Integrating sociological and psychological perspectives, this research considers the value of organizational ethnic diversity as a function of community diversity. Employee and patient surveys, census data, and performance indexes relevant to 142 hospitals in the United Kingdom suggest that intraorganizational ethnic diversity is associated with reduced civility toward patients. However, the degree to which organizational demography was representative of community demography was positively related to civility experienced by patients and ultimately enhanced organizational performance. These findings underscore the understudied effects of community context and imply that intergroup biases manifested in incivility toward out-group members hinder organizational performance.

Social, political, and technological advances have given rise to a workforce comprised of people from a wide range of racial and ethnic backgrounds across the globe (United Nations Statistics Division, 2009). Management research on the implications of this increasing ethnic diversity has yielded mixed findings; some research within teams and dyads suggests diversity can generate innovation and breadth of information (e.g., Simons, Pelled, & Smith, 1999), but other studies suggest diversity can have negative effects by increasing conflict and reducing cohesion (e.g., Jehn, Northcraft, & Neale, 1999). The little evidence that exists at the level of the organization suggests that diversity can have positive effects on financial outcomes under some conditions (Herring, 2009; Richard, 2000; Richard, Barnett, Dwyer, & Chadwick, 2004). Researchers have therefore moved past the question of whether diversity affects outcomes and have instead begun to address the question of when and how diversity can facilitate positive outcomes (Joshi & Roh, 2009).

An answer to these questions may be gleaned from one of the potential value propositions espoused by researchers and practitioners of diversity management: diverse employees may be particularly effective in serving similarly diverse populations (Richard, 2000) by bringing unique cultural sensitivity that appeals to a diverse customer base (Cox & Blake, 1991). This reasoning can be grounded in social identity and social categorization theories, which suggest that people unconsciously favor members of their own social groups (Tajfel & Turner, 1979). On its face, this rationale implies that diversity in an organization will yield positive effects when it matches the demography of the customers or clients the organization serves.
Here we suggest that the primary reason that people from one ethnic background may be less effective in serving people from other ethnic backgrounds is that the positive regard automatically afforded to in-group members is replaced by a subtle disregard when intraorganizational diversity does not align with community diversity. Whereas individuals serving others from their own group manifest covert preferences through positive interpersonal treatment, subtle disfavor—i.e., incivility (Andersson & Pearson, 1999; Cortina, 2008)—may emerge when organizational diversity does not represent the demography of the community it serves. Although interpersonal mistreatment is often described as part of the rationale for the complex effects of diversity, it has seldom been measured in management research.

This study has three primary goals. First, we examine effects of intraorganizational ethnic demography on incivility in service interactions. This examination extends findings from a very small number of studies that have empirically tested the organization-level effects of diversity (e.g., Richard, et al., 2004) by focusing on incivility as a potential consequence of challenges that arise in intergroup interactions in diverse organizations. Second, this research goes beyond examining organizational consequences of intraorganizational diversity to examine the consequences of the degree to which organizational demography represents the demography of directly served stakeholders. Third, extending previous theoretical rationale, we reason that incivility toward service recipients can manifest when demographic characteristics are not aligned and that this incivility impedes organizational success. Thus, the current study not only clarifies the mechanisms through which diversity and representativeness affect performance, but also provides the first empirical test of organizational outcomes of incivility. We begin by reviewing and synthesizing theories of diversity from psychology and sociology before describing the current hypotheses.

THEORETICAL FOUNDATION

Understanding of the dynamics that emerge when ethnically diverse individuals interact can be derived from social identity theory (Tajfel & Turner, 1979), according to which the social groups to which individuals belong create distinctions between members of one’s own social group and members of other social groups. Social identity groups can emerge as a result of minimal distinctions (e.g., random assignment [Tajfel, Billig, Bundy, & Flament, 1971]), as well as through visible attributes that convey social standing (e.g., gender, ethnicity [Ellemers, Doosje, & Spears, 2004]). People, who are generally motivated to see themselves in a positive manner (Leary & Downs, 1995), tend to favor members of their own social identity groups over members of other groups. Because an individual views his or her social identity group as a component of the self, favoring one’s in-group over an out-group can lead to positive self-views. Unfortunately, these social categories can also lead to destructive intergroup behaviors.

In a workplace, historical patterns of intergroup disadvantage and conflict may become salient. In Blau’s (1977) terms, ethnicity can be considered a nominal parameter that differentiates people into subgroups with distinct boundaries. Ethnicity may also carry graduated dimensionality or value given that it is associated with social status; for example, ethnic minorities have lower financial standing than do majority group members. A heightened sensitivity to ethnic differences may be present in contemporary workplaces, wherein employees are concerned about relative status and the interpersonal impressions they make (Roberts, 2005). Taken with these factors, the increasing representation of ethnic minorities in organizations has created a situation in which ethnicity is salient in workplace interactions (see DiTomaso, Post, & Parks-Yancy, 2007). We argue that social identity processes associated with ethnicity can affect organizational phenomena through two complementary processes. First, the nature of interactions between members of different ethnic groups has an impact. Second, the representation of members of different ethnic groups in an organization—particularly relative to the community demography—affects how minority and majority group members view interactions and serves as a cue through which stakeholders understand organizational norms and expectations.

Indeed, one of the core components of social identity theory is that the salience of a particular social identity and the nature of intergroup dynamics more generally depend on the context in which diverse individuals interact. Thus, we first describe the particular context in which this study was conducted: health care organizations. This focus provided an opportunity to consider outcomes of ethnic diversity and intergroup interactions in interdependent and high-risk service relationships. We then theorize that another aspect of context—community demography—is a critical factor for interactions between patients and care providers.
OUTCOMES OF INTRAORGANIZATIONAL DIVERSITY

Service organizations play a critical and growing role in most economies; approximately 70 percent of the workforce in the United States is currently engaged in service-type activities (Mayer, Ehrhart, & Schneider, 2009). Service organizations vary as a function of several inherent features (Gittell, 2002; Schneider, 2004), including frequency of customer contact with employees, service intangibility (i.e., the degree to which products can be “seen, touched, and held” [Bowen & Ford, 2002: 448]), and interdependence (Schneider, 2004). Hospitals can be considered a unique type of service organization in which frequency of customer contact (Lam, Lee, & Lau, 2004), service intangibility, and interdependence are high (Freeth, 2001).

