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Running head: ATTITUDES VARY WITH RELATIVE REPRESENTATION AND RESPECT

A Socioecological Approach to Relational Demography:

How Relative Representation and Respectful Coworkers Affect Job Attitudes

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Abstract

Purpose: This paper advances a socioecological perspective toward understanding the relationship between demography and job attitudes by considering the joint effects of individual ethnicity and ethnic group relative representation-- the degree to which an individual's own demographic group is represented similarly in his or her organization and the community in which the organization is located.

Design/methodology/approach: Hierarchical polynomial regression analyses of census and survey data from 57,000 employees of 142 hospitals in the United Kingdom suggest that ethnic group relative representation is related to ethnic minority employees' job satisfaction and turnover intentions.

Findings: An asymmetric pattern emerged wherein the effect of underrepresentation on turnover intentions was stronger than the effect of overrepresentation. Moreover, the effects of relative representation varied with respectful treatment by coworkers; relative representation had little effect on attitudes of employees who reported low levels of coworker respect but generally enhanced attitudes when respect was high.

Originality/value: This work points to the meaningful role that socioecological factors can play in what are typically considered to be intra-organizational phenomena, thereby highlighting the need for organizational research to assess relevant aspects of the communities in which organizations are embedded.

Keywords: Ethnicity, demography, socioecological psychology, job attitudes

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A major challenge arising from the increasing diversity of the workplace is that differences can sometimes lead to discontent (McKay, Avery, Tonidandel, Morris, Hernandez, & Hebl, 2007). Indeed, research has shown that individuals who are dissimilar from their coworkers (Riordan & Shore, 1997) and supervisors (Tsui & O'Reilly, 1989) are less satisfied with their jobs than individuals who are similar to others in their immediate workgroup. This discontent may be particularly likely among employees from ethnic minority backgrounds who are 30% more likely than their White counterparts to turnover (U. S. Bureau of Labor Statistics, 2006). Such effects are critical given substantial psychological and financial costs of employee dissatisfaction and turnover (see Hausknecht & Trevor, 2011). However, scholars have questioned the consistency of these effects (Riordan, 2000); meta-analytic work suggests that there may be at most a small effect of ethnicity and ethnic diversity on job attitudes (De Dreu & Weingart, 2003; Horwitz & Horwitz, 2007).

These ambiguous conclusions raise questions about moderating factors that explain *when* individual ethnicity and organizational diversity influence how people feel about their jobs. A critical, yet unexamined, factor lies in the communities in which organizations are embedded (Brief, Umphress, Dietz, Burrows, Butz, & Scholten, 2005; Pugh, Dietz, Brief, & Wiley, 2008). Evidence regarding the implications of ethnicity and diversity on employee attitudes is severely limited by its exclusive focus on dynamics *within* organizations. In this paper, we argue that efforts to understand diversity must consider not only the demography of organizations but also its alignment with the demography of the communities in which organizations operate.

Integrating relational demography theory (Tsui & O'Reilly, 1989), socioecological psychology (Oishi & Graham, 2010), and recent conceptualizations of demographic representativeness that have focused on the organizational level (Avery, McKay, Tonidandel,

Volpone, & Morris, 2012; King, Dawson, West, Gilrane, Peddie, & Bastin, 2011), we propose that employee attitudes are a function of the demographic characteristics of not only those in their immediate work environment, but also the degree to which these characteristics align with the demography of the community in which their organization is embedded, termed *relative representation*. More specifically, we anticipate that different evaluative judgments will emerge when an individual is an ethnic minority in their organization but not a minority in the community surrounding their organization as compared to a situation where the individual's ethnic group is similarly underrepresented in both contexts. We argue that ethnic group relative underrepresentation can reduce employees' attitudes, particularly when people feel their coworkers treat them disrespectfully.

Thus, this paper makes three primary contributions to extant scholarship. First, by pushing the boundaries of relational demography theory through the lens of socioecological psychology, we provide new ideas about the complex interplay between individual, organizational, and community demography. We provide the first evidence that ethnic minority employees' attitudes are affected by the representation of their group inside the organization *relative* to their representation in the community in which the organization is embedded. The relative representation of one's ethnic group offers an unexplored explanation for the equivocal findings of previous research that has not incorporated community demography. Second, in considering respectful interpersonal experiences as buffering factors, we clarify the microprocesses that determine when ethnic group relative representation influences attitudes. The inclusion of respect as a factor that can mitigate problematic effects of dissimilarity is key to not only understanding the boundary conditions of relative representation, but also for designing intervention strategies and culture change initiatives. Third, this research points to the substantial

role that socioecological factors can play in what are typically considered to be intra-organizational phenomena, thereby highlighting the need for organizational research to assess relevant aspects of the communities in which organizations are embedded. To achieve these goals, we begin by briefly describing the theoretical basis for our work before articulating the hypotheses that specify the ways through which ethnic group relative representation and interpersonal experiences affect employee attitudes.

Theoretical Background

Scholarship on workplace diversity is grounded in self-categorization and social identity theories (see Ashforth & Mael, 1989; Tajfel & Turner, 1986). These theories contend that people belong to different social groups—including visible and socially meaningful ethnic groups-- with which they identify and from which they gain understanding of themselves and their social environments. This knowledge forms an individual's social identity (Chattopadhyay, Tluchowska, & George, 2004; Goldberg, Riordan, & Schaffer, 2010). Social identity, in turn, affects intra- and interpersonal experiences as people perceive and evaluate themselves and others according to these social group memberships. Indeed, management scholars have studied numerous workplace phenomena from the perspective of social identity theory such as founders' beliefs and entrepreneurial outcomes (Fauchart & Gruber, 2011), family responsibilities and career outcomes (Lobel & St. Clair, 1992) and organizational attractiveness (Turban & Greening, 1997). Perhaps the largest body of organizational research stemming from this perspective relates to demographic factors.

As organizations have become increasingly diverse with regard to gender, ethnicity, age, and other demographic characteristics (Office of National Statistics, 2011; U. S. Census Bureau, 2010), research on the implications of this diversity for employees and organizations has also

increased. There has been a long-standing interest in the associations between particular demographic variables and job-related attitudes and behaviors (Schreiber, 1979). For example, researchers have studied the effects of gender on work-family conflict (Hoobler, Wayne, & Lemmon, 2009), age on job performance (Ng & Feldman, 2008), and ethnicity on job satisfaction (Miller & Travers, 2005). Research from the perspective of organizational demography, which is primarily concerned with diversity as a property of a unit that affects outcomes, shifted interest from individuals to organizations as a whole (Pfeffer, 1983).

Relational demography theory (Tsui & O'Reilly, 1989) links individuals and organizations by exploring the relationship between individual level characteristics and those of others in the immediate work context. In their groundbreaking study, Tsui and O'Reilly (1989) coined the term *relational demography* to describe the comparative similarity between dyads or unit members on the dimensions of age, gender, education, tenure, and race. Similarity in these social identity characteristics was thought to underlie ingroup identification (Chattopadhyay et al., 2004), interpersonal attraction, improved communication, and enhanced social integration that would otherwise be threatened under conditions of dissimilarity (see also Baron & Pfeffer, 1994). In the current research, we will extend these theories by considering how comparative similarity effects involve not only individuals and their organizations, but also the communities in which organizations are embedded. Next, we describe how existing theory has driven important studies regarding the relationship between ethnic diversity and job attitudes.

Ethnic Dissimilarity and Job Attitudes

Ethnicity, as an attribute that is generally immediately observable (Stangor & Lange, 1994; Stangor, Lynch, Duan, & Glass, 1992) and value-laden (Gaertner & Dovidio, 1986), plays a strong role in social identity processes. Because people notice and automatically distinguish

between people on the dimension of ethnicity, it is a major factor in interpersonal interactions (Shelton & Richeson, 2005). Indeed, Baron and Pfeffer (1994) argue that, "People perceive and relate to themselves and others in terms of social categories, particularly in organizations…in which the amount of detailed interpersonal contact and information may be limited" (p. 193). These factors, taken with projected increases in ethnic diversity in the workforce, drive the current focus on ethnic dissimilarity and suggest that the effects of dissimilarity may be amplified in the workplace. The argument underlying relational demography theory and findings—such as Riordan and Shore's (1997) finding that racial dissimilarity to work group members was associated with reduced group commitment-- is that when people feel different from those around them, they will feel less of a sense of belonging. This feeling, in turn, will lead to reduced attachment. Milliken and Martins (1996) made a similar argument from the unit level perspective by proposing that unit diversity influences affect, cognition, communication, and, ultimately, job satisfaction and turnover intentions. Taken at face value, these findings and rationale suggest that when individuals work with others who are from different ethnic backgrounds they may feel less satisfied with their jobs and may be more likely to leave compared to individuals who work with others from similar ethnic backgrounds.

