIT researchers have also found that the sense of social integration and connectedness that accompanies group membership is negatively related to depression (Cruwys, Haslam, Dingle, Haslam, & Jetten, 2014; Kawachi & Berkman, 2001; Ramos, Cassidy, Reicher, & Haslam, 2012). Social identification taps into this sense of social connectedness and has been shown to support psychological well-being (Elliott & Doane, 2015; Greenaway, Cruwys, S. A. Haslam, & Jetten, 2016; Khan et al., 2014; Sani, Herrera, Wakefield, Boroch & Gulyas, 2012). Even social identification with low status stigmatized minority groups has been found to be beneficial for psychological well-being (e.g., Elliott & Doane, 2015; for discussions, see Crabtree et al., 2010, p. 557; Ramos et al., 2012, p. 643). Indeed, SIT researchers have found the positive effects of social identification on mental and physical health to be so profound that they have been described as "the social cure" (Jetten, C. Haslam, & S. A. Haslam, 2012).

The social cure literature predicts a negative association between social identification and mental health problems: The more one identifies with a social group and feels a sense of connection and support from the group's members, the fewer mental health problems one should experience. However, this social cure effect may also interact with group status when groups vary in their social status, as is the case with social class groups. In particular, social identification may operate to buffer the effects of low status on mental health, thereby reducing the size of the relation between group status and mental health. Hence, the buffering hypothesis makes the opposite prediction to the amplification hypothesis. Specifically, it predicts that the negative relation between social class and mental health problems will be *strongest* among people who identify *weakly* with their social class group. This is because people who identify weakly with their social class group do not have a strong sense of belonging and connectedness with other in-group members that protects them from the negative effects of their membership in low social class groups. In contrast, the negative association between social class and mental health problems should be *weakest* among people who identify *strongly* with their social class group because the social support that they derive from their group protects them from the negative effects of membership in low social class groups.

Contrasting the Amplification and Buffering Predictions

In summary, SIT-based theory and research can be used to generate two contrasting predictions regarding the potential moderating effect of social class identification on the relation between social class and mental health. On the one hand, stronger social class identification may *amplify* the observed association between social class and mental health because identification strengthens the relation between the social status of the social class group and group members' self-definition (Crabtree et al., 2010; Ellemers et al., 1999; Martiny & Rubin, 2016; McCoy & Major, 2003; Rubin & Hewstone, 1998, 2004). On the other hand, stronger social class identification may *weaken* the observed association between social class and mental health because it is associated with a sense of belonging and connectedness that buffers the negative effects of membership in low social class groups (Crabtree et al., 2010; Cruwys et al., 2014; Elliott & Doane, 2015; Greenaway et al., 2016; Jetten et al., 2012; Kawachi & Berkman, 2001; Sani et al., 2012).

Interestingly, Crabtree et al. (2010) found evidence in support of *both* the amplification hypothesis and the buffering hypothesis. These researchers investigated members of mental health support groups in order to determine whether identifying with these stigmatized groups had positive or negative outcomes on psychological well-being. Consistent with the buffering hypothesis, participants who identified more strongly with their support group showed

strengthened resistance to the stigma associated with mental illness, greater rejection of mental illness stereotypes, and increased perceived social support. However, consistent with the amplification prediction, social identification also directly predicted lower levels of self-esteem. In other words, consistent with the amplification predication, higher levels of social identification with a low status ingroup led to poorer self-esteem.

Crabtree et al.'s (2010) findings suggest that social identification may have simultaneous amplification and buffering effects on the relation between a group's social status and its members' mental health. Based on this evidence, the question is not whether amplifying and buffering effects exist but rather how we can better distinguish and interpret them. The present research explored different aspects of social identification as a potential means of distinguishing between these two types of effect.

Do Different Aspects of Social Identification Amplify and Buffer the Effects of Group Status?

SIT researchers have distinguished between several different aspects of social identification (e.g., Cameron, 2004; Leach et al., 2008; Milanov, Rubin, & Paolini, 2012, 2014). However, they have only recently begun to explore how these different aspects of identification affect the relation between group status and mental health (Cruwys & Gunaseelan, 2016; Elliott & Doane, 2015).

Elliott and Doane (2015) provide some evidence for distinct associations between different types of identification and psychological well-being among people who had a mental illness. Specifically, they found that the importance and centrality of mental illness was *negatively* associated with self-esteem and satisfaction with life, but that feeling a bond with and support from other people who had a mental illness was *positively* associated with these aspects of psychological well-being. However, in a similar study, Cruwys and Gunaseelan (2016) found no clear differentiation. Specifically, they found that importance of mental illness, feeling a bond and solidarity, and perceived similarity with other people who had a mental illness *all* tended to be *positively* associated with depression, anxiety, and stress and negatively associated with satisfaction with life (although importance showed the strongest and most reliable associations). In summary, this recent research does not facilitate a clear understanding about how different types of identification are related to mental health.

This preliminary research also suffers from three key limitations. First, it has operationalized low status groups as stigmatised mental illness groups. This approach raises concerns about the generality of the research findings given that the outcome variable is itself mental health. The present research overcame this limitation by operationalizing group status in terms of social class. We reasoned that people are less likely to perceive a link between social class and mental health than they are to perceive a link between mental illness groups and mental health. Second, prior research has focused on low status groups. This approach does not allow researchers to measure the extent to which *differences* in group status affect mental health. In the present research, we investigated participants who belonged to a range of social classes in order to investigate how social identification moderates the negative association between social class (status) and mental health problems. Finally, prior research has investigated different aspects of identification as *mediators* of the relation between perceived discrimination and mental health. It has not considered identification as a potential *moderator* of the relation between group status and mental health. Consequently, it has not provided a critical test of the amplification and buffering hypotheses. The present research addressed this limitation by investigating the extent to which different types of identification moderated the association between social class and mental health.

Specifically, we examined the potential moderating effects of three types of identification: the *importance* and *salience* of social class identity and the perceived *similarity* that people feel with other members of their social class group (e.g., Milanov et al., 2014; Quinn & Chaudoir, 2009). Importance represents the psychological centrality of a social identity in a person's self-concept (e.g., "the group I belong to is an important reflection of who I am"). Salience refers to the amount of time that people spend thinking about their identity (e.g., "the fact that I am a member of my group rarely enters my mind").[1] Finally, perceived self-to-group similarity refers to the similarity that people feel with the other members of their group (e.g., "I am quite similar to the other people in my group").

