3-2015

Lay theories about social class buffer lower-class individuals against poor self-rated health and negative affect

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Published in Personality and Social Psychology Bulletin,
Vol 41, Issue 3, January 2015, Pages 446–461
DOI 10.1177/0146167215569705

Lay Theories About Social Class Buffer Lower-Class Individuals Against Poor Self-Rated Health and Negative Affect

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Abstract

The economic conditions of one's life can profoundly and systematically influence health outcomes over the life course. Our present research demonstrates that rejecting the notion that social class categories are biologically determined—a nonessentialist belief—buffers lower-class individuals from poor self-rated health and negative affect, whereas conceiving of social class categories as rooted in biology—an essentialist belief—does not. In Study 1, lower-class individuals self-reported poorer health than upper-class individuals when they endorsed essentialist beliefs but showed no such difference when they rejected such beliefs. Exposure to essentialist theories of social class also led lower-class individuals to report greater feelings of negative self-conscious emotions (Studies 2 and 3), and perceive poorer health (Study 3) than upper-class individuals, whereas exposure to nonessentialist theories did not lead to such differences. Discussion considers how lay theories of social class potentially shape long-term trajectories of health and affect of lower-class individuals.

Keywords

social class, socioeconomic status, essentialism, health, emotion

Received November 14, 2013; revision accepted December 22, 2014

Across many nations, including the United States, individuals from relatively lower-class backgrounds are more likely to experience a host of negative outcomes, such as poorer cognitive performance (Nisbett, 2007), poorer academic achievement (Sirin, 2005; Stephens, Fryberg, Markus, Johnson, & Covarrubias, 2012; Stephens, Markus, & Fryberg, 2012), lower subjective well-being (Diener, Ng, Harter, & Arora, 2010; Howell & Howell, 2008), as well as increased mortality (Adler et al., 1994; Gallo & Matthews, 2003; Kawachi, Kennedy, Lochner, & Prothrow-Stith, 1997; Wilkinson, 1999). In particular, the negative impact of reduced economic and social resources on physical health has motivated much research into the underlying causes of this pattern and, more important, the factors that might mitigate it (e.g., Chen & Miller, 2012; Lachman & Weaver, 1998). In the present research, we test the prediction that lay beliefs that downplay the biological and fixed bases of social class can buffer lower-class individuals from the experience of poor health and negative affect.

Social Class and Health

Across race, gender, and geographic location, lower-class individuals have poorer health and higher mortality rates than upper-class individuals (Adler et al., 1994; Kawachi et al., 1997; Ross et al., 2006; Wilkinson, 1999). This pattern has been observed across both objective measures of social class—typically assessed by some combination of one's income (Drentea & Lavrakas, 2000), education attainment (Snibbe & Markus, 2005), and occupation status (Oakes & Rossi, 2003)—and subjective measures of social class—typically assessed by comparisons of one's own material resources with that of others (Adler et al., 1994; Cohen et al., 2008).

Several explanations for this robust link between social class and health have been proposed—related to access to environments that prevent disease and help cure illness (Gordon-Larsen, Nelson, Page, & Popkin, 2006; Link & Phelan, 1995; Moore & Diez Roux, 2006; Stead, MacAskill, MacKintosh, Reece, & Eadie, 2001), and resources necessary to afford the costs of health coverage (Carpiano, Link, & Phelan, 2008; Chang & Lauderdale, 2009; Link & Phelan, 1995; Starfield & Budetti, 1985). Unfortunately, active health promotion efforts face significant challenges because

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some health promotion behaviors (e.g., regular exercise, regular medical exams) tend to be perceived as inconsistent with the social self or group identity of individuals from relatively lower-class backgrounds (Oyserman, Fryberg, & Yoder, 2007; Stephens, Markus, & Fryberg, 2012).

A growing body of research has assessed potential psychosocial variables that can reduce this social class health gradient. For instance, *social capital*—which includes social support, membership in organizations, and degree of trust in a community—may mitigate health inequality by boosting relatively lower-class individuals' access to and motivations to engage in health-benefiting behaviors (Berkman, 1995; Kawachi et al., 1997; Wilkinson, 1994). Evidence also suggests that belief systems can moderate class effects on health. For example, Lachman and Weaver (1998) demonstrated that elevated *control beliefs*—perceived personal mastery of and lack of personal constraints in the environment—among lower-class individuals were associated with comparable self-rated health levels with their upper-class counterparts. This is presumably because an elevated sense of control over one's outcomes promotes beliefs that one's own actions can improve the life course (Lachman, Ziff, & Spiro, 1994) and protects against feelings of helplessness (Langer, 1975; Seligman, 1975; Taylor, 1989). Aligning with the assertion that belief systems can affect lower-class individuals' health, we propose that lay theories about the determinants of social class can shape health outcomes. We elaborate on this general prediction in the sections that follow.

Lay Theories of Social Class Categories

Perceptions of social groups in society can be influenced by a number of lay theories about how those groups are formed (Cimpian & Salomon, 2014; Yzerbyt & DeMoulin, 2010). *Essentialist theories* about social categories rest on the assumption that an individual's membership in a specific category (e.g., racial group, gender, social class) is rooted in biology or genes and is fixed and stable across the life course (Allport, 1954; N. Haslam, Rothschild, & Ernst, 2000; Keller, 2005; Kraus & Keltner, 2013; Williams & Eberhardt, 2008). *Nonessentialist theories* about social categories, in contrast, assume that an individual's social group membership is not biologically determined and may not be fixed or immutable (Bastian & Haslam, 2006; N. Haslam, Bastian, Bain, & Kashima, 2006; N. Haslam, Bastian, & Bissett, 2004; Williams & Eberhardt, 2008). In other words, essentialist beliefs place a greater emphasis on internal biological explanations for patterns of behavior (Williams & Eberhardt, 2008), whereas nonessentialist beliefs reject such inherent explanations, allowing for the possibility that social categories and behavior can change and be reconstituted (e.g., Keller, 2005; Kraus & Keltner, 2013).

We propose that differential beliefs in the origins of social class categories will have implications for self-rated health and negative affect. Specifically, we hypothesize that individuals from relatively lower-class backgrounds who endorse essentialist beliefs will report poorer self-rated health and increased negative self-conscious affect—that is, negative affect that is directed specifically at the self (e.g., Tangney, Stuewig, & Mashek, 2007)—relative to upper-class individuals, whereas lower-class individuals who endorse nonessentialist beliefs will not show these relative deficits in health and affect. The logic behind this prediction is as follows: Essentialist beliefs about social class imply that one's social class is caused by biological elements and is fixed across the life course. The biological and fixed aspects of essentialist beliefs, we predict, enhance chronic negative self-conscious affect (e.g., shame, anxiety, guilt) for individuals from relatively lower-class backgrounds because such beliefs suggest that subordinate status is both based on an individual's own biology (i.e., I have bad genes) and is likely to persist across the life course. In contrast, rejecting such biological explanations suggest that subordinate status is not the specific fault of one's own biology and has the potential to change in the future. Thus, nonessentialist beliefs, we predict, will buffer lower-class individuals from the experience of chronic negative self-conscious affect that arises from beliefs that subordinate status is fixed and due to one's own internal biology. Over time, lower-class individuals who endorse nonessentialist beliefs may—as a result of their decreased experience of negative self-conscious affect—have health outcomes that are similar to those experienced by their upper-class counterparts.

