



Published in final edited form as:

Res Nurs Health. 2012 June ; 35(3): 265–276. doi:10.1002/nur.21467.

Demographic Diversity, Value Congruence, and Workplace Outcomes in Acute Care

Michael G. Gates [Assistant Professor] and

School of Nursing, San Diego State University San Diego, CA

Barbara A. Mark [Sarah Frances Russell Professor]

School of Nursing, University of North Carolina at Chapel Hill Chapel Hill, NC

Abstract

Nursing scholars and healthcare administrators often assume that a more diverse nursing workforce will lead to better patient and nurse outcomes, but this assumption has not been subject to rigorous empirical testing. In a study of nursing units in acute care hospitals, the influence of age, gender, education, race/ethnicity, and perceived value diversity on nurse job satisfaction, nurse intent to stay, and patient satisfaction were examined. Support was found for a negative relationship between perceived value diversity and all outcomes and for a negative relationship between education diversity and intent to stay. Additionally, positive relationships were found between race/ethnicity diversity and nurse job satisfaction as well as between age diversity and intent to stay. From a practice perspective, the findings suggest that implementing retention, recruitment, and management practices that foster a strong shared value system among nurses may lead to better workplace outcomes.

Keywords

diversity; values; job satisfaction; intent to stay

The composition of the registered nurse (RN) workforce has undergone gradual changes over the past 30 years. What was once a demographically homogeneous workforce, dominated by young, White women prepared primarily in diploma nursing programs, has become increasingly diverse in regard to age, gender, race/ethnicity, and educational preparation (Dower, McRee, Briggance, & O'Neil, 2001; Health Research Services Administration, 2010; Shea-Lewis, 2002). This growing diversity of the nursing workforce is likely to continue into the future, as healthcare administrators look for ways to attenuate current and future nursing workforce shortages.

Currently, healthcare administrators frequently assume that increasing the diversity of the nursing workforce will have beneficial results (Gillis, 2010). This assumption has been buoyed in recent years by health services researchers who have argued that for hospitals to improve quality of care, decrease racial disparities in health, and provide more culturally competent care, the nursing workforce must more accurately reflect the diversity of the population it serves (Coffman, Rosenoff, & Grumbach, 2001). Although the assumption that a more diverse nursing workforce will lead to better outcomes is intuitively appealing, it has not been subject to rigorous empirical testing.

The purpose of this study was to examine the effects of both surface-level diversity (diversity based on observable characteristics, such as age, gender, or race/ethnicity) and deep-level diversity (diversity based on less observable characteristics, such as education or values) within nursing units on nurses' job satisfaction, nurses' intention to stay, and patient satisfaction. This distinction between surface-level and deep-level diversity has a high level of relevance to nursing because, for instance, although educational differences (deep-level diversity) are currently quite pronounced within the nursing workforce, the largest rate of expected growth in the nursing workforce will involve race/ethnicity and gender (surface-level diversity; Buerhaus, 2008). In addition, our selection of these diversity attributes is consistent with the relational demography literature (e.g., Mannix & Neale, 2005; Phillips, Northcraft, & Neale, 2006) and social identity theory (Tajfel & Turner, 1986; Turner, 1987).

Background

Despite an increase in the diversity of the nursing workforce, nursing and health services researchers have done little to explore the impact of diversity on nursing and patient outcomes. Social psychology and business researchers, however, have examined the effects of diversity on various workplace outcomes, but their findings are mixed. Some investigators found support for the deleterious effects of workforce diversity, such as increased turnover, low employee satisfaction, communication difficulties, intra-group conflict, and low performance (Mannix & Neale, 2005, Williams & O'Reilly, 1998). Other investigators have pointed to positive effects of diversity. For instance, their findings show that when people with diverse demographic characteristics are together in groups or organizational settings, the different perspectives lead to more creative solutions to problems (Giambatista & Bhappu, 2010). One drawback of the research showing support for diversity is that the studies have been conducted primarily in laboratory settings (e.g., in Master's in Business Administration classrooms; Mannix & Neale, 2005). Although findings from laboratory settings are important in establishing potential relationships between diversity and outcomes, until they are replicated in actual work settings, they offer healthcare administrators very little in the way of understanding how diversity affects actual individual or group outcomes.

Findings from research on diversity in actual work settings have, for the most part, shown that as the level of diversity within work teams increases, individual employee satisfaction decreases, individual and group performance decreases, and individual employee intentions to leave increase (e.g., Jackson, Joshi, & Erhardt, 2003; Randel & Jaussi, 2003; Shore et al., 2009). Although findings from research on diversity have shown that increased demographic differences lead to deleterious outcomes, there have been inconsistencies across studies concerning which demographic attributes lead to particular outcomes. In addition, because the nursing profession has not been a targeted population in the relational demography literature (with the exception of Pfeffer and O'Reilly's 1987 study), it is important to investigate which types of diversity are associated with which outcomes within the context of nursing.

Diversity not only involves individual characteristics, it also involves how individuals perceive and categorize others into groups, such as Whites versus racial minorities (Hogg & Terry, 2000). Although there are numerous attributes one can use to categorize individuals, previous researchers have shown that surface-level characteristics, such as age, race/ethnicity, and gender, are most frequently used for making social categorizations and tend to evoke responses based on biases and stereotypes (DeArmond et al., 2006; Mohammed & Angell, 2004). In addition to surface-level characteristics, deep-level characteristics, such as educational background and values, also can be used as a basis for categorization. Even though deep-level attributes tend not to be immediately observable, the complex differences

in perspectives, assumptions, and beliefs that accompany a particular deep-level attribute also can create difficulties in group functioning (Milliken & Martins, 1996). Further, Harrison, Price, Gavin, and Florey (2002) argued that, over time, the effects of surface-level diversity weaken as the effects of deep-level diversity become stronger.

