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Socioeconomic Status and the Relationship Between Under-Reward and Distress: Buffering-Resource or Status-Disconfirmation?

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Abstract A central feature of the sociological study of justice is its emphasis on how individuals' positions in the social structure intersect with justice processes. This study examines how individuals' socioeconomic status—as assessed by education and income—moderates any observed associations between perceived under-reward and three forms of distress: anger, depression, and physical symptoms. Using data from a national sample of American workers from diverse occupations, sectors, and social statuses, I test two competing hypotheses that articulate those contingencies: *buffering-resource* and *status-disconfirmation*. Results indicate distinct patterns for education and income that are mostly consistent across different forms of distress. The moderation patterns for income are more in line with the buffering-resource hypothesis, such that the relationships between perceived under-reward and all three forms of distress are weaker among those with higher income. The moderation patterns for education, however, suggest evidence that supports both dynamics: higher education buffers the effect of slight under-reward on the three distress outcomes, but does not buffer the effect of severe under-reward. I integrate theories from the sociology of stress and distributive justice in an effort to better understand how the stress of under-reward and social statuses intersect to shape distress. These discoveries speak to broader concerns about status-based contingencies embedded in the social psychology of inequality and its distribution in the population.

Keywords Perceived under-reward · Distributive justice · Distress · Health · SES · Inequality · Buffering · Status

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Introduction

In an ideal world, all workers would feel appropriately paid for the work they do. The reality, however, is quite different. Evidence from 40 countries demonstrates that approximately 58 percent of individuals report being paid "a little less" or "much less" than is just (ISSP Research Group, 2012). In the USA, the General Social Survey indicates that approximately 40–46 percent of American workers report being paid "somewhat" or "much less" than they deserve (Smith, Marsden, & Hout, 2015). Beyond its prevalence, the importance of investigating perceived under-reward evolves from its negative consequences for individuals' well-being—especially *distress* (Adams, 1965; Austin & Walster, 1974; Hegtvedt, 2006; Homans, 1961, 1974; Walster, Walster, & Berscheid, 1978; for reviews, see Hegtvedt & Markovsky, 1995; Hegtvedt & Parris, 2014). As Walster, Berscheid, and Walster (1973) state: "When individuals find themselves participating in inequitable relationships, they become distressed. The more inequitable the relationship, the more distress individuals feel" (p. 153).[1]

A central feature of the sociological study of justice is its emphasis on how individuals' positions in the social structure intersect with justice processes (Liebig & Sauer, 2016). While the link between perceived under-reward and distress has been well documented, relatively few population-based studies have investigated situational factors—especially those tied to structural positions—that moderate this relationship (Hegtvedt & Parris, 2014). The investigation of situational factors is important as it provides an elaboration of the focal association. For whom is the sense of injustice especially consequential for distress? I provide one answer to this question by examining the conditional influences of two salient dimensions of socioeconomic status (SES)—education and income—in the association between perceived under-reward and three distinct forms of distress: anger, depression, and physical symptoms. Inspired by Turner's (2007) call for greater integration of justice theories with other theoretical traditions, I integrate perspectives from distributive justice and the sociology of stress literatures. Below, I first discuss the link between perceived under-reward and distress.[2] Then, I elaborate on the potential moderating functions of SES by articulating two competing hypotheses: (1) the *buffering-resource hypothesis*, which predicts that higher education and income should *attenuate* the consequences of perceived under-reward, and (2) the *status-disconfirmation hypothesis*, which predicts that higher education and income should *exacerbate* the consequences of perceived under-reward. To test these hypotheses, I analyze data from the 2005 Work, Stress, and Health (WSH) study, a national sample of American workers from a broad range of occupations across different sectors, with varied levels of education, income, and dimensions of work.

[1] I examine three types of distress—anger, depression, and physical symptoms—and discuss the distinctions among them in the theoretical framework. Throughout the paper, I use the term "distress" for shorthand to refer to all three outcomes while recognizing their distinct (but interrelated) nature.

[2] As detailed in Methods section, I measure perceived under-reward with the following categories: appropriate reward, slight under-reward, and severe under-reward. It is important to underscore here that any language in my research questions and hypotheses that suggests "levels" of under-reward should be understood to refer to differences between these categories.

Background

Perceived Under-Reward and Distress

In his classic piece "The Sociological Study of Stress," Pearlin (1989) argued: "Many stressful experiences…don't spring out of a vacuum but typically can be traced back to surrounding social structures and people's locations within them" (p. 242). Individuals attach substantial importance to institutional and durable roles in society. This is especially true for the work role, an important source of identity for most individuals and a potent source of stress that powerfully shapes individuals' well-being (Tausig, 2013). Of all the stressors that may arise in the enactment of the worker role, the particular experience of *under-reward* likely fosters frustration and resentment. Wheaton (1999) defines under-reward, or "reduced outputs from a relationship relative to inputs, as in lower pay for a job than others with the same qualification" (p. 184), as a central element of chronic stress. Echoing this conceptualization, Pearlin (1983) identifies unjust rewards as one example of role strain, which "come about insidiously and…are slow to dissipate" (p. 27). While perceived under-reward can be a one-time occurrence that provokes an immediate reaction, theoretical ideas about role strain suggest that it can also be a chronic experience that may correspond with enduring feelings of distress (Pearlin, 1983).

Consistent with the conceptualization of perceived under-reward as a potentially potent stressor, equity and distributive justice research has established that perceived under-reward evokes distress (Adams, 1965; Austin & Walster, 1974; Hegtvedt, 2006; Walster et al., 1978; Hegtvedt & Markovsky, 1995; Hegtvedt & Parris, 2014). Among the various forms of distress, Homans (1961) explicitly theorized the link between distributive injustice and *anger*: "The more to a man's disadvantage the rule of distributive justice fails of realization, the more likely he is to display the emotional behavior we call anger" (p. 75). Anger is an emotion that is particularly likely to result from evaluations of inequality, injustice, and unfairness (Ross & Van Willigen, 1996; Schieman 2006, 2010). Empirical research has substantiated the link, demonstrating that individuals who perceive under-reward report more anger than those who perceive equitable rewards (Gray-Little & Teddlie, 1978; Hegtvedt, 1990; Hegtvedt & Killian, 1999).

While Homans predicted that the sense of injustice has a particular relationship with anger, research also suggests its link with depression—another type of psychological distress. Depression is characterized by negative moods such as feeling sad, blue, and hopeless, and malaise such as having trouble sleeping and feeling that everything is an effort (Mirowsky & Ross, 2003a). Depression is positively correlated with anger, but they are distinct forms of distress (Mirowsky & Ross, 1995; Ross & Van Willigen, 1997). For instance, Morgan and Heise (1988) distinguish emotions by assessing their ratings on three dimensions: evaluation (a scale of how good/nice vs. bad/awful the feeling is), potency (big/powerful vs. little/powerless), and activity (fast/lively/young vs. slow/quiet/old). They illustrate that depression is rated considerably more awful, more powerless, and slower than anger. In addition, while anger may be more proximal to the experience and

evaluation of injustice, depression may be more distal—indeed, some scholars suggest that prolonged anger can subsequently feed into depression (Mirwosky & Ross, 2003a; Schieman, 2006). Despite these differences, depression, like anger, is an important consequence of perceived injustice. As Mirowsky and Ross (2003a) articulate: "In part, depression results from the implicit lack of control…the victim in an unfair relationship is constrained and directed in ways he or she does not desire, which produces depression" (p. 243). Studies indicate that perceptions of distributive injustice in the workplace—including perceptions of under-reward—are associated with higher levels of depression (Rousseau, Salek, Aubé, & Morin, 2009; Tepper, 2001; Ybema & van den Bos, 2010). Furthermore, research on inequity in intimate relationships also documents that perceived under-benefit relative to one's partner is associated with depression (e.g., Longmore & Demaris, 1997; Schafer & Keith, 1980; Sprecher, 1986, 1992).