Nonetheless, the empirical research on the effects of relational demography yields conclusions of varying strength. Some research suggests that dissimilarity leads to a number of negative job outcomes, including interpersonal tension and conflict (Dovidio, Gaertner, Kawakami, & Hodson, 2002) and reduced cognitive resources (Richeson, Trawalter, & Shelton, 2005). Moreover, racial dissimilarity has also been linked with increased perceptions of ethnic discrimination (Avery, McKay, & Wilson, 2008) and ultimately, reduced commitment to the

organization (Tsui, Egan, & O'Reilly, 1992). However, there is some evidence that dissimilarity can actually enhance attachment and reduce turnover (Bygren, 2010).

In reviewing research on relational demography, Riordan (2000) stated, "previous research has not produced a clear and consistent pattern of results supporting the idea that demographic similarity positively affects individuals' attitudes and behaviors or, conversely, that demographic dissimilarity negatively affects individuals' attitudes and behaviors." These variable findings underscore the pressing need to understand when and why similarity enhances work experiences. Indeed, a meta-analysis including 129 correlations between dissimilarity and social integration (Guillaume, Brodbek, & Riketta, 2012) found stronger negative effects of surface-level dissimilarity on outcomes such as satisfaction and attachment among teams that worked independently compared to teams with higher levels of interdependence. This finding suggests that the degree to which people work together on shared goals and tasks can mitigate negative effects of dissimilarity. Socioecological psychology provides a quite different, previously unexplored explanation: the effects of relational demography depend on characteristics of the system in which it is embedded. That is, extant research on relational demography may have yielded equivocal conclusions because it has focused almost exclusively on the composition of dyads and workgroups without considering alignment with the composition of the communities in which those dyads and groups work.

Ethnic Group Relative Representation and Job Attitudes

Socioecological psychology has been defined as the investigation of "how mind and behavior are shaped in part by their natural and social habitats and how natural and social habitats are in turn shaped partly by mind and behavior" (Oishi & Graham, 2010, p. 356). The macrosystems that are argued to affect psychological processes include economic systems,

geography, religion, and population structures-- including ethnic diversity. Traced back to Kurt

Lewin's theorizing on determinants of behavior, in which environmental influences worked in

conjunction with individual differences and life space to affect behavior, socioecological

psychology highlights the role that macroenvironments can play in psychological phenomena. In

their call to bridge lost linkages between psychological science and sociology by bringing

socioecological psychology to "center stage in mainstream academic psychology" (p. 356), Oishi

and Graham offered several successful examples. An example of the influence of economic

systems on human behavior is research linking animal herding traditions to the culture of honor

in the U.S. South (Nisbett & Cohen, 1996). An example of the effect of political systems on

behavior can be shown in research linking democracy and autocracy to community members'

cooperative behaviors (Lewin & Lippitt, 1938). An example of the effect of geography on

behavior is the link between climate and psychopathology (Hartig, Catalano, & Ong, 2007). In

the arena of organizational behavior, economic aspects of the environment such as national

levels of Gross Domestic Product have been related to employee attitudes (Tay & Harter, 2013).

Population structures- of which ethnic diversity is a central element—are a feature of social

systems that likely influence organizational behavior.

Social identity theory (Tajfel & Turner, 1971) clarifies that people understand themselves

in relation to others around them. Moreover, relational demography theory suggests similarity to

others in one's organization can affect how people feel about where they work in two ways: (1)

people consider their own characteristics in relation to those of the unit in which they are

embedded (Tsui, Egan & O'Reilly, 1992) and (2) higher levels of perceived similarity will be

related to more positive attitudes. Here, we rely heavily on the first argument to specify that

people understand their environments in light of their group's representation. We qualify the

second idea by considering a previously unexamined contextual factor (community representation) that influences the nature of the effects of relational demography.

Socioecological psychology emphasizes that the individual-level psychological process of attachment described by relational demography theory happens in a broader social context. Indeed, socioecological approaches are explicitly concerned with testing relationships between objective macroenvironments and human behavior. Together, social identity, relational demography, and socioecological perspectives suggest that people understand themselves not only in relation to ingroup and outgroup members in their immediate environment but also in relation to the composition of the communities in which they work.

This general idea, that demographic composition of communities can affect organizational phenomenon, has received very limited consideration in the management scholarship (see Johns, 2006). In one study, Brief and colleagues (2005) found that White employees' attraction to actual and fictitious organizations that varied in ethnic composition was affected by how close they lived to African American people and how much interethnic conflict they perceived. Similarly, Luksyte and Avery (2010) found that attitudes toward immigrants varied with the proximity with which people lived and worked with immigrants. In a recent study, Wilk and Makarius (2015) asked participants to indicate the demographic profile of five people in their personal network of friends outside of work. The racial diversity of these chosen external relationships was related to trust in supervisors and extra-role behaviors while at work, leading to the conclusion that the relational demography of friendship networks can have spillover effects into the workplace. However, beyond these three examples, little is known about the effects of community demography, or the interplay of community and organizational demography, on employee attitudes.

In considering employees' attitudes about their jobs and organizations, the effects of relational demography within an organization are likely relative to the demography outside the organization. In other words, job attitudes are likely influenced by an individual's *relative representation*—the degree to which organizational demographic composition is aligned with community demographic composition (Avery et al., 2012; King et al., 2011; Leslie, 2014). Note that absolute representation is separate from the construct of relative representation- a group could be low in absolute representation but high in relative representation. At the organizational level (Avery et al., 2012; King et al., 2011; Leslie, 2014), high levels of demographic representativeness indicate that there is a high level of congruence between the ethnic composition of the community and the organization as a whole whereas low levels of representativeness denote misalignment between the composition of the community and organization. At the individual level, which is of focus here, ethnic group *relative representation* is reflected by the degree to which an individual's own demographic group is represented similarly in their community and their organization. We anticipate that social identity processes influence the effects of relative representation on job attitudes, and for the purposes of this study, we focus specifically on the job attitudes of job satisfaction and turnover intentions.

When there is congruence between the extent to which an individual's own ethnic group is represented in the community and workplace (e.g., when an Asian employee works in an organization in which the proportion of Asian and White employees is comparable to the proportion of Asian and White people in the immediate community), the status quo may feel familiar and comfortable (e.g., Jost & Hunyady, 2005), even if it means that one group outnumbers another. However, when levels of ethnic group relative representation are low, employees will perceive inconsistency between the communities and workplace. For example, if

a company hires a predominantly White workforce in a community with a large Asian population, individual employees may experience challenges to the status quo, pronounced dissimilarity, and misfit. This dissonance could be jarring, as individuals who are accustomed to belonging to a strong community find themselves outsiders at work (in this example, Asian people) and those accustomed to a different status quo have to readjust to greater representation in their work setting (in this example, White people). In these conditions, attachment to the organization may be disrupted, and job attitudes, including job satisfaction and turnover intentions, for both White and Asian employees, suffer. This logic implies a positive relationship between relative representation and employee attitudes.

However, we anticipate that people will be more highly attuned to some forms of disproportionate representation than to others. Specifically, we reason that the negative effect of ethnic group underrepresentation at work relative to the community will be stronger than the positive effect of ethnic group overrepresentation. Although being overrepresented in an organization would generate access to similar others and thus greater potential for social connectedness, being underrepresented may create meaningful experiences of interpersonal anxiety and denigration that have stronger implications for satisfaction and turnover. From a broad perspective, evidence of a positive-negative asymmetry effect demonstrates that outcomes of 'bad' events are stronger than the outcomes of 'good' events, experiences, and emotions (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001). Baumeister and colleagues argued that it is evolutionarily adaptive from a survival perspective to pay greater attention to negative disparities as potential threats than positive differences as potential opportunities. An example of this in the workplace is that people tend to be bothered more by underpayment inequity than overpayment inequity (Greenberg, 1988). More directly relevant to the current research, Kanter's

(1977) original theorizing on women's representation was predicated on the notion that being a token (represented as less than 15% of the unit) was meaningfully worse than higher levels of representation. Extending this logic to ethnic group relative representation, as indicated by the congruence between community and organizational demography, we expect a positive-negative asymmetry in that,

> *H1: Ethnic group relative representation will have a curvilinear, asymmetrical*
>
> *relationship with job satisfaction (H1a) and a reverse asymmetrical relationship with*
>
> *turnover intentions (H1b); relative underrepresentation has a stronger (negative) effect*
>
> *on job attitudes compared to relative overrepresentation's (positive) effect on job*
>
> *attitudes.*

We further anticipate that the attitudes of individuals from ethnic minority backgrounds will be more strongly affected by ethnic group relative representation than will those from White backgrounds. In other words, we expect that the effects of ethnic group relative representation will be exacerbated for minorities as compared to majority group members (see Chatman & O'Reilly, 2004; Chattopadhyay et al., 2004). It is important to recognize that this prediction is inconsistent with some previous findings and the rationale that majority group members, who are accustomed to interacting with similar others, are more sensitized to dissimilarity than minority group members. For example, Tsui and colleagues (1992) found that the effects of dissimilarity were stronger for White than for minority employees. As another example, Bachrach and Bamberger (2004) reported that the effects of dissimilarity on commitment to unions were consistent across majority and minority group members.