One of the deep-level diversity characteristics we considered is educational background. Educational background has been established in the diversity literature as a deep-level diversity characteristic (e.g., Phillips et al., 2006). Nurses' education gained prominence in the nursing literature largely due to the findings of Aiken, Clarke, Cheung, Sloane, and Silber (2003) who found that hospitals with higher proportions of RNs trained at the baccalaureate level had better patient outcomes. Another type of deep-level diversity we examined involved the values held by individuals. Although not readily observable, perceptions of how similar one's values are to those held by others within a work group or organization have been shown to create major differences among group members resulting in negative effects on outcomes, such as increased turnover, dissatisfaction, and decreased performance/effectiveness (Cable & DeRue, 2002; Klein, Knight, Ziegert, Lim, & Saltz, 2011). For a hospital setting, nurses within a unit may not perceive that they share the same values that are being supported or promoted by healthcare administrators on the unit where they work (e.g., how much they value helping other nurses, being committed to quality care, and upholding policies and procedures).

Conceptual Framework

In this study, the effects of age, gender, race/ethnicity, education, and perceived value diversity in acute care nursing units were examined using relational demography as the conceptual framework. This framework can be traced to the work of Pfeffer (1983), who suggested that the key dimension of interest in diversity research is an individual's attributes in relation to the attributes of others in the unit or organization in which he or she works. For example, nurses who are substantially younger than others on their unit will have a different experience than nurses who are about the same age as other nurses on their unit.

Although several theories have been used as the theoretical basis for relational demography studies, social identity theory (Tajfel & Turner, 1986; Turner, 1987) is the most dominant. Social identity offers an explanation for how individuals relate to others in their group or organization based on surface-level and deep-level attributes. According to social identity theory, individuals classify themselves and others into social categories using such characteristics as race/ethnicity, age, gender, and education (Hogg & Terry, 2000; Turner, 1987). Group members are classified as being a part of the in-group when they share one's own characteristics with the group; out-group members differ on these characteristics (Hogg & Terry, 2000).

In-group members tend to be regarded positively; out-group members are likely to be regarded somewhat negatively (Kramer, 1991; Tajfel & Turner, 1986). Difficulties stemming from in-group favoritism can occur when both in-group members and out-group members are included in the same work group (e.g., nursing unit). For instance, individuals in a diverse nursing unit are likely to strive to maintain their self-esteem by using tactics such as stereotyping, prejudice, and polarization to make in-group members seem more favorable than out-group members (Goldberg, Riordan, & Schaffer, 2010; Lawrence, 1997). These tactics are thought to cause intra-group conflict and communication breakdowns in diverse work groups resulting in negative outcomes at the individual and group level, such as decreased satisfaction and performance and increased turnover (Mannix & Neale, 2005).

From a social identity theory perspective, therefore, we developed hypotheses that posited that increasing diversity would result in negative outcomes (e.g., lower nurse job satisfaction, lower intent to stay, and lower patient satisfaction).

1. The greater the diversity based on age, the more negative the outcomes.
2. The greater the diversity based on gender, the more negative the outcomes.
3. The greater the diversity based on race/ethnicity, the more negative the outcomes
4. The greater the diversity based on education, the more negative the outcomes.
5. The greater the diversity based on values, the more negative the outcomes.

Methods

Sample and Procedure

This Institutional Review Board-approved study is a secondary analysis of data drawn from the Outcomes Research in Nursing Administration Project (ORNA II), a multi-site longitudinal non-experimental study in which the researchers investigated the relationships among RN staffing adequacy, work environments, and organizational outcomes (Mark et al., 2007, 2008). The ORNA II national sample was drawn from 146 randomly selected non-federal, non-psychiatric, not-for-profit, Joint Commission-accredited acute care hospitals with more than 150 beds. The ORNA II sample included approximately 2,900 patients and 6,500 RNs from 286 general and specialty medical-surgical nursing units. Data collection on each participating nursing unit occurred over a 6-month period beginning in January of either 2003 or 2004. Nurses who had worked on participating nursing units for longer than 1 year were asked to complete three surveys during that 6-month period. Demographic data were collected during the first survey in month 1. Information related to value diversity and intent to stay was collected with the second survey in month 3. Finally, data concerning job satisfaction were collected with the third survey in month 5. In addition, during the 5th month, patients who were age 18 or older, hospitalized for at least 48 hours, and able to respond to an English-language questionnaire were asked to complete a patient satisfaction survey.

Because relational measures of diversity are defined in terms of how different an individual is from those with whom he/she works, measurement of diversity should be based on data from at least the simple majority of all eligible members of that workgroup (Simons, Pelled, & Smith, 1999; van Knippenberg, De Dreu, & Homan, 2004). Therefore, only units that had response rates of >50% on the demographic nurse survey were included in the analyses. This resulted in a final unit-level sample of 239 units from 133 hospitals. Further, because all three of the nurse surveys contained variables that were integral to the study, nurses had to have completed all three surveys to be included in the final individual-level analyses. Thus, the individual-level sample consisted of 1,450 nurses working on 239 units from 133 hospitals. Table 1 shows the descriptive statistics for the variables in this study.

Measures

Demographic diversity—The most commonly used measure of demographic diversity, the difference score (*d*-score; Tsui, Egan, & O'Reilly, 1992; Wagner, Pfeffer, & O'Reilly, 1984), was used to measure demographic diversity in the current study. The *d*-score is calculated using an Euclidian distance formula that measures an individual's actual dissimilarity on a particular demographic attribute relative to all the other individuals in a group.