The present research explored the possibility that some of these aspects of social identification *amplify* the relation between social class and mental health while others *weaken* it. In particular, the importance and salience of social class identity may amplify the relation between social class and mental health because they tap the extent to which people are likely to be psychologically affected by the positive or negative status of their social class group. In contrast, the perceived similarity that people feel with other members of their social class group may weaken the relation between social class and mental health because it taps the sense of belonging and connectedness that people feel with other members of their social class group, and so it should buffer the negative effects of membership in low social class groups.

Method

Participants

Participants were undergraduate psychology students at a large public university in New South Wales, Australia. The university had 27.32% low SES students based on students' residence in low SES locations. This figure was representative of the percentage of low SES people in the Australian population (~ 25%; Universities Australia University of Melbourne, 2008).

We collected data from 376 participants. Of these, 4 participants did not respond to an informed consent question at the end of the survey, and 17 actively declined their consent for their data to be included in the data analyses. The data from these 21 participants were deleted, leaving 355 participants.

Past research has found an effect size of r = -.15 for the relation between social class and mental health among Australian university students (Rubin & Kelly, 2015). A power analysis found that a sample size of 355 participants would detect an effect of .15 at an alpha level of .05 (two-tailed) with a power level of 0.81. This power level was considered to be acceptable.

The sample included 98 men (27.61%) and 257 women (72.39%). This underrepresentation of men is typical in undergraduate psychology programs. Participants ranged in age from 17 to 52 years with a mean age of 22.78 years (SD = 6.30). The majority of participants self-identified as Caucasian (85.92%). The remainder self-identified as "other" (5.92%), Aboriginal (2.54%), Asian (3.10%), or African (1.13%).

When asked to identify their own social class, 52 participants described themselves as working-class (14.65%), 39 as lower middle-class (10.99%), 136 as middle-class (38.31%), 94 as upper middle-class (26.47%), 6 as upper-class (1.69%), and 28 indicated that they did not know their social class (7.89%).

Measures

Social class. Following previous research, we measured social class using several widely-used measures (Rubin et al., 2016; Rubin & Kelly, 2015; Rubin & Wright, 2015, 2017). These

measures included assessments of parental education, parental occupation, family wealth during childhood, social class self-definition, and subjective social status. Participants indicated the highest education level achieved by each of their parents using the following categories: *less than primary school; primary school (kindergarten to Year 6); secondary or high school (Years 7 to 9); school certificate/intermediate year/Year 10/4th form; HSC/leaving/Year 12/6th form; technical and further education (TAFE) certificate or diploma; university or college of advanced education - undergraduate degree (Bachelor degree); university or college of advanced education - postgraduate degree (Masters or PhD); don't know.* They also indicated how they thought most people would rate (a) their mother's occupation and (b) their father's occupation in terms of its prestige and status on an 11-point scale ranging from *extremely low status and prestige* to *extremely high status and prestige*, with a *don't know* option. Participants also completed three questions that related to their family's level of wealth during their childhood. These items were adapted from Griskevicius, Tybur, Delton, and Robertson (2011): "My family usually had enough money to buy things when I was growing up;" "I grew up in a relatively wealthy neighbourhood;" and "I felt relatively wealthy compared to the other kids in my high school." Participants responded to these statements on a 7-point scale, ranging from *strongly disagree* to *strongly agree*. Participants also indicated the social class that they felt best described (a) themselves, (b) their mother, and (c) their father using a 5-point scale: *working class*, *lower middle-class*, *middle-class*, *upper middle-class*, *upper class*, with a *don't know* option (Rubin et al., 2014). Finally, participants completed an adapted version of the MacArthur subjective social class scale (Adler et al., 2000). Specifically, they indicated where they would rank themselves in terms of their money, education, and occupation relative to other people in Australia using an 11-point scale ranging from *top level* to *bottom level*. Following previous research (Rubin & Kelly, 2015), the responses to the above 11 measures of social class were transformed to *z* scores and averaged to form a global index of social class. Cronbach alpha's for this and other scales were all above .80 and are reported in Table 1.

Social identification. We assessed three aspects of social class identification: (a) importance of social class identity, (b) salience of social class identity, and (c) perceived similarity between the self and other members of one's social class. Participants responded to the items in these scales using a 7-point scale ranging from *strongly disagree* to *strongly agree*. All group identification items referred to "social class" as the target group.

The measure of importance of social identity included nine items that assessed the subjective importance of one's social class to self-definition (e.g., "my social class group has very little to do with how I feel about myself"). A few of these items were developed by ourselves, and the remainder were adapted from the Identity subscale of the Collective Self Esteem Scale (Luhtanen & Crocker, 1992) and Brown, Condor, Mathews, Wade, and William's (1986) measure of group identification.

The measure of salience of social identity was adapted from the centrality subscale of the Centrality, Social, Communal and Interdependent Identification Scale (CSCIIS; Milanov et al., 2012). These four items measured the extent to which people thought about their social class group (e.g., "the fact that I am a member of my social class group rarely enters my mind").

Finally, the measure of perceived self-class similarity was adapted from the Social subscale of the CSCIIS (Milanov et al., 2012). This scale includes four items that measure the extent to which one considers oneself to be similar to other ingroup members (e.g., "I am quite similar to the other people in my social class group").

The social class identification items that we used were novel in that, although they were based on previously established scales, this was the first time that they had been used together and the first time that they had been adapted to refer to social class groups. Consequently, we undertook an exploratory factor analysis to investigate the factor structure of this scale. A principal axis factor analysis on the 17 social class identification items yielded three factors that had eigenvalues higher than or the same as those generated by a parallel analysis (Horn, 1965; third factor's eigenvalue from real data set = 1.25; third factor's eigenvalue from simulated data set = 1.25). Furthermore, a scree plot indicated that three factors should be extracted. Hence, we extracted three factors using the promax method of oblique rotation with a kappa value of 3. We selected items for inclusion in our final indices of social class identification if they had factor loadings greater than or equal to 0.50. This approach resulted in four items in the importance scale, three items in the salience scale, and four items in the perceived self-class similarity scale. Table 2 shows the eigenvalues and percentage of variance accounted for by each factor as well as the item loadings from the pattern matrix for the items that were included in the scales. Item scores were averaged for each scale.