Finally, research suggests that perceived under-reward is not only associated with psychological forms of distress—its influence also extends to *physical* forms of distress. In an experimental study on physiological responses to injustice, Markovsky (1988) found that skin conductance (an indicator of sweat gland activity) was significantly higher among individuals who were paid inequitably compared to those who were equitably rewarded. Based on these results, Markovsky (1988, p. 232) noted: "An obvious domain of applied research is the workplace. It is conceivable that the arousal stemming from chronic injustice may produce physiological stress and stress-related syndromes." Recent studies support his predictions by demonstrating that perceived pay injustice is associated with physical health and even cardiovascular health (Falk, Kosse, Menrath, Verde, & Siegrist, 2017; Schunck, Sauer, & Valet, 2015). Taken together, theoretical perspectives in both the sociology of stress and distributive justice literatures have articulated the emotional and health consequences of perceived under-reward—and empirical studies have confirmed this. This leads to the following baseline hypotheses:

Hypothesis 1A Compared to appropriate reward, slight under-reward should be associated with more distress.

Hypothesis 1B Compared to appropriate reward, severe under-reward should be associated with more distress.

Hypothesis 1C Compared to slight under-reward, severe under-reward should be associated with more distress.

Evaluating SES Contingencies: Buffering-Resource or Status-Disconfirmation?

My main contribution extends beyond the patterns embedded in the first set of hypotheses identified above to ask: Do education and income moderate the relationship between perceived under-reward and distress? According to Hegtvedt (2006), "[s]ituational factors affect beliefs about what is just, perceptions of injustice, and *reactions to injustice*" (p. 62, emphasis added). This statement suggests that the context in which under-reward is perceived should condition its

association with distress. However, the investigation of how structural situations like status function as moderators requires more attention (Hegtvedt & Parris, 2014). I seek to fill this gap in the literature by examining whether two dimensions of socioeconomic status—education and income—moderate the association between perceived under-reward and distress. These factors may shape the cognitive appraisals of the meaning of under-reward and, in turn, alter its association with distress. The analysis of population-based data is especially valuable because it provides sufficient variation in education and income to detect their potency as potential moderators. Below, I describe the rationale for two competing hypotheses about education and income as modifiers: *buffering-resource* and *status-disconfirmation*.

The Buffering-Resource Hypothesis

The buffering-resource hypothesis predicts that higher education and income are status-based resources that should attenuate the relationship between perceived under-reward and distress. This hypothesis parallels one central way that stress researchers have characterized the impact of stressors on distress: the differential vulnerability perspective (Dohrenwend, 1973; Kessler, 1979; Pearlin, Menaghan, Lieberman, & Mullan, 1981). According to this view, some social groups are less vulnerable to stressors because they are advantaged in the social and personal resources that facilitate coping. The buffering-resource hypothesis applies these ideas to predict that individuals with higher education and income should be better able to cope with under-reward; in turn, these status-based resources should diminish the association between perceived under-reward and distress.

Education develops human capital—it fosters the capacity to solve problems and instills the habit of meeting difficulties with attention, thought, and persistence (Mirowsky & Ross, 2003b). Research shows that the well-educated often possess skills to think differently about anger-inducing situations and are also more likely to attempt to resolve them (Schieman, 2000). Further, individuals with higher education tend to be equipped with psychosocial tools that facilitate coping in stressful conditions. For example, research has consistently documented that higher education promotes the development of the sense of personal control (Schieman, 2001; Schieman & Narisada, 2014; Schieman & Plickert, 2008; Turner & Lloyd, 1999). This psychosocial resource diminishes the extent to which stressors are perceived as ominous, and this diminished threat motivates individuals to try to ameliorate problems rather than deny or avoid them (Ross & Mirwosky, 2013). Higher education should therefore provide workers with greater skills and a sharper ability to cope with the stress of under-reward. In addition, the development of human capital and psychosocial tools may also give individuals more capacity to alter the situation or attain better options—that is, it may help chart the path toward resolution of inequity. Collectively, these ideas predict that the association between perceived under-reward and distress should be weaker among those with higher educational attainment.

Alongside and *net of* education, income may also attenuate the relationship between perceived under-reward and distress. Like education, income is a key

dimension of stratification that is related positively to psychosocial resources that provide protection against stressors (Mirowsky & Ross, 2003a, b). Unlike education, however, income is a status marker that more directly represents material resources and prosperity (Lynch & Kaplan, 2000; Muntaner et al., 2013); income might therefore also signify a potent coping resource in itself. As one's level of income increases, this should weaken the likelihood that perceived under-reward is viewed as a threat—especially to one's material needs. This, in turn, might dampen the distress associated with under-reward. In sum, the combination of perceived under-reward and low income may be indicative of deprivation and should therefore be more consequential for distress than the combination of perceived under-reward and high income.

Panel A of Fig. 1 illustrates the buffering-resource hypothesis. If buffering operates consistently across levels of under-reward, then higher education and income should attenuate the distress associated with the following three comparisons:

Hypothesis 2A Higher SES should attenuate the difference in distress between appropriate reward and slight under-reward.

Hypothesis 2B Higher SES should attenuate the difference in distress between appropriate reward and severe under-reward.

Hypothesis 2C Higher SES should attenuate the difference in distress between slight under-reward and severe under-reward.

The Status-Disconfirmation Hypothesis

The buffering-resource perspective provides a plausible rationale for why higher SES would attenuate the relationship between perceived under-reward and forms of distress. However, evidence from previous research encourages the consideration of an alternative possibility—that higher SES potentially *exacerbates* the association between perceived under-reward and distress. The particular combination of perceived under-reward and higher status might resemble a situation in which one's status advantage is disconfirmed; this could be especially evident among the well-

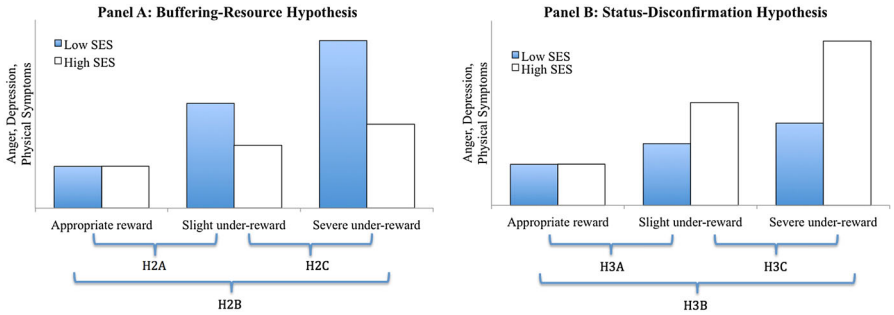

Fig. 1 Hypothesized moderating patterns

educated. Specifically, having achieved higher status but also perceiving under-reward may reflect status inconsistency and evoke distress. In contrast to the buffering-resource hypothesis, this status-disconfirmation perspective predicts that the positive association between perceived under-reward and distress should be stronger among those with higher SES.