Nevertheless, we weigh convincing social identity theory and research which suggests that individuals from lower status social groups have greater concerns about their social groups

than individuals from higher status social groups (Tajfel, 1982). As Tonidandel and colleagues argued, "Because threats to one's identity are more commonplace for those in the numerical minority, identity affirmation concerns tend to be greater among women and minorities than among White men" (Tonidandel, Avery, Bucholtz, & McKay, 2008; p. 619). Indeed, ethnic minorities tend to be subject to higher scrutiny and visibility than majority group members (Jackson, Thoits, & Taylor, 1995). This likely stems from chronic negative experiences associated with bearing an identity that is associated with lower status (Meyer, Schwartz, & Frost, 2008; Pinel, 1999). As a result, ethnic minority employees are more likely than White employees to be aware of and attend to cues related to ethnicity. Directly speaking to the relationship between ethnic diversity and job attitudes, Liao, Joshi, and Chuang (2004) found that the negative relationships between racial dissimilarity and organizational commitment and coworker satisfaction were stronger for minorities than for White employees. Given the increased salience of ethnicity for ethnic minority employees, we expect that,

>*H2: The curvilinear, asymmetrical relationships between ethnic group relative representation and job satisfaction (H2a) and turnover intentions (H2b) will vary with ethnic minority status such that the relationships will be more pronounced for ethnic minority employees.*

When Ethnic Group Relative Representation Impacts Job Attitudes

We have argued that ethnic group relative representation affects job attitudes as employees' attachments vary with their experience of interpersonal belonging. Drawing on the justice literature, we contend that the fair and respectful interactions employees have with their coworkers will also shape job attitudes (Forret & Love, 2008). Independent of ethnic group relative representation, fair and respectful treatment from others has demonstrated positive

effects for individual job satisfaction and negative effects for turnover intentions (Hausknect, Sturman, & Roberson, 2011). Thus, there are compelling reasons to believe that job attitudes will be influenced by respectful treatment from others. Moreover, because relative representation serves as a signal that shapes employees' interpretations and expectations regarding interpersonal treatment (Roberson & Stevens, 2006), respectful treatment (or lack thereof) is likely to amplify the effects of ethnic group relative representation on job attitudes. Most notably, when minority employees work with disrespectful coworkers, the consequences of relative underrepresentation may be particularly damaging to employees' job attitudes as disrespect from others, along with a lack of representation, doubly signals that the individual and their ethnic group are not valued. However, when minority employees work with respectful coworkers, the negative relationship between underrepresentation and job attitudes may be attenuated; underrepresentation may not be salient in organizations where positive interpersonal experiences are common. Disrespectful treatment may also attenuate the potentially beneficial effects associated with higher levels of relative representation—if signals conveyed by relative overrepresentation are not confirmed with positive experiences, they are unlikely to be interpreted as meaningful or genuine (see Ely & Thomas, 2001). Finally, high levels of relative representation and respectful treatment should yield particularly positive attitudes. Formally,

> H3: The curvilinear, asymmetrical relationship between ethnic group relative
> representation and job satisfaction (H3a) and turnover intentions (H3b) among minority
> employees is moderated by respectful treatment. When ethnic minority employees
> experience respectful treatment, the effect of low (high) ethnic group relative
> representation is reduced (enhanced). When ethnic minority employees experience

disrespect, the effect of low (high) ethnic group relative representation is exacerbated

(reduced).

Method

Background and Sample

The sample for this study was comprised of individuals working in the United Kingdom

National Health Service (NHS) in 2008. It is important to note that in the late 2000s, race and

immigration were regarded as the most important issues facing the UK (The Economist, 2006).

However, policies supporting multiculturalism were blamed for encouraging segregation and

fostering extremism (Pathak, 2008) and research by Ipsos MORI (2008) suggested that attitudes

supporting multiculturalism were waning. For example, 24% of Britons said it was not important

to respect the wishes of minority groups (up from 14% in 1997) and 52% said that there was a

"fair amount" of tension between people of different races and nationalities (Ipsos MORI, 2008).

Seventy percent of Britons agreed that there were too many immigrants in Britain and 38% said

that multiculturalism was something that threatened the British way of life, compared to 30%

that saw multiculturalism as something that made Britain a better place to live (Ipsos MORI,

2009). Thus, inter-ethnic group relations were likely a critical factor in the context in which this

study was conducted.

We analyzed data relating to 142 organizations known as non-specialist acute 'trusts' in

the NHS. An acute trust is a semi-autonomous organization within the NHS that provides

hospital care to the local community: this will either be a single hospital, or two or more

hospitals within the same geographical area (e.g., city) that operate under the same overall

management. To avoid confusion, we will henceforth refer to these as "hospitals." Two data sets

were combined: (1) the NHS National Staff Survey, and (2) the UK Census.

The NHS National Staff Survey is a government-sponsored annual survey covering all NHS organizations in England, including a sample of up to 850 staff in each organization (Picker Institute, 2011). All employed staff are eligible, regardless of their occupational group; the survey is administered as a postal questionnaire with two reminder letters sent at three-week intervals to non-respondents, the second accompanied by another copy of the questionnaire. We use data from the 2008 survey, as this included questions on respectful treatment by coworkers. The overall response rate in 2008 was 54%, giving a total of 62,733 respondents; of these, 57,260 gave complete answers to all questions used in this study.

The UK Census is a ten-yearly national survey covering the whole of the UK population (Office for National Statistics, 2011). The questionnaire includes many different demographic details; we focus on the ethnic background in order to examine ethnic group relative representation.

Measures

Participant Ethnicity. Both the NHS National Staff Survey and the UK Census use the same main categories for ethnic background. Respondents indicated whether they were White, Mixed, Asian/Asian British, Black/Black British or Other. Due to the potential heterogeneity within the "Mixed" and "Other" groups, we decided to exclude these from our analysis and focus only on the White, Asian/Asian British and Black/Black British respondents. These three groups accounted for over 97% of all respondents, meaning that our final usable sample size was 55,725. Of these, 88% were White, 8% Asian and 4% Black. When minority status was considered as a moderator (in hypotheses 2 and 3), this was formed by dichotomizing the variable such that 0 = White and 1 = Non-White. In the analyses involving ethnic group relative representation, each of the three groups was considered separately. The population of the United

Kingdom in the 2011 census was 86.0% White, 7.5% Asian and 3.3% Black (Office for National

Statistics, 2012). Excluding other groups, as we do in our analysis, this translates to 87.9%

White, 7.7% Asian and 3.4% Black – that is, the ethnic composition of our sample is very close

to that of the UK as a whole.

Ethnic Group Relative Representation. Ethnic group relative representation was

captured via the proportional representation values for ethnic group representation in the

organization and community (described below), respectively; levels of relative representation are

indicated by the degree of alignment between these two scores. This approach follows from the

measurement of demographic representativeness, the organizational-level correlate of ethnic

group relative representation, which pertains to the alignment of organizational demographic

composition and community demographic composition (Avery et al., 2012; King et al., 2011).

Ethnic group organizational representation was calculated by assigning a proportional

representation score to each individual as a function of his or her particular ethnic group. The

predominant ethnic group was White, but the proportion of White staff ranged from 43% to 98%

across organizations (with a mean of 85%). *Ethnic group community representation* was

measured from the 2001 UK Census, which was the most recent census data available at the time

the study was conducted. The UK Census reports summaries of responses to the level of a

"Lower Super Output Area" (LSOA) – a spatial unit covering an area of population of around

1,500 people on average. Geographic Information Systems (GIS) was used to map each of the

32,482 LSOAs in England to its closest hospital geographically. Where an acute trust included

more than one hospital building, each LSOA was mapped to the nearest hospital, and the total of

all LSOAs mapped to any hospital within an organization was taken to be the local community

for that organization (so, on average, each hospital was linked to data from over 228 LSOAs).

Again, we calculated the extent to which each individual's ethnic group was represented in their community (proportional representation). The predominant ethnic group was White, but the proportion of White members of a community ranged from 42% to 99% (mean 91%).