Table 2
Factor Loadings of Social Identification Items

	Factor		
	1	2	3
Eigenvalue	6.03	3.13	1.25
Percentage of Variance	35.47%	18.44%	7.34%
Salience of Social Class Identity			
I don't think very much about my social class.*	**.86**	-.02	.03
The fact that I am member of my social class rarely enters my mind.*	**.84**	.02	.03
I often think about my social class.	**.57**	.33	-.00
Importance of social class identity			
My social class is a significant aspect of my identity.	.17	**.77**	.01
The social class I belong to is an important reflection of who I am.	.12	**.75**	.00
My social class is a defining feature of me.	.17	**.73**	.04
Belonging to my social class is an important part of my self-image.	.15	**.70**	.03
Perceived Self-Class Similarity			
The people in my social class are quite different from me.*	.11	-.15	**.79**
I am not the same as the other people in my social class.*	.15	-.20	**.75**
I am quite similar to the other people in my social class.	-.05	.20	**.74**
There is very little difference between myself and other members of my social class.	-.19	.17	**.59**

Note. Items with asterisks were reverse scored. The cut-off criteria used for including factor loadings in the table is ≥ .50. No items loaded greater than .33 on any other factor.

Mental health and well-being. We measured mental health using the short form Depression Anxiety Stress Scale (DASS; Lovibond & Lovibond, 1995). This scale consists of three 7-item subscales that assess depressive symptoms, anxiety, and stress over the past week. Example items are "I felt that life was meaningless" (depressive symptoms), "I felt I was close to panic" (anxiety), and "I found it difficult to relax" (stress). Participants responded using a 4-point scale anchored *never* (0) and *almost always* (3). Item scores within each subscale were summed and then multiplied by two in order to allow comparisons with established norms (see Table 1).

We also measured general well-being using the 5-item Satisfaction with Life scale (Diener, Emmons, Larsen, & Griffin, 1985). This scale assesses how positively one perceives one's life and how one feels about the life one has lived. Sample items include "in most ways my life is close to my ideal," and "I am satisfied with my life." Participants responded to these items using a 7-point scale ranging from *strongly disagree* to *strongly agree*. Item scores were averaged.

Perceived awareness of the research hypothesis. We measured the influence of demand characteristics in the present research using the Perceived Awareness of the Research Hypothesis scale (Rubin, 2016). This 4-item scale measures the extent to which participants believe that they are aware of the research hypotheses. An example item is "I knew what the researchers were investigating in this research." Participants responded using a 7-point scale ranging from *strongly disagree* to *strongly agree*. Items scores were averaged (Cronbach alpha = .91).

The survey also included an exploratory measure of multiple motives (Rubin, in press) that assessed 12 separate motives using 12 single-item measures. In addition, the survey included 4-item measures of private and public collective self-esteem, and a 12-item measure of social support. These measures did not yield theoretically-informative results with respect to the current research questions and so, for the sake of brevity, we did not focus on these measures in the current article. We have made our survey, data, and syntax sheet publically available on the Open Science Framework at https://osf.io/bqyhd/.

Procedure

Ethical clearance for this study was obtained from the university's human research ethics committee. The study was advertised in a list of other research studies via an online research participant pool system that was based within the psychology department. Participants took part on a voluntary basis and were awarded 1.0% course credit for their participation.

The survey was titled "social demographics and mental health," and it was introduced as investigating "the relation between social demographic variables and mental health." Participants completed the online survey from any computer that had internet access. The survey took approximately 15 minutes to complete.

The previously-described scales were presented in a random order for each participant. The only exceptions to this approach were the measures of social class and social class identification. These measures were presented near the end of the survey in order to avoid cueing participants to the relevance of social class prior to their completion of the mental health and well-being measures. Items within each scale were presented in a random order for each participant.

If participants missed a response to an item on a page of the online survey, then the survey software automatically reminded them to respond to the missed items and did not allow them to continue until they had done so. However, due to a technical error, participants were able to omit responses to some of the mental health items, resulting in 9 missing values or 0.12% of the mental health data. In addition, participants were able to respond with "don't know" to 7 of the 11 social class items, and these responses were then coded as missing data (92 missing values; 3.70% in this

part of the data set). According to Graham (2009), it is acceptable to form overall scale scores from scales whose items contain missing data provided that (a) a relatively high proportion (> 50%) of items with nonmissing data are used to form the scale score, (b) item-total correlations are similar for the scale items, and (c) the items have a relatively high coefficient alpha. These conditions were met for the DASS and the social class index in the present research. Consequently, we did not attempt to replace any missing data for either of these two measures. Instead, we formed overall scale scores for these two measures based on the data that were available.

Results

Type I Error Control

The multiple testing that we undertook in this study increased the probability of Type I (false positive) errors. To control for this increased error rate, we lowered our alpha level for determining significant results. The revised alpha level was based on Benjamini and Hochberg's (1995) procedure to control the false discovery rate (FDR). The FDR is the maximum proportion of Type I errors ("false discoveries") that can be expected in a particular set of analyses. The FDR adjustment is based on the frequency of true null hypotheses as indicated by the distribution of *p* values associated with the data set in question (Glickman, Rao, & Schultz, 2014). Data sets that contain a higher frequency of true null hypotheses (as indicated by a less skewed distribution of *p* values) need to have a lower alpha level in order to achieve a 5% FDR. In the present research, we based our adjusted alpha level on a large sample (N = 961) of *p* values that were associated with the correlations between all of the measures that we had included in our survey apart from categorical variables with more than two levels, which were inappropriate for a correlation analysis. For psychometric scales, only overall scales were included rather subscales or individual scale items. This approach prevented the artificial inflation of significant associations. We set an FDR of 5% and then identified the critical *p* value at which nonsignificant results became significant. This value was .033, and it was used as the subsequent alpha level for the overall study. Using this adjusted alpha level, a maximum of 1 out of every 20 significant results are likely to represent Type I errors.

Zero Order Correlations

Table 1 provides the means, standard deviations, minimum and maximum values, and Cronbach alpha values for the key variables as well as the zero-order correlation coefficients for the relations between these variables. Consistent with a substantial body of previous research, social class showed significant negative relations with all three measures of mental health problems, including depressive symptoms (r = -.24, p < .001), anxiety (r = -.12, p = .029), and stress (r = -.16, p = .002). Social class also showed a significant positive relation with satisfaction with life (r = .27, p < .001). In other words, the lower participants' social class, the more mental health problems they reported and the less satisfied they were with their lives.