Social Class, Negative Self-Conscious Affect, and Self-Rated Health

Although our central hypothesis has not been formally tested in prior research, several lines of indirect evidence suggest that in comparison with essentialist beliefs, nonessentialist beliefs buffer individuals from relatively lower-class backgrounds from experiencing negative self-conscious affect and poorer self-rated health: Prior research indicates that beliefs that ability is inherent to the individual, rather than learned or improved with effort, create a fatalistic sense of academic performance and subsequently reduce the likelihood that children will seek to improve their academic abilities (e.g., Dweck, 1986; Molden & Dweck, 2006). As well, individuals who believe that social class is essentialist are also more likely to believe that the world is fair and just (Kraus & Keltner, 2013). This pattern of results is suggestive of the possibility that lower-class individuals who endorse essentialist beliefs will view their own subordinate status as inevitable and justified—which we predict will exacerbate the experience of chronic negative self-conscious affect and poorer health for these individuals.

In our hypothesis of relationships between social class, lay theories, and self-rated health, we propose that essentialist

beliefs in social class will elicit chronic experiences of negative self-conscious affect in lower-class individuals which, over time, will manifest in reduced self-rated health. The proposition that negative self-conscious affect is potentially causal in increasing negative health outcomes is supported by a number of studies linking health and affect: Evidence suggests that negative affect is an important precursor to poor health (Booth-Kewley & Friedman, 1987; Cohen et al., 1995; Dickerson, Gruenewald, & Kemeny, 2004; Gallo & Matthews, 2003). In particular, more recent research have pinned down the specific role of negative self-conscious emotions in shaping physiological profiles that are detrimental to health.

Studies have examined the health impact of negative self-conscious emotions by inducing these emotions through social self-threat (e.g., having participants deliver a speech in front of stoic evaluators). Across this body of research, studies have found that inducing negative self-conscious emotions tends to increase cortisol levels (Dickerson & Kemeny, 2004; Gruenewald, Kemeny, Aziz, & Fahey, 2004), proinflammatory cytokine activity, as well as activation of the hypothalamic–pituitary–adrenocortical (HPA) axis (Cannon, 1932; Dickerson, Gruenewald, & Kemeny, 2004; Kemeny, 2003; Kemeny & Shestyuk, 2008). Chronic exposure to HPA activation (measured by increases in cortisol) and proinflammatory cytokine activity precipitates many precursors to poor health, such as systemic inflammation, visceral fat accumulation, and increased blood pressure (Brotman, Golden, & Wittstein, 2007; Everson-Rose & Lewis, 2005; Rozanski, Blumenthal, Davidson, Saab, & Kubzansky, 2005), which eventually manifest as chronic illness. Together, the above evidence is suggestive of our hypothesis that lay beliefs can moderate associations between social class and negative self-rated health through experiences of chronic self-conscious affect.

The Present Research

We tested three hypotheses in the present research related to the tendency for essentialist beliefs to moderate associations between social class and self-rated health: Lower-class individuals who endorse essentialist beliefs will (a) self-report experiencing poorer health; and (b) increased negative self-conscious affect relative to upper-class individuals, whereas no such deficits in health or affect will be observed among lower-class individuals who endorse nonessentialist beliefs; and (c) the tendency for these lay beliefs to moderate associations between social class and self-rated health will be explained, at least in part, by reported levels of negative self-conscious affect.

We used three studies to test these predictions. In Study 1, we assessed participants' lay theories about social class and their self-rated health. We chose to assess self-rated health as our primary indicator of health outcomes because of its consistent associations with mortality rates in large-scale epidemiological samples (Idler & Benyamini, 1997). We predicted that lower-class participants who endorse essentialist beliefs about social class would report poorer overall self-rated health compared with their upper-class counterparts, but no such difference would be observed for participants who show low endorsement of essentialist beliefs about social class. In Studies 2 and 3, we used an experimental design to test the prediction that exposure to lay theories of social class would moderate the association between social class and momentary fluctuations in self-rated health (Study 3) and negative affect (Studies 2 and 3). In Study 3, we sought to provide further experimental evidence that lay beliefs about social class moderate associations between social class and both momentary fluctuations in self-rated health and negative self-conscious affect, as well as to test the mediating role of negative self-conscious affect.

Before describing the studies and evidence, it is important to acknowledge several caveats in the present investigation. First, the logic of our predictions presupposes that lower-class individuals who endorse nonessentialist beliefs will be buffered from the experience of negative health and self-conscious affect because these individuals will believe that their subordinate status is not the fault of their own internal biology and that their position could change in the future. Of note, it is possible that certain samples—those that are younger and just developing their own sense of their position in society—may be particularly likely to view nonessentialist beliefs in this fashion. As American society is characterized by low levels of social mobility (Burkhauser, Feng, Jenkins, & Larrimore, 2012; Fiske & Markus, 2012; Piketty & Saez, 2003), older individuals who have lived a lifetime of subordinate status may not view nonessentialist beliefs as optimistically as we predict and, as a result, may not receive the same theorized benefits in health and affect from this type of belief system.

Second, our hypothesized model suggests that lay theories of social class moderate associations between social class and health outcomes through the experience of chronic negative self-conscious affect. Notably, the experimental paradigms we employ in Studies 2 and 3, although they attempt to establish causal associations between social class, lay theories, and self-rated health and affect, should be interpreted with caution: It is unclear how much momentary shifts in self-rated health and negative self-conscious affect correspond to chronic levels of these constructs that are more closely related to physiological health outcomes, mortality, and well-being (e.g., Kraus, Adler, & Chen, 2013; Operario, Adler, & Williams, 2004).

Third, although our model examines health outcomes related to social class and lay theories, the samples include relatively healthy university students. Thus, applications of these methods to specific diseases and chronically ill populations should be made with caution and not before the findings have been replicated. We return to each of these points in the "General Discussion" section.

Study 1: Lay Theories About Social Class and Self-Rated Health

The goal of Study 1 was to examine if individuals' lay beliefs about social class would influence the association between social class and self-rated health. To examine this relationship, we used a correlational design to assess individuals' social class, their lay theories about social class, and their self-rated physical health.

Method

Participants. One hundred sixty-nine participants (112 females, 57 males) from a national online sample took part in the study. The mean age was 35.04 years (SD = 12.57). The majority of the participants were European American (n = 112) while the rest included Asian Americans (n = 27), African Americans (n = 9), Native Americans (n = 3), Latino (n = 1), and Other or multiple ethnic groups (n = 17). In terms of their social class backgrounds, 42.9% of participants reported annual incomes of US$50,000 or less while 39.3% of participants had high school graduation as their highest level of education completed. Participants were recruited through advertisements on Craigslist.org, and they participated for a chance to win small gift certificates to an online retailer. This sample of participants was part of a larger study that was reported in Kraus and Keltner (2013; see Study 1). No participants were excluded from the original sample in this present study.

Procedure. The study was completed online. Participants first filled out a self-report measure of their physical health on the Medical Outcomes Study–Short Form (MOS-SF) 36-item Health Survey (Ware & Sherbourne, 1992), followed by the measure of lay theories of social class that was adapted from a previous measure of essentialism (see Williams & Eberhardt, 2008). Next, participants rated their social class using measures from previous research (Adler, Epel, Castellazzo, & Ickovics, 2000; Kraus, Piff, & Keltner, 2009), and then filled out their demographic information. Finally, participants were debriefed about the study hypotheses.

Materials

Social class. We assessed two indices of social class—objective measures of material resources and subjective perceptions of social class rank. Objective material resources were measured by having participants report their personal educational attainment and annual income (Kraus et al., 2009). Participants reported their educational attainment by choosing one of four categories: (a) less than high school education, (b) high school education, (c) college graduation, and (d) postgraduate degree. They also reported their annual income by choosing one of eight categories: (a) less than US$15,000, (b) US$15,001 to US$25,000, (c) US$25,001 to US$35,000, (d) US$35,001 to US$50,000, (e) US$50,001 to US$75,000, (f) US$75,001 to US$100,000, (g) US$100,001 to US$150,000, and (h) greater than US$150,000. Fifteen participants did not report their annual income, and 1 participant did not report his educational attainment. As educational attainment and annual income were correlated, $r(151) = .29$, $p < .001$, they were standardized and averaged to form an objective social class index, with higher scores indicating higher objective social class. Consistent with prior research, objective and subjective social class were significantly correlated, $r(167) = .45$, $p < .001$.