Evidence for status-disconfirmation has been found in research that explores a somewhat different but parallel question: the association between perceived procedural justice and job satisfaction. In field studies of MBA students, Diekmann, Sondak, and Barsness (2007) demonstrate that higher perceived status in the workplace moderates the positive association between procedural justice and job satisfaction, such that a stronger positive association is observed among those who perceive higher status. Stated differently, higher status individuals reacted more intensely to low procedural fairness compared to their lower status counterparts. Drawing upon research that indicates that advantaged individuals (e.g., men, individuals in higher-paying jobs) tend to have an elevated sense of entitlement and deservingness (e.g., Jost 1997; Major, 1994; Pelham & Hetts, 2001), those authors examined whether advantaged individuals are also more likely to feel entitled to fair treatment—and whether this could explain the interaction between perceived procedural justice and higher status. The results supported their hypothesis: The fact that higher status individuals tend to have a greater sense of *deservingness* for fair treatment explained the stronger association between procedural justice and job satisfaction. Diekmann et al. (2007) articulate that perceiving injustice may be especially consequential for higher status individuals:

> [H]igh status may make individuals particularly attuned to noticing and reacting to treatment that is less fair than they feel they deserve. As a result of the increased feelings of deservingness that high status promotes, high status may ultimately have negative effects on these organizational attitudes. In other words, because high status individuals feel that they deserve procedural fairness more and perhaps also want fair procedures more than low status individuals do, they may react more negatively to unfair procedures (p. 177).

In the present study, I apply Diekmann et al.'s (2007) ideas about the moderating role of *perceived* status by examining how two key *objective* dimensions of socioeconomic status modify the relationship between perceived under-reward and distress. Educational attainment is a diffuse status characteristic that symbolizes competence and worthiness in the labor market and across a variety of social situations (Berger, Fisek, Norman, & Zelditch, 1977; Berger & Webster, 2006; Ridgeway & Nakagawa, 2014). Moreover, as an achieved status, educational attainment resembles gained advantage and privilege—and those with higher education might perceive that their investment in education should pay off. Indeed, a recent study by Sauer and May (2017) demonstrates that educational attainment is a strong predictor of higher just earnings—that is, earnings considered to be fair—net of organizational characteristics and other inputs like job experience and work hours. In other words, individuals with higher education perceive that they *deserve* higher earnings. The application of Diekmann et al.'s (2007) arguments and observations, however, points to the possibility that higher education—as a marker

of higher status and advantage—is not only associated with a higher sense of deservingness for rewards but also an elevated sense of deservingness for fair outcomes. If that were true, then the positive relationship between perceived under-reward and distress should be stronger among those with higher education.

It is also possible that perceived under-reward might foster feelings of distress among those with higher income. For high earners, perceived under-reward is likely to be less distressing because it does not threaten one's material needs; however, it might symbolize threats to identity (e.g., disrespect and insult) that beget feelings of distress. In a scenario that suggests individuals with higher status tend to have an elevated sense of deservingness for fair outcomes, the experience of under-reward might be particularly painful. However, educational attainment more acutely symbolizes achievement—it is a form of investment that should correspond with more favorable outcomes in the labor market (Kerckhoff, Raudenbush, & Glennie, 2001; Pallas, 2000). The underlying achieved status dynamics associated with education might therefore be more salient for the status-disconfirmation hypothesis than income.

Panel B of Fig. 1 illustrates the status-disconfirmation hypothesis. If status-disconfirmation operates consistently across levels of under-reward, then higher education and income should exacerbate the distress associated with the following three comparisons:

Hypothesis 3A Higher SES should exacerbate the difference in distress between appropriate reward and slight under-reward.

Hypothesis 3B Higher SES should exacerbate the difference in distress between appropriate reward and severe under-reward.

Hypothesis 3C Higher SES should exacerbate the difference in distress between slight under-reward and severe under-reward.

Methods

Sample

To test the hypotheses outlined above, I analyze data from the 2005 Work, Stress, and Health study (WSH), a national sample of American workers. Interviews were conducted by telephone between February and August 2005. A list-assisted random digit dialing (RDD) selection was drawn proportionally from all 50 states from GENESYS Sampling Systems. The sample was based on: (1) telephone numbers for residential households; (2) households agreeing to answer screening questions; (3) successfully screened households with one or more employed adults; and (4) eligible households with a sub-sampled adult who agreed to participate in the interview. To be eligible, individuals had to be aged 18 or older and participating in the paid labor force. Interviews were conducted in English, so participants also had to be sufficiently fluent. Of the individuals who were eligible, 71 percent were successfully interviewed (Schieman & Reid, 2009). I exclude self-employed persons

because the processes linking perceived under-reward and distress may be distinct for these individuals compared to those paid by an employer (Schunck et al., 2015). The final analytical sample consists of 1499 cases.

Focal Measures

Perceived Under-Reward

Perceived under-reward is assessed with the following question: "When you think about the pay you get for your work, do you feel you are underpaid a lot, underpaid a little, paid about right, overpaid a little, or overpaid a lot?".[3] This particular item has appeared in recent research (Narisada & Schieman, 2016). I focus on individuals who reported being "paid about right" (appropriate reward) ($n = 622$) as the primary reference group and compare them to participants who reported feeling "underpaid a little" (slight under-reward) ($n = 540$) or "underpaid a lot" (severe under-reward) ($n = 337$).

Anger

Anger is assessed with five items: "In the past 7 days, on how many days have you…": (1) "felt annoyed," (2) "felt angry," (3) "yelled at someone or something," (4) "felt very critical of others," and (5) "lost your temper"? I averaged responses to create the anger index (range: 0–7 days; $\alpha = .78$). Similar items have been used in studies about the social determinants of anger in sociology of emotions and mental health literatures (Mirowsky & Ross, 1995, 2003a; Ross & Van Willigen, 1996, 1997; Schieman, 1999, 2000, 2006, 2010).

Depression

I use six items from the modified version of the Center of Epidemiological Studies Depression Scale (CES-Dm) to assess depression (Ross & Mirowsky, 1984; Mirowsky & Ross, 2003a). Respondents were asked the following: "In the past 7 days, on how many days have you…": (1) "felt that everything was an effort," (2) "felt sad," (3) "had trouble getting to sleep or staying asleep," (4) "had trouble keeping your mind on what you were doing," (5) "felt like you just couldn't get going," and (6) "felt unable to shake the blues"? I averaged responses to create the depression index (range: 0–7 days; $\alpha = .80$). The CES-Dm scale has been widely used in the sociology of mental health literature (e.g., Bierman, 2012; Glavin, 2015; Mirowsky & Ross, 1992; Ross & Mirowsky, 2006, 2009; Schieman & Reid, 2009).

[3] I exclude individuals who report being overpaid 'a little' ($n = 58$) or 'a lot' ($n = 7$) because the cell sizes are too small to conduct meaningful analyses in the tests of interaction effects. Theoretical and empirical evidence that distinguishes the consequences of feeling overpaid versus feeling underpaid provides further rationale for this exclusion. The emotional correlates of being over-rewarded are likely to be quite distinct from those of being under-rewarded (i.e., guilt versus anger)—and under-reward is more emotionally consequential than over-reward (Adams, 1965; Homans, 1974; Walster et al., 1973; for reviews see Hegtvedt, 2006; Turner, 2007).

Physical Symptoms

I use the following six items to assess physical symptoms: "In the past 7 days, on how many days have you…": (1) "had headaches," (2) "stomach pains or problems like indigestion or heartburn," (3) "chest pain or rapid heartbeat," (4) "neck or back pain," (5) "muscle aches, sorenesss, or stiffness," and (6) "felt tired or run down." This scale contains symptoms used in established measures of physical health (Pennebaker, 1982) and has appeared in previous research (Schieman & Reid, 2009). I averaged responses to create the physical symptoms index (range: 0–6.5 days; $\alpha = .70$).[4]

Education

Education is coded as follows: (1) less than high school degree, (2) high school degree, (3) specialized vocational training, (4) some college, no degree, (5) associates degree, (6) Bachelor's degree, and (7) graduate or professional degree.

Personal Income

Personal income is assessed with the question: "For the complete year of 2004, what was your total personal income, including income from all of your paid jobs, before taxes?" Given the positive skew, I logged personal income for analyses.