Consistent with the social cure effect, there were negative relations between perceived self-class similarity and depressive symptoms, anxiety, and stress, and a positive relation between this aspect of social class identification and satisfaction with life. Hence, perceiving oneself to be similar to other members of one's social class was associated with better psychological well-being.

Table 1
Descriptive Statistics and Zero Order Correlation Coefficients

	Measure	*M*	*SD*	Min	Max	α	1	2	3	4	5	6	7
1.	Social class	-.01	0.68	-1.88	1.34	.86	-						
2.	Importance of identity	3.06	1.32	1.00	7.00	.89	.09	-					
3.	Salience of identity	2.87	1.44	1.00	7.00	.86	-.02	.54**	-				
4.	Self-class similarity	3.85	1.04	1.00	6.75	.81	.26**	.17**	-.08	-			
5.	Depressive symptoms	10.79	9.05	.00	42.00	.90	-.24**	.00	.06	-.17**	-		
6.	Anxiety	9.27	7.95	.00	36.00	.84	-.12*	.08	.16**	-.14**	.62**	-	
7.	Stress	14.93	8.80	.00	42.00	.86	-.16*	.08	.15**	-.19**	.69**	.69**	-
8.	Satisfaction with life	4.42	1.37	1.00	7.00	.89	.27**	.08	-.06	.22**	-.49**	-.30**	-.30**

* $p < .033$. ** $p < .01$.

Moderation Analyses

We predicted that social class identification, as measured by importance, salience, and similarity, would moderate the size of the negative relation between social class and mental health problems. To test these moderation effects, we used Hayes' (2013) PROCESS software. Specifically, we used PROCESS Model 1 to test whether each of our three measures of social class identification (importance, salience, and similarity) moderated the relation between social class (predictor variable) and each measure of mental health (depressive symptoms, anxiety, stress) and well-being (satisfaction with life; outcome variables). We did not have any specific predictions regarding these different mental health measures. Instead, we investigated the proposed moderating effects on an exploratory basis. Predictor and moderator variables were centred prior to computing interaction terms. Following Hayes (2013), we report unstandardized beta coefficients.

Key analyses were conducted with and without outliers, which were defined as +/- 3 *SD*s from sample means. There were five outliers on the depressive symptoms variable, four on the anxiety variable, and one on the stress variable. In general, the pattern of significant and nonsignificant effects that is reported remained the same when outliers were included and excluded from the analyses. Any exceptions are noted. No outliers were greater than 3.45 *SD*s from the mean. Hence, the results that are reported are based on analyses that did not exclude any outliers.

The key moderation analyses were also conducted with and without the covariates of gender, age, and perceived awareness of the research hypothesis. Gender was included as a covariate because it has been shown to be related to mental health problems (Rosenfield & Mouzon, 2013). Age was included because previous research has found that older university students are more likely to be of a lower social class (Rubin & Wright, 2015). Finally, perceived awareness of the research hypothesis was included in order to control for the potential influence of demand characteristics (Rubin, 2016). Again, in general, the pattern of significant and nonsignificant effects that is reported remained the same when these covariates were included and

excluded from the analyses. Any exceptions are noted. The following analyses are reported excluding covariates.

Table 1 provides the zero-order correlations between social class, the three types of social class identification, the three types of mental health, and satisfaction with life. Consequently, for the sake of brevity, the following report of analyses does not refer to these overall relations. Instead, it focuses on the interaction effects between social class and social class identification and any subsequent conditional effects.

Importance of social class identity. Importance did not interact with social class to predict either depressive symptoms (p = .112) or stress (p = .094). However, importance did interact with social class to predict anxiety, b = -1.44, SE = 0.44, t(351) = -3.28, p = .001, 95% CI (-2.30, -0.58). A Bayesian regression analysis was conducted to corroborate this null hypothesis test. The prior scale was set to medium based on expected small effect sizes (Rubin & Kelly, 2015). The resulting Bayes factor (B_{10}) was 23.05, which indicated that the data were 23.05 times more likely under the alternative hypothesis (that there is an association) than under the null hypothesis (that there is no association). Based on the Jeffreys scale (Jeffreys, 1961), this result represents "strong" support in favour of the alternative hypothesis.

To investigate the interaction effect further, the conditional relation between social class and anxiety was tested at low, medium, and high levels of importance of social class identity. For this and subsequent analyses, low levels of a variable were defined as being the mean value for that variable minus one standard deviation, medium levels were defined as being at the mean value, and high levels were defined as being the mean value plus one standard deviation. At low levels of importance, there was no significant relation between social class and anxiety, b = 0.55, SE = 0.87, t(351) = 0.63, p = .529, 95% CI (-1.16, 2.25). At medium levels of importance, the relation between social class and anxiety was significant and negative, b = -1.36, SE = 0.61, t(351) = -2.21, p = .028, 95% CI (-2.57, -0.15), but dropped to nonsignificance (p = .070) if the four outliers on the anxiety variable were excluded. Finally, at high levels of importance, the relation was significant, negative, and substantially stronger than at medium levels, b = -3.26, SE = 0.82, t(351) = -3.96, p < .001, 95% CI (-4.88, -1.64). Hence, consistent with the amplification hypothesis, the negative relation between social class and anxiety became stronger as social class identity became more important to participants. Figure 1a illustrates this pattern of results.

Importance also interacted with social class to predict satisfaction with life, b = 0.19, SE = 0.07, t(351) = 2.55, p = .011, 95% CI (0.04, 0.33). A Bayesian regression analysis showed "decisive" support for this association (B_{10} = 713,942.85; Jeffreys, 1961). To investigate this interaction effect, the conditional relation between social class and satisfaction with life was tested at low, medium, and high levels of importance of social class identity. At low levels of importance, there was no significant relation between social class and satisfaction with life, b = 0.27, SE = 0.15, t(351) = 1.82, p = .070, 95% CI (-0.02, 0.55). At medium levels of importance, the relation was significant and positive, b = 0.52, SE = 0.10, t(351) = 4.96, p < .001, 95% CI (0.31, 0.72). Finally, at high levels of importance, the relation was significant, positive, and substantially stronger than at medium levels, b = 0.77, SE = 0.14, t(351) = 5.49, p < .001, 95% CI (0.49, 1.04). Hence, consistent with the amplification hypothesis, the positive relation between social class and satisfaction with life became stronger as social class identity became more important to participants (see Figure 1b).