As we are capturing the concept of congruence between individual ethnic group representation in the organization and the community, we do not calculate a separate score for ethnic group relative representation. Instead, we use polynomial regression methods to assess congruence and its effects (Edwards & Parry, 1993; Edwards, 2002). Polynomial regression methods enable the comparison between two related independent variables without making assumptions about the nature of the associations between them and the dependent variable, and do not have the multiple problems associated with using difference scores.

Turnover Intentions. Employees indicated the likelihood that they would leave their organization on three items, measured on a 5-point Likert scale, namely: "I often think of leaving this [organization]", "I will probably look for a job at a new organization in the next 12 months", and "As soon as I can find another job, I will leave this [organization]" (alpha = 0.92).

Job Satisfaction. In addition, employee job satisfaction was measured with seven items from Warr, Cook and Wall's (1979) job satisfaction measure, including "How satisfied are you with the recognition you get for good work?" (alpha = 0.86).

Experienced Respect. Employees indicated the degree to which their colleagues treat them respectfully by indicating their agreement with four statements: "The people I work with treat me with respect" and "The people I work with seek my opinions" (alpha = .80). This was a measure developed for this specific survey and had been pilot tested with members of the relevant population (NHS Staff Survey Advice Centre, 2009). As the measure was strongly correlated (r = 0.63) with job satisfaction, we conducted a confirmatory factor analysis to

examine whether the constructs could be reliably separated. A model including experienced

respect, job satisfaction and turnover intentions as separate factors had adequate fit (SRMR =

0.056, CFI = 0.900), whereas a model on which the job satisfaction and experienced respect

items loaded onto the same factor had substantially worse fit (SRMR = 0.064, CFI = 0.848; $\Delta\chi^2$

= 19622 (2df), p = .000), suggesting that the factors were sufficiently differentiated.

Control Variables. In all analyses we controlled for variables that could contaminate or

offer alternative explanations for variability in the job attitudes of interest in our research. It is

possible, for example, that people in some jobs or in some hospitals have greater access to

resources or have more autonomy. Prior research has also found some sex and age differences in

job attitudes (e.g., Ng & Feldman, 2010). To rule out the possibility that job attitudes might vary

with organization size, we controlled for the size of the hospital (measured as the number of

employees). We also controlled for some individual characteristics that may influence job

satisfaction and/or turnover intentions: occupational group (coded in seven categories – nursing,

representing 38% of the sample; medical/dental, 8%; allied health professionals/scientific &

technical, 19%; administrative/clerical, 22%; general management, 2%; maintenance/ancillary,

6%; or other, 4%), minority ethnic status (for hypotheses where it was not a variable of interest),

age (measured in six ordered categories: 1% were 20 or under; 15% were 21-30; 24% were 31-

40; 32% were 41-50; 28% were 51-65; and 1% over 65), sex (the sample was 81% female) and

organizational tenure (10% less than a year; 10% 1-2 years; 20% 3-5 years; 23% 6-10 years;

12% 11-15 years; and 26% more than 15 years).

Analytic Strategy

As the main independent variable for all hypotheses is ethnic group relative

representation, then for reasons described above, we use polynomial regression methods to

account for the alignment between organizational representation and community representation. However, the data used are within a nested (hierarchical) structure, as the individual employees are grouped within hospitals (levels 1 and 2 respectively). Moreover, some of the variables used are either measured at level 2 (hospital size), or are non-independent at level 2 (the relative representation variables, which have the same value for each ethnicity within any one hospital). Therefore we used a multilevel modeling framework to perform the polynomial regression analysis which focuses on the person-level dependent variable of attitudes (accounting for non-independence).

Hypotheses 2 and 3 describe moderated effects of ethnic group relative representation with the outcomes. These were tested using moderated polynomial regression, still within the multilevel framework, in which the main polynomial regression terms were joined by the moderator and all interaction terms between them (in the case of hypothesis 3, which included a 3-way interaction, this meant interaction terms involving both moderators separately and together). Significant interactions were then probed by plotting relevant sections of the surface plots from the polynomial regression at high and low levels of the moderator(s), and by conducting appropriate hypothesis tests. We plot the surfaces over relevant regions of relative representation only to maintain a realistic view on representation and therefore draw more accurate and appropriate conclusions; the plots for White employees range from 80% to 100% representation (covering over 90% of cases), and the plots for minority employees range from 0% to 20% (also covering over 90% of cases).

Most analyses using polynomial regression test the significance of linear or curvilinear effects along the "line of agreement" or "line of disagreement" (Edwards & Parry, 1993), which represent the effects of the two principal independent variables increasing at the same rate, or

increasing and decreasing respectively, across the whole range of the variables. However, these tests are not particularly helpful for probing our interactions. Rather than probing effects as the representation variables increase or decrease together (i.e., along the line of agreement), we are interested in deviations from the line of agreement (i.e., differences from perfect representation), but these are likely to be relatively small deviations, and are most relevant where representation is very high or very low (as described above). Therefore, the usual test along the line of disagreement is also irrelevant, as this tests deviation from the midpoint (i.e. both representation variables being 50% - a highly unlikely scenario with our data). Indeed, no existing hypothesis test would suffice for our precise hypotheses; therefore, we combine the logic used by Edwards and Lambert (2007) to test differences between specific pairs of points using bootstrapping, with that used by Lee and Antonakis (2014) in examining differences between points on response surface plots. In separate tests for minority and White employees, we choose points that represent typical perfect relative representation (5% and 95% representation respectively in both organization and community), and points that represent under-representation in the organization (5% organization representation vs. 10% community representation for minority employees; 90% vs. 95% for White employees) and over-representation in the organization (10% vs. 5% for minority employees; 95% vs. 90% for White employees). We used a 5% difference because it represents an appropriately modest effect size. The absolute value of the difference between the representation variables ranges between 0% and 25%, but with a median of 5.5%, therefore these 5% differences represent highly typical situations.

Finally, because of the multilevel nature of our data, we cannot use exactly the same tests as Lee and Antonakis (2014). Instead, for each point of imperfect relative representation, we use bootstrapping to form a confidence interval of its difference from the relevant point of perfect

relative representation. In this way, we can examine whether two relatively typical situations give significant differences in the expected values of the dependent variable.

Results

Means, standard deviations, and intercorrelations (at the individual level) between the main study variables are shown in Table 1. The hypothesis testing involved many control variables and derived variables (e.g. quadratic terms and interactions) that are not included in this table, but details are available on request from the authors. It is notable that there is no relationship between job satisfaction and either minority status, organizational representation, or community representation – even with a sample size of over 55,000 – so any relationship with ethnic group relative representation (the congruence between the two) would truly be an effect of this congruence rather than relying on one or other of the constituent parts. It is also notable that the correlation between organizational and community relative representation is very high ($r = 0.98$), suggesting that organizational staff profiles do generally mirror the community in terms of ethnicity, and that where there is a lack of congruence, the actual discrepancies in terms of percentages are likely to be rather small. Therefore, it is reasonable to investigate the effects of a lack of relative representation by examining small deviations from the position of complete congruence (as described in our analytic strategy). Furthermore, the high correlation in itself is not a problem for the analysis, as the substantive interpretation of the results is not affected by this high collinearity, only the individual coefficients (Edwards, 2001); more importantly, the results demonstrate sufficient variability from a perfect relationship between the two variables.

Hypothesis 1 was tested by multilevel polynomial regression analyses. This is identical to the basic polynomial regression analysis as described by Edwards and Parry (1993), except conducted within a multilevel framework to take account of the non-independence between

participants within the same organization. With the exception of hospital size, all variables were at the lowest (individual) level. Results of these multilevel regression analyses are shown in Table 2 (omitting the control variables for the sake of conciseness).

It can be seen that neither the linear nor the quadratic surfaces explain significant variation in either job satisfaction or turnover intentions. Thus, it appears that the level of relative representation by itself is not related to either outcome, and hypothesis 1 is not supported. Figure 1 shows the quadratic surfaces for both outcomes (job satisfaction in (i) and turnover intentions in (ii)): even though these are not significant, and relatively flat, they provide a comparison point for moderated effects going forward.

Hypotheses 2 and 3 were tested by a moderated version of the same analysis. Specifically, for hypothesis 2, all terms from the polynomial part of the regression were included both individually and in a multiplicative interaction with ethnic minority status (which was already included as a control variable in the earlier analyses). The moderation effect was tested by comparing the deviance (-2 log likelihood) of the model with all interaction terms included, with the deviance of the model without the interaction terms. Because the hypothesized effect was curvilinear in nature, we report the moderation of the quadratic form of the polynomial regression, not the linear form. For hypothesis 3, where a 3-way interaction was hypothesized, the same approach was taken except that each polynomial term was included four times: in its original form, multiplied by minority status, multiplied by respect, and multiplied by the interaction between minority status and respect. In addition, the main effect of respect and its interaction with minority status were also included to complete the 3-way interaction testing. Again, the deviance of this model was compared with the deviance of a model without the 3-way terms to test for significance of the interaction (see Tables 3 and 4).