Subjective social class rank was measured using the MacArthur Scale of Subjective Socioeconomic Status (Adler et al., 2000; Kraus et al., 2009). For this measure, participants were asked to place an "X" on a rung of a ladder that indicates their perceptions of where they stand in terms of education, income, and occupation status, relative to others in their local community. Each rung of the ladder was represented by a number from 1 to 10, with higher numbers indicating higher perceptions of social class rank (M = 5.89, SD = 1.86).

Lay theories about social class categories. Participants' lay beliefs about social class categories were assessed by a 10-item self-report measure of essentialism, following the factor structure established by Kraus and Keltner (2013). This scale included items that, for example, reflect beliefs that social class is at least partially based in biological temperament or genetic tendency, can be determined without clothing cues, and is determined by circumstances (reverse-scored). Participants rated their agreement with the statements on a 7-point Likert-type scale (1 = *strongly disagree*, 7 = *strongly agree*). The scale was reliable (M = 3.54, SD = .83, α = .81) and all items were averaged to give a single score of lay theories about social class. Higher scores indicated stronger endorsement of essentialist beliefs about social class.

Self-rated general health. Participants rated their general physical health using the Short Form 36-item Health Survey (Ware & Sherbourne, 1992), which consists of 36 items assessing various aspects of physical health, such as social functioning, emotional well-being, and general physical health. In this study, we were primarily interested in the general physical health index, given its wide usage in previous research examining links between social class and health (Adler et al., 2000; Kopp, Skrabski, Réthelyi, Kawachi, & Adler, 2004; Kraus, Adler, & Chen, 2013). Furthermore, many epidemiological studies also found that this index is a strong predictor of mortality (e.g., Idler & Benyamini, 1997). Examples of the general physical health items are "In general, would you say your health is _____. (1 = *excellent*, 5 = *poor*)," "My health is excellent," and "I am as healthy as anybody I know" (1 = *definitely true*, 5 = *definitely false*). All 5 items were reliable (M = 3.54, SD = .62, α = .82) and were averaged to create a single self-rated general health index, with higher scores indicating better general health.[1]

Results

First, we examined the correlations between all our variables of interest. Objective social class was positively correlated with participants' self-rated general health, $r(167) = .23$, $p = .002$. The individual components of objective social class were also positively correlated with the self-rated general health: current income, $r(152) = .21$, $p = .008$; educational attainment, $r(166) = .18$, $p = .02$. These results are consistent with the social class health gradient in that individuals in a higher social class standing reported better health outcomes than individuals in a lower social class standing. As reported previously (Kraus & Keltner, 2013), subjective social class was positively correlated with lay beliefs about social class, such that individuals who rated themselves higher in social class rank were more likely to endorse essentialist beliefs about social class, $r(167) = .22$, $p < .001$. The objective social class index was not correlated with lay beliefs about social class, $r(167) = .07$, $p = .35$.

To examine if lay beliefs about social class influenced lower-class individuals' self-reported health, we ran a hierarchical linear regression, with participants' objective social class, lay theories of social class, and their interaction as the predictor variables (centered), and self-reported general health as the criterion variable (see Aiken & West, 1991). The analysis yielded a main effect of objective social class, $\beta = .24$, $t(166) = 3.24$, $p = .001$, 95% confidence interval (CI) = [.09, .39], such that individuals who are higher in objective social class reported better general health than individuals who are lower in objective social class. There was also a nonsignificant tendency for individuals who were less likely to endorse essentialist beliefs to report better general health than those who endorsed essentialist beliefs, $\beta = -.14$, $t(166) = -1.82$, $p = .07$, 95% CI = [−.28, .01].

Central to our first hypothesis, we found a significant interaction between participants' social class and lay beliefs about social class, $\beta = .22$, $t(165) = 2.14$, $p = .03$, 95% CI = [.02, .42]. Analyses of simple slopes revealed that lower-class participants who endorsed essentialist beliefs about social class (one standard deviation above the mean) reported significantly poorer health compared with their upper-class counterparts, $\beta = .40$, $t(165) = 3.83$, $p < .001$, 95% CI = [.19, .61]. In contrast, lower-class participants who were less likely to endorse essentialist beliefs about social class (one standard deviation below the mean) reported health levels that were equal to that of their upper-class counterparts, $\beta = .09$, $t(165) = 0.86$, $p = .39$, 95% CI = [−.11, .29]. Furthermore, these lower-class individuals who endorsed lower levels of essentialist beliefs about social class also reported significantly better health than the lower-class individuals who endorsed essentialist beliefs about social class, $\beta = -.27$, $t(165) = -2.79$, $p = .006$, 95% CI = [−.46, −.08] (see Figure 1). When we ran the same regression analyses controlling for race and gender, the overall pattern of the interaction between social class and endorsement of lay theories of social class on self-rated health remained, $\beta = 2.14$, $t(161) = 2.04$, $p = .03$, 95% CI = [.02, .30].[2]

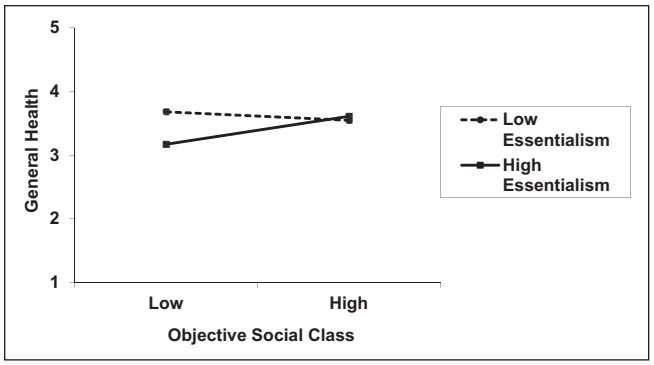

Figure 1. Interaction between lay theories about social class and objective social class on self-rated health in Study 1.

Interestingly, while subjective social class rank predicted participants' self-reported general health, such that lower-class participants reported poorer health than upper-class participants, $\beta = .16$, $t(166) = 2.09$, $p = .04$, 95% CI = [.01, .32], it did not yield any significant interaction with lay theories about social class, $\beta = .05$, $t(165) = 0.67$, $p = .50$, 95% CI = [−.10, .20]. We return to this result in the "General Discussion" section.

Discussion

Results from Study 1 supported our prediction that endorsing lay theories about social class categories moderates the relationship between social class and self-rated health. Specifically, while lower-class participants who endorsed essentialist beliefs about social class reported poorer health than their upper-class counterparts, this class-based difference in self-rated health was not observed for participants who endorsed nonessentialist beliefs about social class.

Study 1 provided correlational evidence suggesting that lay theories about social class moderate the relationship between social class and self-rated health. In Study 2, we sought to test if lay theories about social class can alter lower-class individuals' momentary experience of negative self-conscious emotions—a group of negative emotions shown, in prior research, to be a precursor to poor health (Dickerson, Gruenewald, & Kemeny, 2004; Gruenewald, Kemeny, & Aziz, 2006; Gruenewald et al., 2004).