Work-Related Controls

I statistically control for measures of job demands and job resources to isolate the focal association between perceived under-reward and distress. Job demands may be associated positively with both perceptions of injustice and distress, while job resources may be associated negatively with both (Ford & Huang, 2014). It is therefore important to control for these factors to establish a non-spurious association between perceived under-reward and distress. For similar reasons, I also control for work hours, occupation, and job sector. Job sectors tend to shape norms and expectations that may produce divergent attitudes about work and pay (Lincoln & Kalleberg, 1990).

Demanding Work

Participants were asked: "In the past 30 days, has anyone at work made *too many* demands on you?" If participants reported "yes" to any of these items, they were asked about the source: "Was it a supervisor, someone you supervise, customer/client, coworker, or someone else at work?" Participants were able to

[4] Some readers may wonder whether "tired or run down" more closely resembles depression than physical symptoms. Factor analyses (not shown) indicate that the item loads higher on the physical symptoms factor. Further, the reliability of the physical symptoms scale is diminished from .70 to .66 when the item is excluded. I therefore include the "tired or run down" item as part of the physical symptoms index.

choose any source and were asked to describe its frequency: (1) "rarely," (2) "sometimes," and (3) "frequently." I coded those who reported "none" as 0. A second question asked: "How often do the demands of your job exceed those doable in an 8-hour workday?" Response choices are coded (0) "never," (1) "rarely," (2) "sometimes," and (3) "frequently." I standardized and averaged the items to create the demanding work index.

Noxious Work

Noxious work is assessed with three items: "How often is your workplace…": (1) "noisy," (2) "dirty or dusty," (3) "dangerous—by "dangerous," we mean: Are you ever at risk of illness or injury because of the work?" Response choices are coded (1) "never," (2) "rarely," (3) "sometimes," and (4) "frequently." I averaged the responses to create a noxious work index ($\alpha = .63$).

Job Autonomy

One item asks: "How often does someone else decide how you do your job?" The response choices are (1) "never," (2) "rarely," (3) "sometimes," and (4) "frequently." I reverse-coded the item so that higher values indicate greater job autonomy.

Decision-Making Latitude

Decision-making latitude is assessed with two questions: "How often do you make decisions on what needs to be done?" and "How often do you have the chance to solve problems?" Response choices are (1) "never," (2) "rarely," (3) "sometimes," and (4) "frequently." The responses were averaged to create and index, where higher scores indicate more decision-making latitude ($\alpha = .62$).

Work Hours

Work hours are coded: (1) less than 40 h, (2) 40–49 h, and (3) 50 or more hours.

Occupation

To assess *occupation*, I use respondents' reported job titles and main duties of the "main job at which you worked last week" to code responses into five categories in accordance with the Bureau of Labor Statistics codes: professional, administrative, service, craft, and labor. In analyses, occupation is coded 0 = non-professionals and 1 = professionals.

Job Sector

I contrast individuals in private/for-profit jobs with those in government or non-profit jobs.

Basic Demographic Controls

Following the lead of other recently published work on perceived under-reward and well-being, I control for gender, race, age, marital status, and number of children in order to isolate the SES-contingent association between perceived under-reward and distress (Narisada & Schieman, 2016; Schunck et al., 2015). *Gender* is coded men = 0 and women = 1. *Race* is coded non-white = 0 and white = 1. *Age* is measured in years. *Marital status* is coded non-married = 0 and married = 1. I also control for *number of children* younger than age 18 residing in the household.

Plan of Analyses

Analysis begins with the presentation of descriptive statistics in Table 1. Then, in Tables 2, 3, and 4, I present three sets of OLS regression models to separately test hypotheses about anger, depression, and physical symptoms. Model 1 in Tables 2, 3, and 4 regresses the dependent variable on perceived under-reward, net of socioeconomic status, work-related controls and demographic controls. Subsequent models add the following interaction terms: under-reward × education (model 2), under-reward × income (model 3), and both under-reward × education and under-reward × income simultaneously (model 4). Model 4 tests whether any interactions in models 2 and 3 remain stable when the other interaction terms are included; this tests if any observed interaction effects of education and income occur independently of each other. To reduce multicollinearity, continuous independent variables were centered prior to creating interaction terms (Aiken & West, 1991).

Results

Descriptive Statistics

The descriptive statistics in Table 1 indicate that 41.5 percent report being appropriately rewarded, 36.0 percent report being slightly under-rewarded, and 22.5 percent report being severely under-rewarded. These numbers are consistent with other surveys (e.g., GSS) that find nearly half of American workers perceive under-reward. The means (and standard deviations) of the focal variables are as follows: anger = 1.643 (1.406), depression = 1.636 (1.596), physical symptoms = 1.773 (1.348), education = 4.202 (1.944), and income = $41,131 ($35,797).[5]

Perceived Under-Reward and Distress

The first set of hypotheses predicted three patterns for each form of distress: Compared to appropriate reward, slight under-reward (H1A) and severe under-reward (H1B) should be associated with more distress; and compared to slight under-reward, severe under-reward should be associated with more distress (H1C).

[5] See Appendix Table 5 for correlations among distress outcomes, education, and income.

Table 1 Descriptive statistics ($N = 1499$)

	Mean or proportion	Standard deviation	Range
Perceived under-reward			
Appropriate reward	.415	–	0–1
Slight under-reward	.360	–	0–1
Severe under-reward	.225	–	0–1
Distress			
Anger	1.643	1.406	0–7
Depression	1.636	1.596	0–7
Physical symptoms	1.773	1.348	0–6.5
Socioeconomic status			
Education	4.202	1.944	1–7
Income (thousands)	41.131	35.797	1.2–400
Work-related controls			
Demanding work	.040	.808	−1.214–4.715
Noxious work	2.493	.841	1–4
Job autonomy	2.496	.980	1–4
Job decision latitude	3.543	.663	1–4
Work < 40 h/week	.245	–	0–1
Work 40–49 h/week	.495	–	0–1
Work 50 + h/week	.260	–	0–1
Professional	.284	–	0–1
Non-professional	.716	–	0–1
Private	.636	–	0–1
Non-profit	.244	–	0–1
Government	.120	–	0–1
Basic demographic controls			
Women	.603	–	0–1
Age	43.043	13.077	18–94
White	.726	–	0–1
Married	.543	–	0–1
Children at home	.800	1.031	0–3

As shown in model 1 of Table 2, the results for anger indicate that compared to appropriate reward, slight ($b = .168$, $p = .025$) and severe under-reward ($b = .300$, $p = .002$) are associated with more anger. However, an additional test does not find a significant difference between slight and severe under-reward ($b = .132$, $p = .183$). The patterns for anger therefore support H1A and H1B, but not H1C.

In model 1 of Table 3, the results for depression indicate that compared to appropriate reward, severe under-reward is associated with more depression ($b = .378$, $p = .001$); however, the difference in depression between appropriate reward and slight under-reward is not statistically significant ($b = .126$, $p = .146$).