Diversity in Health Care Settings

It is in the context of health care organizations that we examine the effects of intraorganizational ethnic diversity, which we conceptualized as the degree of ethnic category variability in an organization and measured using Blau’s index (Harrison & Klein, 2007). The unique features of health care organizations may create conditions under which aspects of readily observable, or surface-level, differences among employees give rise to negative consequences in the form of incivility toward patients. For example, the dynamic nature of these environments, in which team composition frequently changes as a result of continually changing professional roles (e.g., medical students, residents, fellows) and schedules (Klein, Ziegert, Knight, & Xiao, 2006), may affect intergroup interactions. In addition, interactions between patients and providers are constrained in length. When individuals do not have the opportunity to get to know one another owing to time constraints, observable differences in social identities (such as ethnic diversity) are likely to be salient and problematic (Harrison, Price, Gavin, & Florey, 2002). Another aspect of health care organizations that creates intergroup challenges is the high level of risk involved in tasks and decisions that require substantial cognitive and psychological resources (e.g., Boekholdt & Kanters, 1978). When individuals engage in interactions with people from different social identity groups, they are often anxious, uncomfortable, and concerned about the impression they are making (Hebl & Dovidio, 2005). These emotional and cognitive processes require individuals in diverse interactions to expend substantial cognitive resources to regulate their behavior (e.g., Richeson & Shelton, 2003), thereby reducing the resources available for work tasks. In addition, the high level of strain and increased salience of mortality that are created as a result of the suffering of patients may exacerbate intergroup challenges (Chan & Huak, 2004). Social identity processes of in-group favoritism and out-group denigration intensify under such conditions of negative arousal (e.g., Trawalter, Richeson, & Shelton, 2009) and “mortality salience” (e.g., Schimel et al., 1999). Thus, demographic diversity in health care settings may create interactional challenges that ultimately detract from civil treatment of patients.

In civility as an Outcome of Intraorganizational Diversity

In civility is characterized by subtle behaviors that defy social norms, including acting in a discourteous or disrespectful manner. Conversely, civility, or treating others with dignity and respect, resembles other prosocial workplace behaviors (e.g., citizenship behavior, ingratiation) in that it includes subtle behaviors that an organization may neither require nor formally recognize (Andersson & Pearson, 1999). Previous research has suggested that incivility can result from perceptions of distributive and procedural injustice, job dissatisfaction, and exhaustion (Blau & Andersson, 2005). These experiences create negative affect and stress that impede socially skilled, civil behavior (Johnson & Indvik, 2001). Similarly, the in-group favoritism and out-group derogation that can result from social categorizations offer an explanation for why work interactions between ethnically diverse individuals may engender incivility. Because individuals experience discomfort, anxiety (Hebl & Dovidio, 2005), and reduced cognitive resources in intergroup interactions (Richeson & Shelton, 2003), which are more likely in heterogeneous contexts (Blau, 1977), intraorganizational diversity in hospitals creates stress and drains regulatory resources that doctors and nurses might otherwise use in treating their patients with respect and courtesy. For example, a nurse who just experienced conflict with a colleague of a different ethnic group may be less sympathetic toward patients’ complaints. Aggregated across patients to the organizational level, the social identity processes associated with intraorganizational diversity may result in incivility toward patients:

Hypothesis 1. Intraorganizational ethnic diversity is negatively related to civility toward service recipients.
PERFORMANCE IMPLICATIONS OF CIVILITY

We further propose that the civility that emerges in service organizations facilitates organizational performance. In general, customer service quality has been linked with customer satisfaction (Spreng, MacKenzie, & Olshavsky, 1996), customer retention (Reichheld & Sasser, 1990), and financial performance of organizations (Rust, Zahorik, & Keiningham, 1995). The quality of service encounters affected unit-level customer satisfaction and loyalty in a study of restaurants (Liao & Chuang, 2004) and unit sales in a study of supermarkets (Schneider, Ehrhart, Mayer, Saltz, & Niles-Jolly, 2005). We contend that a meaningful element of health care interactions that affects organizational performance is the civility of patient encounters.

Among individual employees in workplaces, subtle mistreatment has been shown to negatively impact job satisfaction, job withdrawal, career salience, psychological distress (Cortina, Magley, Williams, & Langhout, 2001), and self-reported physical health (Lim, Cortina, & Magley, 2008). When these kinds of disrespectful behaviors are directed toward patients, they too may experience stress, strain, and physical problems that set back recovery. Civil treatment of patients, on the other hand, may engender trust and enable communication that reduces stress and increases the likelihood that patients follow recommended actions. Indeed, respectful communication is a key component of positive doctor-patient relationships (for a review, see Ong, de Haes, Hoos, & Lammes, 1995). Following this reasoning, the nature of interpersonal experiences in health care interactions (communication, respect, and courtesy [Sitzia & Wood, 1997]) has been shown to affect psychological health, symptom resolution (Stewart, 1995), and adherence to recommendations (e.g., Sherbourne, Hays, Ordway, DiMatteo, & Kravitz, 1992). Similarly, civility in provider-patient interactions likely facilitates quicker recoveries, compliance, and ultimately more effective allocation of resources. Thus, the aggregate of patient experiences of civility likely supports the performance of health care organizations.

Moreover, civility toward patients may go beyond the aggregate effects of individual patients’ experiences in affecting organizational performance. Patients who experience civil treatment are likely to express more satisfaction and positive affect than those who experience uncivil treatment (Lim, et al., 2008). This positive affect, in turn, may improve the moods of frontline staff through “emotional contagion” processes (Staw, Sutton, & Pelled, 1994). Positive moods can give rise to interpersonal helping, actions that protect an organization, personal development, and suggestions to improve organizational functioning (George & Brief, 1992). Positive affect and experiences can be shared within units (George, 1990) and transmitted throughout an organization as a whole, creating a positive affective organizational climate. Such climates produce cooperative team working and innovation that facilitate organizational outcomes (e.g., Shipton, West, Parkes, Dawson, & Patterson, 2006). Thus, rationales developed at both the individual and organizational level suggest that civility facilitates organizational performance. Formally,

Hypothesis 2. Civility toward service recipients is positively related to organizational performance.