Salience of social class identity. Salience did not interact with social class to predict either depressive symptoms (p = .342), anxiety (p = .867), or stress (p = .608). However, salience did interact with social class to predict satisfaction with life, b = 0.24, SE = 0.07, t(351) = 3.56, p <

.001, 95% CI (0.11, 0.38). Again, a Bayesian regression analysis showed decisive support for this association (B_{10} = 13,882,932.70). At low levels of salience, there was no significant relation between social class and satisfaction with life, b = 0.14, SE = 0.15, t(351) = 0.91, p = .361, 95% CI (-0.16, 0.44). At medium levels of salience, the relation was significant and positive, b = 0.49, SE = 0.10, t(351) = 4.74, p < .001, 95% CI (0.29, 0.69). Finally, at high levels of salience, the relation was significant, positive, and substantially stronger than at medium levels, b = 0.84, SE = 0.13, t(351) = 6.30, p < .001, 95% CI (0.58, 1.11). Hence, consistent with the amplification hypothesis, the positive relation between social class and satisfaction with life became stronger as social class identity became more salient to participants (see Figure 1c).[2]

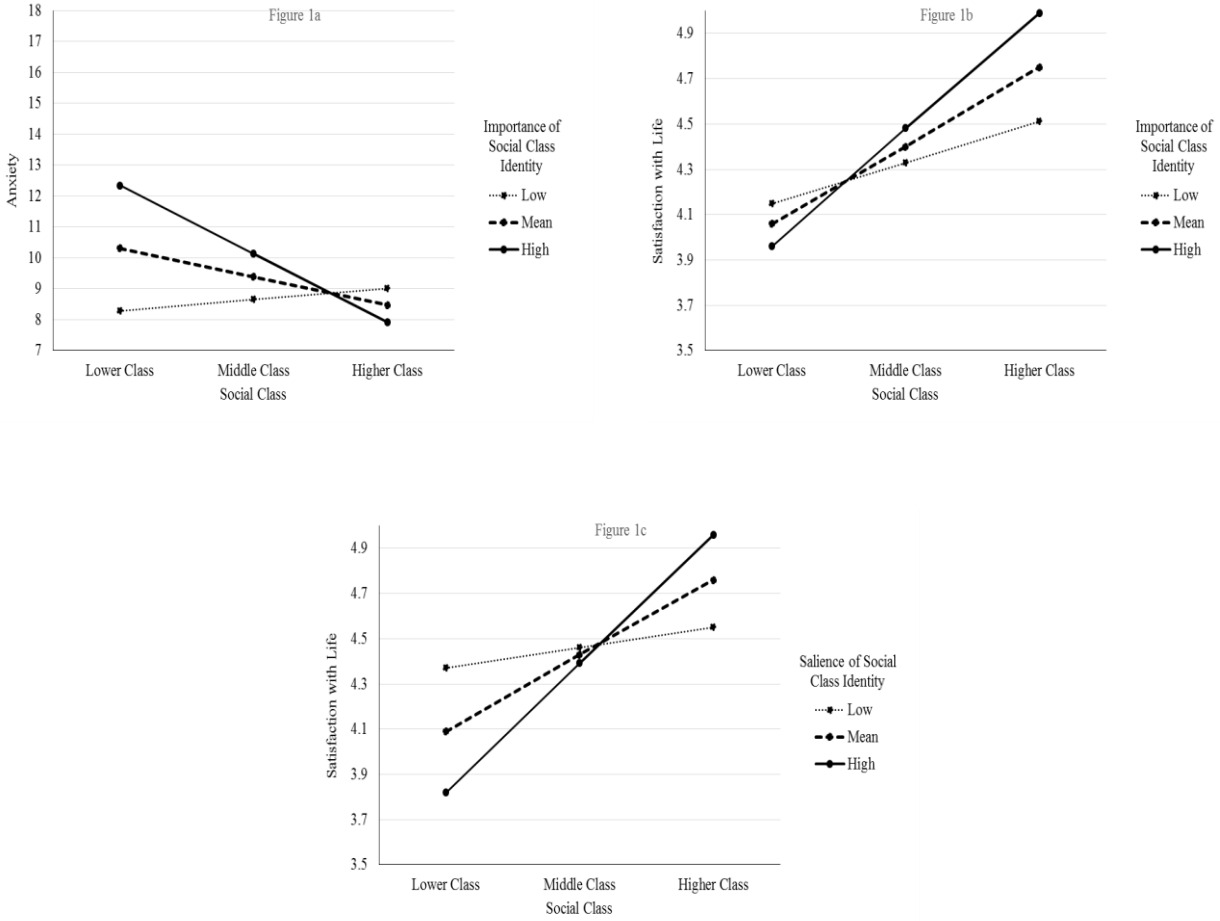

Figure 1. The amplifying effects of importance (1a & 1b) and salience (1c) of social class identification.

Perceived self-class similarity. Similarity interacted with social class to predict depressive symptoms, b = 1.43, SE = 0.65, t(351) = 2.21, p = .028, 95% CI (0.15, 2.71). A Bayesian regression analysis showed decisive support for this association (B_{10} = 145.92). At low levels of similarity, there was a significant negative relation between social class and depressive symptoms, b = -3.99, SE = 0.88, t(351) = -4.56, p < .001, 95% CI (-5.71, -2.27). At medium levels of similarity, the relation was significant and negative but substantially weaker, b = -2.50, SE = 0.72, t(351) = -3.46, p < .001, 95% CI (-3.93, -1.08). Finally, at high levels of similarity, the relation was nonsignificant, b = -1.02, SE = 1.09, t(351) = -0.94, p = .349, 95% CI (-3.16, 1.12). Hence, consistent with the buffering hypothesis, the negative relation between social class and

depressive symptoms became weaker as perceived similarity with other members of one's social class increased (see Figure 2).