Table 2 Anger regressed on perceived under-reward, socioeconomic status, interactions, and controls ($N = 1499$)

	Model 1	Model 2	Model 3	Model 4
Perceived under-reward				
Slight under-reward[a]	.168*	.174*	.181*	.185*
Severe under-reward[a]	.300**	.302**	.272**	.268**
Socioeconomic status				
Education	−.041	.018	−.040	.003
Income	−.022	−.025	.100	.066
Interactions				
Education × …				
Slight under-reward		−.123**		−.111*
Severe under-reward		−.062		−.012
Income × …				
Slight under-reward			−.178	−.074
Severe under-reward			−.346*	−.344*
Work-related controls				
Demanding work	.288***	.285***	.290***	.288***
Noxious work	.171***	.171***	.173***	.173***
Job autonomy	−.009	−.010	−.006	−.008
Job decision latitude	−.081	−.079	−.074	−.072
Work 40–49 h/week[b]	−.088	−.084	−.110	−.107
Work 50 + h/week[b]	−.045	−.037	−.060	−.055
Professional[c]	−.065	−.065	−.062	−.066
Non-profit[d]	−.061	−.058	−.068	−.065
Government[d]	−.179*	−.170*	−.170*	−.164*
Basic demographic controls				
Women = 1	.383***	.387***	.392***	.393***
Age	−.018***	−.018***	−.018***	−.018***
White = 1	.116	.119	.112	.119
Married = 1	.058	.050	.064	.060
Children at home	.144***	.145***	.144***	.143***
Constant	1.155	1.145	1.147	1.143
R^2	.140	.146	.146	.150

Unstandardized ordinary least squares (OLS) regression coefficients (standard errors are excluded for the sake of presentation, but are available upon request)

[a] Compared to appropriate reward

[b] Compared to < 40 h/week

[c] Compared to non-professionals

[d] Compared to private sector

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

Table 3 Depression regressed on perceived under-reward, socioeconomic status, interactions, and controls ($N = 1499$)

	Model 1	Model 2	Model 3	Model 4
Perceived under-reward				
Slight under-reward[a]	.126	.131	.139	.143
Severe under-reward[a]	.378***	.380***	.341**	.337**
Socioeconomic status				
Education	−.066*	−.018	−.064*	−.031
Income	−.146*	−.148*	−.045	−.072
Interactions				
Education × …				
Slight under-reward		−.103*		−.100*
Severe under-reward		−.043		.011
Income × …				
Slight under-reward			−.104	−.009
Severe under-reward			−.360**	−.381*
Work-related controls				
Demanding work	.347***	.346***	.347***	.347***
Noxious work	.117*	.116*	.121*	.120*
Job autonomy	−.024	−.026	−.021	−.023
Job decision latitude	−.199**	−.197**	−.192**	−.191**
Work 40–49 h/week[b]	.007	.010	−.017	−.015
Work 50 + h/week[b]	.037	.044	.022	.025
Professional[c]	−.096	−.096	−.093	−.098
Non-profit[d]	−.067	−.065	−.075	−.072
Government[d]	−.105	−.098	−.097	−.091
Basic demographic controls				
Women = 1	.517***	.520***	.527***	.528***
Age	−.004	−.004	−.004	−.004
White = 1	.144	.147	.141	.148
Married = 1	−.228**	−.235**	−.220*	−.224**
Children at home	.059	.059	.057	.056
Constant	1.192	1.184	1.186	1.184
R^2	.129	.132	.134	.137

Unstandardized ordinary least squares (OLS) regression coefficients (standard errors are excluded for the sake of presentation, but are available upon request)

[a] Compared to appropriate reward

[b] Compared to < 40 h/week

[c] Compared to non-professionals

[d] Compared to private sector

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

Table 4 Physical symptoms regressed on perceived under-reward, socioeconomic status, interactions, and controls ($N = 1499$)

	Model 1	Model 2	Model 3	Model 4
Perceived under-reward				
Slight under-reward[a]	.205**	.211**	.216**	.219**
Severe under-reward[a]	.368***	.365***	.340***	.338***
Socioeconomic status				
Education	−.061**	.001	−.060**	−.010
Income	−.084	−.087	.022	−.019
Interactions				
Education × …				
Slight under-reward		−.114**		−.106**
Severe under-reward		−.089*		−.049
Income × …				
Slight under-reward			−.145	−.047
Severe under-reward			−.314**	−.274*
Work-related controls				
Demanding work	.240***	.235***	.241***	.237***
Noxious work	.195***	.196***	.197***	.199***
Job autonomy	−.054	−.054	−.051	−.052
Job decision latitude	−.065	−.063	−.059	−.058
Work 40–49 h/week[b]	.068	.072	.048	.054
Work 50 + h/week[b]	.053	.063	.039	.048
Professional[c]	−.010	−.006	−.006	−.007
Non-profit[d]	−.040	−.038	−.046	−.043
Government[d]	−.137	−.130	−.130	−.124
Basic demographic controls				
Women = 1	.600***	.606***	.609***	.611***
Age	−.004	−.004	−.005	−.004
White = 1	.269***	.271***	.267***	.271***
Married = 1	−.029	−.036	−.023	−.029
Children at home	.006	.007	.006	.005
Constant	1.046	1.035	1.040	1.034
R^2	.141	.146	.146	.149

Unstandardized ordinary least squares (OLS) regression coefficients (standard errors are excluded for the sake of presentation, but are available upon request)

[a] Compared with appropriate reward

[b] Compared to < 40 h/week

[c] Compared to non-professionals

[d] Compared to private sector

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

An additional test finds a significant difference between slight under-reward and severe under-reward ($b = .252$, $p = .027$). The patterns for depression support H1B and H1C, but not H1A.

The results for physical symptoms in model 1 of Table 4 are similar to those found for anger. Compared to appropriate reward, slight ($b = .205$, $p = .006$) and severe under-reward ($b = .368$, $p = .001$) are associated with more physical symptoms. However, there is no significant difference between slight and severe under-reward ($b = .163$, $p = .081$). The patterns for physical symptoms therefore indicate support for H1A and H1B, but not H1C.

Collectively, these patterns provide partial support for Hypotheses 1A–1C. Compared to appropriate reward, slight and severe under-reward is associated with more distress—with one exception: there is no difference in depression between appropriate reward and slight under-reward. Moreover, the *only* instance where a significant difference between slight and severe under-reward is observed is for depression. Overall, for all three forms of distress, the greatest differences are observed between appropriate reward and the severe under-reward.

Buffering-Resource Versus Status-Disconfirmation Hypotheses Tests

Education Contingencies

The education contingencies are similar for anger (Table 2) and depression (Table 3). Model 2 indicates that higher education attenuates the difference between appropriate reward and slight under-reward (ANG: $b = -.123$, $p = .002$; DEP: $b = -.103$, $p = .024$), but not the difference between appropriate reward and severe under-reward (ANG: $b = -.062$, $p = .206$; DEP: $b = -.043$, $p = .438$). Separate analysis (not shown) indicates that higher education does not moderate the difference between slight and severe under-reward (ANG: $b = .061$, $p = .218$; DEP: $b = .060$, $p = .297$). Thus, of the three comparisons where moderation could exist, education's buffering effect is evident only between appropriate reward and slight under-reward.

Panels A and B of Fig. 2 illustrate these patterns. First, slight under-reward is associated with more anger and depression compared to appropriate reward—but that is evident only among individuals with *low education.* Among those with *high education*, there is no difference in anger and depression between appropriate reward and slight under-reward. These patterns are consistent with the buffering-resource hypothesis. However, the buffering effect of education is not evident in comparisons between appropriate reward and severe under-reward. Finally, there is also no buffering effect of education in the comparison between slight under-reward and severe under-reward. The figures appear to indicate that differences in anger and depression between slight and severe under-reward are greater for those with high education—however, these patterns are not statistically significant.[6]

[6] See Appendix Table 6 for predicted mean values of distress across categories of perceived under-reward by education level.

