

## Procedural and Distributive Justice Beliefs for Self and Others: Multilevel Associations with Life Satisfaction and Self-Rated Health

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**Abstract** Personal happiness and well-being are associated with a dispositional tendency to believe in the existence of justice. In addition, research suggests that links between justice beliefs and well-being are best revealed when utilizing distinctions between a belief in justice for one's self versus others, and also a belief in procedural versus distributive justice. Using multilevel modeling, we examined whether individual-level links to personal well-being are moderated by higher-order (county-level) justice climates. Michigan (United States) residents ( $N = 497$ ) were recruited through a statewide survey to complete measures of procedural and distributive justice beliefs for self and others, life satisfaction, and self-rated health. Individual-level beliefs in justice for both self and for others were more strongly associated with life satisfaction and health in climates where beliefs about justice for others were robust. In addition, an individual-level belief in distributive justice was more strongly linked to self-rated health in high distributive justice climates, and in low procedural justice climates. Taken together, these cross-level interactions suggest that higher-order justice climates may alter relationships between individual-level justice beliefs and personal well-being. We discuss implications for justice theory and directions for continued research on well-being and happiness.

**Keywords** Health · Well-being · Life satisfaction · Justice beliefs · Justice climate · Belief in a just world · Procedural justice · Distributive justice

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## 1 Introduction

People strive to believe that the world is a fair and just place. In turn, the *belief in a just world* provides psychological support for living an orderly, meaningful, and controlled life (Lerner 1980). In helping individuals to cope with threat and injustice, the belief in a just world is thought to promote individual health and well-being and to enhance personal happiness (for review, Dalbert 2001). The health and happiness-enhancing effects of justice especially include a positive association between personal well-being and dispositional tendencies to believe in justice. In considering links to well-being, theory and research have further highlighted that individual differences in justice beliefs are explicitly multidimensional, and that well-being may be idiosyncratically linked to particular kinds of justice tendencies. In this vein, two recent and increasingly prominent justice distinctions include beliefs about justice for one's self versus others (Bègue and Bastounis 2003; Dalbert 1999; Lipkus et al. 1996; Sutton and Douglas 2005) and procedural versus distributive justice beliefs (Lucas et al. 2007, 2011).

Although research linking justice beliefs to happiness and well-being is compelling, limited empirical consideration has thus far been given to the larger psychological environments that encompass individual-level justice beliefs. This includes limited attention to the potential of overarching justice climates to alter individual-level associations between justice beliefs and indices of well-being that have been previously observed for both the self-other and procedural-distributive justice distinctions. In the present study, we demonstrate that individual-level associations between personal well-being and dispositional justice beliefs may depend on higher-order justice climates. We further suggest that multilevel conceptualizations of justice beliefs for self and others and procedural and distributive justice beliefs may be useful in further refining links between justice beliefs, well-being, and happiness.

### 1.1 Overview of General and Personal Justice Beliefs

Justice beliefs are defined as relatively stable tendencies to perceive the world as fair and just (for reviews, Dalbert 2009; Furnham 2003). Research examining the trait justice dispositions of individuals stems from the justice motive originally suggested by Lerner (1980). However, an individual difference approach to justice is distinguished through its attempt to characterize the enduring distinctions between individuals. One key insight from individual differences research is that beliefs about justice are highly multidimensional and that many distinct kinds of justice tendencies operate independently and simultaneously in individuals (e.g., Lerner 1980; Lipkus et al. 1996). Theory and research have especially highlighted that dispositional tendencies to perceive justice in the world not only include a tendency to believe that fairness is accorded to others (i.e., *general justice for others*), but also unique beliefs that one personally gets what one deserves (i.e., *personal justice for self*). Numerous studies support that personal justice beliefs are psychometrically distinct from general justice beliefs and are only moderately correlated with one another (Bègue and Bastounis 2003; Lipkus et al. 1996; Sutton and Douglas 2005; Sutton and Winnard 2007; Sutton et al. 2008). Prior studies have further suggested that personal justice beliefs are stronger than general justice beliefs, indicating that individuals typically perceive the world to be more fair to selves than to others (Bègue 2002; Bègue and Bastounis 2003; Lipkus et al. 1996; Lucas et al. 2011; Sutton and Douglas 2005).

Distinguishing between general and personal justice beliefs has been empirically useful in linking justice tendencies to personal happiness and well-being (e.g., Bègue and

Bastounis 2003; Dalbert 1999; Lipkus et al. 1996; Lucas et al. 2011; Sutton and Douglas 2005; Sutton et al. 2008). Namely, beliefs about justice for the self have been especially and exclusively linked to individual happiness and personal health, whereas beliefs about justice for others have tended to predict other kinds of social attitude measures, especially including harsh social attitudes. The well-replicated and mutually exclusive links between personal justice beliefs and well-being have included measures such as life satisfaction (Dalbert 1999; Sutton and Douglas 2005), depression (Dzuka and Dalbert 2002), and greater purpose in life (Bègue and Bastounis 2003). Importantly, links between personal justice beliefs and well-being persist even after accounting for many other third variable explanations, such as locus of control and social desirability (Sutton and Douglas 2005).