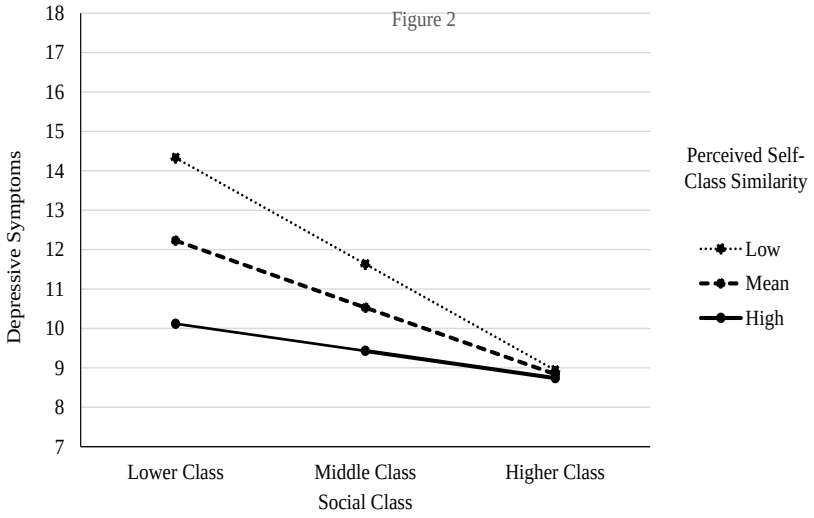

Figure 2. The buffering effects of perceived self-class similarity.

Similarity did not interact with social class to predict either anxiety (p = .264) or satisfaction with life (p = .614). It did interact with social class to predict stress, b = 1.42, SE = 0.64, $t(351)$ = 2.22, p = .027, 95% CI (0.16, 2.67). However, this interaction effect became nonsignificant (p = .055) when one outlier on the stress measure was excluded. In addition, a Bayesian regression analysis showed that this association was "barely worth mentioning" (B_{10} = 1.59; Jeffreys, 1961). Hence, we did not consider this effect any further.

Discussion

Consistent with previous research, social class was negatively related to mental health problems (Rubin et al., 2016; Rubin & Kelly, 2015; for reviews, see Fryers et al., 2003; Lorant et al., 2003; Lund et al., 2010; Muntaner et al., 2004). Extending on this prior work, the present research found that this relation was moderated by social class identification, and the nature of this moderating effect depended on the specific aspect of social class identification under consideration. In particular, the size of the relations between social class and certain aspects of mental health *increased* as the importance and salience of social class identity increased (see Figure 1) but *decreased* as perceived similarity to other members of one's social class increased (see Figure 2). More specifically, higher levels of importance were associated with (a) stronger negative relations between social class and anxiety and (b) stronger positive relations between social class and satisfaction with life (but not when controlling for salience). In addition, higher levels of salience were associated with stronger positive relations between social class and satisfaction with life. In contrast, higher levels of perceived self-class similarity were associated with *weaker* negative relations between social class and depressive symptoms. Hence, like Crabtree et al. (2010), the present research found evidence for the simultaneous operation of amplification and buffering effects. However, the present findings go beyond this prior work by establishing the specific dimensions of social identification that are associated with amplification and buffering effects on certain aspects of mental health. Specifically, we found that aspects of social identification that are associated with the psychological centrality of social class identity

(i.e., importance and salience) tended to amplify the association between social class and anxiety and satisfaction with life, whereas aspects of social identification that are associated with a sense of belonging and connectedness with other members of one's social class (i.e., perceived self-class similarity) reduced the association between social class and depressive symptoms.

Consistent with prior theorizing, we suggest that the importance and salience of social class identity amplify the relation between social class and mental health because they indicate the extent to which one's social class and its social status are associated with self-definition (Martiny & Rubin, 2016; Rubin & Hewstone, 1998, 2004). Social class' status has a greater impact on mental health when people value their social class as an important and salient part of their identity. In contrast, feeling similar to fellow group members may buffer the relation between social class and mental health because similarity with ingroup members provides a sense of belonging and connectedness that mitigates against the otherwise negative effects of membership in low status minority groups (Crabtree et al., 2010, p. 563; Elliott & Doane, 2015). Note that the specific shape of the interactions that we obtained corresponds with these interpretations. Specifically, Figure 1 shows that the amplifying effects of importance and salience tended to occur for people from both lower and higher social class groups. In contrast, Figure 2 shows that the buffering effect of perceived self-class similarity mainly operated among lower and middle-class people, with no obvious differences among higher class people. Hence, consistent with the social cure literature, this pattern of results suggests that perceived self-class similarity buffers the negative effects of membership in a lower status groups and that it is not particular effective among higher class people, for whom there is no stigma to protect against.

Limitations and Directions for Future Research

It is important to note that our observed results did not generalise to all forms of mental health and well-being. Specifically, the amplifying effects of importance and salience were restricted to anxiety and satisfaction with life, and the buffering effects of perceived self-class similarity were restricted to depressive symptoms. It is unclear why this divergence occurred. Speculatively, it is possible that the importance and salience of low status identities cause concerns about one's social status that invoke feelings of uncertainty, anxiety, and dissatisfaction (i.e., "am I good enough?"). In contrast, perceived self-class similarity buffers feelings of social exclusion that would otherwise lead to depressive symptoms based on feelings of rejection (i.e., "they don't like me"). Future research should explore this issue using different measures of mental health and well-being.

Future research should also investigate the moderating effects of different aspects of social identification on mental health in the context of other status-based intergroup contexts. For example, age, ethnicity, and disability all provide clear intergroup status hierarchies that may impact on group members' mental health. Investigating the amplifying and buffering hypotheses in these contexts would allow us to determine whether the present results are restricted to social class or whether they represent a more general pattern.

Future research should also consider additional aspects of social identification as potential moderators of the relation between group status and mental health. In particular, future research should include measures of in-group ties (Cameron, 2004; Milanov et al., 2014) and/or solidarity (Leach et al., 2008). These aspects of social identification are directly related to people's sense of connection, solidarity, commitment, and interpersonal ties with other group members. Consequently, they might be expected to reveal a stronger buffering effect than that observed using a measure of self-to-group similarity.

Finally, recent social cure research has suggested that social identification supports psychological well-being not only via a sense of belonging and connectedness, but also via self-esteem, control, and meaning (Greenaway et al., 2016). Future research should investigate which aspects of social identification are more closely connected to each of these proposed mechanisms.

