Attitudes Accentuate Attributes in Social Judgment: The Combined Effects of Substance Use, Depression, and Technical Incompetence on Judgments of Professional Impairment

JASON W. BECKSTEAD

College of Nursing
University of South Florida

ABSTRACT. Evaluative reactions involving attitudes have been shown to affect social judgments under certain conditions. Researchers assume that personality traits and behaviors toward which people hold strong attitudes evoke evaluative reactions. Such reactions influence the importance of these attributes as they are integrated with other information during the formation of social judgments and, in part, account for the accentuation effect. Social judgment was studied in the context of professional-impairment impressions provided by nurses. Data were modeled using hierarchical techniques to examine the interaction between within-judge differences in attribute weighting and between-judges differences in attitudes. Social judgments of fictitious targets were moderated by individual differences in judges' attitudes toward negative target attributes; some, but not all, attributes were accentuated as predicted.

Key words: accentuation, attributes, nurses, professional impairment, social judgments

SOCIAL COGNITION, the manner in which people perceive, judge, and form causal attributions about others, involves evaluative processes (see Haslam & Turner, 1995; Osgood, 1971; Rosenberg, Nelson, & Vivekananthan, 1968). Furthermore, researchers have shown that excessive evaluative processing may contribute to stereotype formation and prejudice (Essess, Haddock, & Zanna, 1993; Fiske & Ruscher, 1993; Stangor, Sullivan, & Ford, 1991). According to Wyer and Gordon (1984), when people engage in evaluative processing, they attach "eval-
uative tags” to incoming information. In the context of social judgment, attributes of others may be so tagged, and hence their importance (influence) may be distorted as they combine with other attributes in the judgment process. Attitudes are thought by some to be involved in such evaluative processing. Fazio (1986, 1989, 1990) has argued that people react evaluatively to objects toward which they hold strong attitudes, but not to those toward which they hold weak attitudes. When attitude objects were complex—that is, composed of multiple aspects or attributes—researchers (van der Pligt & Eiser, 1984; van der Pligt, Eiser, & Spears, 1986a, 1986b) showed that individuals regarded as salient those aspects that were most consistent with their overall attitudes. It is well documented that individuals with more extreme attitudes toward social objects tend to accentuate the differences between classes of such objects and to accentuate the similarities within classes more so than do individuals with more moderate attitudes (for a review, see Hamilton, 1968; Haslam & Turner, 1995; McGarty & Penny). This phenomenon has become known as the accentuation effect and is understood to be dimension specific.

Researchers disagree as to the basis of the relationship between such extremism and accentuation. Accentuation theory (AT) has been proposed to address how individuals construct their own standards and frames of reference when they make judgments about social stimuli (see Eiser, 1971, 1990; Eiser & Stroebel, 1972). Of specific interest, AT responds to how social judgments are affected by the evaluative or emotional significance of the stimuli being judged. According to AT, social judgment involves the interaction between two internal systems of evaluation—the judges’ own acceptance or rejection of the stimulus and the connotative meaning of the judgment scale used. Self-categorization theory (SCT), proposed by Turner and others (e.g., Haslam & Turner, 1995; Turner, 1985; Turner, Hogg, Oaks, Reicher, & Wetherell, 1987) is related to AT in that both seek to explain the social contextual basis of judgmental processes. SCT seeks to account for changes in social judgment that arise from alterations in multiple contextual features. SCT suggests that patterns of accentuation reflect the degree to which people and their attributes are seen to share the same social category membership as the judge or perceiver. SCT proposes that accentuation results from the perceived in-group or out-group features of social stimuli. A related theory, social identity theory (SIT; Tajfel & Turner, 1979) posits that persons who belong to a positively evaluated in-group (and who thereby identify with that group) will seek to make their group positively distinctive from alternate groups.

The research on evaluative processing and accentuation previously noted has led to the formulation of the following premise: Attributes (e.g., attitudes, personality traits, and behaviors) toward which people hold nonneutral attitudes evoke evaluative reactions. These evaluative reactions can influence the importance of these attributes as they are integrated with other information during the process of impression formation. The present study examined the formation of impressions regarding fictitious target individuals. Multiple attributes of these tar-
gets were systematically and simultaneously varied to determine their relative influence on social judgments by assuming a linear combination law. Attitudes were measured to determine the extent to which they covary with individual differences in the weighting of attributes during the formation of social judgments.