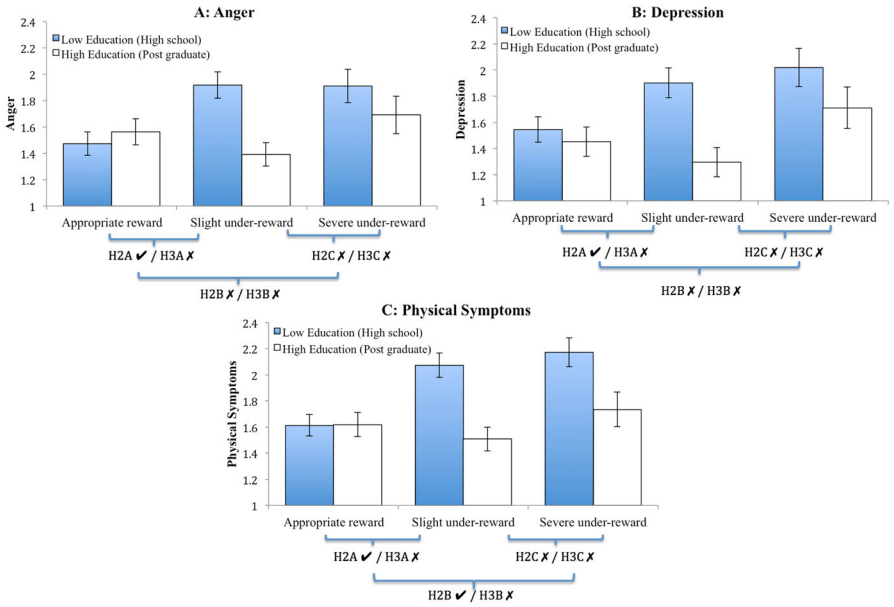

Fig. 2 Education contingencies. *Note* Figures are based on Model 2 in Tables 2, 3, and 4. *Standard error bars* are displayed. *Tick mark* indicates support for hypothesis, while *cross mark* indicates no support

Model 4 in Tables 2 and 3 shows that these patterns are stable *net of* the interaction between perceived under-reward and income: Education continues to attenuate the difference in distress between appropriate reward and slight under-reward (ANG: $b = -.111$, $p = .012$; DEP: $b = -.100$, $p = .039$). Collectively, the results partially support the buffering-resource hypothesis (2A): Education attenuates the difference in distress between appropriate reward and slight under-reward. However, education does not attenuate the difference between appropriate reward and severe under-reward, nor the difference between slight and severe under-reward (no support for H2B and H2C). I observe no support for the status-disconfirmation hypothesis (H3A–3C).

While the patterns differ slightly for physical symptoms, the general conclusions are the same. Model 2 of Table 4 indicates that higher education attenuates the difference in physical symptoms between appropriate reward and slight under-reward ($b = -.114$, $p = .003$) *and* the difference between appropriate reward and severe under-reward ($b = -.089$, $p = .044$). Separate analysis indicates that higher education does not moderate the difference between slight and severe under-reward ($b = .025$, $p = .579$). Panel C of Fig. 2 illustrates this interaction. The patterns for physical symptoms are similar to those for anger and depression, but with one exception: Compared to appropriate reward, severe under-reward is less strongly associated with physical symptoms among those with high education.

In model 4 of Table 4, education continues to attenuate the difference between appropriate reward and slight under-reward net of the interaction between perceived under-reward and income ($b = -.106$, $p = .010$). However, the interaction between severe under-reward and education is no longer significant ($b = -.049$; $p = .314$). These observations demonstrate partial support for the buffering-resource hypothesis (2A): Education attenuates the difference in physical symptoms between appropriate reward and slight under-reward. However, education does not attenuate the difference between appropriate reward and severe under-reward, or between slight under-reward and severe under-reward (no support for H2B and H2C). I observe no support for status-disconfirmation (H3A–3C).

Income Contingencies

The income contingencies are highly similar across anger, depression, and physical symptoms. Model 3 in Tables 2, 3, and 4 indicates that income does not attenuate the difference in distress between appropriate reward and slight under-reward (ANG: $b = -.178$, $p = .058$; DEP: $b = -.104$, $p = .353$; PHY: $b = -.145$; $p = .121$), but it does attenuate the difference between appropriate reward and severe under-reward (ANG: $b = -.346$, $p = .015$; DEP: $b = -.360$, $p = .010$; PHY: $b = -.314$, $p = .004$). Separate analysis indicates that income does not

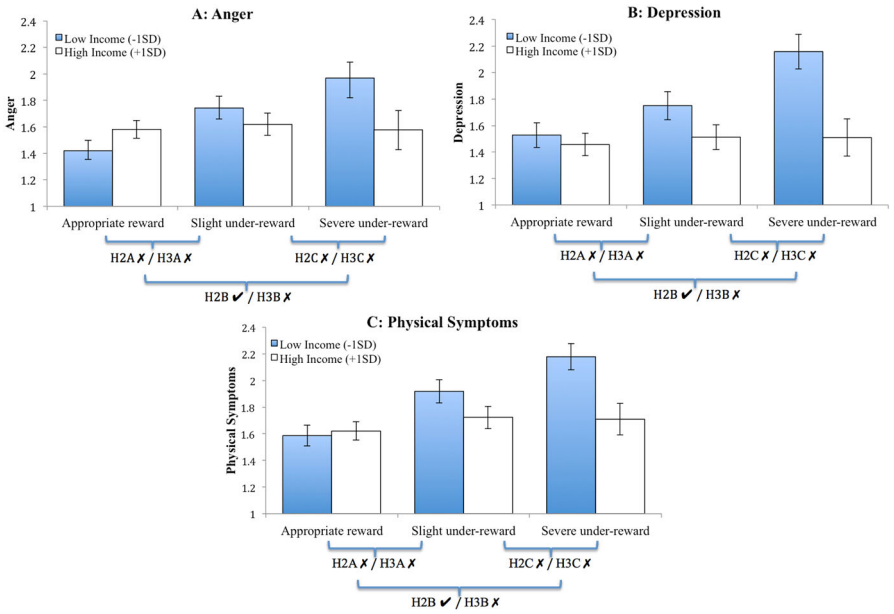

Fig. 3 Income contingencies. *Note* Figures are based on model 3 in Tables 2, 3, and 4. *Standard error bars* are displayed. *Tick mark* indicates support for hypothesis, while *cross mark* indicates no support

attenuate the difference between slight and severe under-reward (ANG: $b = -.168$, $p = .264$; DEP: $b = -.256$, $p = .092$; PHY: $b = -.170$, $p = .156$). Thus, of the three comparisons where moderation could exist, income's buffering effect exists only between appropriate reward and severe under-reward.

Panels A–C of Fig. 3 illustrate these patterns. Overall, levels of distress gradually increase across the under-reward categories for those with *low income*—by contrast, there is virtually no difference in distress across the under-reward categories among those with *high income*. First, income provides some buffering between appropriate and slight under-reward, but these differences are small—a pattern inconsistent with the buffering-resource hypothesis. Second, income exhibits clear buffering between appropriate and severe under-reward. Severe under-reward is associated with higher levels of distress compared to appropriate reward, but that is evident *only among individuals with low income*—a pattern consistent with the buffering-resource hypothesis. Finally, some buffering is evident between slight and severe under-reward, but these differences are small—a pattern inconsistent with the buffering-resource hypothesis. It is important to note how these patterns differ from that of education. The education patterns show a buffering effect for slight under-reward that diminishes as under-reward becomes severe; by contrast, the income patterns demonstrate a trend toward more buffering as under-reward becomes severe.[7]

Model 4 in Tables 2, 3, and 4 shows that income continues to attenuate the difference in distress between appropriate reward and severe under-reward net of education contingencies (ANG: $b = -.344$, $p = .026$; DEP: $b = -.381$, $p = .011$; PHY: $b = -.274$, $p = .023$). Collectively, the results provide partial support for the buffering-resource hypothesis: Higher income buffers the distress associated with severe under-reward compared to appropriate reward (H2B). However, higher income does not attenuate the difference between appropriate reward and slight under-reward (H2A), nor the difference between slight under-reward and severe under-reward (H2C). Across all analyses, I find no support for the status-disconfirmation hypothesis (H3A–3C).[8]

Discussion

More than 4 in 10 American workers—and over fifty percent of individuals internationally—report feeling under-rewarded for the work they do. This subjective sense of under-reward represents an important reflection of inequity and a

[7] See Appendix Table 7 for predicted mean values of distress across categories of perceived under-reward by income level.