The previously discussed negative implications of intraorganizational diversity on civility toward patients may ultimately result in these performance decrements; there may be an indirect effect of intraorganizational diversity on organizational performance through civility. Formally:

Hypothesis 3. Intraorganizational diversity is negatively related to organizational performance via mediation by reducing civility toward service recipients.

OUTCOMES OF DEMOGRAPHIC REPRESENTATIVENESS

Considered independently, diversity in health care organizations may create challenges that affect interactions with patients. Importantly, however, the same characteristics that create internal challenges may create opportunities to serve diverse stakeholders. An understudied contextual factor that likely affects the nature of the relationship between intraorganizational diversity and organizational performance is the demography of the stakeholders served by an organization. Management scholars have recognized that extraorganizational factors can influence organizational behavior but have rarely assessed such aspects of context (see Johns, 2006). A few recent studies have highlighted the contextual factor of community demographics as a predictor of organizational phenomena, including “diversity climate” perceptions (Pugh, Dietz, Brief, & Wiley, 2008) and intraorganizational conflict between ethnic minority and majority group members (Brief, Butz, & Deitch, 2005). We propose that the extent to which the composition of an organization’s frontline service employees is representative of the community it serves is associated with civil
treatment of service recipients and ultimately facilitates organizational performance.

**Demographic Representativeness in the Health Care Industry**

The degree to which the ethnic diversity of organizations is representative of the relevant community demography—labeled here as demographic representativeness—is presumed to facilitate positive organizational outcomes (Richard, 2000). An expectation that often guides diversity efforts is that demographic representativeness will facilitate performance, even in the absence of empirical evidence supporting this effect (Leonard, Levine, & Joshi, 2004; Sacco & Schmitt, 2005). It has also been theorized—but not previously tested—that demographic representativeness can facilitate understanding and sensitive treatment of relevant stakeholders (Morrison, 1992). Indeed, one possible explanation for positive effects of intraorganizational diversity (e.g., Richard, Murthi, & Ismail, 2007) may lie in an unmeasured positive correlation between intra- and extraorganizational demography.

Demographic representativeness may be particularly important, especially in organizations in which employees interact with stakeholders, such as organizations in the service sector (Mittman, 1992; Richard et al., 2007). In keeping with the in-group favoritism phenomenon, consumers tend to prefer in-group service providers (Black, Mason, & Cole, 1996; Sen & Bhattacharya, 2001). In the health care industry, minority patients are more likely to seek and maintain care from minority physicians (LaVeist, Nuru-Jeter, & Jones, 2003) and report greater satisfaction with physicians of their same ethnic group than with those of a different ethnic group (LaVeist & Nuru-Jeter, 1999). When demographic mismatches result in fractured trust or unfriendly communication, health care providers may be frustrated, distracted, and dispassionate, and patients may lack the information or motivation needed to improve their health. Challenges that arise in mixed-race interactions are one of the explanations given for health disparities among ethnic groups (Perloff, Bonder, Ray, Ray, & Simmons, 2006).

It is important to note that in each of these studies, the frontline service providers who had contact with patients played a critical role in determining organizational outcomes, including health outcomes, patient satisfaction, mortality, and productivity (Oliver, 1997). When we considered intraorganizational diversity in isolation, we were interested in the implications of diversity through-out an organization. However, in considering the alignment between community and organizational demography, it is the ethnicity of frontline service providers that may be meaningful. Next, we propose that uncivil behaviors directed toward individuals from other social groups represent the as-yet unmeasured experiential mechanisms that account for the effect of demographic representativeness on organizational performance.

**Demographic Representativeness and Selective Incivility**

Given that incivility may be selectively enacted toward members of social identity out-groups (Cortina, 2008), we reason that demographic representativeness gives rise to civility through both individual and organizational processes. Bottom-up processes influence civility in part because the alignment of employee and community may affect patients’ and providers’ perceptions. Research and theory suggest that people are more likely to notice and pay attention to ethnicity when members of their own group are rare; in this regard, McGuire (1984) referred to “distinctiveness,” and Kanter (1977) referred to “tokenism.” This enhanced attention is particularly likely when a patient’s ethnic group is represented in a hospital to a lesser or greater degree than is typical in the community; group members monitor and detect shifts in relative representation. Care providers likely experience a complementary phenomenon: as the proportion of patients from particular ethnic groups increases relative to the composition of providers, providers may feel challenged or threatened (as outlined in realistic group conflict theory [Bobo, 1983]). The increased salience of ethnicity as a function of representativeness likely shapes patient-provider interactions.

Moreover, the assignment of providers to patients may not be perfectly random; instead, patients and providers may choose or be assigned to service encounters with those of similar ethnic backgrounds. Indeed, ethnic minority patients and doctors are more likely to have ethnic minority doctors and patients than are majority group members (Gray & Stoddard, 1997). When health care providers and patients are from different ethnic groups, greater effort may be required to understand patients’ requests and needs (Skaggs & Huffman, 2003). Patient involvement in the care they receive may further add to the unpredictability service providers experience when attempting to gauge interactions (Bowen & Schneider, 1988). These uncertainties may tax cognitive and regulatory resources, leaving service professionals more
vulnerable to applying stereotypes to patients (Wigboldus, Sherman, Franzese, & van Knippenberg, 2004). When patients observe doctors and nurses from their own ethnic group in the hallways of hospitals, they may feel more at ease interpersonally, comfortable asking questions, and trusting of recommendations, and they may expect to be treated more fairly than in hospitals that are less demographically representative. These aspects of diverse patients’ experiences can be associated with health-related outcomes (Perloff et al., 2006). It follows that, because demographic representativeness of hospitals increases the availability of same-ethnicity providers for patients, demographic representativeness will give rise to civility.