In Tables 3 and 4, it can be seen that there is a significant decrease in deviance for each

group of variables, suggesting that there is a significant variation in the joint effect of

organizational and community representation on both outcomes when considering the

moderators of ethnic minority status and respect from colleagues. In other words, the curvilinear

effect of ethnic group relative representation was moderated by ethnic minority status and

respect from colleagues. In order to interpret these effects, we show surface plots for both White

and ethnic minority employees (Figures 2 and 3, in the case of hypothesis 2) and for low and

high levels of respect for each of White and ethnic minority employees (Figures 4 and 5, for

hypothesis 3), and we calculate bootstrap confidence intervals for the differences between the

points described previously. These points are marked on the plots as points A (95% community

representation, 95% organizational representation), B (95%, 90% respectively), C (90%, 95%),

D (5%, 5%), E (10%, 5%) and F (5%, 10%; see Table 5).

Figure 2 suggests that there is a far more pronounced effect on job satisfaction of

deviation from perfect ethnic group relative representation for ethnic minority employees (Figure

2 plot (ii) on the right) than for White employees (Figure 2 plot (i)). This is supported by the tests

in Table 5, which demonstrate that there are no differences between the specified points for

White employees, whereas there is a far more substantial (and statistically significant) effect for

ethnic minority employees. Specifically, for minority groups, there is a drop of 0.27 in job

satisfaction when organizational representation is less than community representation (point E),

but where organizational representation exceeds community representation (point F), job

satisfaction is actually 0.22 higher than where there is perfect relative representation (point D).

This represents around a third of a standard deviation in job satisfaction – a small to medium

effect size. The same is true for turnover intentions: there are no significant differences for White

employees (Figure 3 plot (i)), but for minority employees (Figure 3 plot (ii)) turnover intentions are higher by 0.47 when organizational representation is less than community representation, and lower by 0.34 when organizational representation exceeds community representation. Again, these effect sizes, while not large in magnitude, are sufficient to warrant further interest: this is nearly half a standard deviation in turnover intentions for a relatively small degree of relative non-representation, suggesting a meaningful effect supporting hypothesis 2.

The propositions of hypothesis 3 were examined by the plots in Figures 4 and 5 and the remainder of the tests in Table 5. Plots (i) and (ii) in Figure 4 are for White employees, and they suggest that the level of relative representation has little effect on job satisfaction when there are low levels of respect shown by colleagues (plot (i)), but satisfaction is below average throughout (demonstrated by the positive significant coefficient of the main effect of respect in Table 4). For these employees there is also little effect of relative representation when respect is high (plot (ii)). For both of these the lack of effect is demonstrated by the confidence intervals in Table 5 for the four differences relating to Figures 4(i) and 4(ii), all of which contain zero and therefore represent non-significant effects; the estimates themselves are all close to zero also, with the largest being 0.02 (around 3% of a standard deviation). Together, these analyses suggest that relative representation and its interaction with respect has little or no effect on the job satisfaction of White employees.

However, for ethnic minority staff the effects are somewhat different. Under conditions of low respect (plot (iii)), satisfaction is fairly low throughout, and the slight deviations from the line of agreement are not reflected by significant differences between the indicated points in the bootstrap tests (Table 5). In contrast, when there are high levels of respect from colleagues (plot (iv)), job satisfaction can be far higher, but tends to fall away more steeply when there is under-

representation within the organization compared with the community (i.e. point E is significantly

lower than point D). The difference here is 0.25, representing over a third of a standard deviation

– again, a small to moderate effect. The effect of over-representation within the organization is

less pronounced (slightly more than a quarter of a standard deviation), but the difference between

points D and F is still statistically significant according to the test presented in Table 5,

indicating that when organizational representation exceeds community representation for

minority staff and respect is high, job satisfaction tends to be higher than when there is perfect

relative representation. These findings suggest that, whereas job satisfaction is low for ethnic

minorities who are treated disrespectfully, relative representation has a positive, non-monotonic

relationship with job satisfaction among ethnic minorities when respect is high.

For turnover intentions, the nature of the three-way interaction appears to be slightly

different (Figure 5). Again, for White staff who report low levels of respect from colleagues (plot

(i)), turnover intention levels are moderate regardless of the level of relative representation. For

White staff who report high levels of respect (plot (ii)), turnover intentions appear slightly higher

when there is over-representation in the organization compared with the community. However,

because the difference between the chosen points here (A and C) is not statistically significant,

and is very small (around 2% of a standard deviation); therefore these findings can be interpreted

to suggest that the turnover intentions of White employees are not influenced by relative

representation or its interaction with respect.

For ethnic minority staff (plots (iii) and (iv)), the pattern differs by the level of respect.

For low respect (plot (iii)), there are only modest effects as turnover intentions are fairly high

throughout: however, there is a significant increase when organizational representation is lower

than community representation (point E compared with point D; the difference of 0.34 here

represents around a third of a standard deviation, or a small to moderate effect). The same is not true when organizational representation exceeds community representation: the difference between points D and F might appear to suggest turnover intentions decrease in this situation, but Table 5 reveals that this difference is not statistically significant as the confidence interval contains zero. In other words, when ethnic minorities experience low levels of respect, relative underrepresentation increases turnover intentions but relative overrepresentation does not significantly reduce turnover intentions. These effects are accentuated when ethnic minorities report high levels of coworker respect (plot (iv)); here, both from the plot and from the tests in Table 5, turnover intentions are higher when organizational representation is lower than community representation and lower when organizational representation exceeds community representation. The difference of 0.43 for the former comparison represents a moderate sized effect given the standard deviation of 1.04 for turnover intentions.

Together, these findings support our expectation that the asymmetrical effects of ethnic group relative representation on job satisfaction and turnover intentions are moderated by ethnic minority status and respectful treatment. Ethnic group relative representation has little effect on attitudes of White employees or ethnic minority employees who feel that they are treated disrespectfully. However, providing mixed support for our hypotheses, among ethnic minority employees who generally feel respected by their coworkers, relative representation has distinct relationships with job satisfaction and turnover intentions. As we expected, being relatively underrepresented in the organization compared to the community has particularly negative effects on job satisfaction whereas being relatively overrepresented can enhance satisfaction. For turnover intentions, relative underrepresentation in the organization compared to the community is associated with increased turnover and relative overrepresentation reduces this effect.

Discussion

The current results suggest that neither ethnicity nor organizational ethnic representation alone explain variability in job attitudes. Instead, in line with predictions derived from social identity theory (Tajfel, 1982) and socioecological psychology (Oishi & Graham, 2010), job satisfaction and turnover intentions were associated with the extent to which ethnic minorities were represented similarly in the organization and the community. The implication of this general conclusion is that relational demography theory must be extended to consider demographic composition of communities in which organizations are embedded along with the associated identities of organizational members. In the case of turnover intentions (and to a lesser degree, job satisfaction), an asymmetric pattern emerged wherein the effect of relative underrepresentation was stronger than the effect of relative overrepresentation. This suggests that, consistent with Baumeister and colleagues (2001) general theory, "bad is stronger than good" when it comes to ethnic group relative representation. The effect on turnover is particularly compelling given that employees who encounter low levels of relative representation might leave organizations and seek refuge in more balanced environments. That these effects were pronounced among ethnic minority employees is also meaningful in light of previous work on asymmetry which suggested that restriction of range might underestimate the effects of representation among ethnic minority group members (Tonidandel, Avery, Bucholtz, & McKay, 2008).

These effects are further clarified by considering the extent to which employees experienced respectful treatment from their coworkers; whereas relative representation had little effect on individuals who rated their coworkers as disrespectful, the effects were particularly pronounced among ethnic minority employees who reported that their coworkers treated them

respectfully. The nature of this moderating effect is different than what was hypothesized but nonetheless suggests that interpersonal relations are critical lenses through which employees understand numerical representation. The pattern of findings suggests that creating norms of interpersonal respect may be necessary for leveraging the benefits of relative representation; relative representation had little effect on attitudes of employees who reported low levels of coworker respect but generally enhanced attitudes when respect was high. These findings suggest that relative representation and respect may simultaneously act as signals through which an individual's relationship with their organization is understood (Pugh et al., 2005; Roberson & Stevens, 2006). The current results suggest that the effects of ethnic group relative representation are shaped in conjunction with interpersonal experiences at work. We discuss the implications of these findings for theory and research below.