It is the square root of the summed squared differences between an individual's value (S_i) on a specific demographic variable and the value on the same variable for every other individual (S_j) in the sample for that work unit, divided by the total number of respondents in that unit (n). The following formula was used for this calculation: $[(1/n) \sum (S_i - S_j)^2]^{1/2}$. (Tsui et al., 1992, p.562)

A separate d -score was derived for each demographic variable of interest in the current study (e.g., age, race/ethnicity, gender, and educational background). Larger d -score values connote higher levels of dissimilarity. An individual with a larger d -score differs more, for a specific demographic attribute, from other individuals in the nursing unit with smaller scores. The actual d -scores observed for age ranged from 2.69 to 35.17. The d -scores for gender, race/ethnicity, and educational background, however, ranged from 0 to a score never reaching 1.00 because these d -score values were based on dichotomous control variables.

Perceived value diversity—Perceived value diversity was defined as an individual's perception of how similar her or his values are to the prevailing values on the unit where s/he works. Traditionally, studies in which investigators measured an individual's value fit used actual measures of fit such as O'Reilly, Chatman, and Caldwell's (1991) Organizational Culture Profile (OCP). Cable and Judge (1996) concluded, however, that perceptions of value congruence are preferable to the value-specific OCP measure, based on their findings that perceptions of how closely one's values match those of others were related to job satisfaction while the OCP measure showed no relationship.

Cable and Judge's (1996) 3-item person-organization fit scale was modified in the current study so that each item referenced the nursing unit instead of the organization. The 3-item scale was based on a Likert-type format with 6 response options, ranging from *strongly agree* to *strongly disagree* with no neutral option. The 3-items were: (a) My values match the values of this unit; (b) I am able to maintain my values on this unit; and (c) My values prevent me from fitting in on this unit because they are different from the values on my unit (reverse scored). Items were summed, averaged, and reversed so that higher scores indicated greater levels of perceived value diversity. An individual's score could range from 1 to 6 with 6 representing the highest perceived value diversity. A principal axis factor analysis was conducted on the three person-unit fit items and verified a one-factor solution as found by Cable and Judge. In addition, the person-unit fit scale had a coefficient alpha of .80.

Individual-level outcome variables—Nurse job satisfaction was measured using the Organizational Job Satisfaction Scale (OJSS; Hinshaw & Atwood, 1983-85). This scale is based on selected items from Stamps' Index of Work Satisfaction (1997), which has been used by researchers for more than 30 years and continues to be used as one of the National Database of Nursing Quality Indicators (NDNQI) key indicators (Taunton et al., 2004). The OJSS is a 27-item scale that has a Likert-type format with 6 response options, ranging from *strongly agree* to *strongly disagree* with no neutral option. The items of this scale were modified in the ORNA II study so that they consistently assessed a nurse's perception of unit job satisfaction rather than organizational job satisfaction. A principal axis factor analysis confirmed the 4-factor solution found by Sauter et al. (1997). Items were summed and averaged so that higher scores indicated greater levels of job satisfaction. Scores could range from 1 to 6 with 6 representing the highest level of job satisfaction. The coefficient alpha for this scale was .87.

Intent to stay was measured using the following three items: (a) I would prefer another job to the one I have now; (b) If I have my way, I will not be working on this unit a year from now; and (c) I have seriously thought about leaving this unit. This 3-item scale was based on a Likert-type format with 6 response options, ranging from *strongly agree* to *strongly disagree*.

disagree with no neutral option. Items were summed and averaged so that higher scores represented stronger intent to stay on that unit. Scores could range from 1 to 6 with 6 representing the highest level of intent to stay. A principal axis factor analysis yielded a one-factor solution, verifying a one-factor solution found by Tsui et al. (1992). The coefficient alpha of the 3-item scale in this study was .90.

Unit-level outcome variable—Patient satisfaction was measured using a 13-item patient satisfaction scale created by Mark, Salyer, and Wan (2003). This questionnaire was developed by modifying and combining questions from two distinct scales measuring patient satisfaction (Carey & Seibert, 1993; Dameier, 1994). Items specifically addressed the patient's satisfaction with the nursing care s/he received on the nursing unit. This 13-item scale was based on a Likert-type format with 4 response options, ranging from *poor* to *excellent* or *never* to *always* with no neutral option. A principal axis factor analysis resulted in a two-factor solution. Items were summed and averaged at the unit level so that higher scores indicated greater patient satisfaction with the nursing care received on the unit. Scores could range from 1 to 4 with 4 representing the highest level of patient satisfaction. The coefficient alpha was .93 in this sample.

Control variables—Following earlier relational demography research, age, race/ethnicity, gender, and education background (at the individual-level or unit-level, depending on the level of the outcome variable) were included (Stewart & Garcia-Prieto, 2008; Tsui et al., 1992). Age was measured in years. Gender was measured as a dichotomous variable with 1 designating *male* and 0 designating *female*. For the race/ethnicity variables, a series of dichotomous dummy variables was created for Whites, Hispanics (this allowed us to capture individuals who did not self-report any race, but who identified their ethnicity as Hispanic), Native Americans, African Americans, Asians, and others. Another series of dichotomous dummy variables was created to represent education (i.e., diploma in nursing, associate degree in nursing, baccalaureate degree in nursing, and graduate degree in nursing).

Analytic Approach

Because the clustering of data in our study (e.g., nesting of individual nurses within nursing units and nursing units within hospitals) violates the standard assumption of independent observations, all hypotheses were evaluated using multilevel modeling techniques, also known as hierarchical linear modeling or mixed effects modeling. Multilevel modeling accounts for the clustering of observations by extending conventional regression to allow for both fixed effects (e.g., intercepts and slopes meant to describe the population as a whole) and random effects (e.g., intercepts and slopes that can vary across subgroups within the sample; Rabe-Hesketh & Skrondal, 2008). We performed multi-level mixed-effects linear regression models for nurse job satisfaction, nurse intent to stay, and patient satisfaction with nursing units ($n = 239$) nested in hospitals ($n = 133$). We determined that the random-slope parameters of the nursing unit characteristics in our three level models were not statistically significant. Our final models, therefore, were simple random intercept models. We used STATA 11 ® (College Station, TX) for all our analyses using the “xtmixed” commands for multi-level models.