### 1.2 Overview of Procedural and Distributive Justice Beliefs

In parallel to self and other divergences, recent research suggests that dispositional tendencies to perceive justice are also manifested in the widely recognized distinction between procedural and distributive justice (Lucas et al. 2007; Lucas and Goid 2008). Whereas distributive justice refers to the perceived fairness of outcomes and allocations (Adams 1965; Walster et al. 1978), procedural justice refers to the perceived fairness of rules, processes, and treatment (Lind and Tyler 1988; Thibaut and Walker 1975). When construed as individual differences, these justice evaluations encompass stable and enduring tendencies to perceive outcomes and allocations (i.e., *distributive justice beliefs*) and also rules and processes (i.e., *procedural justice beliefs*) as fair and deserved. In parallel to self-other divergences, there is strong psychometric evidence to support that procedural and distributive justice beliefs are unique dispositional tendencies (Lucas et al. 2007). Also, similar comparisons have revealed that distributive justice beliefs are typically stronger than procedural justice beliefs, suggesting that individuals generally perceive outcomes to be fairer than rules and processes. Like self and other beliefs, procedural and distributive justice beliefs also appear to be idiosyncratically linked to well-being (e.g., Lucas et al. 2008, 2011). However, these relationships may be more gradated than the strict divergences that are typically observed for general and personal justice; whereas justice beliefs for self and others tend to relate to well-being and social attitudes in mutually exclusive ways, procedural and distributive justice beliefs appear to link to particular operationalizations of both kinds of measures (e.g., Lucas 2009; Lucas et al. 2011; Weiss et al. 1999). For example, whereas beliefs about justice for the self exclusively predict measures of well-being, distributive justice beliefs may be especially associated with *personal* aspects of well-being, such as perceived stress, while procedural justice beliefs may be particularly linked to *interpersonal* aspects of well-being, such as marital satisfaction or well-being in the workplace (Lucas et al. 2011; Lucas and Wendorf 2012). Research further suggests that procedural and distributive justice beliefs may be idiosyncratically linked to positive and negative affect. Namely, distributive justice beliefs are especially associated with higher levels of positive affectivity, while procedural justice beliefs are more prominently associated with lower levels of negative affectivity (Lucas 2009).

### 1.3 Higher-Order Justice Climates

The self-other and procedural-distributive justice distinctions have vastly enriched consideration of the ways in which prominent social psychological concepts may be embedded in dispositional tendencies to believe in justice, and consequently in individual happiness

and well-being. For example, Lucas et al. (2011) recently suggest that while self and other justice beliefs may differentially indicate individual tendencies towards personal versus social identity (Tajfel 1978; Tajfel and Turner 1979), procedural and distributive justice beliefs may especially convey a prosocial versus proself value orientation (Messick and McClintock 1968; Schwartz 1992). To the extent that social identities and social value orientations are themselves implicated in personal happiness and well-being (e.g., Jetten et al. 2012; Kasser et al. 2004), the study of dispositional justice tendencies may further bridge happiness research with these seminal social psychological theories. In addition to their potential to facilitate connections with other prominent theoretical orientations, self-other and procedural-distributive justice dimensions have been practically useful in happiness research. As previously reviewed, both distinctions have provided a means to precisely link specific kinds of personal well-being and happiness to particular operationalizations of beliefs about justice.

Although prior considerations have been fruitful, current understanding of the ways in which self-other and procedural-distributive justice beliefs are implicated in personal happiness is limited in a number of ways. One limitation is that available research has mostly considered only individual-level associations with justice beliefs (for related review, Li and Cropanzano 2009). That is, studies to date have predominantly emphasized the potential of individual-level justice beliefs to affect individual-level health and happiness. An important unknown thus concerns whether the relationships between personal well-being and dispositional justice tendencies also depend on the overarching contexts or climates in which justice beliefs are held. Of current interest, this especially includes assessing a potential for social and environmental features to *interact* with individual-level beliefs about justice in ways that affect happiness. Thus, one specific and needed direction for further inquiry concerns examining whether and how individual-level links between justice beliefs and well-being might be affected by higher-order or collective justice perceptions.

The term “justice climate” has recently evolved to refer to the social creation of justice perceptions (Spell and Arnold 2007), group and organizational level justice beliefs (Liao and Rupp 2005), and also shared perceptions of fairness (e.g., Colquitt et al. 2002; Moliner et al. 2005). In general, “higher-order” or climate definitions of justice recognize the tendency of justice beliefs to exist within shared social environments such as workgroups, organizations, neighborhoods, or classrooms. Although many specific operationalizations of justice climate are possible (e.g., Colquitt et al. 2002; Moliner et al. 2005; Naumann and Bennett 2000), emerging literature suggests that justice beliefs may themselves create justice climates, and that considering multilevel models of individual differences may be an especially useful way to indicate and examine the effects of higher-order justice climates (Elovainio et al. 2004; James et al. 2008; Mayer et al. 2007; Spell and Arnold 2007; Wendorf and Alexander 2005). Of current interest, a multilevel modeling approach emphasizes that associations between happiness and justice may encompass higher-order justice climates, and this includes their hitherto overlooked potential to moderate previously observed individual-level relationships. For example, the widely recognized link between an individual-level belief about justice for the self and personal well being may depend in part on the overarching justice climate in which this belief is held (i.e., cross-level interaction).