Conclusion

Research in the social cure tradition has suggested that social identification can provide health-related benefits (Jetten et al., 2012). The present research adds a note of caution to this proposal. It shows that some forms of social identification (perceived self-to-group similarity) may buffer the negative effects of membership in low status groups on depressive symptoms. However, other forms of social identification (importance and salience) may exacerbate the negative effects of membership in low status groups on anxiety and satisfaction with life. In crude terms, some forms of social identification may "cure," but others may "kill" or at least harm psychological well-being.

References

Adler, N. E., Epel, E. S., Castellazzo, G., & Ickovics, J. R. (2000). Relationship of subjective and objective social status with psychological and physiological functioning: Preliminary data in healthy, White women. *Health psychology, 19,* 586-592. doi: 10.1037/0278-6133.19.6.586

Benjamini, Y., & Hochberg, Y. (1995). Controlling the false discovery rate: A practical and powerful approach to multiple testing. *Journal of the Royal Statistical Society. Series B (Methodological), 57,* 289-300.

Brown, R., Condor, S., Mathews, A., Wade, G., & Williams, J. (1986). Explaining intergroup differentiation in an industrial organization. *Journal of Occupational Psychology, 59,* 273-286. doi: 10.1111/j.2044-8325.1986.tb00230.x

Cameron, J. E. (2004). A three-factor model of social identity. *Self and Identity, 3,* 239-262. doi: 10.1080/13576500444000047

Crabtree, J. W., Haslam, S. A., Postmes, T., & Haslam, C. (2010). Mental health support groups, stigma, and self-esteem: Positive and negative implications of group identification. *Journal of Social Issues, 66,* 553-569. doi: 10.1111/j.1540-4560.2010.01662.x

Cruwys, T., & Gunaseelan, S. (2016). "Depression is who I am": Mental illness identity, stigma and wellbeing." *Journal of Affective Disorders, 189,* 36-42. doi: 10.1016/j.jad.2015.09.012

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,* 215-238. doi: 10.1177/1088868314523839

Diener, E. D., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment, 49,* 71-75. doi: 10.1207/s15327752jpa4901_13

Ellemers, N., Kortekaas, P., & Ouwerkerk, J. W. (1999). Self-categorisation, commitment to the group and group self-esteem as related but distinct aspects of social identity. *European Journal of Social Psychology, 29,* 371-389. doi: 10.1002/(SICI)1099-0992

Elliott, M., & Doane, M. J. (2015). Stigma management of mental illness: effects of concealment, discrimination, and identification on well-being. *Self and Identity, 14,* 654-674. doi: 10.1080/15298868.2015.1053518

Fryers, T., Melzer, D., & Jenkins, R. (2003). Social inequalities and the common mental disorders. *Social Psychiatry and Psychiatric Epidemiology, 38,* 229-237. doi: 10.1007/s00127-003-0627-2

Glickman, M. E., Rao, S. R., & Schultz, M. R. (2014). False discovery rate control is a recommended alternative to Bonferroni-type adjustments in health studies. *Journal of Clinical Epidemiology, 67,* 850-857. doi: 10.1016/j.jclinepi.2014.03.012

Graham, J. W. (2009). Missing data analysis: Making it work in the real world. *Annual Review of Psychology, 60,* 549-576. doi: 10.1146/annurev.psych.58.110405.085530

Greenaway, K. H., Cruwys, T., Haslam, S. A., & Jetten, J. (2016). Social identities promote well-being because they satisfy global psychological needs. European Journal of Social Psychology, 46, 294-307. doi: 10.1002/ejsp.2169

Griskevicius, V., Tybur, J. M., Delton, A. W., & Robertson, T. E. (2011). The influence of mortality and socioeconomic status on risk and delayed rewards: A life history theory approach. *Journal of Personality and Social Psychology, 100,* 1015–1026. doi:10.1037/a0022403

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York: Guilford Press.

Horn, J. L. (1965). A rationale and test for the number of factors in factor analysis. *Psychometrika, 30,* 179-185. doi: 10.1007/BF02289447

Jeffreys, H. (1961). *The theory of probability (3rd ed.).* Oxford, UK: Oxford University Press.

Jetten, J., Haslam, C., & Alexander, S. A. (Eds.) (2012). *The social cure: identity, health and well-being*. Hove, UK: Psychology Press.

Kawachi, I., & Berkman, L. F. (2001). Social ties and mental health. *Journal of Urban Health, 78,* 458-467. doi: 10.1093/jurban/78.3.458

Khan, S. S., Hopkins, N., Tewari, S., Srinivasan, N., Reicher, S. D., & Ozakinci, G. (2014). Efficacy and well-being in rural north India: The role of social identification with a large-scale community identity. *European Journal of Social Psychology, 44,* 787-798. doi: 10.1002/ejsp.2060

Leach, C. W., van Zomeren, M., Zebel, S., Vliek, M. L., Pennekamp, S. F., Doosje, B., Ouwerkerk, J. W., & Spears, R. (2008). Group-level self-definition and self-investment: A hierarchical (multicomponent) model of in-group identification. *Journal of Personality and Social Psychology, 95,* 144-165. doi: 10.1037/0022-3514.95.1.144

Lorant, V., Deliège, D., Eaton, W., Robert, A., Philippot, P., & Ansseau, M. (2003). Socioeconomic inequalities in depression: A meta-analysis. *American Journal of Epidemiology, 157,* 98-112. doi: 10.1093/aje/kwf182

Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the depression anxiety stress scales (DASS) with the Beck depression and anxiety inventories. *Behaviour Research and Therapy, 33,* 335-343. doi: 10.1016/0005-7967(94)00075-U

Luhtanen, R., & Crocker, J. (1992). A collective self-esteem scale: Self-evaluation of one's social identity. *Personality and Social Psychology Bulletin, 18,* 302-318. doi: 10.1177/0146167292183006

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 and Medicine, 71,* 517-528. doi: 10.1016/j.socscimed.2010.04.027

Martiny, S. E., & Rubin, M. (2016). Towards a clearer understanding of social identity theory's self-esteem hypothesis. In S. McKeown, R. Haji, & N. Ferguson (Eds.), *Understanding peace and conflict through social identity theory: Contemporary global perspectives* (pp. 19-32). New York: Springer. doi: 10.1007/978-3-319-29869-6_2

McCoy, S. K., & Major, B. (2003). Group identification moderates emotional responses to perceived prejudice. *Personality and Social Psychology Bulletin, 29,* 1005-1017. doi: 10.1177/0146167203253466

Milanov, M., Rubin, M., & Paolini, S. (2012). Types of ingroup identification as a function of group type. *Annuaire de L'Université de Sofia "St. Kliment Ohridski". Faculte de Philosophie, 103,* 119-140.