Study 2: Lay Theories About Social Class and Negative Self-Conscious Affect

Our goal in Study 2 was to provide initial causal evidence for the mitigating effect of lay theories about social class on lower-class individuals' momentary experience of negative

self-conscious affect by directly manipulating beliefs about social class lay theories (see Kraus & Keltner, 2013; Williams & Eberhardt, 2008). In this study, we hypothesized that exposing lower-class participants to essentialist theories about social class should lead to elevated feelings of negative self-conscious emotions compared with their upper-class counterparts, but this difference should again be attenuated when participants are exposed to nonessentialist theories about social class.

Method

Participants. Seventy-one undergraduates (43 females, 28 males) at a public West Coast university participated in the study in exchange for course credit. This sample was part of a larger study reported in Kraus and Keltner (2013; see Study 3). Data were collected for this study over the course of one academic semester and analyses were not conducted prior to obtaining the entire sample. The mean age was 21.35 years (SD = 3.58). Participants were Asian Americans (n = 30), European Americans (n = 22), Latino or Latina (n = 3), and Other or multiple ethnicities (n = 15). One participant did not report his ethnicity.

Procedure. Participants were run in small groups and were ostensibly told that the study objective was to investigate their memory for and retention of material in scientific articles—the cover story for our manipulation of lay beliefs about social class. Participants were showed a list of nine titles of scientific articles published by a scientific journal and were told they would be randomly assigned to read and respond to one of the articles. In actual fact, all of them read the article titled "Socioeconomic Status and Its Genetic Underpinnings"—our manipulation for lay theories about social class. There were two versions of the article in which experimental evidence was provided support or no support for the biological basis of social class. Participants were randomly assigned to read one of them. After reading the article, participants were asked to give the main point of the article and their best recall of the information in the article, following which, they rated, on a list of emotions words, how they felt after reading the article. Finally, they filled out the subjective social class measure as used in Study 1, as well as demographic information. They were debriefed about the study at the end.

Materials

Manipulation of lay theories about social class. As reported in prior research (Kraus & Keltner, 2013), we manipulated lay beliefs about social class by randomly assigning participants to read one of two scientific journal articles about the biological bases of social class. The article advocating the biological basis of social class (essentialist perspective) argued that researchers found genetic underpinnings to social class and that lower-class children inherited social class from their parents, were more likely to remain lower class, and had genetic similarity to other lower-class people. In contrast, the article advocating that social class had no biological basis (nonessentialist perspective) argued that researchers found lower-class and upper-class individuals to be genetically similar, that children from lower-class backgrounds are equally likely to become upper or lower class, and that social class is cultural in origin. As manipulation checks, participants were asked the extent to which they agreed with two statements: "It is impossible to determine one's social class by examining their genes" (reverse-scored) and "There is probably a biological determinant of social class." Both statements were rated on a 7-point Likert-type scale (1 = *strongly disagree*, 7 = *strongly agree*). Both statements were reliable (M = 2.34, SD = 1.31, α = .73) and were averaged to give a single score, where higher scores indicated stronger essentialist beliefs about social class.

Negative self-conscious emotions. We measured participants' negative self-conscious emotions by asking them to rate the extent to which they experienced a list of emotions after reading the article. The list consisted of positive emotions (e.g., *moved, comfortable, relaxed*) and negative emotions (e.g., *upset, disgust, fear*). The negative self-conscious emotions were specifically nervous, guilt, shame, and anxious. All emotions were rated on a 5-point Likert-type scale (1 = *not at all*, 5 = *extremely*). The negative self-conscious emotions were reliable, (M = 1.26, SD = .57, α = .78), and were averaged to form a single index of negative self-conscious emotions. We also computed the composite for all nine negative emotions (M = 1.41, SD = .62, α = .88), all five positive emotions (M = 2.29, SD = .69, α = .63), as well as a three-item composite of hostility-related emotions (i.e., *anger*, *contempt*, *disgust*; M = 1.55, SD = .82, α = .81).

Social class. To assess objective social class, we asked participants to report the education completed by their mother and father, as well as their household income while growing up, by choosing from the same categories of the objective social class measures in Study 1. These measures were again standardized, and averaged to obtain a single objective social class index, where higher scores indicate higher objective social class. Once again, we assessed participants' subjective social class rank using the same measure in Study 1 (M = 5.91, SD = 1.93). One participant did not report her subjective social class rank. Objective and subjective social class were once again correlated, $r(68) = .72$, $p < .001$.

Results

Manipulation check. To determine the success of our manipulation of lay theories about social class, we ran an independent-samples t test, comparing participants who read the article advocating an essentialist perspective of social class with those who read the article advocating a nonessentialist

perspective of social class on the mean of both our manipulation check items. Indeed, we found that participants reported stronger essentialist beliefs when they read the essentialist perspective of social class (M = 2.71, SD = 1.41) than those who read the nonessentialist perspective of social class (M = 2.00, SD = 1.12), $t(69) = -2.34$, $p = .02$.

Lay theories and negative self-conscious emotions. To examine if lower-class individuals differed in their experience of negative self-conscious emotions depending on their lay beliefs about social class categories, we ran a three-way mixed ANOVA with lay theories about social class as the between-subjects factor, objective social class as the covariate, and type of emotion (negative self-conscious emotions vs. hostility-related emotions) as the within-subjects factor. We did not find a significant three-way interaction using this analysis, $F(1, 67) = .04$, $p = .84$. This finding suggests that participants did not respond differentially to distinct types of negative emotions.

In follow-up analyses, we probed interactions between social class, our manipulation of lay theories, and the distinct types of negative affect. To examine if lower-class individuals differed in their experience of negative self-conscious emotions depending on their lay beliefs about social class categories, we ran a hierarchical linear regression with participants' objective social class, lay beliefs in social class categories (coded 0 = *nonessentialist beliefs*, 1 = *essentialist beliefs*), and their interaction as the predictor variables and with their level of experienced negative self-conscious emotions as the criterion variable. The analysis yielded a nonsignificant effect of lay beliefs, $\beta = .13$, $t(68) = 1.87$, $p = .07$, 95% CI = [−.48, .02], in the direction of participants who read that social class has no biological basis reporting less negative self-conscious emotions. There was also no main effect of social class on the experience of negative self-conscious emotions, $\beta = -.10$, $t(68) = -0.84$, $p = .40$, 95% CI = [−.35, .14].

Central to our hypothesis, we found a significant interaction between participants' objective social class and lay beliefs about social class categories on the experience of negative self-conscious emotions, $\beta = .41$, $t(67) = 2.03$, $p = .046$, 95% CI = [.01, .81]. Simple slope analyses revealed that among those who read the essentialist perspective of social class, lower-class participants reported experiencing greater negative self-conscious emotions compared with the upper-class participants, $\beta = -.45$, $t(67) = -2.15$, $p = .035$, 95% CI = [−.86, −.03]. In contrast, among those who read the nonessentialist perspective of social class, lower-class participants did not differ in their experience of negative self-conscious emotions from their upper-class counterparts, $\beta = .07$, $t(67) = 0.49$, $p = .62$, 95% CI = [−.23, .37]. Furthermore, we found that lower-class participants who read that social class has no biological basis experienced significantly less negative self-conscious emotions than those who read that social class had a biological basis, $\beta = .52$, $t(67) = 2.79$, $p = .007$, 95% CI = [.15, .89] (see Figure 2). Consistent with the results of Study 1, subjective social class did not interact with lay theories about social class categories to produce any effects on negative self-conscious emotions, $\beta = .04$, $t(67) = 0.28$, $p = .78$, 95% CI = [−.21, .28].