Theoretical Implications

The current findings point to the relevance of socioecological perspectives of demography and the need to consider contextual elements outside of the organization in order to understand what happens within it. This is a critical point given that recent models of relational demography (e.g., Riordan, 2000) and diversity more broadly (e.g., Shore et al., 2011) are limited to intraorganizational factors, ignoring the contexts in which organizations are embedded. This research pushes boundaries of relational demography theory and research on workplace diversity outside of the walls of the organization. Thus, taken together, the current findings blend macro and micro perspectives of ethnicity in organizations and highlight the complex interplay of sociological and psychological phenomenon.

This view raises several interesting avenues for future research on ethnic group relative representation. One idea would be to consider not only the interpersonal experiences and

attitudes of individuals at work but also in their communities—a larger model that incorporates predictors, moderators, and outcomes both internal and external to the organization would enable a broader understanding of the intersection between organizational and community demography. Another avenue for future research would be to draw more upon social identity perspectives and explicitly consider the intersection between ethnicity and status. The moderating effect of ethnic minority status on the relationship between relative representation and attitudes may be further clarified by considering the occupational status of individual employees and ethnic groups as a whole. Here we considered occupational status outside the scope of the paper and included its individual level direct effect as a covariate. Future research, however, might build on these findings by considering the effects of ethnicity and ethnic similarity for individuals in higher status positions (e.g., doctors) compared to those in lower status positions (e.g., nurses). Moreover, future research should consider whether relative representation of one's group in higher status positions has a bigger impact on attitudes than representation in lower status positions (see Elvira & Cohen, 2001).

Practical Implications

The results suggest that people's feelings about their jobs depend on their ethnic group's representation within, relative to outside of, the organization. This has practical implications for diversity management practitioners who often closely monitor the ethnic composition of their organizations but might not typically consider how well this composition mirrors the immediate community. Diversity indices reported in the interest of both compliance and building inclusion may need to directly incorporate community diversity in order more accurately convey organizational diversity. It is also noteworthy from a practical perspective that levels of relative over- and under-representation had little effect on the experiences of majority group members.

This suggests that fears about White employees' potentially negative reactions (i.e., "backlash") to increasing diversity are unfounded; there were no notable drop-offs in White employees' attitudes when minority ethnic groups were overrepresented relative to their community representation.

Yet the findings also suggest that efforts to align community and organizational demography may not go far enough to improve employee attitudes. This may also resonate with the practical challenges of creating relative representation in some settings. Ultimately, the effects of relative representation also depended on the extent to which coworkers treated each other with respect. The importance of respectful, civil treatment in the workplace is echoed in recent research linking demographic relative representation to hospital performance via the civil treatment of patients (King et al., 2011). Taking these results one step further, it is possible that respectful treatment amongst members of a work team might also facilitate enhanced interpersonal and team outcomes. It follows that organizations should prioritize not only numerical representation but also interpersonal interactions in diversity management programs (Leiter, Laschinger, Spence, Day, & Oore, 2011).

Limitations and Future Research Directions

Despite the strengths of the research method—including the large and representative sample, a highly varied collection of organizations in terms of levels of diversity (with between 2% and 59% of employees coming from non-White groups), use of multiple data sources, and advanced statistical modeling—these findings must also be interpreted in light of some limitations. One potential limitation of this research is its focus on workers in the health care industry who may have worse job attitudes than those in other industries (e.g., Felton, 1998).

Importantly, however, workers in a range of occupational groups within this industry were included in this study, enhancing the generalizability of the findings.

A second limitation of this work is that we examined ethnic diversity in a particular cultural context (the United Kingdom), and measured with narrow categories of ethnicity rather than more fluid and subjective indicators, raising questions of the generalizability of the findings to other countries with greater and lower levels of acceptance of ethnic diversity or to broader conceptualizations of ethnicity. In addition, the direction of causality cannot be determined from the survey and census data utilized here. Dynamic turnover patterns might contribute to relative representation, making job attitudes both antecedent to and consequences of our independent variables. Finally, we were unable to directly assess potential mediators, and instead infer the theoretical explanations for the findings based on extant literature and rationale. Future research examining the current hypotheses and theoretical mechanisms-- such as perceived relative representation, inclusion, identity threat, or organizational identification—in a wider range of industries and cultural contexts over time would bolster the conclusions that can be drawn.

It is also important to note that the findings reported here should be interpreted in light of the small effect sizes that emerged. The constructs of satisfaction and turnover are largely influenced by a number of previously studied factors (e.g., job characteristics, leadership, family concerns). The small-yet consistent- effects found here suggest that only a small part of job attitudes can be understood through these complex demographic patterns. Nevertheless, this paper draws attention to the importance of community contexts for understanding organizational phenomenon. The results serve as a reminder that employees do not open the office door as blank slates---instead, their expectations and understanding of what happens inside the workplace is dependent on what happens outside of that workplace. In the case of relational

demography, demographic composition of the organization is understood in relation to the

demographic composition of the community in which the organization is embedded. However,

the study further clarifies that respectful treatment from coworkers influences the ways in which

demography is interpreted; relative representation cannot overcome the negative effects of

disrespectful coworkers. As a whole, this work brings social identity and socioecological

perspectives to bear on the persistent challenge of preserving job attitudes within a diverse

workplace.

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Table 1

Means, Standard Deviations, and Intercorrelations of Main Study Variables

	M	SD	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Job satisfaction	3.45	0.70									
2. Turnover intentions	2.57	1.04	-0.55								
3. Experienced respect	3.88	0.62	0.63	-0.39							
4. Minority status[a]	0.12	0.32	-0.00	0.01	-0.04						
5. Organizational ethnic group representation	0.78	0.27	0.01	-0.03	0.03	-0.94					
6. Community ethnic group representation	0.83	0.29	0.00	-0.02	0.03	-0.95	0.98				
7. Age[b]	3.73	1.06	0.02	-0.10	0.00	-0.10	0.10	0.10			
8. Sex[c]	0.19	0.40	-0.01	0.02	-0.02	0.13	-0.13	-0.13	0.01		
9. Tenure[d]	3.95	1.61	-0.03	-0.01	0.04	-0.16	0.17	0.16	0.49	-0.07	
10. Hospital size (in thousands)	4.33	2.34	-0.02	0.00	0.00	-0.01	0.00	-0.03	-0.04	0.01	0.03

[a] 1 = Non-white, 0 = White
[b] 1 = 16-20, 2 = 21-30, 3 = 31-40, 4 = 41-50, 5 = 51-65, 6 = over 65
[c] 1 = Male, 0 = Female
[d] 1 = Less than a year, 2 = 1-2 years, 3 = 3-5 years, 4 = 6-10 years, 5 = 11-15 years, 6 = more than 15 years
Based on all 55,725 individual respondents from the three main ethnic groups with complete data
Occupational group omitted from table as this is represented by seven dummy variables
All correlations of absolute value 0.02 or above are statistically significant with $p < .001$

Table 2

Multilevel Polynomial Regression Analysis Predicting Satisfaction and Turnover Intentions

	Job satisfaction		Turnover intentions	
	B	Δ Deviance	B	Δ Deviance
Model 1		3.31		0.20
Age	0.03***		-0.12***	
Sex	-0.04***		0.15***	
Tenure	-0.02***		0.03***	
Hospital size	-0.01*		-0.01*	
Organizational ethnic group representation (OR, b_1)	-0.03		-0.07	
Community ethnic group representation (CR, b_2)	-0.11		-0.09	
Model 2		1.88		6.97
Age	0.03***		-0.12***	
Sex	-0.04***		0.15***	
Tenure	-0.02***		0.03***	
Hospital size	-0.01*		-0.01*	
OR (b_1)	-0.04		0.07	
CR (b_2)	-0.14		-0.13	
$(OR)^2$ (b_3)	0.44		0.07	
OR × CR (b_4)	-0.72		-0.65	
$(CR)^2$ (b_5)	0.48		0.14	

Δ Deviance column gives change in deviance from previous model (from control variables only for model 1, or from model 1 for model 2)

Occupational group dummy variables are omitted for clarity but are available on request

* $p < .05$; *** $p < .001$

Table 3

Moderated Multilevel Polynomial Regression Analysis Predicting Job Satisfaction and

Turnover Intentions (H2)

	Job satisfaction		Turnover intentions	
	B	Δ Deviance	B	Δ Deviance
Model 3		28.85***		35.01***
Age	0.03***		-0.12***	
Sex	-0.04***		0.15***	
Tenure	-0.02***		0.03***	
Hospital size	-0.01		-0.01	
Organizational ethnic group representation (OR)	-0.25		0.02	
Community ethnic group representation (CR)	0.05		-0.30	
$(OR)^2$	-0.28		1.33	
OR × CR	0.93		-2.48	
$(CR)^2$	-0.43		1.09	
Minority status	0.24		-0.69*	
OR × Minority status	-2.01		3.26	
CR × Minority status	4.07**		-6.56**	
$(OR)^2$ × Minority status	-4.71		7.07	
OR × CR × Minority status	1.92		-4.46	
$(CR)^2$ × Minority status	5.27		-7.44	