Because it is difficult to parcel out an individual nurse's contribution to the satisfaction that a patient experiences, analyses with patient satisfaction as an outcome measure were carried out at the unit-level (e.g., two-level model with nursing units nested within hospitals). The r_{wg} developed by James, Demaree, and Wolf (1984) was used to determine whether the value diversity and patient satisfaction measures could be aggregated to the unit-level. In this study the mean r_{wg} scores for the value diversity and patient satisfaction measures were both over the .70 threshold (.79 and .83 respectively), indicating adequate within-unit

agreement and justification for aggregation of individual-level data to the unit-level (Klein & Kozlowski, 2000).

Results

Table 2 shows the results of the multi-level regression analyses. Hypothesis 1, which purported that age diversity would be negatively related to nurse job satisfaction, nurse intent to stay, and patient satisfaction, received no support. In contrast to what was hypothesized, increased age diversity was significantly associated with higher levels of intent to stay.

Because the lack of directionality of the d -score used to measure age diversity in this study may have masked differences between younger and older nurses, separate analyses for the nurse job satisfaction and intent to stay models were conducted for nurses aged 33 years or younger ($n = 399$) and those nurses aged 49 years or older ($n = 331$). These represent the bottom and top quartiles of the age range respectively (see Table 3). Overall, these 2 quartiles had age diversity means (15.53 for nurses under the age of 33 and 17.00 for nurses over the age of 49) that were higher than the age diversity mean for the total individual sample (13.66). The age diversity findings for intent to stay and job satisfaction models comparing older and younger nurses were not significant.

Hypothesis 2, which predicted gender diversity would be negatively related to nurse job satisfaction, nurse intent to stay, and patient satisfaction, was not supported. Although not significant, the beta coefficients were positive (e.g., opposite of the direction hypothesized) in all three models as shown in Table 2.

Hypothesis 3, regarding race/ethnicity, also was not supported. Increased race/ethnicity diversity, however, was associated with higher levels of nurse job satisfaction, which was opposite to what was hypothesized. The possibility that there may be differences in how race/ethnicity diversity affects job satisfaction and intent to stay for older versus younger nurses was examined (see Table 3). Race/ethnicity diversity had a positive effect on job satisfaction for older but not younger nurses.

Hypothesis 4, the education diversity hypothesis was not supported for either the nurse or patient satisfaction models. As predicted, however, and as shown in Table 2, increased education diversity was associated with lower levels of intent to stay. When this relationship was examined for younger versus older nurses, higher education diversity was associated with lower levels of intent to stay for the younger nurses only (see Table 3).

Hypothesis 5, regarding perceived value diversity, was supported for all models, including the models for younger versus older nurses, in the hypothesized negative direction. In each of the models, the less similar nurses perceived themselves to be relative to others in their unit in terms of values (e.g., greater perceived value diversity), the less likely they were to be satisfied with their jobs and the less likely they were to report intent to stay in their current position (see Tables 2 and 3). In addition, from a unit-level perspective, having more perceived value diversity was significantly associated with a corresponding decrease in the level of patient satisfaction with the nursing care received on the unit.

Discussion

The findings from this study provide information about how diversity influences outcomes (nurse job satisfaction, nurse intent to stay, and patient satisfaction) in a nursing context, a context that has been understudied in diversity research. With the exception of the negative effect of education diversity on intent to stay, age, gender, race/ethnicity, and education

diversity were not negatively related to the outcomes considered as hypothesized. Perceived value diversity, however, had consistent negative effects on all outcomes.

A possible explanation for the lack of statistically significant results for age diversity in the current study is that, because the average age for RNs has increased at a faster rate than most other professions over the past few decades (Buerhaus, 2008; Buerhaus, Auerbach, & Staiger, 2009), differences in age may be more common and more readily accepted in the nursing profession. In addition, age differences may be beneficial because older nurses may be viewed as a valued resource for younger nurses given the knowledge that older nurses have accrued through their experiences. Age diversity, therefore, may not pose as many challenges as other identities (such as value diversity or race/ethnicity diversity) for nurses when they categorize others, resulting in the unexpected lack of effects that age diversity had on outcomes overall.

A possible explanation for the results related to gender is that, because men represented only 4.8% of the individual-level sample and only 7.0% of the group-level sample, there may not have been sufficient gender diversity to detect effects that otherwise might have been present. The lack of significant findings for gender diversity found in this study could also be related to the interaction between occupation and social status. Traditionally, jobs held by White males have been viewed as having higher status whereas jobs held predominantly by minorities and women have been unjustly labeled as having lower status (e.g. nursing; Stephan & Stephan, 1985). Women in nursing may not view the increased percentage of men in nursing as a threat but instead welcome it as a way of increasing the social status of the nursing profession. This lack of resistance by women to men entering the nursing profession was illustrated by Ott (1989) who examined 49 nurse teams and found nurses reacted favorably when more men were introduced into their workgroups. If the percentage of males in nursing increases over the next few decades as expected, however, it will be important to see if the findings presented in this study concerning gender diversity change.

The unexpected findings related to race/ethnicity diversity may be due to differences between younger and older individuals concerning how race/ethnicity affects them. The younger versus older nurse analyses revealed that race/ethnicity diversity had a positive effect on job satisfaction for older nurses and not for younger nurses. This is counter to the expectation that younger individuals would be socialized to be more accepting of diversity based on race/ethnicity. Overall, our results highlight that race/ethnicity diversity may have differential effects on outcomes depending on the age cohort to which one belongs.