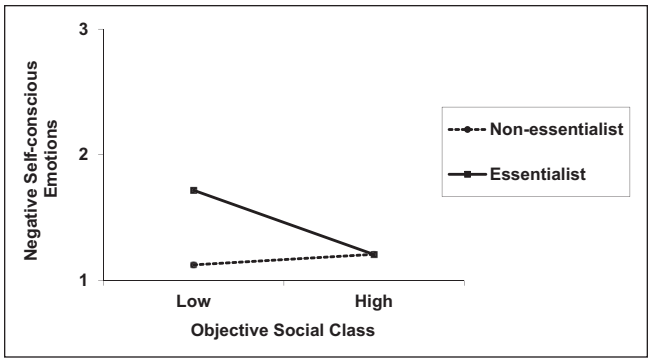

Figure 2. Interaction between manipulated lay theories about social class and objective social class on the experience of negative self-conscious emotions in Study 2.

Examination of the nine-item overall negative emotions index revealed a nonsignificant interaction between social class and lay theories, $\beta = -.27$, $t(67) = -1.87$, $p = .07$, 95% CI = [−.55, .02]. Simple slope analyses revealed the same pattern of result as for negative self-conscious emotions: Lower-class participants reported experiencing greater overall negative emotions compared with their upper-class counterparts when they read that social class was biologically based, $\beta = -.55$, $t(67) = -2.74$, $p = .008$, 95% CI = [−.96, −.15], whereas social class was not associated with overall experience of negative emotions for participants who read that social class had no biological basis, $\beta = -.09$, $t(67) = -0.62$, $p = .54$, 95% CI = [−.38, .20]. In addition, these lower-class participants in the nonessentialism condition also experienced less overall negative emotions than lower-class participants in the essentialism condition, $\beta = .57$, $t(67) = 3.15$, $p = .002$, 95% CI = [.21, .93]. This latter finding is consistent with the results from our three-way ANOVA—Essentialist beliefs moderated the relationship between social class and negative affect in general, as well as negative self-conscious affect in particular.

We also ran a similar analysis examining the five-item positive emotion scale, and found no significant interaction between lay theories about social class categories and participants' social class on positive emotions, $\beta = .02$, $t(67) = 0.14$, $p = .89$, 95% CI = [−.28, .32].

Discussion

Study 2 provided support for our second hypothesis: Lower-class participants who were made to believe that social class is an essentialist category reported experiencing greater negative self-conscious emotions than upper-class participants, whereas no such difference was observed for participants

who were made to believe that social class is not rooted in biology. These findings converge on the idea that nonessentialist beliefs can help to buffer lower-class individuals against experiencing negative self-conscious emotions that, when experienced chronically, can be detrimental to health. Interestingly, the manipulation of essentialist beliefs moderated associations between social class and negative affect in general, as well as self-conscious affect in particular, but did not shift participant positive emotions.

Thus far, the results from our first two studies provide evidence for our central hypotheses that lay theories about social class moderate associations between social class and both self-rated health and negative self-conscious affect. Study 3 extends these findings by examining whether the same manipulation of lay theories of social class shifts associations between social class and self-rated health while testing the potential mediating role of negative self-conscious affect in this process.

Study 3: Lay Theories About Social Class, Self-Rated Health, and Negative Self-Conscious Affect

We had three goals in Study 3: First, we wanted to replicate the effects of lay theories of social class obtained in Studies 1 and 2 with a larger sample of participants. Second, we wanted to provide further support for the moderating role of lay theories of social class on momentary shifts in self-rated health using an experimental design, allowing for an initial test of causal associations. Third, we tested the potential mediating role of negative self-conscious affect in explaining the relationships between social class, essentialist beliefs, and self-rated health.

Before describing this research, we acknowledge that we do not expect the manipulation of lay theories of social class to shift actual health outcomes for our participants. Rather, we expect that lay theories of social class will change temporary perceptions of both one's health and affect—such that lower-class individuals exposed to essentialist beliefs about social class will report momentarily lower self-rated health, whereas those exposed to nonessentialist beliefs will show no class-based differences in temporary health perceptions. Such a result would be consistent with the hypothesized relationships between social class, lay theories, and chronic health outcomes.

Method

Participants. Three hundred forty-five undergraduate students enrolled in psychology courses at the University of Illinois participated in this study (217 females, 128 males). This sample size was obtained following recommendations that large sample sizes can provide more precise estimates of effects (Cumming, 2014). Data collection was scheduled for one full academic year, and analyses were not conducted prior to the collection of the full sample. Participants' mean age was 19.42 years (SD = 1.42). The majority of participants were European American (n = 113), followed by Other (n = 87), Asian American (n = 82), Latino/a (n = 43), African American (n = 29), and Native American (n = 2). Participants were allowed to enter more than one ethnic category. All participants were included in the analyses except in cases where they had missing data.

Procedure. Participants completed the study through computer terminals in the lab. They were first directed to read a consent document for the study ostensibly designed to examine relationships between personality and attitudes about society. Similar to our design in Study 2, participants were first told their memory for and retention of material in scientific articles will be assessed, which formed our manipulation of their lay beliefs about social class. After which, participants answered questions about their emotions, followed by their general health. Finally, participants answered some questions about their social class mobility beliefs and demographic information. Participants were probed for suspicion and debriefed regarding the hypotheses of the study at the end. None of them were able to successfully guess the hypotheses of the study.

Materials

Manipulation of lay theories about social class. Our manipulation of lay theories about social class was similar to that of Study 2, except in one respect—Participants in this study read two mock scientific news articles instead of one. To enhance the cover story for the present investigation and limit the chances that participants would correctly guess our hypotheses, all participants began the experiment by reading the same filler article about willpower in eating and dieting. Following this article, participants read the second article—either the biological (essentialist perspective) or nonbiological basis (nonessentialist perspective) of social class article, as in Study 2.

To assess the effectiveness of the manipulation, we asked attention check questions to assess how much information participants remembered for both articles they read. For the first article on willpower, we asked participants whether the article argument was consistent with the statement, "Having sweets readily available should decrease your desire of them." This manipulation check item allowed us to determine if both experimental groups attended to the article information equally. For the second article on the (non)genetic basis of social class, we asked participants to rate how much the article argument was consistent with the statements, "Social class is stable, inherent, and biologically determined" and "There is no genetic basis to social class." (reverse-scored). Both statements were rated on 7-point Likert-type scales (1 = *strongly disagree*, 7 = *strongly agree*) and were reliable (M = 3.62 SD = 2.11, α = .87). As such, these latter items were averaged to give a single score, where higher scores indicated stronger essentialist beliefs about social class.

Negative self-conscious emotions. We measured participants' negative self-conscious emotions using the same list of emotions in Study 2 and asked them to rate the extent to which they experienced those emotions after reading the article. All emotions were rated on a 5-point Likert-type scale (1 = *not at all*, 5 = *extremely*). The negative self-conscious emotions (i.e., nervous, guilt, shame, and anxious) were reliable ($M = 1.60$, $SD = .72$, $\alpha = .82$) and were averaged to form a single index, where higher scores indicated greater experience of negative self-conscious emotions. As in Study 2, we also computed the composite of the three-item hostility-related emotions ($M = 1.43$, $SD = .64$, $\alpha = .65$), all negative emotions ($M = 1.50$, $SD = .60$, $\alpha = .88$), and all positive emotions ($M = 1.90$, $SD = .85$, $\alpha = .88$).

Self-rated general health. Participants' self-rated physical health was assessed by the single-item measure of general physical health adapted from the Short Form 36-item Health Survey (Ware & Sherbourne, 1992) used in Study 1. Participants rated how much they agreed with the statement, "In general, my health is good" (1 = *strongly disagree*, 5 = *strongly agree;* $M = 4.09$, $SD = .77$).