Demographic representativeness may also enhance civility through top-down processes such as the creation of organizational norms of civility toward diverse people. Representation of ethnic minorities serves as a visible and observable cue through which stakeholders understand the meaning of ethnicity in a particular context (McKay & Avery, 2006; Roberson & Stevens, 2006). Demographic representativeness in organizations may signal an “integration-and-learning” perspective on diversity (Ely & Thomas, 2001), wherein diversity is seen as a resource through which to gain valuable organizational benefits. Moreover, representation can influence the degree to which organizations are perceived to be supportive of diversity (King, Hebl, George, & Matusik, 2010; Mor Barak et al., 1998). In organizations that are low in demographic representativeness, stakeholders such as employees and customers infer that diversity is not an organizational priority, and organizational norms do not include support for ethnically diverse individuals. A lack of demographic representativeness may signal reluctance on the part of an organization to embrace inclusive norms (Pugh et al., 2008), whereas alignment between community and organizational demography would suggest that the organization has instituted fair and equitable attraction, hiring, and retention practices. Because behavior of service providers in demographically representative organizations is influenced in part by the norms created and promoted through a climate that supports equality (Cox & Blake, 1991), representativeness likely engenders civil treatment of service recipients. The top-down and bottom-up processes that result from demographic representativeness are complementary and convergent; demographic representativeness promotes civility and ultimately organizational performance through both individual and organizational constraints. It follows that:

Hypothesis 4a. Demographic representativeness is positively related to civility toward service recipients.

Hypothesis 4b. Demographic representativeness is positively related to civility toward service recipients, even with intraorganizational and community diversity controlled.

Hypothesis 5. Demographic representativeness is positively related to organizational performance via mediation by enhancing civility toward service recipients.

METHODS

Sample

This study combines four publicly available, national English data sets. The analysis was conducted at an organizational level on a sample defined as all nonspecialist “acute trusts” in the National Health Service (NHS). An acute trust is a semiautonomous organization within the NHS that provides hospital care to a local community; it consists of either a single hospital or two or more hospitals in the same geographical area (e.g., a city) that operate under the same overall management. The total sample included 142 trusts, henceforth referred to as “hospitals.”

The first data source utilized was the NHS National Staff Survey, an annual survey covering all NHS organizations in England, including a sample of up to 850 staff members in each organization (Care Quality Commission, 2009a). We used the staff survey data to capture the demographic profile of the employees. The overall response rate in 2007 was 54 percent, equaling 68,719 respondents. The second data source was the UK Census, a national survey covering the whole of the U.K. population conducted every ten years. Our third source, the NHS Acute Inpatient Survey, is an annual survey covering all NHS hospitals in England, including a sample of up to 850 patients who spent at least one night in hospital during the year (Care Quality Commission, 2009b). Our fourth source, the Annual Health Check, is the official performance rating of the NHS, conducted annually by the official health care regulator (Care Quality Commission, 2009c).

Measures

Organizational diversity. Organizational diversity was measured using ethnicity data from the NHS National Staff Survey in 2007. Each respondent chose an ethnic background from the follow-
ing list of options: white (white British, white Irish, or white other); mixed (white and black Caribbean, white and black African, white and Asian, any other mix); Asian/Asian British (Indian, Pakistani, Bangladeshi, any other Asian); black/black British (Caribbean, African, any other black); Chinese or any other ethnicity. However, the most salient categories are the main groupings: white, mixed, Asian/Asian British, black/black British, and other, and these larger groupings are those that are most often reported in official statistics; importantly for this study, the data available to us on community characteristics also followed these groupings. For that reason we use these five categories to calculate organizational diversity for each hospital using Blau’s index, as a measure of variety (Harrison & Klein, 2007). Blau’s index, an indicator of variability in categories that can be interpreted as the probability that any two individuals come from separate categories, is a common measure for assessing variability in ethnic categories. A perfectly homogeneous group would have an index of 0, and a perfectly heterogeneous group with an infinite number of categories in which members are equally represented would have an index of 1. As in England generally, the predominant ethnic group in our sampled area was white, but the proportion of white staff ranged from 43 to 98 percent in the focal hospitals (mean = 85%). Blau’s index ranged from .05 to .69, suggesting a wide range in levels of organizational diversity.

Community diversity. To measure community diversity, we used data from the most recent U.K. census (2001) to inform us of the ethnic makeup of each “LSOA” (“lower super output area”)—a spatial unit covering an area with a population of around 1,500 people on average. Geographic Information Systems (GIS) mapping captured data linked to specific geographic locations. In this case, we used GIS to calculate the distance to each hospital for each LSOA population-weighted centroid. LSOAs, and therefore individual census respondents, were then assigned to the closest hospital geographically. Where an organization 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. It is generally the case that, because the NHS is publicly funded, individuals are treated at an organization that is close to where they live. Using Blau’s index, we then calculated community diversity in the same way as organizational diversity. Again, the predominant ethnic group was white, but the proportion of white members of a community ranged from 42 to 99 percent (mean = 91%). The value of Blau’s index ranged from .01 to .68, suggesting there was also a wide range in levels of community diversity.

Demographic representativeness. To measure how representative the employees of an organization were of its local community in terms of ethnicity, we applied the Kolmogorov-Smirnov $D_n$ statistic (Massey, 1951), which is most often used to test the representativeness of a sample for a given population. It is calculated as

$$D_n = \sup_x |F_n(x) - F(x)|,$$

where sup represents the supremum function, $F_n(x)$ is the proportion of employees in the first $x$ ethnic groups (ordered by frequency), and $F(x)$ is the proportion of the community in the same first $x$ groups. We used the community characteristics described above for the community data; however, for the organizational level, we restricted the data used to doctors and nurses, as these the two groups have most of the contact with hospital inpatients. This measure does not capture a direct difference between two variables. Rather, it effectively describes the maximum discrepancy between the profile of one sample (i.e., an organization) and the profile of another sample (i.e., a community), by comparing the cumulative distributions of the two samples. It would be at its minimum when the profiles are exactly matched and at its maximum when no correspondence whatsoever exists. Given that this latter situation is unlikely (as hospitals’ staffs are largely drawn from their local community populations), it is worth noting that it would be particularly likely where the predominant ethnic group in a local community is very underrepresented in a staff profile. To ensure that this variable could be interpreted as representativeness, we reversed it before including it in analysis.

Civility toward service recipients. We measured the extent of civility shown toward service recipients using the NHS Acute Inpatient Survey. In 2007, this survey had a response rate of 60 percent, which represented 75,949 total respondents who had received treatment in the summer of 2007. A number of the questions in the survey asked about the manner in which hospital staff treated patients. For each of these questions, a score between 0 and 100 was published for each organization, where 0 represents all patients giving the least favorable response possible and 100 represents all patients giving the most favorable response possible.