The expected findings related to education diversity in the intent to stay model may be explained by the attention given to RNs' educational preparation since the publication of Aiken et al.'s (2003) article, which occurred during ORNA II data collection. Although Aiken et al. never made any claims concerning the merits of baccalaureate nursing education over diploma or associate degree nursing education, media coverage of the article may have made individual nurses more aware of their own educational backgrounds. This heightened awareness may have made educational background a more relevant attribute on which nurses based their categorizations, affecting the results found in this study for educational diversity.

The perceived value diversity findings were the only results that supported the hypotheses across all three models. These results are consistent with the person-organization fit literature in which the construct of "fit" based on values has been linked to outcomes, such as employee attitudes and behaviors, employee intent to stay, and both individual and group-level performance (e.g., Bretz & Judge, 1994; Chatman, 1991; Harris & Mossholder, 1996). Further confirmation of the results of perceived value diversity is illustrated by the work of

Harrison et al. (2002). These researchers found that the relationships between deep-level diversity (e.g., based on attitudes, beliefs, and values) and organizational outcomes, such as performance and satisfaction, became stronger over time while the relationships between surface-level diversity (e.g., diversity based on age, race/ethnicity, and gender) became weaker over time. The lack of support for the hypotheses (other than perceived value diversity) suggests that social identity theory does not adequately explain the effects of diversity on outcomes within a nursing context.

There are several policy implications of these results. First, if the Institute of Medicine's *Future of Nursing* (2011) recommendation to raise the percentage of nurses with a baccalaureate in nursing to 80% by 2020 is realized, the resulting decrease in the educational diversity of the nursing workforce may lead to an increase in nurses' intent to stay. We also suggest that healthcare administrators should consider placing nurses on units such that the educational diversity on each unit is minimized and, if information about nurses' value diversity is available, the value diversity of a unit also should be kept at a low level. Finally, based on our findings we suggest that policy initiatives focusing on increasing nursing's racial, gender, and age diversity, such as Johnson & Johnson's (2010) Campaign for Nursing's Future, should continue because these forms of diversity are associated with positive (or at worst, neutral) outcomes.

Several limitations to this study should be noted. First, this study is a secondary analysis of data that were collected from RNs longitudinally (over a 6 month period) to temporally order certain study variables so that beginning casual inferences outlined in the original ORNA II conceptual model could be made. The assumption was made that diversity would affect nurse and patient outcomes 6 months later. However, this timing may not have been correct, and future research using varying temporal lags might reveal different results.

Second, major economic developments have occurred since these data were collected. The economic downturn has resulted in many nurses returning to work and/or foregoing retirement, thereby temporarily easing the nursing workforce shortage (Buerhaus et al., 2009). Further, it is unclear how the economic downturn and the tightening of the nursing labor market have affected the diversity of the nursing workforce. Thus, the current study provides valuable insight into how diversity affects nursing and patient outcomes in acute care hospital settings during a more stable economic time, and provides a baseline for researchers interested in comparisons over time. We believe that the findings regarding perceived value diversity in particular are useful today because the nursing shortage has eased temporarily such that healthcare administrators may now have the opportunity to be more selective in who they hire and to pay more attention to how prospective nurses fit within the organization.

Future Research

One of the problems with relational demography literature and diversity research in general is that the effect of a particular diversity characteristic is almost exclusively examined in isolation, as was the case in this study. Doing so creates an artificial situation that one would not find in the workplace where all different types of diversity are present in different combinations and strengths. Specifically, there may be certain combinations of diversity that, when aligned, create strong faultlines that could divide work groups into subgroups based on more than one surface-level or deep-level attribute (Lau & Murringham, 1998). Future diversity researchers, therefore, should explore the use of the faultline model developed by Lau and Murringham (1998) to determine whether there are certain combinations of diversity attributes that are problematic for nursing workgroups in acute care settings.

Another challenge faced by researchers conducting relational demography research is determining which attributes used to create diversity measures are most relevant to the individuals or workgroups being studied. For example, age and education may be viewed as important to one individual but not to another or for one outcome but not for another. Simply including multiple measures of diversity, therefore, may not provide researchers with a complete understanding of how diversity affects outcomes. Instead, future research needs to be based on the surface-level and deep-level attributes that are most important to the individuals participating in the study. Because social identity theory does not do a sufficient job of isolating relevant attributes, complementary theories such as status characteristic theory (Berger, Cohen, & Zelditch, 1972) could be used in conjunction with social identity theory to develop a better theoretical basis from which to determine the attributes that are most relevant for categorization in a nursing context. Alternately, researchers could simultaneously measure the relevance of specific identities using survey items. These survey items would involve asking individuals questions such as “When people ask me about who is in the group, I initially think of describing group members in terms of gender composition (e.g., 2 women and 3 men)” and “Even though I don’t mean to, I think of gender as the most prominent characteristic of my fellow group members” (Randel, 2002). By using these types of survey items, researchers may be able to make a stronger link between diversity and outcomes.

Future research on diversity in nursing contexts should also consider how the results may differ as a function of one’s age cohort. In this study, we found interesting results pertaining to both race/ethnicity diversity and education diversity that differed when younger versus older nurses were compared. This approach of analyzing the data by age cohort is similar to that used by Lawrence (1988), who found that the effect of age norms (e.g. the ranges of ages that are considered acceptable to others in a unit) on job satisfaction was dependent on the actual age group to which an individual belonged. When examining how diversity affects nurse outcomes, future research should take into account that diversity may have varying effects depending on an individual’s age group.