Although largely empirically overlooked, there is strong theoretical support for considering a multi-level analysis of justice beliefs and happiness. For example, Brickman et al. (1981) suggested a popular distinction between macrojustice and microjustice principles (see also Hegtvedt and Markovsky 1995). Microjustice principles are formulated

in individual terms and are defined according to their causes and consequences for individuals. Alternatively, macrojustice principles specify justice evaluations in non-individual terms; whereas the microjustice principles are implemented according to personal characteristics and correspond to individual-level benefits and costs, macrojustice principles are enacted based on collective characteristics and correspond to outcomes for ethnicities, societies, or other social groups. The distinction between microjustice and macrojustice emphasizes the emergent characteristics of group-level justice. For example, one oft-cited paradox is that social policies may seem satisfying and promote happiness when they are viewed according to microjustice principles (such as individual effort and personal qualification), but not when viewed according to their macrojustice implications (as when micro-level policies result in uneven allocations according to socioeconomic or demographic groupings).

In addition to theoretical support, a handful of available studies suggest that modeling climate-level effects in well-being research may greatly enhance current understanding of the relationships between justice beliefs and happiness (for review, Li and Cropanzano 2009). For example, Spell and Arnold (2007) demonstrated that individual-level well-being may be affected by climate-level interactions of procedural and distributive justice; employees in work groups with low collective procedural justice perceptions were most depressed when collective distributive justice also was high and least depressed when collective distributive justice was low. Similarly, Wendorf and Alexander (2005) showed that individual-level satisfaction with college course instructors was positively associated with class-level perceptions of interactional justice.

While supporting theory and initial research are compelling, multilevel research has yet to branch into a number of directions that are specifically relevant to happiness research. Of note, while there has been some treatment of procedural and distributive justice as higher order climate variables, current literature has not yet examined multilevel associations with self and other justice climates that are also possible. Moreover, multilevel research has not yet focused on dispositional beliefs about justice, thus overlooking that links to well-being may include higher-order justice climates that encompass stable justice tendencies in addition to climates that are based on specific evaluations of settings such as work-groups or classrooms. A final and important direction concerns examining the potential for cross-level interaction between individual-level and climate-level justice perceptions. While justice theory suggests that macrojustice climates may exist in parallel to microjustice principles, these spheres have been mostly examined as mutually exclusive entities; less attention has been given to their potential to interact with one another, and this includes examining whether the links between individual-level happiness and micro-level justice beliefs depend on the higher-order or macrojustice climates in which these beliefs exist.

#### 1.4 The Present Study

With an eye towards identifying the possible effects of higher-order justice climates on personal well-being and happiness, the present study sought to examine whether previously observed links between dispositional self-other and procedural-distributive justice beliefs, health and life satisfaction depend on higher-order justice climates. Because the individual-level effects of self-other and procedural-distributive justice beliefs on personal health and well-being are generally well established, our primary focus was on the capacity of higher-order justice climates to moderate these relationships (i.e., cross-level interactions). For example, our interest was in whether links between individual-level beliefs about justice

for the self and personal well-being would be moderated by climate-level beliefs about justice. To examine such possibilities, we administered an individual differences measure of procedural and distributive justice beliefs for self and others, and also measures of life satisfaction and self-rated health to a sample of individuals residing in the state of Michigan (United States). To examine multilevel effects, we capitalized on nestings that occurred within Michigan based on county—formal territorial divisions within the state of Michigan that share legal, economic, and cultural values. Although county-level nestings have not yet been used in multilevel justice research, prior examinations have suggested that indices of injustice and deprivation may be especially effectively modeled based on county-level nestings (e.g., Kelleher et al. 2002). Moreover, counties in the United States are commonly characterized by numerous indices that would suggest the use of justice-related descriptors. These include poverty and unemployment, crime rates, voting behavior, and numerous other measures of economic and social inequality or injustice.

In accord with prior theory and research, we expected life satisfaction and self-rated health to be positively associated with an individual-level belief in justice for the self, but unrelated to an individual-level belief in justice for others. Similarly, we expected that individual-level procedural and distributive justice beliefs would both be positively associated with life satisfaction and health. Of greater importance, we hypothesized moderator relationships between individual-level justice beliefs and higher-order justice climates. In this vein, we anticipated two possible kinds of effects. First, we expected multilevel moderator influences to include *climate-congruence effects*, in which individual-level relationships are impacted by a complementary justice climate. For example, beliefs about justice for the self might best predict personal well-being when climate-level beliefs about justice for the self also are robust (i.e., self–self effects). In parallel, individual-level distributive justice beliefs might especially predict life satisfaction when climate-level distributive justice beliefs also are high (i.e., distributive–distributive effects). A second possibility included *climate-incongruence effects*, in which individual-level relationships would be strengthened by a dissimilar justice climate. For example, beliefs about justice for others might better predict life satisfaction in climates where beliefs about justice for the self are robust (i.e., others-self effects), while distributive justice beliefs might be especially associated with self-rated health in high procedural justice climates (i.e., distributive-procedural effects).