Social class. We assessed participants' objective social class and subjective social class rank using the same measures in Study 2. For objective social class, we standardized participants' reported family income and education attainment, and averaged them to obtain a single objective social class index, where higher scores indicate higher objective social class. Some participants did not report their family income ($n = 7$) or mother's ($n = 9$) and father's ($n = 14$) education attainment. For subjective social class rank ($M = 6.71$, $SD = 1.63$), two participants did not report it. Objective and subjective social class were again correlated, $r(340) = .42$, $p < .001$.

Results

Manipulation check. An independent-samples t test revealed that participants reported stronger essentialist beliefs when they read that social class had a biological basis ($M = 5.18$, $SD = 1.55$) than those who read that social class was not biologically based ($M = 2.13$, $SD = 1.37$), $t(341) = -19.28$, $p < .001$. Both groups did not differ in their ratings of the statement related to the willpower article, $t(340) = 1.11$, $p = .27$. Overall, these findings suggest that our manipulation was successful in manipulating participants' beliefs about social class.

Lay theories and negative self-conscious emotions. To test if lay theories about social class moderate the association between social class and momentary reports of negative self-conscious emotions, we ran a hierarchical linear regression with participants' objective social class, lay beliefs in social class categories (coded 0 = *nonessentialist beliefs*, 1 = *essentialist beliefs*) and their interaction as the predictor variables, and with their level of experienced negative self-conscious emotions as the criterion variable. There were no main effects of objective social class, $\beta = -.02$, $t(339) = -0.36$, $p = .72$, 95% CI = [−.13, .09], and lay beliefs about social class, $\beta = .05$, $t(339) = 0.99$, $p = .32$, 95% CI = [−.05, .16], on participants' negative self-conscious emotions. Consistent with Study 2 findings, we found a significant interaction between participants' objective social class and lay beliefs about social class on the experience of negative self-conscious emotions, $\beta = -.20$, $t(338) = -2.58$, $p = .01$, 95% CI = [−.35, −.05].

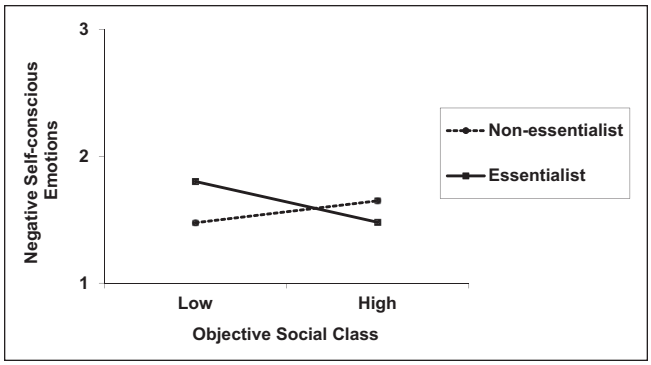

Figure 3. Interaction between manipulated lay theories about social class and objective social class on the experience of negative self-conscious emotions in Study 3.

Analyses of simple slopes revealed that among participants who read that social class is biologically determined, lower-class participants reported experiencing greater negative self-conscious emotions than their upper-class counterparts, $\beta = -.16$, $t(338) = -2.08$, $p = .04$, 95% CI = [−.31, −.01]. In contrast, no difference was observed in the experience of negative self-conscious emotions between lower-class and upper-class participants who read that social class is not biologically based, $\beta = .12$, $t(338) = 1.57$, $p = .12$, 95% CI = [−.03, .27]. In addition, lower-class participants who read the nonessentialist perspective also reported experiencing significantly less negative self-conscious emotions compared with lower-class participants who read the essentialist perspective, $\beta = .20$, $t(338) = 2.54$, $p = .01$, 95% CI = [.04, .35] (see Figure 3).

We did not obtain any effect of interaction between objective social class and lay beliefs about social class on the overall negative emotions index, $\beta = -.12$, $t(338) = -1.63$, $p = .11$, 95% CI = [−.27, .03], and the overall positive emotions index, $\beta = .07$, $t(338) = 0.86$, $p = .39$, 95% CI = [−.09, .22].

To more definitively determine if lay theories of social class moderate relationships between social class and self-conscious emotions in particular, we ran a three-way mixed ANOVA with lay theories about social class as the between-subjects factor, objective social class as the covariate, and type of emotion (negative self-conscious emotions vs. hostile emotions) as the within-subjects factor, as in Study 2. We

found the expected significant three-way interaction, $F(1, 338) = 8.29$, $p = .004$. We probed this three-way interaction and found the predicted two-way interaction effect between social class and lay beliefs on negative self-conscious emotions, $\beta = .16$, $t(338) = 2.04$, $p = .04$, 95% CI = [.006, .30], but not on hostility-related emotions, $\beta = -.02$, $t(338) = -0.28$, $p = .78$, 95% CI = [−.17, .13]. The results from this study indicate that the effect of lay theories of social class on the relationship between social class and momentary shifts in negative affect is specific to the experience of negative self-conscious emotions.

Lay theories and self-rated general health. We examined the influence of manipulated lay theories of social class on momentary shifts in self-rated health using the same hierarchical linear regression predicting participants' self-rated general health index. There were no significant main effects of objective social class, $\beta = .09$, $t(339) = 1.59$, $p = .11$, 95% CI = [−.02, .19], or beliefs about social class, $\beta = -.03$, $t(339) = -0.60$, $p = .55$, 95% CI = [−.14, .07] on participants' self-rated general health. Nevertheless, consistent with the pattern of findings in Study 1, we found a significant interaction between participants' objective social class and beliefs about social class on self-rated general health, $\beta = .16$, $t(338) = 2.04$, $p = .04$, 95% CI = [.006, .30].

Simple slopes analyses revealed that among those who read that social class is biologically determined, lower-class participants self-rated poorer general health than upper-class participants, $\beta = .20$, $t(338) = 2.57$, $p = .01$, 95% CI = [.05, .35]. Conversely, lower-class and upper-class participants who read that social class is not biologically determined did not report any difference in their self-rated general health, $\beta = -.02$, $t(338) = -0.31$, $p = .76$, 95% CI = [−.17, .13]. There was also a nonsignificant tendency for lower-class participants who read the nonessentialist perspective to report better general health than lower-class participants who read the essentialist perspective, $\beta = -.15$, $t(338) = -1.88$, $p = .06$, 95% CI = [−.30, .006] (see Figure 4). These findings provide additional support for our central hypothesis: Lower-class individuals exposed to essentialist beliefs reported lower self-rated health relative to upper-class individuals, but this relationship was attenuated for individuals exposed to nonessentialist beliefs.

Consistent with Studies 1 and 2, subjective social class, again, did not interact with lay beliefs about social class to produce any effects on self-rated general health, $\beta = .04$, $t(338) = 0.46$, $p = .65$, 95% CI = [−.12, .19], or negative self-conscious emotions, $\beta = -.01$, $t(338) = -0.15$, $p = .88$, 95% CI = [−.16, .14]. We return to these findings in the "General Discussion" section.

Moderated mediation analysis. We expected the tendency for essentialist beliefs to moderate associations between social class and self-rated health to be explained by levels of reported negative self-conscious affect. We tested this moderated mediation model with negative self-conscious emotion as the proposed mediator of the association between social class and self-rated health for participants exposed to essentialist (vs. nonessentialist) beliefs using PROCESS (Hayes, 2013). In our overall model for this analysis, we entered objective social class as the independent variable, negative self-conscious emotions as the mediator, lay theories about social class as the moderator, and self-rated general health as the outcome variable (see Figure 5).