We selected 14 questions relating specifically to the civil treatment of patients by staff for a factor analysis (see Appendix A); an example item is, “Overall, did you feel you were treated with respect
and dignity while you were at the hospital?” An exploratory factor analysis revealed that one factor accounted for 64 percent of the variance in these 14 items, and all items loaded significantly onto this factor. Cronbach’s coefficient alpha for the 14 items was .95, suggesting that a single score represented civility toward service recipients. The organizational aggregate score was reliable for this measure (ICC2 = .94); additionally, the level of agreement between patients was high, with values for $r_{agg}(j)$ (James, Demaree, & Wolf, 1993) ranging from .83 to .97 between organizations (mean = .91. The ICC1 was 0.03, indicating that just over 3 percent of the variation in incivility could be explained by organization. Together, these statistics suggested that incivility was not characteristic of all patient episodes but that mean scores differed reliably between organizations.

**Organizational performance.** The regulator of the NHS—the Care Quality Commission—undertakes a large-scale procedure to monitor the performance of all NHS organizations, the Annual Health Check (AHC). A variety of process and performance measures are taken into account in the AHC, including patient mortality, achievement of performance targets in specific health areas such as strokes, maternity care, heart disease, infection rates, waiting times, complaints, achievement of financial targets, equality of access to treatment, and quality of partnership working with community organizations. The outcome is two simple ratings for each organization: one item assessing the quality of services provided, and another item assessing the effective use of resources. These can be thought of as measures of **care quality** and **use of resources**, respectively. The measures used in this study are based on the NHS year that ran from April 2007 to March 2008, with the measures being published in October 2008.

Quality of care was rated on a four-point ordinal scale containing the ratings “weak,” “fair,” “good,” and “excellent.” This outcome is indicative of the extent to which each organization is (1) meeting the government’s core standards and (2) making and sustaining improvements in priority areas. In 2007–08, 4 percent of organizations were considered weak with regard to quality of care; 17 percent, fair; 49 percent, good; and 30 percent, excellent. Use of resources was rated on the same four-point ordinal scale. The use of resources outcome draws from financial audits to assess each organization’s financial reporting, management, and standing, and the economy, efficiency, and effectiveness of the resources utilized. In 2007–08, 8 percent of organizations were considered weak; 32 percent, fair; 21 percent, good; and 39 percent, excellent.

**Control variables.** In all analyses, we controlled for hospital size (measured as the number of employees), location (defined as within or outside London), and socioeconomic status. We controlled for size because it could affect one of the outcome variables, use of resources (larger hospitals may have more resources available to them owing to economies of scale), and location, because previous research has shown that some characteristics, notably patient satisfaction, are significantly different in London compared with the rest of the country. Socioeconomic status was measured using the Index of Multiple Deprivation (IMD) score from the English Indices of Deprivation (ODPM, 2004). This spatially distributed data set systematically combines a range of local metrics into numerical deprivation scores for factors including income, employment, education and skills, crime, housing and services, and living environment. Higher levels indicate greater economic disadvantage (see ODPM, 2004; Department for Communities and Local Government, 2007). We calculated organization-level scores using similar methods to those used to calculate community diversity: the IMD score for each LSOA was assigned to a local hospital, and scores were weighted by LSOA population during the aggregation process.

**RESULTS**

Table 1 shows descriptive statistics and correlations of all study variables. The significant correlations between location (whether an organization was based in London or not) and all other variables justified its inclusion as a control variable. Because of these strong correlations, we also considered the possibility that location might act as a moderator of the relationships we tested; however, no such interactions were found.

Table 2 shows the results of regression analyses used to test Hypotheses 1–3. In the case of Hypothesis 1, these are ordinary least squares (OLS) regression analyses, but in the case of Hypotheses 2 and 3, we conducted ordinal logistic regression analyses to allow for the ordinal outcome variables (as performance was measured by the four-point ordinal scale described above). The first column shows that intraorganizational diversity and civility toward service recipients have a strong relationship ($b = -11.41, p < .01; \beta = -0.76, \Delta R^2 = .06$), with greater diversity associated with lower levels of civility, supporting Hypothesis 1. In line with literature suggesting that diversity may have a curvilinear effect on some outcomes (e.g., Richard et al., 2004), we also tested for a curvilinear (quadratic) effect; however, this was not significant ($p = .67$),
TABLE 1
Correlations and Descriptive Statistics for All Study Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>s.d.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Hospital size</td>
<td>4.167</td>
<td>2.259</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Location</td>
<td>0.18</td>
<td>0.38</td>
<td>-0.19*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Socioeconomic status</td>
<td>21.21</td>
<td>8.93</td>
<td>0.28**</td>
<td>0.19*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Organizational diversity</td>
<td>0.25</td>
<td>0.16</td>
<td>-0.11</td>
<td>0.32**</td>
<td>0.18*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Community diversity</td>
<td>0.15</td>
<td>0.16</td>
<td>0.04</td>
<td>0.76**</td>
<td>0.42**</td>
<td>0.90**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Demographic representativeness</td>
<td>0.13</td>
<td>0.08</td>
<td>0.32**</td>
<td>-0.48**</td>
<td>0.21*</td>
<td>-0.64**</td>
<td>-0.28**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Civility towards service recipients</td>
<td>79.22</td>
<td>2.53</td>
<td>0.18*</td>
<td>-0.44**</td>
<td>-0.02</td>
<td>-0.56**</td>
<td>-0.46**</td>
<td>0.50**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Quality of services</td>
<td>3.04</td>
<td>0.80</td>
<td>-0.02</td>
<td>-0.23**</td>
<td>-0.04</td>
<td>-0.25**</td>
<td>-0.23**</td>
<td>0.18*</td>
<td>0.36**</td>
<td></td>
</tr>
<tr>
<td>9. Use of resources</td>
<td>2.92</td>
<td>1.01</td>
<td>0.13</td>
<td>-0.22**</td>
<td>0.21*</td>
<td>-0.19*</td>
<td>-0.13</td>
<td>0.26**</td>
<td>0.36**</td>
<td>0.36**</td>
</tr>
</tbody>
</table>

* 1 = “London,” 0 = “outside London.”
* * p < .05
** * p < .01

and so our original hypothesis of a linear effect was supported.