## 2 Method

### 2.1 Participants

Four hundred and ninety seven residents of Michigan participated in this study. The sample was recruited through an annual Statewide Survey of Michigan Residents that was conducted by an urban research center at a large Midwestern university. The sample was predominantly Caucasian (86.39 %) and female (63.85 %), and the average age of participants was 52.98 (SD = 15.13). Compared to recent census data, the current sample was older, more female, and slightly more Caucasian than the state in general (U.S. Census Bureau 2010). All participants were first identified using a random digit dialing technique. The initial response mode was a telephone interview. One month after the launch of phone interviews, paper surveys were mailed to non-responders. An option to complete an online version also was provided during both the telephone interview and via mail. In total, participants were clustered within 38 out of 83 counties across the state. The average

within-county sample size was 14.34 (SD = 20.70) and ranged from 3 to 109 participants; These level-two sample sizes were acceptable according to recommendations for performing multilevel analysis (Raudenbush and Bryk 2002). All participants were nonpaid volunteers.

## 2.2 Measures

We administered two kinds of measures. First, we administered an individual differences measure of procedural and distributive justice beliefs for self and others. Second, we administered two well known measures of personal health and well-being. For all measures, total scale scores were calculated by summing the scores on scale items. Table 1 presents means, standard deviations, internal consistency values and bivariate correlations.

### 2.2.1 Beliefs About Justice

Self-other and procedural-distributive justice beliefs were measured using a recently available and expanded version of the Procedural and Distributive Justice Beliefs scale (Lucas et al. 2011). In its original form, this measure captures individual tendencies to see rules and treatment (procedural justice beliefs) and also outcomes and allocations (distributive justice beliefs) as deserved (Lucas et al. 2007). Following the lead of others (e.g., Lipkus et al. 1996), beliefs about justice for self and others are measured by expanding the original eight-item measure to include 16 items. The expanded measure includes four lower-order subscales. Procedural justice beliefs for self (PJ-self) measured beliefs about the deservedness of rules, processes, and treatment towards oneself (e.g., 'I am generally subjected to processes that are fair'), whereas distributive justice beliefs for self (DJ-self) measured beliefs about the deservedness of outcomes or allocations for the self (e.g., 'I usually receive outcomes that I deserve'). Similarly, the procedural justice beliefs for others subscale (PJ-others) measured beliefs about the deservedness of rules and

**Table 1** Means, standard deviations, internal consistency, and bivariate intercorrelations (N = 497)

	Mean	SD	1	2	3	4	5	6
Individual-level variables								
BJW-self	41.53	8.97	<b>.92</b>					
BJW-others	35.84	8.74	.64***	<b>.86</b>				
Procedural BJW	38.52	8.36	.86***	.79***	<b>.88</b>			
Distributive BJW	38.82	9.05	.81***	.87***	.70***	<b>.89</b>		
Life satisfaction	20.53	5.69	.53***	.30***	.40***	.42***	<b>.90</b>	
Self-rated health	3.32	1.08	.28**	.16**	.21***	.22***	.39***	–
Group-level variables								
BJW-self climate	42.88	3.47						
BJW-others climate	36.52	3.57	.51**					
Procedural BJW climate	39.37	3.10	.76***	.75***				
Distributive BJW climate	40.02	3.84	.79***	.77***	.58***			

Cronbach's alpha presented on diagonal in bold

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

treatment for others (e.g., ‘Other people are generally subjected to processes that are fair’), whereas the distributive justice beliefs for others (DJ-others) subscale measured beliefs about others’ outcomes or allocations (e.g., ‘Other people usually receive outcomes that they deserve’). All items were rated using a Likert-type scale that ranged from 1 (*strongly disagree*) to 7 (*strongly agree*), with higher scores indicating a stronger belief in justice. Self-other and procedural-distributive totals were created by summing the two appropriate lower-order subscales (Lucas et al. 2011). For example, beliefs about justice for the self included DJ-self and PJ-self items, while distributive justice beliefs included DJ-self and DJ-others subscales.

### 2.2.2 Life Satisfaction

Individual global cognitive judgments of one’s own life satisfaction were measured with the 5-item Satisfaction with Life Scale (SWLS; Diener et al. 1985). This widely used measure captures individuals’ happiness and contentment with life (e.g., ‘In most ways my life is close to my ideal’). Participants were instructed to indicate their level of agreement with statements on a 7-point Likert-type scale (1 = *strongly disagree*, 7 = *strongly agree*), with higher scores indicating greater life satisfaction.

### 2.2.3 Self-Rated Health

Self-rated health was measured with a single item: ‘How would you rate your general state of health?’ A 5-point Likert-type scale was used and ranged from 1 (*poor*) to 5 (*excellent*). This single item is widely considered to be a useful, acceptable, and valid way of measuring self-reported health (e.g., Fayers and Sprangers 2002).