[8] There are a few noteworthy patterns among the control variables. As others demonstrate (Mirowsky & Ross, 1995), women consistently report more anger, depression, and physical symptoms compared to men. Demanding and noxious work are positively associated with all three outcomes, while job decision latitude is negatively associated with depression. These patterns are in line with research on the job demands-resources (JD-R) model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) that documents the health consequences of job-related demands and resources. Other patterns indicate that the married report lower levels of depression than the non-married—this is consistent with previous studies and is likely because the married tend to receive more emotional support and have more economic resources (Mirowsky & Ross, 2003a).

potentially potent chronic stressor. My analysis of a national sample of American workers indicates that perceived under-reward is associated with more anger, depression, and physical symptoms—but the differences are not equal across the two levels of under-reward and thus provide partial support for Hypotheses 1A–1C. The largest and most consistent difference in distress is evident in comparisons between appropriate reward and severe under-reward. Beyond those foundational patterns, my main contribution is the discovery of the structural conditions that modify the relationship between perceived under-reward and distress. That objective is inspired, in part, by Hegtvedt's (2006) articulation of the role that situational factors play in conditioning reactions to injustice. Following Hegtvedt and Parris' (2014) encouragement for more attention to how structural situations function as moderators, my study provides a sociological account of the ways that core dimensions of socioeconomic status operate as contingencies.

Buffering-Resource or Status-Disconfirmation?

Theory and prior empirical evidence provide the rationale for two competing hypotheses about SES as a moderator. Based on the view that education and income represent status-based resources that should facilitate coping of stressful circumstances, the buffering-resource hypothesis predicted that higher SES should attenuate the consequences of perceived under-reward. Alternatively, drawing upon evidence that higher status individuals tend to be particularly sensitive to perceptions of unfairness (e.g., Diekmann et al. 2007), the status-disconfirmation hypothesis predicted that higher SES should exacerbate the consequences of perceived under-reward. My observations speak to these hypotheses in unexpectedly nuanced ways. Specifically, the patterns do not indicate uniform moderation across levels of under-reward—instead, moderation occurs only in some comparisons. Education and income function as moderators in distinct ways and these differences are consistent across the three distress outcomes. Below, I elaborate on the moderating functions of education and income.

Some of the findings for education partially support the buffering-resource hypothesis. In support of Hypothesis 2A, higher education attenuates the difference in distress between appropriate reward and *slight* under-reward. The ways that educational attainment is linked to the development of skills and psychosocial resources might enable workers to effectively alter the meaning of minor degrees of under-reward. However, two other patterns do not support the buffering-resource hypothesis: higher education did not exhibit the same degree of buffering between appropriate reward and severe under-reward, and between slight and severe under-reward. These two patterns do not support Hypothesis 2B and 2C of the buffering-resource view. This leads to a puzzle: Why does education fail to buffer the distress associated with severe under-reward? While the patterns do not support the status-disconfirmation hypothesis (H3A–3C), one possibility is that education exhibits both buffering-resource *and* status-disconfirmation dynamics as under-reward becomes severe. That is, the inconsistency associated with higher educational attainment and perceived under-reward may *neutralize* the otherwise protective effects of education. Prior theorizing and research about the ways higher status

shapes the sense of deservingness for fair outcomes may be informative here. Specifically, Diekmann et al. (2007) find that individuals with higher perceived status tend to have a greater sense of deservingness for fairness, and that these individuals are more sensitive to perceived injustice. That insight might also apply to education because it is an objective marker of achieved status and an important dimension of social stratification. That is, higher education may not only be associated with a greater sense of deservingness for *actual* rewards, but also a greater sense of deservingness for *fair* rewards. That dynamic could undermine the buffering potency that higher educational attainment might normally provide for role stressors (Pearlin, 1983). In sum, while there is no evidence that higher education *exacerbates* the link between perceived under-reward and distress, the observation of no buffering at severe under-reward may potentially be attributable to competing buffering-resource and status-disconfirmation dynamics. Future research should more explicitly attempt to measure and evaluate that possibility.

The moderating patterns for income are also nuanced—however, the findings are distinct from those of education. Education exhibits buffering for slight under-reward, but this effect is diminished when under-reward is severe. By contrast, the income patterns demonstrate greater buffering at the most severe level of under-reward. I observe that higher income does not attenuate the difference in distress between appropriate reward and slight under-reward, nor does it attenuate the difference between slight under-reward and severe under-reward (Hypotheses 3A and 3C unsupported). However, support for buffering is most evident in the comparison between appropriate reward and severe under-reward (Hypothesis 3B supported). This observation is consistent with the differential vulnerability perspective about the role of social position in moderating the association between stressors and distress. One potential reason for this form of buffering may be due to the ways that income provides material security. In the context of high income, perceived under-reward may not be as closely coupled with distress because the under-reward experience is not threatening to one's material needs or economic well-being. Taken together, the income patterns differ from that of education. While the patterns are complex, the overall pattern is more consistent with the buffering-resource view. One fruitful direction for future research would be to differentiate the role of one's own earnings relative to the total earnings of the household. It might be that under-reward is more closely coupled with material deprivation among those in lower-earning households and—in particular—if the Rewardee is the primary or sole-earner.

Two contrasting observations reinforce the different moderating effects for education and income. First, the distinct moderating patterns are highly consistent across different forms of distress. Second, the patterns remain stable when both SES-based interactions are included in the same model (with the one exception of the education contingency in the analysis of physical symptoms). This underscores an important contribution of my study: Had I examined only one form of SES, or combined education and income into a composite SES index, the results would have masked the different moderating patterns and concealed their distinctiveness as status-based contingencies. This concurs with Mirowsky and Ross' (2003a, p. 28)

observation that "[e]ach element of socioeconomic status should be viewed as distinct, rather than as interchangeable with the others," and parallels research that highlight that each dimension of SES has unique associations with health (Braveman et al., 2005; Mirowsky & Ross, 2003b; Schieman & Koltai, 2017). I suspect that the distinctive mechanisms of education and income as indicators of SES is at least partially responsible for their different moderating patterns. Income represents economic resources—it indicates material prosperity and might enhance financial security. Education represents schooling and an investment in human capital that is generally associated with more favorable work and economic conditions (Mirowsky & Ross, 2003b). Because of this "investment" characteristic of education, highly educated workers may be particularly sensitive to situations when they do not get what they think they deserve—especially when perceived under-reward is more severe.

Finally, the patterns identified in the current study are based on a national sample of workers across occupations and sectors. Most research on the consequences of perceived under-reward has drawn upon samples from specific industries and organizations (for exceptions, see Sauer and Valet 2013; Schunck et al. 2015). While these studies provide invaluable insights, the use of population-based data allows for a broader generalization of the patterns across a range of occupations, sectors, and working conditions. Population-based data is also valuable for a fuller examination of the moderating role of socioeconomic status because it provides sufficient variation in educational attainment and income.

Study Limitations and Additional Future Research Directions

Several study limitations must be acknowledged. First, I am unable to directly assess the mechanisms that produce the observed moderation patterns. For example, I drew upon Diekmann et al.' (2007) interpretations to provide a rationale for why education might not buffer the influence of severe under-reward; however, it remains to be empirically assessed whether the sense of deservingness for fair outcomes plays an explanatory role. In order to evaluate the potential mechanisms, one direction is to measure the construct in surveys and assess whether it influences the interaction between severe under-reward and education. In addition, future research could conduct in-depth qualitative interviews and unpack how the meanings attached to the experience of under-reward vary by social status. While previous research indicates that educational attainment is a strong predictor of deservingness for actual rewards (Sauer & May, 2017), one could ask: Are individuals with higher education also more likely to possess an elevated sense of deservingness for fair outcomes? And, beyond educational attainment, how does advantaged social status in general shape the sense of deservingness for fair outcomes? The answers to these questions may delineate the processes by which social structural positions shape conceptions about deservingness for fair treatment, which, in turn might subsequently influence the relationship between perceived under-reward and distress.