The second and third columns of Table 2 show that there is a significant (and moderately large) relationship between civility and performance measured both in terms of quality of services ($b = 0.27, p < .01, \Delta R^2 = .09$) and use of resources ($b = 0.25, p < .01, \Delta R^2 = .07$); the more civility reported by patients, the better the organizational performance (supporting Hypothesis 2).

To test Hypothesis 3, which specifies a mediated relationship from intraorganizational diversity to performance via civility toward service recipients, it was necessary to test for an indirect effect. Following recent scholarly debate about testing for mediation, we note that it is not necessary to demonstrate a direct effect between the independent and dependent variables before testing the indirect effect, as this may not always be apparent even when indirect effects are present (Shrout & Bolger, 2002). Instead, we used bootstrapping to test for significance (Preacher & Hayes, 2004), having demonstrated the independent variable–mediator and mediator–dependent variable links in Hypotheses 1 and 2. Because the outcomes were ordinal, we used Mplus (Muthén & Muthén, 2006) to estimate the indirect effect.

The coefficients for the direct and indirect effects on performance from this Mplus analysis are shown in the final two columns of Table 2. The indirect effects on both outcomes were significant (for quality of services, $b = -1.89, A = -0.29, p < .01$; for use of resources, $b = -1.96, A = -0.29, p = .01$). Thus, there is evidence of an indirect effect of intraorganizational diversity on performance via civility shown toward patients and support for Hypothesis 3.

Table 3 shows the results of regression analyses used to test Hypotheses 4a, 4b, and 5. For Hypotheses 4a and 4b, these are OLS regression analyses, but in the case of Hypothesis 5, they are again ordinal logistic regression analyses. The first column shows that there is a fairly strong relationship between demographic representativeness and civil-

TABLE 2
Results of Regression Analyses for Hypotheses 1–3*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Hypothesis 1: Civility</th>
<th>Hypothesis 2: Quality of Services</th>
<th>Hypothesis 2: Use of Resources</th>
<th>Hypothesis 3: Quality of Services</th>
<th>Hypothesis 3: Use of Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital size</td>
<td>0.00 (0.00)</td>
<td>0.00 (0.00)</td>
<td>-0.00 (0.00)</td>
<td>-0.00 (0.00)</td>
<td>0.00 (0.00)</td>
</tr>
<tr>
<td>Location</td>
<td>0.73 (0.81)</td>
<td>-0.71 (0.70)</td>
<td>-0.89 (0.70)</td>
<td>-0.44 (0.42)</td>
<td>-0.83 (0.49)</td>
</tr>
<tr>
<td>Socioeconomic status</td>
<td>0.00 (0.03)</td>
<td>0.00 (0.03)</td>
<td>0.06 (0.02)**</td>
<td>0.00 (0.01)</td>
<td>0.04 (0.02)**</td>
</tr>
<tr>
<td>Community diversity</td>
<td>1.90 (3.02)</td>
<td>-0.17 (1.79)</td>
<td>0.18 (1.79)</td>
<td>-0.56 (1.70)</td>
<td>-2.10 (1.67)</td>
</tr>
<tr>
<td>Intraorganizational diversity</td>
<td>-11.41 (3.10)**</td>
<td></td>
<td>0.84 (1.83)</td>
<td>3.02 (1.81)</td>
<td></td>
</tr>
<tr>
<td>Civility</td>
<td>0.27 (0.08)**</td>
<td>0.25 (0.08)**</td>
<td>0.16 (0.03)**</td>
<td>0.16 (0.04)**</td>
<td></td>
</tr>
<tr>
<td>Intraorganizational diversity via civility (indirect effect)</td>
<td>-1.89 (0.62)**</td>
<td>-1.96 (0.77)**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total $R^2$</td>
<td>.33</td>
<td>.18</td>
<td>.20</td>
<td>.18</td>
<td>.23</td>
</tr>
<tr>
<td>$R^2$ due to focal independent variable</td>
<td>.06**</td>
<td>.09**</td>
<td>.07**</td>
<td>.00</td>
<td>.02</td>
</tr>
</tbody>
</table>

* Figures in the main part of this table are unstandardized regression weights, with standard errors in parentheses. The $R^2$-statistics for Hypothesis 3 are Nagelkerke pseudo-$R^2$ values. The focal independent variable for Hypothesis 3 is organizational diversity.
* * p < .05
** * p < .01
TABLE 3
Results of Regression Analyses for Hypotheses 4 and 5*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Hypothesis 4a: Quality of Services</th>
<th>Hypothesis 4a: Use of Resources</th>
<th>Hypothesis 5: Quality of Services</th>
<th>Hypothesis 5: Use of Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital size</td>
<td>0.00 (0.00)</td>
<td>0.00 (0.00)</td>
<td>-0.00 (0.00)</td>
<td>-0.00 (0.00)</td>
</tr>
<tr>
<td>Location</td>
<td>-1.45 (0.56)*</td>
<td>0.62 (0.06)</td>
<td>-0.45 (0.43)</td>
<td>-0.92 (0.54)</td>
</tr>
<tr>
<td>Socioeconomic status</td>
<td>-0.02 (0.02)</td>
<td>0.01 (0.03)</td>
<td>0.01 (0.02)</td>
<td>0.05 (0.02)**</td>
</tr>
<tr>
<td>Community diversity</td>
<td>-8.45 (5.51)</td>
<td>-1.86 (3.02)</td>
<td>-8.85 (2.78)**</td>
<td>-11.67 (3.86)**</td>
</tr>
<tr>
<td>Intraorganizational diversity</td>
<td>2.02 (6.73)</td>
<td>2.49 (3.76)</td>
<td>11.67 (3.86)**</td>
<td>11.67 (3.86)**</td>
</tr>
<tr>
<td>Demographic representativeness</td>
<td>12.05 (2.85)**</td>
<td>13.46 (6.01)**</td>
<td>1.74 (3.23)</td>
<td>8.76 (3.51)**</td>
</tr>
<tr>
<td>Civility</td>
<td>0.15 (0.04)**</td>
<td>0.46 (1.13)</td>
<td>0.46 (1.08)</td>
<td>2.33 (1.07)*</td>
</tr>
<tr>
<td>Intraorganizational diversity via civility (indirect effect)</td>
<td>-0.01 (0.03)</td>
<td>0.09 (0.36)</td>
<td>-0.01 (0.03)</td>
<td>0.09 (0.36)</td>
</tr>
<tr>
<td>Demographic representativeness via civility (indirect effect)</td>
<td>-0.02 (0.02)</td>
<td>0.28 (1.19)</td>
<td>-0.02 (0.02)</td>
<td>0.28 (1.19)</td>
</tr>
<tr>
<td>Total R²</td>
<td>0.29</td>
<td>0.36</td>
<td>0.19</td>
<td>0.27</td>
</tr>
<tr>
<td>R² due to focal independent variable</td>
<td>0.00*</td>
<td>0.02*</td>
<td>0.00</td>
<td>0.04</td>
</tr>
</tbody>
</table>