## 2.3 Statistical Analyses

In accord with our primary research question, all analyses were conducted using multilevel modeling. Multilevel models were based on county-level nestings of participants. Since climate is conceptualized as a group-level phenomenon that describes shared perceptions, individual level perceptions are often measured and aggregated to a higher (i.e., climate) level (Baltes 2001; Li and Cropanzano 2009). Thus, defining justice as the most representative views of members of the higher-order unit (i.e., county) was consistent with much prior multilevel justice research. We operationalized higher-order justice climates as mean-level (i.e., aggregated) justice beliefs within each county.

In a first set of multilevel models, we considered climate-level influences of justice beliefs for self and others, while in a second set we considered multilevel associations with procedural and distributive justice beliefs. In total, each multilevel model included two individual-level predictors (e.g., BJ-self and BJ-others) and two climate-level predictors (e.g., mean county-level BJ-self and BJ-others). Based on inclusion of two criterion measures of personal well-being, a total of four multilevel models were conducted—two each for the self-other and procedural-distributive justice distinctions.

Two-level hierarchical linear modeling was performed using HLM 6 software (Raudenbush and Bryk 2002; Raudenbush et al. 2004). For all models, we used full integration maximum likelihood estimation. Our primary research question concerned the capacity of justice climates to moderate individual-level associations. We therefore selected slopes-as-outcomes models to assess cross-level interactions between



individual-level and climate-level justice beliefs. When testing cross-level interactions, it is recommended to center level 1 predictors around level 2 grouping variable means (i.e., group-mean centered around each county mean), and to include the intercept-as-outcome equation (Hofmann and Gavin 1998; Raudenbush and Bryk 2002). Thus, climate-level justice perceptions were entered as predictors of both the individual-level intercepts ( $b_0$ ) and individual-level slopes ( $b_{1j}$  and  $b_{2j}$ ). The below example suggests a model we examined in which self-rated health was predicted by individual-level self and other justice beliefs, and also climate-level self and other justice beliefs:

$$\begin{aligned} \text{Level 1 : } & \text{Health}_{ij} = b_{0j} + b_{1j}(\text{BJothers}) + b_{2j}(\text{BJself}) + e_{ij} \\ \text{Level 2 : } & b_{0j} = \gamma_{00} + \gamma_{01}(\text{mean BJself}) + \gamma_{02}(\text{mean BJothers}) + u_{0j} \\ & b_{1j} = \gamma_{10} + \gamma_{11}(\text{mean BJself}) + \gamma_{12}(\text{mean BJothers}) + u_{1j} \\ & b_{2j} = \gamma_{20} + \gamma_{21}(\text{mean BJself}) + \gamma_{22}(\text{mean BJothers}) + u_{2j} \end{aligned} \quad (1)$$

Prior to assessing slopes-as-outcomes models, we examined baseline unconditional multilevel models—the equivalent of a random effects ANOVA. These models yielded non-significant intraclass correlation coefficients (ICCs) for all four models (range .004–.010), suggesting that individual-level well-being did not overall vary by county. Based on this result, we concluded that testing intercept-as-outcome models was unnecessary. Although significant ICC values are an essential criterion for examining intercept-as-outcome models, they are not required for assessing slopes-as-outcomes (Roberts 2007). Thus, nonsignificant ICC results were not an impediment to the aims of this study. When predicting slopes (i.e.,  $\gamma_{11}$ ,  $\gamma_{21}$ ,  $\gamma_{12}$ ,  $\gamma_{22}$ ), a significant climate-level fixed effect indicated a cross-level interaction. To interpret significant interactions, we followed established conventions and plotted simple slopes for the relationships between individual justice perceptions and outcomes for climates with low mean justice perceptions (i.e., at least 1 SD below the mean) and counties with high mean justice perceptions (i.e., at least 1 SD above the mean). Finally, we examined the statistical significance of simple slopes for these regressions. Prior to conducting hypothesis testing, we assessed gender and ethnicity for their potential to covary with the outcomes of interest. Neither variable was significantly associated with either life satisfaction ( $R^2 = .58$ ,  $p = .56$ ,  $\beta = -.04$ ,  $p = .31$  and  $\beta = -.02$ ,  $p = .70$ , respectively) or self-rated health ( $R^2 = .08$ ,  $p = .92$ ,  $\beta = .02$ ,  $p = .68$  and  $\beta = -.002$ ,  $p = .96$ , respectively) according to linear multiple regression. Thus, gender and ethnicity were not included in the HLM analyses.

### 3 Results

#### 3.1 Multilevel Personal-General Justice Beliefs

Table 2 summarizes multilevel models conducted for general and personal justice beliefs. Consistent with much prior research, only individual-level justice beliefs for self were associated with both life satisfaction ( $b_1 = .37$ ,  $p = .000$ ) and self-rated health (and  $b_1 = .04$ ,  $p = .000$ ). Of greater interest, the results of slopes-as-outcomes portion of the models revealed two significant cross-level interactions. First, life satisfaction yielded a significant interaction between individual-level and climate-level beliefs about justice for others ( $\gamma_{22} = .03$ ,  $p = .04$ ). As seen in Fig. 1, an individual-level belief in justice for others was significantly associated with life satisfaction in high general justice climates ( $\beta = .46$ ,  $p = .003$ ), but not in low general justice climates ( $\beta = .002$ ,  $p = .98$ ). This