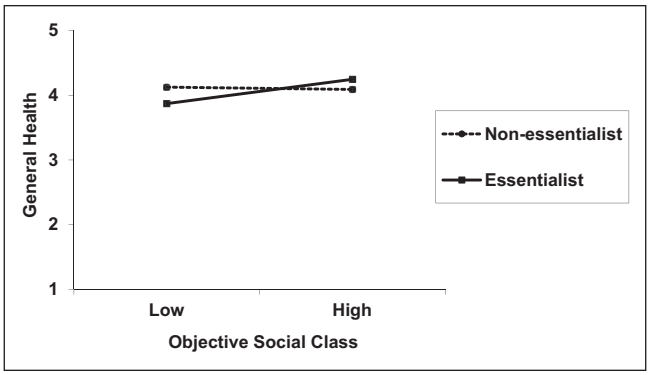

Figure 4. Interaction between manipulated lay theories about social class and objective social class on self-rated health in Study 3.

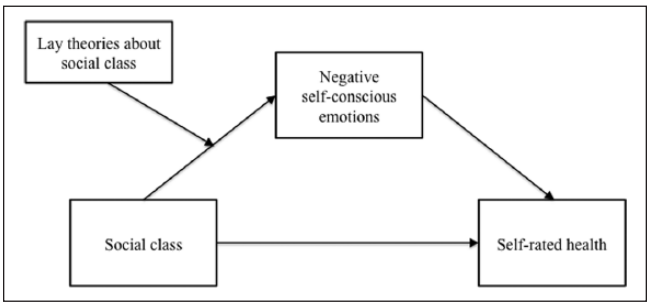

Figure 5. Moderated mediation model: Lay theories about social class moderate the experience of negative self-conscious emotions as a pathway linking social class to self-rated health.

The analysis yielded two multiple regression models: The first model estimated the path coefficients for the mediator model (with negative self-conscious emotions as the dependent variable) while the second model estimated the path coefficients for the dependent variable model (with self-rated health as the dependent variable). The mediator model yielded a significant interaction effect between social class and lay theories about social class on negative self-conscious emotions as the mediator, $\beta = -.10$, $t(338) = -2.58$, $p = .01$. The dependent variable model showed that negative self-conscious emotions as the mediator significantly predicted self-rated health as the dependent variable, $\beta = -.23$, $t(339) = -4.16$, $p < .001$. Finally, using bootstrapping procedures with 5,000 resamples to obtain the bootstrap 95% bias corrected confidence intervals (BC CI), the analysis estimated the

conditional indirect effect at each level of lay beliefs about social class: nonessentialist perspective of social class (coded −1), and essentialist perspective of social class (coded 1). Specifically, the analysis revealed that when participants read the nonessentialist perspective of social class, there was no indirect relationship between objective social class and self-rated health, 95% BC CI = [−.06, .0001]. However, when participants read the essentialist perspective of social class, there was a significant indirect relationship between objective social class and self-rated health, 95% BC CI = [.002, .08].[3] This analysis provides evidence that is consistent with our moderated mediation hypothesis: The tendency for lower-class individuals to report poorer self-rated health than upper-class individuals when exposed to essentialist, relative to nonessentialist, beliefs is accounted for by reports of negative self-conscious affect.

Discussion

Study 3 provided empirical support for each of our three hypotheses using a manipulation of exposure to lay theories about social class: Consistent with our first two hypotheses, exposure to essentialist beliefs about social class led lower-class individuals to report momentary reductions in self-rated health and increases in negative self-conscious affect than their upper-class counterparts, whereas exposure to nonessentialist beliefs elicited no such class-based differences in self-rated health and affect. In line with our third hypothesis, the tendency for lay theories of social class to moderate associations between social class and self-rated health was explained by negative self-conscious affect. The results of Study 3 provide an initial demonstration of the capacity for lay theories about social class to moderate associations between perceptions of one's health and negative self-conscious affect—at least as they occur in the moments directly following exposure to these lay theories.

Unlike Study 2, the results of Study 3 indicate that lay theories of social class moderate associations between social class and negative self-conscious affect in particular, rather than general negative affect more generally. The inconsistency between the two study findings might be explained by the larger sample used in Study 3 or by regional differences in emotional experiences for students attending West Coast versus Midwestern universities. Future systematic work is necessary to better understand these differences in emotion responding.

More important, although our moderated mediation analysis found relationships that are consistent with the prediction that negative self-conscious affect mediates the tendency for lay theories of social class to moderate associations between social class and negative self-rated health, these results were collected at the same time point. As such, any causal claims about relationships between self-conscious affect and self-rated health cannot be supported by these data (Judd, Yzerbyt, & Muller, 2014).

General Discussion

By virtue of being born into a lower social class in American society, research indicates that individuals, on average, are more likely to face poorer physical health, increased negative affect, and higher mortality rates throughout their life course (Adler et al., 1994). In this research, we proposed and examined the possibility that lay theories that people hold about social class categories can mitigate class-related health disparities. Across three studies, we found that while lower-class individuals were more likely to report experiencing poorer health and greater negative self-conscious emotions compared with upper-class individuals when they endorsed essentialist beliefs about social class, this class-based difference was not observed when participants endorsed nonessentialist beliefs about social class.

We also found preliminary support for a mechanism underlying these effects (Study 3)—that lay theories about social class can influence lower-class individuals' health perceptions by either increasing or decreasing negative self-conscious emotions. That we observed a relationship between health perceptions and reports of negative self-conscious affect is consistent with research suggesting that experiencing elevated negative self-conscious emotions is associated with poorer health in the long run (e.g., Dickerson & Kemeny, 2004).

Study Limitations

In this research, we made the prediction that because essentialist beliefs suggest that social class is biological and fixed, individuals from relatively lower-class backgrounds who endorse these beliefs will come to experience chronic negative self-conscious affect and, as a result, poorer health than upper-class individuals. In contrast, lower-class individuals who endorse nonessentialist beliefs—beliefs that class is not biological and has the possibility for change—would attenuate class-based differences in health and affect. Although the reported results are largely consistent with these predictions, any attempt to apply the findings here to broader health outcomes should be met with caution for several reasons that we articulate below.

Although Study 1 examined self-rated health in a sample of adults, the results reported were correlational in nature, and so there is a real possibility that an unaccounted for third variable could explain the capacity for lay theories of social class to moderate associations between social class and self-rated health in that study. We were able to observe the predicted effects of lay theories of social class while controlling for participant gender and ethnicity, but other unaccounted for variables could still explain these associations, and this issue merits further empirical investigation.

Our predictions suggest that essentialist beliefs elicit poor health through chronic negative self-conscious affect, but our empirical findings in Studies 2 and 3 involve assessments of health and affect at a single time point. We interpret

these findings as suggesting that lay theories of social class are causal in moderating associations between social class and momentary perceptions of health and affect, but future research is necessary before we can conclude that lay theories of social class play a causal role in moderating associations between social class and actual health or chronic affect. Future research employing a longitudinal design that examines how changes in lay theories about social class shape prospective changes in health and affect is critical for evaluating our model's capacity to predict real health outcomes. As well, because our model examines self-rated health, it is not able to test the specific physiological pathways (e.g., proinflammatory processes, epigenetic factors) by which lay theories of social class shape health outcomes.

Although Studies 2 and 3 involve an experimental manipulation of lay theories of social class, the samples involved healthy students attending a 4-year university. Given that university settings are a primary means to ascend the class hierarchy, it is possible that less upwardly mobile samples would respond differently to lay theories of social class. For instance, perhaps older individuals from relatively lower-class backgrounds with longer histories of chronic subordinate status in society might view nonessentialist beliefs as having less possibility for upward mobility and, as a result, may exhibit similar patterns of health and negative affect as those who endorse essentialist beliefs. Our theoretical predictions suggest that nonessentialist beliefs moderate class-based health outcomes because, unlike essentialist beliefs, they suggest that subordinate status is not biological and may change in the future. Given this logic, it is possible that an examination of older samples would reveal that nonessentialist beliefs are less powerful in buffering lower-class individuals from poor health and negative affect.