In conclusion, the results found in this study should encourage further research related to how differences based on surface-level and deeper-level individual attributes affect the processes and outcomes of individuals and groups. The diversity of nursing workgroups across the United States will continue to grow over the next decades. Research that examines and better articulates the processes and outcomes associated with these differences will be crucial if organizations are to meet the challenges of having increasingly heterogeneous nursing workgroups. Currently, healthcare administrators face a difficult challenge. They must overcome any negative effects that diversity has on various outcomes, while at the same time harnessing the benefits that diversity can bring to the workplace (e.g., differences in perspective and increased innovation). Future work related to how workgroup diversity affects various outcomes may therefore provide healthcare administrators with information needed to address the challenges that diversity creates from both a theoretical and a practical perspective.

Acknowledgments

The authors wish to thank the anonymous reviewers, Associate Editor, and Editor for their thoughtful reviews of and suggestions for this manuscript.

This research was supported in part by grants from the National Institute of Nursing Research (T32 NR088856 & 2R01NR03149).

References

- Aiken LH, Clarke SP, Cheung RB, Sloane DM, Silber JH. Educational levels of hospital nurses and surgical patient mortality. *JAMA*. 2003; 290:1617–1623. doi:10.1001/jama.290.12.1617. [PubMed: 14506121]
- Berger J, Cohen BP, Zelditch M. Status characteristics and social interaction. *American Sociological Review*. 1972; 37:241–255.
- Bretz RD Jr, Judge TA. Person-organization fit and the theory of work adjustment: Implications for satisfaction, tenure, and career success. *Journal of Vocational Behavior*. 1994; 44:32–54. doi: 10.1006/jvbe.1994.1003.
- Buerhaus P. Current and future state of the US nursing workforce. *JAMA*. 2008; 300:2422–2424. doi: 10.1001/jama.2008.729. [PubMed: 19033594]
- Buerhaus PI, Auerbach DI, Staiger DO. The recent surge in nurse employment: Causes and implications. *Health Affairs*. 2009; 28:w657–w668. doi:10.1377/hlthaff.28.4.w657. [PubMed: 19525286]
- Cable DM, DeRue DS. The convergent and discriminant validity of subjective fit perceptions. *Journal of Applied Psychology*. 2002; 87:875–884. doi:10.1037//0021-9010.87.5.875. [PubMed: 12395812]
- Cable DM, Judge TA. Person-organization fit, job choice decisions, and organizational entry. *Organizational Behavior and Human Decision Processes*. 1996; 67:294–311. doi:10.1006/obhd.1996.0081.
- Carey RG, Seibert J. A patient survey system to measure quality improvements: Questionnaire reliability and validity. *Medical Care*. 1993; 31:834–845. [PubMed: 8366685]
- Chatman J. Matching people and organizations: Selection and socialization in public accounting firms. *Administrative Science Quarterly*. 1991; 36:459–484. doi:10.2307/2393204.
- Coffman JM, Rosenoff E, Grumbach K. Racial/ethnic disparities in nursing. *Health Affairs*. 2001; 20:263–272. doi:10.1377/hlthaff.20.3.263. [PubMed: 11585176]
- Dameier, B. Sun Health. 1992 Patient satisfaction monitoring study (executive report). Professional Research Consultants; Omaha, NE: 1994.
- DeArmond S, Tye M, Chen PY, Kraus D, Rogers DA, Sintek E. Age and gender stereotypes: New challenges in a changing workplace and workforce. *Journal of Applied Social Psychology*. 2006; 36:2184–2214. doi:10.1111/j.0021-9029.2006.00100.x.
- Dower, C.; McRee, T.; Briggance, B.; O’Neil, E. Diversifying the nursing workforce: A California imperative. California Workforce Initiative, University of California, San Francisco Center for the Health Professions; San Francisco, CA: Feb. 2001 2001
- Giambattista RC, Bhappu AD. Diversity’s harvest: Interactions of diversity sources and communication technology on creative group performance. *Organizational Behavior & Human Decision Processes*. 2010; 111:116–126. doi:10.1016/j.obhdp.2009.11.003.
- Gillis CL. Making the case for nursing workforce diversity. *Nursing Outlook*. 2010; 58:223–224. doi: 10.1016/j.outlook.2010.07.002. [PubMed: 20934076]
- Goldberg CB, Riordan C, Schaffer BS. Does social identity theory underlie relational demography? A test of the moderating effects of uncertainty reduction and status enhancement on similarity effects. *Human Relations*. 2010; 63:903–926. doi:10.1177/0018726709347158.
- Harris S, Mossholder K. The affective implications of perceived congruence with culture dimensions during organizational transformation. *Journal of Management*. 1996; 22:527–547. doi: 10.1016/S0149-2063(96)90023-9.
- Harrison DA, Price KH, Gavin JH, Florey AT. Time, teams, and task performance: Changing effects of surface- and deep-level diversity on group functioning. *Academy of Management Journal*. 2002; 45:1029–1045. doi:10.2307/3069328.
- Health Resources and Services Administration. U.S. Department of Health and Human Services. The registered nurse population: Findings from the 2008 national sample survey of registered nurses. 2010. Retrieved from <http://bhpr.hrsa.gov/healthworkforce/rnsurveys/rnsurveyfinal.pdf>
- Hinshaw, AS.; Atwood, JR. Anticipating turnover among nursing staff study: Final report. U.S. Department of Health and Human Services, Division of Nursing; Rockville, MD: 1983-1985. p. 292-305.DHHS Division of Nursing Grant No. 1 RO1 NU00908