**Table 2** Multilevel models of justice beliefs for self and others

	Life satisfaction		Self-rated health	
	B	SE B	B	SE B
<i>Random coefficient model<sup>a</sup></i>				
Level 1				
Intercept ( $\beta_0$ )	20.45	.21	3.31	.05
BJ-self ( $\beta_1$ )	.37***	.04	.04***	.01
BJ-others ( $\beta_2$ )	-.05	.03	-.01	.01
<i>Slopes-as-outcomes model<sup>b</sup></i>				
Level 2				
Effects on slope ( $\beta_1$ )	-.02	.10	-.00	.03
Intercept ( $\gamma_{10}$ )	.37	.04	.05	.01
Mean BJ-self ( $\gamma_{11}$ )	.00	.01	.00	.00
Mean BJ-others ( $\gamma_{12}$ )	.00	.01	.01*	.00
Effects on slope ( $\beta_2$ )				
Intercept ( $\gamma_{20}$ )	-.04	.03	-.02	.01
Mean BJ-self ( $\gamma_{21}$ )	-.02	.01	-.00	.00
Mean BJ-others ( $\gamma_{22}$ )	.03*	.01	-.01	.00

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ . Zero estimates due to rounding

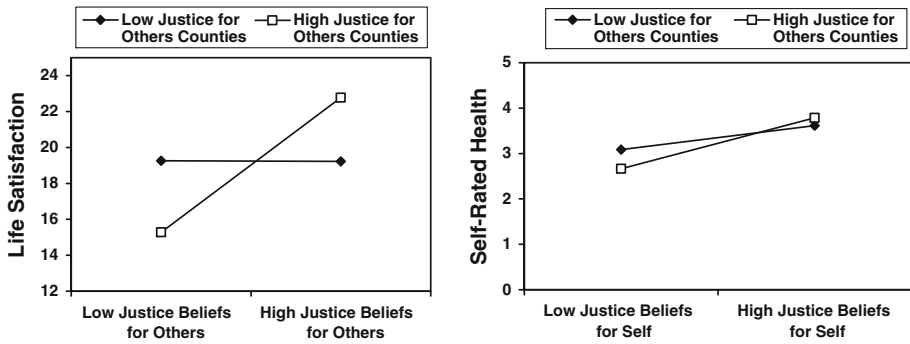
<sup>a</sup> Results from the random-coefficient model represented by the level 1 equation

<sup>b</sup> Results from the slopes-as-outcomes model represented by the level 2 equation

pattern of results was largely replicated in a second cross-level interaction that was obtained for self-rated health. However, this interaction involved an individual-level belief in justice for self ( $\gamma_{12} = .01$ ,  $p = .04$ ). Also seen in Fig. 1, an individual-level belief in justice for self was significantly associated with self-rated health in high general justice climates ( $\beta = .39$ ,  $p = .01$ ), but not in low general justice climates ( $\beta = .29$ ,  $p = .65$ ).

### 3.2 Multilevel Procedural-Distributive Beliefs

Table 3 summarizes multilevel models conducted with procedural and distributive justice beliefs. As expected, individual-level procedural and distributive justice beliefs were both positively related to life satisfaction ( $b_1 = .15$ ,  $p = .000$  and  $b_2 = .16$ ,  $p = .000$ ) and self-rated health ( $b_1 = .02$ ,  $p = .01$  and  $b_2 = .02$ ,  $p = .01$ ). The slopes-as-outcomes portion of the models revealed two significant cross-level interactions, both occurring for self-rated health. First, individual-level distributive justice beliefs were moderated by climate-level procedural justice beliefs ( $\gamma_{21} = -.01$ ,  $p = .003$ ). As seen in Fig. 2, self-rated health was positively associated with individual-level distributive justice beliefs in low procedural justice climates ( $\beta = .45$ ,  $p = .009$ ), but not in high procedural justice climates ( $\beta = .24$ ,  $p = .19$ ). Second, the individual-level association between distributive justice beliefs and self-rated health was moderated by climate-level distributive justice beliefs ( $\gamma_{22} = .02$ ,  $p = .001$ ). Self-rated health was positively associated with individual-level distributive justice beliefs in high distributive justice climates ( $\beta = .45$ ,  $p < .02$ ), but not in low distributive justice climates ( $\beta = .15$ ,  $p = .30$ ).