Social judgment was studied in the context of impressions of professional impairment provided by nurses. Professional impairment is the inability to perform one’s professional duties and responsibilities because of cognitive, emotional, or psychomotor dysfunction. Professional impairment among health care workers can have devastating consequences and is, therefore, an important social issue. Nurses compose the largest segment of employees in the U.S. health care industry, an estimated 2 million jobs in 1996 (Bureau of Labor Statistics, 1998; Moses, 1997). The American Nurses’ Association (ANA; 1984) has defined professional impairment as follows: “Nursing practice is impaired when the individual is unable to meet the requirements of the professional code of ethics and standards of practice because cognitive, interpersonal, or psychomotor skills are affected by conditions of the individual in interaction with the environment. These factors may include psychological dysfunction or excessive use of alcohol and drugs.” Licensure and credentialing laws have been put in place as a means of preventing professional impairment by requiring practicing nurses to demonstrate their technical competence. Nurses are also bound by the ANA’s code of ethics to report professional impairment.

The perceived degree of professional impairment associated with the joint presence of substance abuse, mental illness, and technical incompetence is important for several reasons. First, only 37% of nurses who have had experiences working with impaired colleagues reported them to supervisors for referral to treatment and rehabilitation (Damrosch & Scholler-Jaquish, 1993). Understanding how the aforementioned attributes combine may provide insight into nurses’ subjective impressions of impairment and their subsequent referral decisions. Second, substance use often co-occurs with mental illness; thus recognizing one form of impairment may help to detect the other. This possibility has implications for policy issues such as employee assistance programs. Third, these attributes can have synergistic effects on social judgment; that is, they may combine in an additive manner with other information to influence subjective impressions of impairment. Alternatively, it is possible that antagonistic effects are operating; that is, the presence of a mental illness may reduce degree of perceived impairment associated with substance use or technical incompetence.

The purposes of the present study were (a) to analyze ratings of professional impairment provided by nurses to discover the relative importance (salience) of the attributes substance use, mental illness, and technical incompetence as they combined to influence impressions of professional impairment and (b) to test the accentuation principle unifying AT, SCT, and SIT. Specifically, to the extent that differing attitudes define in-group–out-group boundaries, persons holding more unfavorable attitudes toward substance use should see substance users as mem-
bers of an out-group and, therefore, should accentuate the importance of negative attributes (e.g., substance abuse, mental illness, and technical incompetence) when they form social judgments. In contrast, persons holding more favorable attitudes toward substance use should view substance users more as members of their own in-group and, therefore, should diminish the importance of these negative attributes.

Method

Participants

The participants were 126 registered nurses and nursing students (119 female and 7 male) in west central Florida who volunteered to take part in the experiment. Each received $20 for participating. The average age was 32.7 years. ($SD = 9.8$). Seventy-six percent of the sample were Caucasian, 9.5% were Hispanic, 5.6% were African American, 5.6% were Asian, and 3.2% did not specify their ethnic background. Forty-seven percent had a baccalaureate degree, 36.5% had an associate degree, 7.9% had a master’s degree, 3.2% had a doctoral degree, 3.2% had a diploma degree in nursing, and 2.4% did not specify their highest education level. Forty-one of the judges were nursing students, and 85 were registered nurses with an average of 10.4 years’ ($SD = 8.1$) experience working as a nurse.

Materials

Social judgment task. The stimuli consisted of 24 scenarios describing the characteristics of a fictitious nurse. The scenarios were divided by using a $4 \times 3 \times 2$ factorial design with the attributes substance use, technical incompetence, and mental illness. These variables and the values chosen for them were empirically based and selected for their realism and generalizability. Four levels of substance use—“smokes marijuana,” “drinks alcohol,” “uses narcotics,” and “does not use any substances”—defined that variable. The decision to use these particular substances in constructing the stimulus scenarios was based on their generalizability as determined by prevalence estimates in the population. Trinkoff and Storr (1994, 1998) found that 92.0% of employed nurses had used alcohol at least once in their lifetime. Fifty-four percent reported having had more than five drinks on at least one occasion, with 19.0% reporting such use in the past year. Forty-one percent of employed nurses reported having smoked marijuana on at least one occasion, and 3.6% reported using it in the past year. The lifetime prevalence of prescription-type narcotics among employed nurses was 34.3%, and annual prevalence was 6.8%.

The second attribute, technical incompetence, had three levels—“has made one medication error,” “has made more than one medication error,” and “has never made a medication error.” Berens (2000) reported that medication errors made by nurses (e.g., giving the wrong medication or simply an incorrect dose) have
resulted in death or injury to over 10,000 hospital patients in the United States since 1995.