Δ Deviance column gives change in deviance from model 2

Coefficients for occupational group dummy variables are omitted for clarity but are available on request

* $p < .05$; ** $p < .01$; *** $p < .001$

Table 4

Moderated Multilevel Polynomial Regression Analysis Predicting Job Satisfaction and

Turnover Intentions (H3)

	Job satisfaction		Turnover intentions	
	B	Δ Deviance	B	Δ Deviance
Model 4		17.05**		28.91***
Age	0.03***		-0.13***	
Sex	-0.02**		0.13***	
Tenure	-0.03***		0.04***	
Hospital size	-0.00		-0.01	
Organizational ethnic group representation (OR)	0.77		-5.17**	
Community ethnic group representation (CR)	-0.01		3.19	
$(OR)^2$	3.08		-8.55	
OR × CR	-6.12		25.82*	
$(CR)^2$	2.04		-14.61*	
Minority status	-0.31		-0.37	
OR × Minority status	1.72		6.48	
CR × Minority status	-3.74		-2.46	
$(OR)^2$ × Minority status	27.76		16.47	
OR × CR × Minority status	-46.67		-44.09	
$(CR)^2$ × Minority status	19.56		27.84	
Respect	0.74***		-0.70***	
Minority status × Respect	0.17		-0.10	
OR × Respect	-0.28		1.34**	
CR × Respect	0.07		-0.94	
$(OR)^2$ × Respect	-0.92		2.57	
OR × CR × Respect	2.01		-7.41*	
$(CR)^2$ × Respect	-0.80		4.16*	
OR × Minority status × Respect	-0.36		-1.33	
CR × Minority status × Respect	1.43		-0.53	
$(OR)^2$ × Minority status × Respect	-7.65		-3.21	
OR × CR × Minority status × Respect	12.72		10.36	
$(CR)^2$ × Minority status × Respect	-4.44		-8.57	

Δ Deviance column gives change in deviance from model without three-way interaction terms
Occupational group dummy variables are omitted for clarity but are available on request
* $p < .05$; ** $p < .01$; *** $p < .001$

Table 5

Median Estimates and Confidence Intervals for Differences Between Points in Figures 2-5

Figure	Points	Median	95% CI	Points	Median	95% CI
2(i)	A & B	0.00	(-0.04, 0.03)	A & C	0.00	(-0.04, 0.04)
2(ii)	D & E	0.27	(0.17, 0.38)	D & F	-0.22	(-0.34, -0.08)
3(i)	A & B	0.00	(-0.07, 0.07)	A & C	0.01	(-0.07, 0.09)
3(ii)	D & E	-0.47	(-0.68, -0.33)	D & F	0.34	(0.13, 0.57)
4(i)	A & B	-0.02	(-0.04, 0.02)	A & C	0.02	(-0.03, 0.06)
4(ii)	A & B	-0.00	(-0.05, 0.04)	A & C	-0.01	(-0.06, 0.02)
4(iii)	D & E	0.13	(-0.01, 0.22)	D & F	-0.08	(-0.24, 0.07)
4(iv)	D & E	0.25	(0.12, 0.36)	D & F	-0.18	(-0.35, -0.05)
5(i)	A & B	-0.03	(-0.09, 0.04)	A & C	-0.00	(-0.10, 0.09)
5(ii)	A & B	0.03	(-0.03, 0.09)	A & C	0.02	(-0.07, 0.11)
5(iii)	D & E	-0.34	(-0.55, -0.15)	D & F	0.25	(-0.04, 0.51)
5(iv)	D & E	-0.43	(-0.63, -0.24)	D & F	0.32	(0.08, 0.56)

Medians and confidence intervals estimated via bootstrapping. Medians are used rather than means as is standard practice for the non-parametric bootstrap method. The difference is positive if the first named point has a higher value than the second.