**Fig. 1** Cross-level interactions for general and personal justice beliefs on life satisfaction and self-rated health

**Table 3** Multilevel models of procedural and distributive justice beliefs

	Life satisfaction		Self-rated health	
	B	SE B	B	SE B
<i>Random coefficient model<sup>a</sup></i>				
Level 1				
Intercept ( $\beta_0$ )	20.51	.23	3.31	.05
Procedural BJ ( $\beta_1$ )	.15***	.04	.02*	.01
Distributive BJ ( $\beta_2$ )	.16***	.04	.02*	.01
<i>Slopes-as-outcomes model<sup>b</sup></i>				
Level 2				
Effects on slope ( $\beta_1$ )				
Intercept ( $\gamma_{10}$ )	.15	.04	.02	.01
Mean procedural BJ ( $\gamma_{11}$ )	.02	.02	.00	.01
Mean distributive BJ ( $\gamma_{12}$ )	-.03	.02	-.00	.00
Effects on slope ( $\beta_2$ )				
Intercept ( $\gamma_{20}$ )	.17	.05	.02	.01
Mean procedural BJ ( $\gamma_{21}$ )	.00	.03	-.01**	.00
Mean distributive BJ ( $\gamma_{22}$ )	.02	.02	.02***	.00

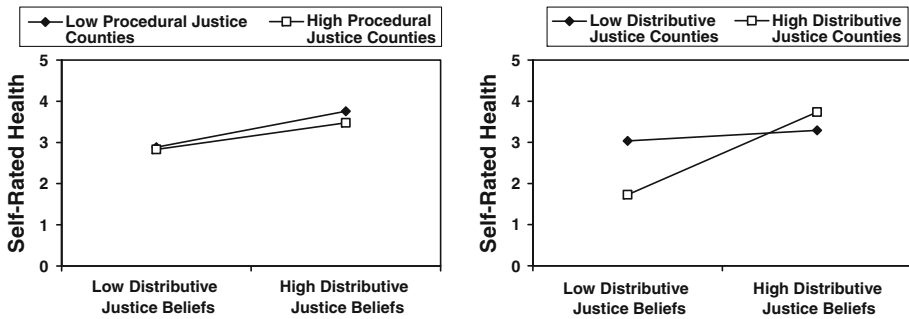
\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ . Zero estimates due to rounding

<sup>a</sup> Results from the random-coefficient model represented by the level 1 equation

<sup>b</sup> Results from the slopes-as-outcomes model represented by the level 2 equation

### 4 Discussion

In this study, we explored interactions between individual-level and climate-level beliefs about justice. As predicted, significant cross-level interactions demonstrated that relationships between individual-level justice beliefs and indices of personal happiness and well-being may depend on higher-order justice climates. Interactions between individual-level and climate-level beliefs about justice included both *climate-congruence effects*, in which individual-level relationships were altered by a complementary or identical justice climate; and also *climate-incongruence effects*, in which individual-level links were



**Fig. 2** Cross-level interactions for procedural and distributive justice beliefs on self-rated health

modified by a dissimilar justice climate. Moreover, cross-level interactions were obtained for both the general-personal justice distinction and also the procedural-distributive justice distinction. We briefly summarize these effects, and we suggest specific theoretical platforms that may be useful for better understanding the currently obtained multilevel moderator influences and for guiding future research.

#### 4.1 Summary of Multilevel Effects for Self-Other Justice Beliefs

Although many studies have shown individual-level and mutually exclusive associations between a belief in justice for one's self and personal well-being, this study is the first to our knowledge to also consider climate-level effects of personal and general justice spheres. The self-other justice interactions that we observed can be characterized in several potentially useful ways. Foremost, both significant cross-level effects involved climate-level beliefs about justice for others; we did not observe any climate-level effect of beliefs about justice for the self. Second, climate-level effects for the general-personal justice distinction included both climate-congruence and climate-incongruence; a higher-order general justice climate moderated the individual-level association with general justice beliefs for life satisfaction, thereby demonstrating climate-congruence. In contrast, higher-order general justice also moderated an individual-level association with personal justice beliefs for self-rated health, thereby demonstrating climate-incongruence. The climate-congruence effect is especially interesting in revealing that general justice beliefs also may predict life satisfaction. Whereas much prior research has suggested that indices of well-being are exclusively linked to self justice beliefs, the present results suggest that a belief in justice for others also can be associated with well-being and happiness when these beliefs exist within a congruent and high general justice climate. More generally, this novel result suggests that climate-level moderators may not only intensify previously known individual-level links to personal justice beliefs, but also that justice climates may reveal hitherto overlooked individual-level associations with general justice beliefs. Future research may better reveal whether intensifying previously known individual-level relationships versus revealing novel associations is consistently isomorphic with the climate-congruence and incongruence results currently achieved.

One additional and important direction for future inquiry involves explaining the ostensibly superior importance of climate-level beliefs about justice for others. One specific possibility is that climate-level justice for others may be tied to group valuation or social identity (Lind and Tyler 1988; Tyler and Blader 2003). That is, climate-level effects

of general justice beliefs may occur through social belongingness and inclusion mechanisms that are similar to those suggested for individual-level justice effects (i.e., climate-level justice for others as justice *from* others). In other words, counties with robust general beliefs in justice possibility possess a stronger social identity, which in turn might enhance the salutogenic effects of individual-level justice beliefs. Future studies also may consider the potential of higher order justice climates to alter individual social identity, and to consider how this in turn can effect personal happiness and health.