The third attribute, mental illness, was defined with two levels—"has depression" and "does not have depression." Depression is one of the most prevalent mental illnesses in this country. The prevalence of depression among nurses (lifetime prevalence estimated at 7.8%) has been shown to be comparable with the rates reported in the general population (Hendrie, Clair, Brittain, & Fadul, 1990; Williams, Hagerty, Murphy-Weinberg, & Wan, 1995). An example of one of the 24 scenarios is "a nurse who smokes marijuana, has made more than one medication error, and has depression." Each scenario was typed and transferred to a black-on-white 35-mm slide for presentation.

The participants judged the stimuli on an 11-point scale. Ratings of degree of impairment were made using a 0-to-10 scale with the following verbal anchors: not at all impaired, moderately impaired, quite impaired, very impaired, extremely impaired, and completely impaired, centered under the numerals 0, 2, 4, 6, 8, and 10, respectively. Judges were provided with the ANA definition of impairment (cited earlier). The following instruction appeared at the top of each answer sheet: "Rate how impaired you believe the person in each description is."

**Attitude measurements.** Attitudes toward substance abuse were measured using the Substance Abuse Attitude Survey (SAAS; Chappel, Veach, & Krug, 1985), developed to assess attitudes among clinicians (physicians, medical students, psychologists, social workers, and nurses) toward various aspects of alcohol and drug abuse. The aforementioned authors developed the 50-item SAAS from an original pool of 153 items using a series of factor analytic studies conducted with teachers and clinicians. Factor analysis of the 50-item version, pooling samples of 268 clinicians and 312 nonclinicians, indicated the presence of three stable factors labeled Permissiveness, Moralism, and Treatment Optimism.

Jenkins, Fisher, and Applegate (1990) reexamined the factor structure underlying the SAAS and provided additional data on its psychometric properties. Applying the scree method to data from over 500 college students, they identified three coherent factors and discarded 11 items that did not load significantly on the resulting factors, also labeled Treatment Optimism, Moralism, and Permissiveness. Internal consistency estimates of reliability were reported as .75, .78, and .74, respectively. Test-retest reliability over a 6-week period was assessed for the three subscales with data from 103 students. Jenkins et al. reported Time 1–Time 2 correlations of .65, .86, and .82 for the three subscales, respectively. Thus, the SAAS may be considered to measure attitude on three related continua: permissiveness–restrictiveness regarding substance use, moral–immoral stance regarding substance use, and optimistic–pessimistic outlook regarding treatment for addiction. The version of the SAAS used in the present study consisted of 39 Likert-type items identified by Jenkins et al. (1990). Judges responded to these items using an 11-point scale with the verbal anchors *strongly disagree, moderately
ately disagree, and slightly disagree centered under the numerals -5, -3 and -1, respectively, and the anchors slightly agree, moderately agree, and strongly agree centered under the numerals 1, 3, and 5, respectively.

Procedure

To control for primacy and recency effects within each stimulus that could produce unequal attention to information because of its placement within each description, three forms of each scenario were used. The order of information regarding type of substance, technical incompetence, and presence of depression was systematically varied so that each attribute appeared at the beginning, middle, and end of each unique combination. In this way, the syntax or placement of the attributes within each description was counterbalanced. Counterbalancing was also used to control for the effects of fatigue, which could cause the judge to become less attentive toward the stimuli presented later in the sequence, by reversing the original randomized sequence of descriptions. The combination of these two counterbalancing measures resulted in six unique sets of stimulus materials.

The judges were tested in small groups in classrooms. Each group received one of the six sets of stimuli in the counterbalanced design just described. Standardized instructions, describing the purpose of the study and the nature of the judgment task, were provided and read aloud to all judges. The stimulus slides were projected onto a screen with a Kodak Ektagraphic III projector equipped with a programmable timer. To equate the time available for cognitive processing across all stimuli, each stimulus was presented for 15 s with a 1-s inter-stimulus interval. Judges then completed the SAAS and demographic questions.

Results

Overview

Data were analyzed by using hierarchical linear modeling (HLM) techniques. The HLM approach allows researchers to formulate explicit multilevel models with hypotheses about effects occurring at each level and across levels. Data structures of the type investigated here may be considered hierarchical in the sense that judgments (ratings) are nested within the same individual, whereas between-individuals differences (attitudes) are hypothesized to affect the pattern of within-individual differences. Bryk and Raudenbush (1992) proposed methods for modeling such data structures. Each person’s responses, \( Y_{i,t} \), to \( A_t \), treatment conditions are represented by an individual linear model (i.e., Level 1 model) that depends on a unique set of \( p \) parameters, \( \beta_{p,i} \), where \( p \) is the number of treatment conditions, \( t \), plus an intercept term. These individual parameters are treated as the outcome variables in a Level 2 model, where they may depend on a vector of person-level characteristics, \( X_{q,i} \), such as attitude variables. Each indi-
individual parameter, \( \pi_{pi} \) is modeled as a function of the person-level characteristics weighted by a vector of Level 2 structural coefficients, \( \beta_{pi} \).