Milanov, M., Rubin, M., & Paolini, S. (2014). Different types of ingroup identification: A comprehensive review, an integrative model, and implications for future research. *Psicologia Sociale, 9,* 205-232. doi: 10.1482/78347

Muntaner, C., Eaton, W. W., Miech, R., & O'Campo, P. (2004). Socioeconomic position and major mental disorders. *Epidemiologic Reviews, 26,* 53-62. doi: 10.1093/epirev/mxh001

Quinn, D. M., & Chaudoir, S. R. (2009). Living with a concealable stigmatized identity: The impact of anticipated stigma, centrality, salience, and cultural stigma on psychological distress and health. *Journal of Personality and Social Psychology, 97,* 634-651. doi: 10.1037/a0015815

Ramos, M. R., Cassidy, C., Reicher, S., & Haslam, S. A. (2012). A longitudinal investigation of the rejection–identification hypothesis. *British Journal of Social Psychology, 51,* 642-660. doi: 10.1111/j.2044-8309.2011.02029.x

Rosenfield, S., & Mouzon, D. (2013). Gender and mental health. In C. S. Aneshensel, J. C. Phelan, & A. Bierman (Eds.), *Handbook of the sociology of mental health* (2nd ed., pp. 277-296). New York: Springer. doi: 10.1007/978-94-007-4276-5_14

Rubin, M. (2016). The Perceived Awareness of the Research Hypothesis Scale: Assessing the influence of demand characteristics. *Figshare.* doi: 10.6084/m9.figshare.4315778

Rubin, M. (2017). Towards a multiple motives meta-theory for social psychology. *Journal of Theoretical Social Psychology.*

Rubin, M., Denson, N., Kilpatrick, S., Matthews, K. E., Stehlik, T., & Zyngier, D. (2014). "I am working-class:" Subjective self-definition as a missing measure of social class and socioeconomic status in higher education research. *Educational Researcher, 43,* 196-200. doi: 10.3102/0013189X14528373

Rubin, M., Evans, O., & Wilkinson, R. B. (2016). A longitudinal study of the relations between university students' subjective social status, social contact with university friends, and mental health and well-being. *Journal of Social and Clinical Psychology, 35,* 722-737. doi: 10.1521/jscp.2016.35.9.722

Rubin, M., & Hewstone, M. (1998). Social identity theory's self-esteem hypothesis: A review and some suggestions for clarification. *Personality and Social Psychology Review, 2,* 40-62. doi: 10.1207/s15327957pspr0201_3

Rubin, M., & Hewstone, M. (2004). Social identity, system justification, and social dominance: Commentary on Reicher, Jost et al., and Sidanius et al. *Political Psychology, 25,* 823-844. doi: 1 0.1111/j.1467-9221.2004.00400

Rubin, M., & Kelly, B. M. (2015). A cross-sectional investigation of parenting style and friendship as mediators of the relation between social class and mental health in a university community. *International Journal for Equity in Health, 14,* 1-11. doi: 10.1186/s12939-015-0227-2

Rubin, M., & Wright, C. L. (2015). Age differences explain social class differences in students' friendship at university: Implications for transition and retention. *Higher Education, 70,* 427-439. doi: 10.1016/j.jesp.2009.09.006

Rubin, M., & Wright, C. L. (2017). Time and money explain social class differences in students' social integration at university. *Studies in Higher Education, 42,* 315-330. doi: 10.1080/03075079.2015.1045481

Sani, F., Herrera, M., Wakefield, J. R., 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

Sowislo, J. F., & Orth, U. (2013). Does low self-esteem predict depression and anxiety? A meta-analysis of longitudinal studies. *Psychological Bulletin, 139,* 213-240. doi: 10.1037/a0028931

Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. In W. G. Austin & S. Worchel (Eds.), *The social psychology of intergroup relations* (pp. 33-47). Monterey, CA: Brooks-Cole.

Twenge, J. M., & Campbell, W. K. (2002). Self-esteem and socioeconomic status: A meta-analytic review. *Personality and Social Psychology Review, 6,* 59-71. doi: 10.1207/S15327957PSPR0601_3

Universities Australia University of Melbourne. Centre for the Study of Higher Education (CSHE). (2008). *Participation and equity: a review of the participation in higher education of people from low socioeconomic backgrounds and Indigenous people.* Retrieved from http://www.voced.edu.au/content/ngv:35491

Endnotes

1. Importance and salience can be conceived as part of the broader construct of centrality (Cameron, 2004; Milanov et al., 2014). However, they refer to separate constructs (e.g., Quinn & Chaudoir, 2009), and in the present study an exploratory factor analysis showed that they loaded on distinct factors. There are also theoretical reasons for treating these constructs separately. A social identity may be important to one's self-concept but rarely considered. For example, a person may not think about their nationality on a daily basis, and yet it may constitute an important part of their self-concept. Conversely, a social identity may be unimportant to one's self-concept but considered quite frequently. For example, a student might recall which seminar group they belong to on a daily basis even though this group has very little relevance to their overall self-concept. For these reasons, we discuss importance and salience as separate constructs in this article.
2. As shown in Table 2, our measures of importance and salience had a relative high correlation (r = .54). Taking this relationship into account, we included these two variables as simultaneous moderator variables (Hayes, 2013, Model 2) in order to isolate their unique moderating effects independent of one another. The pattern of results was very similar to that observed when importance and salience were treated as separate moderators: Neither variable moderated the effect of social class on depression or stress ($ps \geq .108$), and importance moderated the effect of social class on anxiety ($p < .001$) but salience did not ($p = .082$). The only difference from the previous pattern of results was that although salience continued to moderate the effect of social class on satisfaction with life, $b = 0.19$, $SE = 0.08$, $t(349) = 2.42$, $p = .016$, 95% CI (0.04, 0.35), importance did not, $b = 0.08$, $SE = 0.09$, $t(349) = 0.98$, $p = .329$, 95% CI (-0.08, 0.25).

Funding

The authors declare no funding sources.

Conflict of Interest

The authors declare no conflict of interest.