Figure 1

Joint Effect of Organizational and Community Representation on (i) Job Satisfaction and (ii) Turnover Intentions
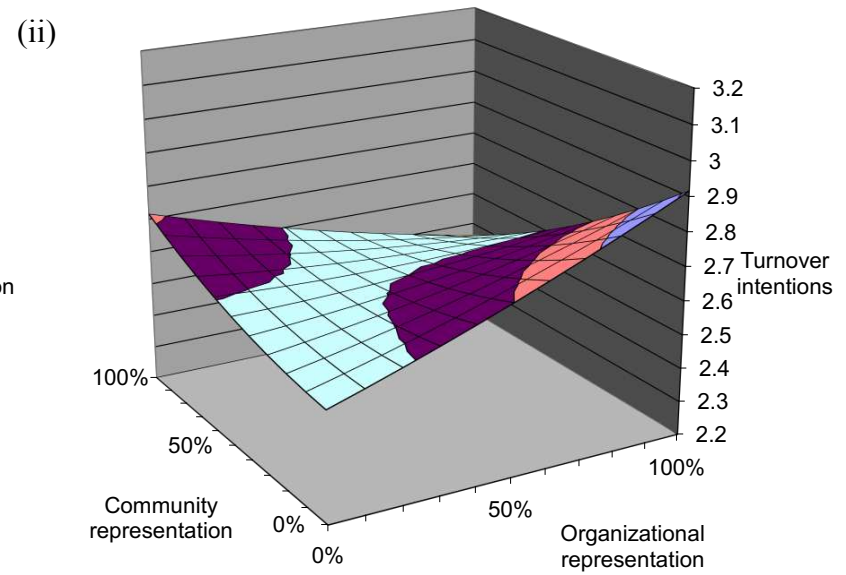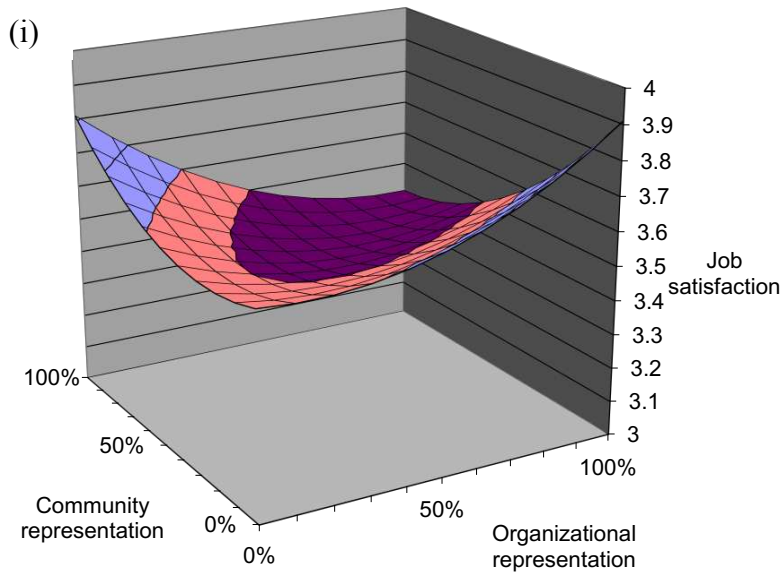
Figure 2
Joint Effect of Organizational and Community Representation on Job Satisfaction for (i) White Employees and (ii) Ethnic Minority Employees
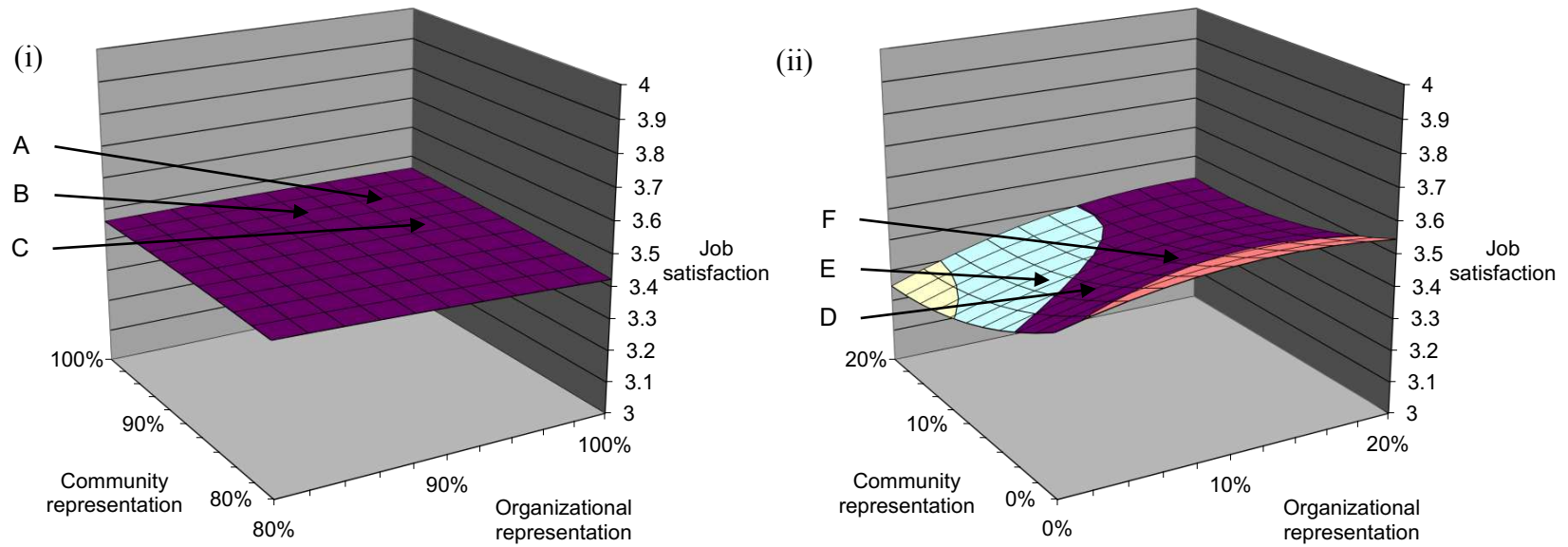
Figure 3
Joint Effect of Organizational and Community Representation on Turnover Intentions for (i) White Employees and (ii) Ethnic Minority Employees
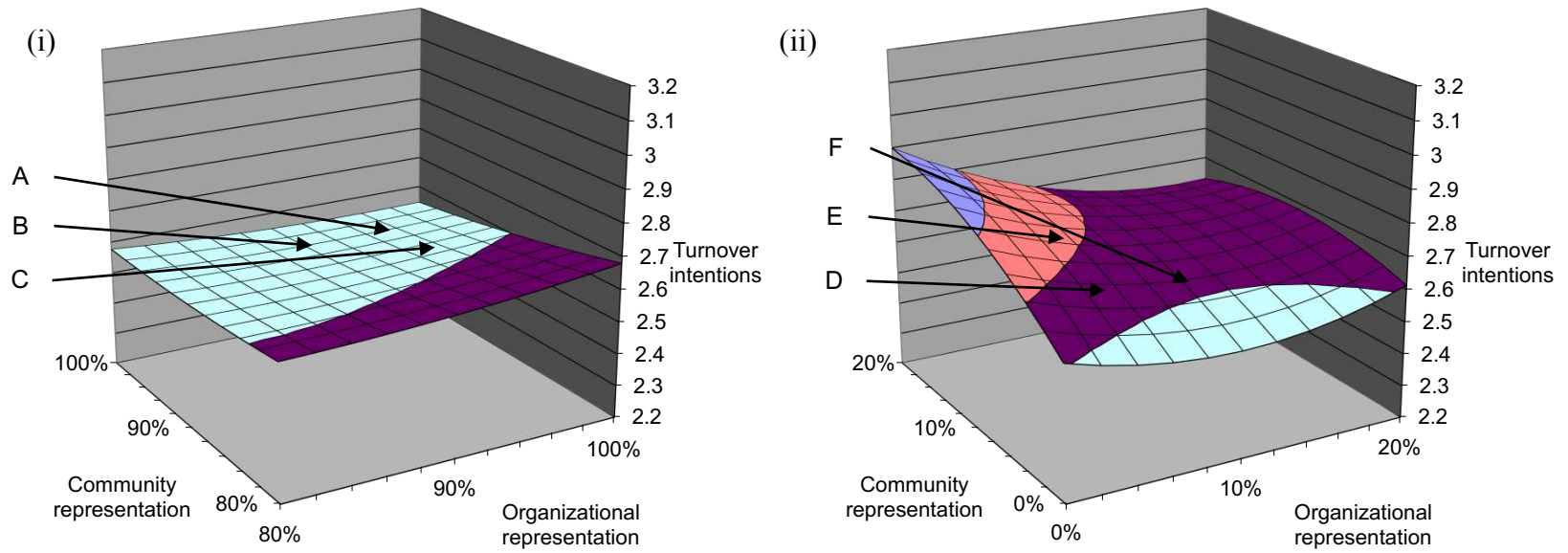
Figure 4
Joint Effect of Organizational and Community Representation on Job Satisfaction for (i) White Employees with Low Respect from Coworkers, (ii) White Employees with High Respect, (iii) Ethnic Minority Employees with Low Respect, and (iv) Ethnic Minority Employees with High Respect
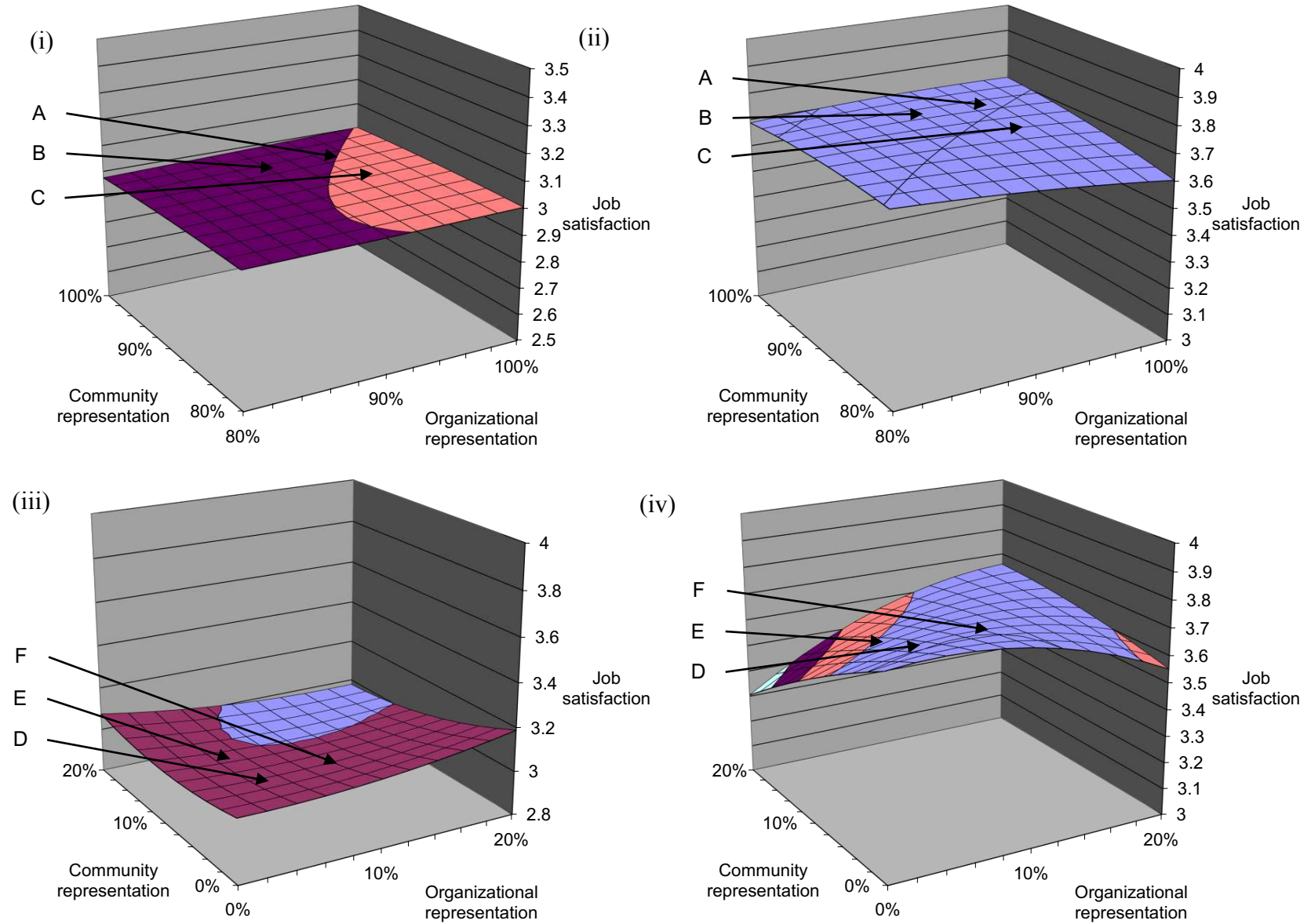
Figure 5
Joint Effect of Organizational and Community Representation on Turnover Intentions for (i) White Employees with Low Respect from Coworkers, (ii) White Employees with High Respect, (iii) Ethnic Minority Employees with Low Respect, and (iv) Ethnic Minority Employees with High Respect