Data were analyzed by using hierarchical linear modeling software HLM5.2 (Raudenbush, Bryk, Cheong, & Congdon, 2000). This allowed for the modeling of the two-level data structure described previously. A full maximum likelihood approach to parameter estimation was used. Under quite general assumptions, these estimates are consistent and asymptotically efficient. Following the convention used by Bryk and Raudenbush (1992), \( e_i \) represent Level 1 random effects, and \( r_{pi} \) represent the Level 2 random effects. Level 1 error terms were assumed to be independently and normally distributed with a mean of zero and a variance of \( \sigma^2 \). Tests of significance for the presence of random variation in Level 1 coefficients were conducted with chi-square likelihood-ratio tests. Likelihood ratio tests were also used to compare the deviance values (\( -2 \times \) the value of the log-likelihood function) of nested models to assess improvements in model fit. The three attribute variables were dummy coded for inclusion in the models. Modeling was done in three steps. First, total variation in judgments was partitioned into within-judge and between-judges components. Second, the within-judge variance in judgments was modeled as a function of target attributes. Finally, variation in the regression coefficients relating the attribute combinations to the judgments was modeled as a function of between-judges differences in attitudes. The results are subsequently described.

**Model 1: Fully Unconditional Model**

The fully unconditional model, analogous to a one-way analysis of variance with random effects, was estimated as a preliminary step to provide information about response variability at each of the two levels. The deviance value for this three-parameter model was 14,350.19. This model partitioned the total variance in ratings of impairment into two components that may be expressed as proportions using the intraclass correlation coefficient, \( \rho \). Thus, 22.5\% of the variance in judgments was due to between-judges differences, and 77.5\% was due to the experimental manipulation of the attributes plus exogenous variables. The latter source of variance was the focus of subsequent modeling.

**Model 2: Random-Coefficients Model**

This model estimated random variability in the \( \pi_{pi} \) coefficients across judges. Pooled within-judge variation in judgments was modeled as a function of the attribute combinations under which judgments were made. The model is unconditional at Level 2. The Level 1 variance component \( e_i \) was reduced by over 67\% relative to the unconditional model reflecting the joint effects of the experimental manipulation of the attributes. The deviance value for this 36-parameter model was 11,794.52. The likelihood-ratio test comparing Models 1 and 2 was \( \chi^2 = \)
2,555.67, \( df = 33, p < .001 \), indicating a significant improvement in fit relative to the unconditional model. There was significant variation across judges in all Level 1 parameters (see Table 1 for likelihood-ratio tests). Modeling this variation with attitude variables was the focus of subsequent analyses.

**Model 3: Intercept-and-Slopes-as-Outcomes Model**

This model tested the hypothesis that attitudes toward substance abuse are related to the salience of this attribute during impression formation. This model also provides a multivariate test of the accentuation principle—specifically, that the influence of negative attributes ought to be accentuated when judges hold more unfavorable attitudes toward substance users. The model is conditional on the attitude variables. Reliability estimates for the Treatment Optimism, Moralism, and Permissiveness attitude subscales were .66, .78, and .78, respectively. Addition of the attitude variables significantly improved the fit of the model by accounting for variation in Level 1 parameters. The deviance value for this 57-parameter model was 11,751.34. The likelihood-ratio test comparing Models 2 and 3 was \( \chi^2 = 44.71, df = 21, p < .002 \).

Inspection of the variance components (\( \tau \)) and conditional intraclass correlations (\( \rho \)) in Table 1 reveals that random variation still existed in the Level 1 parameters but that a significant reduction in the variation of specific parameters was achieved. A comparison of corresponding chi-square values across Models 2 and 3 for individual parameters provided significance tests on the proportion of variance in each parameter attributed to the attitude variables. Inclusion of the three attitude measures significantly improved the fit of the model by reducing between-judges variation in the impact of all target attributes with the exception of depression. For example, the difference in chi-square values (531.16 – 442.15 = 89.01) associated with the effect of smoking marijuana, \( r_{1p} \), is distributed as chi-square with degrees of freedom (125 – 122 = 3). The nature of these effects offers support for the accentuation principle and is subsequently discussed in detail.

**Fixed Effects of Attitudes on Judgments**

The effects of the stimulus attributes (\( \pi_p \)) were determined by using empirical Bayesian estimation (see Column 2 of Table 2). These effects may be interpreted as unstandardized regression coefficients for judges with neutral attitudes (i.e., attitude scores = 0.00). As noted earlier, judges showed significant variation around these point estimates. Attitude variables, modeled as Level 2 fixed effects, significantly reduced this variation.