* Figures in the main part of this table are unstandardized regression weights, with standard errors in parentheses.
* *p < .05
** p < .01

It is toward service recipients (b = 12.05, p < .01; β = 0.37, ΔR² = .09), with greater representativeness associated with lower levels of civility, supporting Hypothesis 4a. The second column tests the same relationship but includes both organizational and community diversity as control variables. It can be seen that the relationship between demographic representativeness and civility toward service recipients is still moderately strong and significant (b = 13.46, p < .05; β = 0.42, ΔR² = .02), with greater representativeness associated with lower levels of civility, supporting Hypothesis 4b. Furthermore, it can be seen that neither diversity variable is a significant predictor in this model. Nevertheless, owing to the large correlations between demographic representativeness and the diversity variables, and therefore concerns about the possible impact of multicollinearity, we conducted relative importance analysis (Johnson, 2000). This showed that the relative weight of representativeness was 33.2 percent, compared with 24.5 percent and 23.0 percent for organizational and community diversity, respectively, thus confirming that the significant effect was not caused by multicollinearity.

For Hypothesis 5, we again used Mplus to estimate the indirect effects. Coefficients from this analysis are shown in the final two columns of Table 3. For the quality of services outcome, representativeness had a significant indirect effect (b = 2.33, β = 0.17, p < .05). This finding suggests that the more representative the employees of a hospital are of the local community, the greater the extent of civility toward patients is, and the more effective hospital is as a result. There was still, however, a significant direct effect between representativeness and use of resources (b = 8.76, β = 0.59, p < .05), suggesting that this effect is partial mediation, so the combined results suggest that at least one of the main effects of representativeness on performance occurs via patient experiences. Importantly, there was no longer a significant indirect effect of intraorganizational diversity for either outcome (b = 0.46, β = 0.07, p = .67, for quality of services; b = 0.46, β = 0.06, p = .66, for use of resources). To consider the importance of the construct of representativeness, we also tested interactions between intraorganizational and community diversity and found no evidence of their joint effects. Thus, Hypothesis 5 is supported.

DISCUSSION

Three primary contributions emerge from this research. First, adding to a small number of studies empirically testing the effects of organization-level ethnic diversity (Herring, 2009; Richard, 2000; Richard et al., 2004, 2007), our results suggest that ethnic diversity in hospital staff was negatively associated with civil treatment of patients. However, considering diversity of frontline health care providers relative to community diversity points to different interpretations: demographic representativeness was positively associated with civility experienced by patients (even when intraorganizational and community diversity were controlled for). Third, the data suggest that enhanced civility
toward service recipients facilitates organizational performance. Together, these results have implications for theoretical and practical questions regarding diversity in organizations.

When examining intraorganizational demography without reference to the community context, employee ethnic diversity seemed to get in the way of civility toward service recipients and, ultimately, organizational performance. These findings should be interpreted in light of previous work suggesting that ethnic diversity can have positive effects on organizational performance (e.g., Herring, 2009; Richard et al., 2004, 2007). The discrepancy in findings could be explained by the nature of the samples; health care settings may be uniquely vulnerable to dysfunctional social categorization processes because of frequent customer contact (Lam, Lee, & Lau, 2004), intangible service outcomes, and the interdependent nature of work in health care teams (Freeth, 2001). Perhaps more importantly, we focused here on the unique outcome of incivility toward service recipients. Our findings suggest that demographic diversity among employees might create stress or deplete resources that can facilitate civility.

At a team level, one of the reasons that the relationship between demographic diversity and team performance is inconsistent across samples is variability in the nature of the context within which teams function (e.g., industry [Joshi & Roh, 2009]). The data presented here suggest that, at the organization level, community demography may play a similar role; considering intraorganizational demography in conjunction with extraorganizational demography yields different interpretations than intraorganizational demography alone. Extending the principles of social identity theory (Tajfel & Turner, 1979), which suggest that people generally prefer members of their own ethnic group, demographic representativeness facilitated dimensions of hospital performance through its effects on incivility.

The general tendency of management scholars to ignore community factors may be particularly problematic with regard to service organizations wherein business relies upon interactions between an organization and a community. It is notable that, whereas a few previous studies have considered the interaction between organizational and community demography (Brief et al., 2005; Pugh et al., 2008), this study focuses on the ethnic profile of a community relative to the demographic profile of an organization. Thus, this research underscores previous calls to incorporate community in management theory (e.g., Johns, 2006) and highlights the importance of the novel construct of demographic representativeness.

These findings are in line with the basic premise underlying the value-in-diversity proposition that individuals may be better positioned to serve those from their same social identity groups. The theory and hypotheses presented in this study could be interpreted as supporting a matching principle whereby ethnic minority and majority group members are positioned in roles in which they serve ethnic minority or majority group members, respectively (see Brief et al., 2005; Carrington & Troske, 1998). However, we interpret the findings to suggest that a representative organization communicates value and support for the populations it serves. Representative organizations may give employees more experience and practice engaging with people representing different perspectives, facilitating their performance with patients. Moreover, by identifying civility as the mechanism accounting for the relationship between demographic representativeness and organizational performance, this study instead suggests that ethnic diversity itself is not the problem and matching is not the solution. Instead, the challenge is that general tendencies toward in-group favoritism (Tajfel & Turner, 1979) can manifest in subtly negative—uncivil—behaviors toward out-group members (Cortina, 2008).