In addition, we tested our lay theories of social class model on relatively healthy and well-adjusted university students (Studies 2 and 3)—as evidenced by a lack of main effect of social class on negative self-conscious affect. A fuller understanding of the capacity for lay theories of social class to buffer relatively lower-class individuals from poorer health and negative affect would involve samples of individuals who are closer to levels of poverty—given that effects of social class on well-being are stronger when examined nearer to levels of poverty (Howell & Howell, 2008). An investigation in such samples would provide a more definitive test of our hypotheses. Without such an investigation, it is unclear whether the predicted effects of lay theories of social class would be overwhelmed by the adverse effects of resource scarcity that characterize conditions of poverty.

It is interesting that in the current studies, lay theories of social class moderated associations between objective social class, self-rated health, and negative self-conscious affect but did not shape associations with subjective social class. Given past work highlighting the importance of perceptions of subjective social class on experiences of health and on social cognition (Adler et al., 2000; Kraus, Tan, & Tannenbaum, 2013), it is interesting to speculate about why this pattern of results occurred specifically in these studies. One possibility for this lack of moderation might be that because subjective social class is comprised of perceptions of one's position in the social class hierarchy vis-à-vis others, lay beliefs about social class are encompassed, at least partially, by participant ratings of subjective social class. This overlap would make moderation findings using the subjective social class assessment less observable in empirical investigations. Lending support to this perspective, prior research shows that people who rate themselves higher in subjective social class report elevated levels of endorsement of essentialist beliefs, whereas objective social class shows no such associations (Kraus & Keltner, 2013).

A second potential reason for the lack of moderation of associations between subjective social class and health or affect is our use of university samples in Studies 2 and 3. Although subjective social class shows associations with patterns of perception and social cognition in these samples (for a review, see Kraus, Piff, Mendoza-Denton, Rheinschmidt, & Keltner, 2012), it is possible that the construct might not predict measures of chronic affect and well-being as strongly in healthy student samples. University students are relatively young and healthy, and as such their understanding of their rank in society might not track as cleanly with their actual well-being as it does with adult samples. In addition, the well-being of university students may be more tightly linked to other forms of subjective status than those tied to social class: For instance, in a study of university students and healthy adults, subjective well-being was more strongly associated with sociometric status (i.e., respect and prestige in face-to-face social groups) than it was with measures of social class (Anderson, Kraus, Galinsky, & Keltner, 2012). It is possible that university students' well-being is uniquely tied to social standing within their small intimate social groups, whereas as individuals become older and develop a clearer understanding of their position in the class hierarchy, subjective social class exerts a more powerful influence on health and affect. Future research is necessary to examine this possibility.

Caveats and Future Directions

Our findings also accord with work inspired by social identity theory, which showed that the extent to which individuals identify with a social group depends, in part, on whether social group boundaries are permeable (Ellemers, Spears, & Doosje, 1999; Ellemers, van Knippenberg, De Vries, & Wilke, 1988; Tajfel & Turner, 1986). More specifically, prior research has demonstrated that when class boundaries are perceived to be impermeable, this will encourage lower status individuals to self-categorize in terms of a lower-class group membership. Having done so, they are then more likely to internalize the beliefs, values, and norms of that group membership, including those that pertain to physical

and mental health (C. Haslam et al., 2012; Jetten, Haslam, & Haslam, 2012). This logic suggests that essentialist beliefs will not inevitably elicit poor health in lower-class individuals—particularly if a lower-class identity is associated with positive health behaviors or cognitions.

In our theorizing, we suggested that nonessentialist beliefs would buffer lower-class individuals from experiencing poorer health and negative self-conscious affect because, relative to essentialist beliefs, these beliefs suggest that a person's subordinate status is not determined by his or her own inferior biology and holds the possibility for change in the future. Future research would do well to examine the influence of nonessentialist beliefs on low-status individuals with varying levels of possibility for future status attainment. For instance, if nonessentialist beliefs only relate to better health outcomes to the extent that they highlight the possibility of future status attainment, then individuals who cannot ascend the status hierarchy should experience no health or affect benefits from this belief system. This logic underlines why our findings might have been particularly likely to emerge while studying relatively young and upwardly mobile university students.

This logic underscores the importance of studying these findings with respect to levels of actual class mobility. Specifically, low-status individuals from cultures with high levels of class mobility may benefit particularly strongly from nonessentialist beliefs—where status attainment in the future is more possible—whereas those in countries with low mobility may receive weaker benefits to their health and affect from endorsing nonessentialist beliefs (e.g., Mahalingam, 2007).

Related to this point, we contend that the moderating role of lay theories of social class should operate independently of perceptions of personal control. Although nonessentialist beliefs buffer lower-class individuals from momentary reports of poorer self-rated health and negative self-conscious affect, these beliefs are not likely to elicit increases in personal control: Whereas essentialist beliefs place control of group status in fixed biology, nonessentialist beliefs suggest that group status may be determined by nonbiological causes both within and outside one's control (e.g., discrimination, unequal opportunities). Underscoring this point, in Study 2 we collected a measure of perceived personal control from prior research (Lachman & Weaver, 1998), finding that our manipulation of lay theories of social class had no influence on this metric of control beliefs, $t(69) = -0.20$, $p = .76$. As well, a survey of online Mechanical Turk workers ($N = 205$) revealed a nonsignificant relationship ($r = -.03$, *ns*) between our essentialism scale and the same measure of perceived personal control. The findings reported in the present investigation appear to operate independently of perceptions of personal control. Nevertheless, future research would be needed to elucidate the key aspects of nonessentialist beliefs that contribute to its apparent protective effects for lower-class individuals.

Although the social class health gradient suggests that being lower class leaves one more vulnerable to poorer health, we argue that it is not an inevitable outcome. In our present research, we demonstrate that fostering beliefs about the stability of one's current low status may offer insights into improving the health outcomes of these individuals.

Acknowledgments

The authors wish to thank Kai Qin Chan, Chin Hong Tan, and members of the Champaign Social Interaction (CSI) Laboratory for their helpful comments on an earlier version of this article.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Notes

1. Additional analyses using subscales of the Short Form (SF)-36 Health Survey are described in the supplementary materials.
2. We also examined separately the interaction effects for lay theories about social class with participants' income, and with participants' educational attainment in terms of high school (coded as −1) versus college (coded as 1). The analyses did not yield any significant interaction for lay theories with income, $\beta = .38$, $t(150) = 1.57$, $p = .12$, 95% confidence interval (CI) = [−.10, .85], and lay theories with educational attainment, $\beta = .11$, $t(164) = 1.40$, $p = .16$, 95% CI = [−.04, .26].
3. The moderated mediation model reported in the results of Study 3 is consistent with prior research that indicates that chronic experiences of negative self-conscious affect may elicit poor health outcomes (Dickerson & Kemeny, 2004; Gruenewald, Kemeny, Aziz, & Fahey, 2004). However, because health and affect variables were collected at the same time point, it is impossible for this study to establish directionality between negative self-conscious affect and self-rated health (Judd, Yzerbyt, & Muller, 2014). To highlight this point, we ran a moderated mediation analysis with self-rated health as the mediator and negative self-conscious emotions as the outcome variable. The analysis showed that self-rated health was a significant mediator between social class and negative self-conscious emotions for participants who read about essentialist theories about social class, 95% bias corrected confidence interval (BC CI) = [−.09, −.007], but not for those who read about nonessentialist theories about social class, 95% BC CI = [−.02, .03].

Supplemental Material

The online supplemental material is available at http://pspb.sagepub.com/supplemental.

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