- Hogg MA, Terry DJ. Social identity and self-categorization processes in organizational contexts. *Academy of Management Review*. 2000; 25:121–140. doi:10.5465/AMR.2000.2791606.
- Institute of Medicine. The future of nursing: Leading change, advancing health. The National Academy Press; Washington, DC: 2011.
- Jackson SE, Joshi A, Erhardt NL. Recent research on team and organizational diversity: SWOT analysis and implications. *Journal of Management*. 2003; 29:801–830. doi:10.1016/S0149-2063(03)00080-1.
- James LR, Damaree RG, Wolf G. Estimating within group inter-rater reliability with and without response bias. *Journal of Applied Psychology*. 1984; 69:85–98. doi:10.1037/0021-9010.69.1.85.
- Johnson; Johnson. The campaign for nursing's future progress report. 2010. Retrieved from <http://campaignfornursing.com/2010ProgressReport.pdf>
- Klein KJ, Knight AP, Ziegert JC, Lim BC, Saltz JL. When team members' values differ: The moderating role of team leadership. *Organizational Behavior & Human Decision Processes*. 2011; 114:25–36. doi:10.1016/j.obhdp.2010.08.004.
- Klein, KJ.; Kozlowski, SW., editors. Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions. Jossey-Bass; San Francisco, CA: 2000.
- Kramer R. Intergroup relations and organizational dilemmas: The role of categorization processes. *Research in Organizational Behavior*. 1991; 13:191–228.
- Lau DC, Murnighan JK. Demographic diversity and faultlines: The compositional dynamics of organizational groups. *Academy of Management Review*. 1998; 23:325–340. doi:10.5465/AMR.1998.533229.
- Lawrence BS. New wrinkles in the theory of age: Demography, norms, and performance ratings. *Academy of Management Journal*. 1988; 31:309–337. doi:10.2307/256550.
- Lawrence BS. The black box of organizational demography. *Organization Science*. 1997; 8:1–22.
- Mannix E, Neale MA. What differences make a difference? The promise and reality of diverse teams in organizations. *Psychology Science in the Public Interest*. 2005; 6:31–55.
- Mark BA, Hughes LC, Belyea M, Bacon CT, Chang YK, Jones CA. Exploring organizational context and structure as predictors of medication errors and patient falls. *Journal of Patient Safety*. 2008; 4:66–77. doi:10.1097/PTS.0b013e3181695671.
- Mark BA, Hughes LC, Belyea M, Chang YK, Hofmann D, Jones CB, Bacon CT. Does safety climate moderate the influence of staffing adequacy and work conditions on nurse injuries? *Journal of Safety Research*. 2007; 38:431–446. doi:10.1016/j.jsr.2007.04.004. [PubMed: 17884430]
- Mark BA, Salyer J, Wan TTH. Professional nursing practice: Impact on organizational and patient outcomes. *Journal of Nursing Administration*. 2003; 33:224–234. [PubMed: 12690254]
- Milliken FJ, Martins LL. Searching for common threads: Understanding the multiple effects of diversity in organizational groups. *Academy of Management Review*. 1996; 21:402–433. doi:10.5465/AMR.1996.9605060217.
- Mohammed S, Angell LC. Surface-and deep-level diversity in workgroups: Examining the moderating effects of team orientation and team process on relationship conflict. *Journal of Organizational Behavior*. 2004; 25:1015–1039. doi:10.1002/job.293.
- O'Reilly CA III, Chatman J, Caldwell DF. People and organizational culture: A profile comparison approach to assessing person-organization fit. *Academy of Management Journal*. 1991; 34:487–516. doi:10.2307/256404.
- Ott EM. Effects of the male/female ratio at work: Policewomen and male nurses. *Psychology of Women Quarterly*. 1989; 13:41–57. doi:10.1111/j.1471-6402.1989.tb00986.x.
- Pfeffer J. Organizational demography. *Research in Organizational Behavior*. 1983; 5:299–357.
- Pfeffer J, O'Reilly CA III. Hospital demography and turnover among nurses. *Industrial Relations*. 1987; 26:158–173.
- Phillips KW, Northcraft GB, Neale MA. Surface-level diversity and decision-making in groups: When does deep-level similarity help? *Group Processes & Intergroup Relations*. 2006; 9:467–482. doi:10.1177/1368430206067557.
- Rabe-Hesketh, S.; Skrondal, A. Multilevel and longitudinal modeling using Stata. 2nd ed. Stata Press; College Station, TX: 2008.

- Randel AE. Identity salience: A moderator of the relationship between group gender composition and work group conflict. *Journal of Organizational Behavior*. 2002; 23:749–766. doi:10.1002/job.163.
- Randel AE, Jaussi KS. Functional background identity, diversity, and individual performance in cross-functional teams. *Academy of Management Journal*. 2003; 46:763–774. doi: 10.2307/30040667.
- Sauter MA, Boyle D, Wallace D, Andrews JL, Johnson MS, Bates M, Tauton RL. Psychometric evaluation of the Organizational Job Satisfaction Scale. *Journal of Nursing Measurement*. 1997; 5:53–69. [PubMed: 9505469]
- Shea-Lewis A. Workforce diversity in healthcare. *Journal of Nursing Administration*. 2002; 32:6–7. [PubMed: 11802641]
- Shore LM, Chung-Herrera BG, Dean MA, Erhardt KH, Jung DI, Randel AE, Singh G. Diversity in organizations: Where are we now and where are we going? *Human Resource Management Review*. 2009; 19:117–133. doi:10.1016/j.hrmr.2008.10.004.
- Simons T, Pelled LH, Smith KA. Making use of difference: Diversity, debate, and decision comprehensiveness in top management teams. *Academy of Management Journal*. 1999; 42:662–673. doi:10.2307/256987.
- Stamps, PL. *Nurses and work satisfaction: An index for measurement*. Health Administration Press; Chicago: 1997.
- Stephan WG, Stephan CW. Intergroup anxiety. *Journal of Social Issues*. 1985; 41:157–175. doi: 10.1111/j.1540-4560.1985.tb01134.x.
- Stewart MM, Garcia-Prieto P. A relational demography model of workgroup identification: Testing the effects of race, race dissimilarity, racial identification, and communication behavior. *Journal of Organizational Behavior*. 2008; 29:657–680. doi:10.1002/job.523.
- Tajfel, H.; Turner, J. The social identity of intergroup behavior. In: Worchel, S.; Austin, W., editors. *Psychology and Intergroup Relations*. Nelson-Hall; Chicago, IL: 1986. p. 7-24.
- Taunton RL, Bott MJ, Koehn M,L, Miller P, Rindner E, Pace K, Dunton N. The NDNQI-Adapted Index of Work Satisfaction. *Journal of Nursing Measurement*. 2004; 12:101–122. [PubMed: 16092709]
- Tsui AS, Egan T, O'Reilly CA III. Being different: Relational demography and organizational attachment. *Administrative Science Quarterly*. 1992; 37:549–579. doi:10.2307/2393472.
- Turner, J. *Rediscovering the social group: A social categorization theory*. Blackwell; Oxford, UK: 1987.
- van Knippenberg D, De Dreu CKW, Homan AC. Work group diversity and group performance: An integrative model and research agenda. *Journal of Applied Psychology*. 2004; 89:1008–1022. doi: 10.1037/0021-9010.89.6.1008. [PubMed: 15584838]
- Wagner W, Pfeffer J, O'Reilly CA III. Organizational demography and turnover in top management groups. *Administrative Science Quarterly*. 1984; 29:74–92. doi:10.2307/2393081.
- Williams KY, O'Reilly CA III. Demography and diversity in organizations. *Research in Organizational Behavior*. 1998; 20:77–140.