#### 4.2 Summary of Multilevel Effects for Distributive-Procedural Justice Beliefs

Although multilevel considerations of justice beliefs are relatively new in the literature, available studies have typically examined the climate-level effects of procedural and distributive justice (e.g., Mayer et al. 2007; Spell and Arnold 2007). However, whereas prior studies have tended to show exclusive effects of both individual-level and climate-level justice on indices of well-being and satisfaction, the current results suggest that procedural and distributive justice also may *interact* with individual-level justice beliefs. Moreover, this study is the first to our knowledge to examine dispositional tendencies towards procedural and distributive justice, thus expanding consideration of multilevel influences beyond work-groups or other more formally structured social contexts. Similar to self-other effects, cross-level interactions for procedural and distributive justice beliefs may be summarized in a number of useful ways. First, higher-order climate influences occurred only for individual-level distributive justice beliefs; we did not observe that individual-level procedural justice beliefs were moderated by climate-level justice perceptions. Second, and similar to results for general and personal justice, climate-level effects for the procedural-distributive justice distinction included both climate-congruence and climate-incongruence; individual-level associations for distributive justice beliefs were moderated by both climate-level procedural and distributive justice perceptions. Interestingly, the effects of these higher-order justice climates suggested competing climate-level influences; while a robust distributive justice climate enhanced the salutogenic effect of individual-level distributive justice beliefs, a forceful procedural justice climate detracted from it.

Two prominent and interconnected theories may be useful in explaining multilevel moderator effects of procedural and distributive justice. As previously suggested, one potentially useful theoretical lens may be social value orientation (Messick and McClintock 1968; Schwartz 1992). Though many conceptualizations have been formulated (for review, McClintock and van Avermaet 1982), social value orientation literature suggests that individuals in general may be characterized as *proself* (i.e., those who value their own well-being) or *prosocial* (i.e., those who value their own well-being and the well-being of others). One recently suggested possibility is that proself and prosocial orientations underlie distributive and procedural justice beliefs, respectively (Lucas et al. 2011). It could be that multilevel influences of procedural and distributive justice convey to individuals that their social values are either congruent or discrepant with climate-level social values. For example, the salutogenic effects of strong distributive justice beliefs may be attenuated by a high procedural justice climate because the underlying and individual-level proself value orientation is discrepant with the overarching and prosocial values climate. A related theoretical explanation is suggested by regulatory focus theory, which suggests that individual motivations are either promotion-focused or prevention-focused (Higgins 1997). Recent research has suggested that procedural justice may be specifically associated with a prevention focus in individuals (Oyserman et al. 2007). In turn, and similar to social value

orientation, it could be that high procedural justice climates lessen the salutogenic qualities of individual-level distributive justice beliefs because they suggest an incongruent prevention rather than a promotion regulatory focus.

### 4.3 Limitations

Although affording a number of potentially useful insights, a few specific limitations associated with this study suggest a cautious interpretation of results and future directions for research. One clear limitation is that the particular multilevel effects that we observed may be tied to the type of nesting that we examined. Although our level of nesting may be supported by numerous characterizations of counties as units that reflect both economic and social justice, it is possible that climate-level effects may function differently when workgroups, classrooms, neighborhoods or some other multilevel nesting is used. Moreover, we did not consider nestings within counties that could occur for either life satisfaction or self-rated health. Future studies will be required to further identify climate-level partitions that are important in revealing moderator associations with individual-level justice beliefs. Until such studies are available, the potential of many cross-level associations to fit within existing justice theory provides some measure of reassurance about the general insights currently achieved.

A second limitation concerns the use of mean-level justice beliefs as an index of climate-level beliefs about justice. Although mean-level predictors are commonly used to indicate higher-order variables, and this especially includes multilevel operationalizations of beliefs about justice, other possible indicators of climate-level justice are possible (for review, Li and Cropanzano 2009). For example, climate-level influences may include social and environmental indicators of injustice such as unemployment or crime rates. Related, while we considered individual-level life satisfaction and happiness, it is also possible to adopt higher-order conceptualizations of these outcomes. Future research therefore may consider alternative conceptualizations of both justice and happiness in examining the influence of higher-order climates. A parallel limitation concerns the relatively small sample size within some groups, which could potentially result in underpowered multilevel analyses. When higher-level effects are of interest, the number of groups is generally more important than the group size (e.g., Hayes and Bennett 1999), and the range of county sample sizes in this study is comparable to many other studies (e.g., Griffm 1997; Pollack 1998). Nevertheless, future studies will be needed to decipher any specific effect that number and size of level 2 counties might have had on the current set of results. Measurement of higher-order climates also encompasses issues of sample representativeness. Namely, a comparison of the current sample to recent census statistics suggested that our sample was slightly more Caucasian, older, and female than the state in general. Thus, the county-level representations of justice that were currently used could be further strengthened by recruiting additional and representative samples, perhaps using other kinds of sampling techniques.

A final limitation concerns some unexplained features of the current results. For example, while we observed significant multilevel influences for self-rated health when examining procedural and distributive justice, we did not achieve a significant result for life satisfaction. Although we are unclear as to the specific reasons for this result, future studies that utilize a broader range of happiness measures may afford additional insights into the specific nature of multilevel justice effects, including the potential for unique multi-level relationships with specific indices of happiness and life satisfaction. Limitations notwithstanding, the present study provides an important initial step in demonstrating

the potential for higher-order justice climates to alter relationships between individual-level justice beliefs and personal well-being.

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