Organizations, therefore, have an opportunity to improve performance by creating and maintaining norms of civility. Indeed, the current findings are the first to empirically demonstrate that civility is a meaningful predictor of organizational performance. Extending organizational efforts to engender norms for customer service orientation and to improve customer satisfaction (e.g., Schneider et al., 2005; Rogg, Schmidt, Shull, & Schmitt, 2001), training programs, and leadership activities might help employees overcome their (often unconscious) behavioral tendencies to disfavor out-group members by encouraging civility in all interactions. Given the resistance and backlash that sometimes emerge in response to the terms “diversity” and “discrimination,” it is possible that focusing on “civility” instead could improve the efficacy of existing diversity management programs.

These findings must be considered, and future research designed, in light of several methodological limitations. First, the generalizability of the findings across cultures and types of organizations may be questioned. Hospitals in the United Kingdom are part of a nationalized health care system that may be subject to different pressures and expectations than other types of organizations in other parts of the world. The dynamic nature of
hospital work may also prohibit the opportunity for meaningful intergroup contact, which might otherwise reduce the salience and problematic nature of observable differences in social identity (e.g., Harrison et al., 2002). In addition, the nature of intergroup relations can vary across cultures; for example, the ethnic diversity measured in this study points to the potentially culturally specific importance of non-British immigrants. The boundary conditions for generalization might include service organizations with frequent customer contact, interdependent work, and intangible service outcomes in a Western culture. Nevertheless, we contend that the effects of demographic representativeness on service recipient experiences should generalize to other service environments. A clear direction for future research is to test the hypotheses presented in this study in other cultures and organization types.

Second, the measure of the construct of incivility used in this study has not been previously validated. This concern is somewhat mitigated by the fact that the items reflect the conceptual components of respect and courtesy that are typically addressed in measures of civility and are internally consistent (e.g., Cortina et al., 2001). Third, it is possible that systematic differences in the likelihood that employees responded to their survey were a function of ethnicity, and thus the survey data yielded a biased estimate of organizational diversity. However, the profile of ethnicity among respondents is very similar to the national profile, as indicated by overall NHS workforce statistics. Fourth, the nature of the available data precludes causal inferences; it is possible that alternative models could be posed to explore the patterns of correlations between variables. It is particularly important to note that the performance ratings and civility surveys were conducted at essentially the same time. Poor performance could affect employee and customer attitudes, rather than the reverse (Schneider et al., 2005).

Fifth, high correlations between some of the variables—particularly organizational diversity, community diversity, and demographic representativeness—give rise to potential concerns about multicollinearity between predictors in some of the analysis. To this end, we applied relative importance analysis (Johnson, 2000) for Hypothesis 4b, which showed that demographic representativeness has far greater importance than the other diversity variables. Sixth, the amount of variance in organizational performance explained by civility is small (1–6%). Nevertheless, being able to explain, predict, and influence even small percentages of performance can be critical for organizations. In addition, given the complexity of the task and range of influences on the quality of services, the fact that representativeness can explain even 1 percent could be of great importance. Seventh and finally, although a strength of this work is its focus on organization-level phenomena, it would also be useful to consider individual-level processes that give rise to incivility in service provider–recipient interactions. Although the current study was focused on incivility toward service recipients, given its anticipated proximal effects on organizational performance, future research should also explore incivility toward coworkers and among community members.

CONCLUSIONS

The results of the current study suggest that when organizations do not reflect the demography of the communities in which they are embedded, dysfunctional social categorization processes and manifestations of negative intergroup behaviors can emerge. In light of global trends toward increasingly diverse communities and workplaces, it is imperative that management scholars and practitioners attend to demography both within and outside of organizations. Ultimately, organizations may be most successful when the challenges that arise from diverse interactions are overcome through civility.

REFERENCES


**APPENDIX A**

NHS Acute Inpatient Survey Questions Submitted to Factor Analysis

1. When you had important questions to ask a doctor, did you get answers that you could understand?
2. Did you have confidence and trust in the doctors treating you?
3. Did doctors talk in front of you as if you weren’t there?
4. When you had important questions to ask a nurse, did you get answers that you could understand?
5. Did you have confidence and trust in the nurses treating you?
6. Did nurses talk in front of you as if you weren’t there?
7. Sometimes in a hospital, a member of staff will say one thing and another will say something quite different. Did this happen to you?
8. Were you involved as much as you wanted to be in decisions about your care and treatment?
9. How much information about your condition or treatment was given to you?
10. If your family or someone else close to you wanted to talk to a doctor, did they have enough opportunity to do so?
11. Did you find someone on the hospital staff to talk to about your worries and fears?
12. Were you given enough privacy when discussing your condition or treatment?
13. Were you given enough privacy when being examined or treated?
14. Overall, did you feel you were treated with respect and dignity while you were in the hospital?

Eden B. King (eking6@gmu.edu) is an assistant professor of psychology at George Mason University. She received her Ph.D. in organizational psychology from Rice University. Her research focuses on understanding and improving the experiences of stigmatized employees.

Jeremy Dawson (j.f.dawson@aston.ac.uk) is a senior lecturer at Sheffield University. His research focuses on the management of health care professionals, diversity and team working processes, and the application of statistical procedures to research in management and psychology.

Michael A. West (m.a.west@aston.ac.uk) is professor of organizational psychology at Lancaster University Management School. He received his Ph.D. from the University of Wales. His research focuses on team innovation and effectiveness and on the links between leadership, human resource management, and health services effectiveness.

Veronica L. Gilrane (vgilrane@gmu.edu) is a doctoral student in the industrial organizational department of psychology at George Mason University. Her primary research interests are in workplace diversity and inclusion with a particular focus on perceptions and experiences of women and minorities.

Chad I. Peddie (cpeddie1@gmu.edu) is a doctoral student in the Industrial Organizational Psychology Program at George Mason University. His general research interests involve organizational diversity and the experiences of minority group members in the workplace.

Lucy Bastin (l.bastin@aston.ac.uk) is a senior lecturer in computer science at Aston University. Her research applies spatiotemporal analysis techniques to a variety of environmental, ecologic and sociodemographic challenges, including disease mapping and monitoring, conservation planning, and emergency decision making.