Table 1

Descriptive Statistics of the Major Study Variables

	Individual-level Sample (<i>n</i> = 1,450)		Unit-level Sample (<i>n</i> = 239)	
	<i>M or %</i>	<i>SD</i>	<i>M or %</i>	<i>SD</i>
Age	40.55	10.69	40.27	4.05
Gender				
Male	4.9%		7.1%	
Female	95.1%		92.9%	
Race/Ethnicity				
White	86.3%		79.6%	
Hispanic	5.3%		8.5%	
Native American	1.5%		1.7%	
African American	4.5%		6.0%	
Asian	0.3%		0.7%	
Race-other	2.1%		3.5%	
Education				
Diploma	16.0%		13.5%	
Associate	43.2%		50.1%	
Baccalaureate	39.1%		34.7%	
Graduate	1.7%		1.7%	
Diversity Variables				
Age diversity	13.66	4.14	13.56	2.50
Gender diversity	0.19	0.23	0.22	0.22
Race/ethnicity diversity	0.36	0.28	0.40	0.28
Education diversity	0.71	0.16	0.70	0.12
Perceived value diversity	2.24	0.92	2.35	0.44
Outcomes Variables				
Job satisfaction	3.99	0.55		
Intent to stay	4.17	1.42		
Patient Satisfaction			3.45	0.21

Table 2

Random Intercept Models for Job Satisfaction, Intent to Stay, and Patient Satisfaction Based on the Effects of Nurses Nested in Units and Hospitals

	Fixed effects coefficients		
	Job satisfaction model ^a (<i>n</i> = 1,450)	Intent to stay model ^a (<i>n</i> = 1,450)	Patient satisfaction model ^{ab} (<i>n</i> = 239)
Control variables			
Age	.00	.01 **	-.00
Male	-.12	-.04	-.25
Hispanic	.01	.10	-.20
American Indian	-.03	.43	-.01
African American	.10	.19	-.26 *
Asian	-.41 *	-.91	-.44
Race-other	-.04	-.30	-.42
Diploma	-.00	.03	.07
Associate	-.04	-.09	.12
Graduate	.07	.44	.05
Diversity variables			
Age diversity	.00	.01 *	.00
Gender diversity	.02	.02	.11
Race/ethnicity diversity	.13 *	.04	.07
Education diversity	-.01	-.65 *	.04
Perceived value diversity	-.27 **	-.90 **	-.12 **
Intercept	4.57 **	5.99 **	3.59 **

^aThe likelihood-ratio test comparing this model to ordinary linear regression was significant ($p < .001$) indicating that between-unit and between-hospital variability were significant.

^bTwo-level simple random effects model for nursing units nested in hospitals

Table 3

Random Intercept Models for Job Satisfaction and Intent to Stay Based on the Effects of Nurses Nested in Units and Hospitals, Among Nurses in the Age < 33 and Age > 49 Cohorts

	Fixed effects coefficients			
	Job satisfaction model for age < 33 ^a (n = 399)	Job satisfaction model for age > 49 ^a (n = 331)	Intent to stay model for age < 33 ^a (n = 399)	Intent to stay model for age > 49 ^a (n = 331)
Control variables				
Age	-.01	-.01	.04 *	.01
Male	-.00	-.12	.34	.01
Hispanic	.04	.03	.13	-.35
American Indian	.21	-.51	.64	-.78
African American	.06	.22	.46	-.16
Asian	-.51		-.23	
Race-other	.17	-.13	.17	-.05
Diploma	-.05	.07	-.16	.15
Associate	-.02	.00	.08	-.13
Graduate	-.06	.02	.99	.33
Diversity variables				
Age diversity	-.01	.01	.03	.02
Gender diversity	.01	-.23	-.38	.28
Race/ethnicity diversity	.05	.39 **	-.22	.57
Education diversity	-.02	.04	-.94 *	-.41
Perceived value diversity	-.26 **	-.30 **	-.90 **	-.92 **
Intercept	5.00 **	4.72 **	5.09 **	5.5 **

^aThe likelihood-ratio test comparing this model to ordinary linear regression was significant ($p < .001$) indicating that between-unit and between-hospital variability were significant.

* $p < .05$.

** $p < .01$.