The categorical measurement of perceived under-reward might also be viewed as a limitation. Continuous measures of perceived under-reward would be ideal for

greater precision and representation of the experience of under-reward. For example, perceived under-reward may be assessed with a measure that has more scale points or it could be assessed with continuous measures like Jasso's justice evaluation function (Jasso, 1978; Jasso, Törnblom, Sabbagh, 2016; see Sauer & Valet, 2013; Schunck et al. 2015). Likewise, the single item that I use lacks information about the comparison group, such as "in comparison to others who do the same type of work" and "in comparison to your coworkers." Research indicates that comparisons with similar others such as coworkers (Sauer & May, 2017) are important reference groups for evaluating pay. I have assumed that study participants have used similar reference groups, but this is admittedly speculative. Moreover, I have interpreted evaluations of "underpaid a little" and "underpaid a lot" in comparison to "paid about right" to reflect perceptions of unjust pay. However, it is possible that this measure potentially confounds the sense of fairness with self-interest. An employee who is dissatisfied with pay may claim to be under-rewarded, even though she may not be under-rewarded in comparison to a reference group. Future research should therefore replicate the results of the current study with more continuous measures and with referents that more explicitly stimulate evaluations of injustice.[9]

My study did not explore the potential sequencing of distress outcomes. It is possible that perceived under-reward influences physical health *through* its influence on anger and depression. Future research should explore how SES moderates this mediation process—that is, moderated mediation. For instance, the relationship between perceived under-reward and anger might be conditional on SES, which then shapes differences in physical health. Longitudinal data could be leveraged to determine how anger and depression function as mediators of the relationship between perceived under-reward and physical symptoms, and how SES modifies that process. It might also be worth extending the scope of analysis to consider how these dynamics play out for organizational outcomes like absenteeism and turnover intentions.

Another issue involves level of analysis. The present study focused on individual-level measures of stratification, but stratification at the macro-level might also shape the perceptions and consequences of pay inequity. For example, Schunck et al. (2015) have articulated that income inequality at the country-level might influence

[9] In an ongoing study of a nationally representative sample of Canadian workers by Schieman and his colleagues, the perceived under-reward measure in the current study (WSH item) is being assessed along with items adopted from the U.S General Social Survey (GSS) and the International Social Survey Programme (ISSP). The GSS item asks: "How fair is what you earn in your job in comparison to others who do the same type of work you do?" The response choices range from (−2) "much less than you deserve" to (2) "much more than you deserve." The ISSP item asks: "Is your pay just? We are not asking how much you would like to earn—but what you feel is just given your skills and effort." The response choices range from (−2) "much less than in just" to (2) "much more than is just." Although that study is still in the field and data collection is incomplete, preliminary results indicate that the WSH item corresponds highly with the GSS and the ISSP items that explicitly use the words "fairness" and "justice." Factor analyses indicate that the three items load on to one factor with a minimum factor loading of .86—and, in fact, the WSH item has the *highest* factor loading (.91). Further, an index of the three items has a scale reliability of .86. These patterns provide some preliminary indication that the perceived under-reward item used in this study overlaps conceptually and empirically with other items that assess sense of fairness and justice explicitly.

perceived under-reward and subsequent health outcomes. This line of research can integrate health inequality and justice literatures and reveal new insights about macro-structural influences. Indeed, recent research has found evidence for the link between larger contexts of inequality and perceptions of fair earnings: Income inequality at the organization-level increases employees' sense of just earnings (Sauer & May, 2017). As a related avenue for future research, scholars might also consider whether and how broader contexts of inequality *moderate* the distress of under-reward. How do larger social climates of injustice intersect with personal experiences of injustice to shape emotions and health? One possibility is that residing in high inequality areas will exacerbate the impact of perceived inequity on distress. Being surrounded by inequality could amplify the stressful experience of injustice—or, conversely, it could attenuate it. The motivating idea behind this latter prediction is that living in an inequitable place makes one's own inequity less stressful because injustice is widespread ("collectively shared"). Recent research demonstrates, for example, that the health consequences of perceived job insecurity tend to be *weaker* for workers that reside in high-unemployment areas (Glavin & Young, 2017).

If macro-level contexts play a role, then one potential concern about my findings is whether results from 2005 data are still relevant in 2017. Changes in macro-economic conditions like the unemployment rate could shape the experience of under-reward. Data from the U.S Bureau of Labor Statistics (2017) indicate that the average unemployment rate in 2005 was 5.08 percent. It increased and peaked at 9.6 percent in 2010, and thereafter gradually declined to an average of 4.85 percent in 2016. (As of June 2017, the unemployment rate is 4.4 percent.) Thus, to the extent that macro-economic conditions like the unemployment rate play a role in shaping one's experiences of under-reward, the results obtained in the current study can still inform us about the experience of under-reward in 2017. Nevertheless, future population-based studies should measure macro-economic indicators like the unemployment rate and assess how they influence the likelihood and consequences of perceived under-reward. Changes in macro-economic conditions might change perceptions and consequences of under-reward.

A final concern involves the question of causal ordering. The assertion that perceived under-reward predicts distress originates from a long tradition in social psychology that has explicitly theorized that distress is an *outcome* of perceived under-reward (Adams, 1965; Hegtvedt, 1990; Homans, 1974; Walster et al., 1973). I have sought to demonstrate how the *associations* between perceived under-reward and levels of anger, depression, and physical symptoms depend on levels of socioeconomic status. While the reliance on cross-sectional data is a potential limitation, this does not undermine the basic argument that education and income represent salient statuses that shape perceived under-reward's link to forms of distress. Nonetheless, in future analyses that attempt to better capture causal dynamics, it is important to assess *changes* in perceptions of pay inequity over time and how this influences changes in distress—and the ways that statuses modify those patterns. These discoveries might further illuminate the complex patterns that underlie status inequality and health in the population.

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Compliance with Ethnical Standards

Conflict of interest The author declares no conflict of interest.

Appendix

See Tables 5, 6, and 7.

Table 5 Zero-order correlations among forms of distress, education, and income

	Anger	Depression	Physical symptoms	Education	Income (logged)
Anger	1.00				
Depression	.531*	1.00			
Physical symptoms	.462*	.615*	1.00		
Education	−.112*	−.155*	−.136*	1.00	
Income	−.111*	−.160*	−.135*	.362*	1.00

* $p < .001$

Table 6 Predicted mean values of distress across categories of perceived under-reward by education level

Education level	Appropriate reward	Slight under-reward	Severe under-reward
Anger			
Low	1.473	1.919[a]	1.911[a]
High	1.563	1.391	1.691[†]
Depression			
Low	1.545	1.902[a]	2.020[a]
High	1.453	1.296	1.712[b]
Physical symptoms			
Low	1.612	2.073[a]	2.172[a]
High	1.619	1.509	1.735

Predicted means values are based on model 2 in Tables 2, 3, and 4

Given category of under-reward differs significantly from appropriate reward at [a] $p < .05$

Severe under-reward differs significantly from slight under-reward at [†] $p < .10$, [b] $p < .05$

Table 7 Predicted mean values of distress across categories of perceived under-reward by income level

Income level	Appropriate reward	Slight under-reward	Severe under-reward
Anger			
Low	1.420	1.742[a]	1.969[a]
High	1.581	1.619	1.576
Depression			
Low	1.528	1.750[†]	2.157[a,b]
High	1.457	1.513	1.510
Physical symptoms			
Low	1.586	1.918[a]	2.178[a,b]
High	1.621	1.722	1.711

Predicted means values are based on model 3 in Table 2, 3, and 4

Given category of under-reward differs significantly from appropriate reward at [†] $p < .10$, [a] $p < .05$

Severe under-reward differs significantly from slight under-reward at [b] $p < .05$

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