The mean rating of impairment over all attribute conditions was 2.70 for judges with neutral attitudes. When the target possessed the attribute “uses narcotics,” the neutral judges’ impression of impairment increased significantly by
### TABLE 1. Summary of Random Effects in Hierarchical Linear Models of Social Judgment of Professional Impairment

<table>
<thead>
<tr>
<th>Model</th>
<th>Variance component</th>
<th>( \tau )</th>
<th>( \rho )</th>
<th>( \chi^2 )</th>
<th>( df )</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: Fully conditional</td>
<td>Intercept term ( r_{0i} )</td>
<td>1.794</td>
<td>.225</td>
<td>1003.97</td>
<td>125</td>
</tr>
<tr>
<td></td>
<td>Level 1 error ( e_{ni} )</td>
<td>6.179</td>
<td>.775a</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total variance</td>
<td>7.973</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2: Random coefficients regression using attributes as Level 1 predictors</td>
<td>Intercept term ( r_{0i} )</td>
<td>1.967</td>
<td></td>
<td>3062.67</td>
<td>125</td>
</tr>
<tr>
<td></td>
<td>POT ( r_{1i} )</td>
<td>2.182</td>
<td></td>
<td>531.16</td>
<td>125</td>
</tr>
<tr>
<td></td>
<td>ETOH ( r_{2i} )</td>
<td>1.381</td>
<td></td>
<td>380.21</td>
<td>125</td>
</tr>
<tr>
<td></td>
<td>NARC ( r_{3i} )</td>
<td>2.929</td>
<td></td>
<td>670.15</td>
<td>125</td>
</tr>
<tr>
<td></td>
<td>ONCE ( r_{4i} )</td>
<td>0.337</td>
<td></td>
<td>194.45</td>
<td>125</td>
</tr>
<tr>
<td></td>
<td>ONEPLUS ( r_{5i} )</td>
<td>1.182</td>
<td></td>
<td>418.78</td>
<td>125</td>
</tr>
<tr>
<td></td>
<td>DEPR ( r_{6i} )</td>
<td>0.325</td>
<td></td>
<td>244.95</td>
<td>125</td>
</tr>
<tr>
<td></td>
<td>Level 1 error ( e_{ni} )</td>
<td>2.025</td>
<td>.672b</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3: Intercept and slopes as outcomes using substance abuse attitudes as Level 2 predictors</td>
<td>Intercept term ( r_{0i} )</td>
<td>1.780</td>
<td>.095c</td>
<td>2787.93d</td>
<td>122</td>
</tr>
<tr>
<td></td>
<td>POT ( r_{1i} )</td>
<td>1.700</td>
<td>.221c</td>
<td>442.15d</td>
<td>122</td>
</tr>
<tr>
<td></td>
<td>ETOH ( r_{2i} )</td>
<td>1.206</td>
<td>.127c</td>
<td>347.72d</td>
<td>122</td>
</tr>
<tr>
<td></td>
<td>NARC ( r_{3i} )</td>
<td>2.690</td>
<td>.082c</td>
<td>626.24d</td>
<td>122</td>
</tr>
<tr>
<td></td>
<td>ONCE ( r_{4i} )</td>
<td>0.302</td>
<td>.101c</td>
<td>183.16d</td>
<td>122</td>
</tr>
<tr>
<td></td>
<td>ONEPLUS ( r_{5i} )</td>
<td>1.140</td>
<td>.035c</td>
<td>408.46d</td>
<td>122</td>
</tr>
<tr>
<td></td>
<td>DEPR ( r_{6i} )</td>
<td>0.316</td>
<td>.029c</td>
<td>240.92</td>
<td>122</td>
</tr>
<tr>
<td></td>
<td>Level 1 error ( e_{ni} )</td>
<td>2.022</td>
<td>.002</td>
<td></td>
<td>122</td>
</tr>
</tbody>
</table>

*Note. POT = smokes marijuana. ETOH = drinks alcohol. NARC = uses narcotics. ONCE = has made one medication error. ONEPLUS = has made more than one medication error. DEPR = has depression. All \( \chi^2 \) values shown are significant at \( p < .001 \).

*aIntraclass correlation showing the proportion of total variance attributable to pooled within-judge effects. 
*bConditional intraclass correlation showing the proportion of Level 1 error variance accounted for by Level 1 predictors. 
*cConditional intraclass correlation showing proportion of variance in Level 1 parameter accounted for by Level 2 predictors. 
*dLikelihood-ratio test (\( \chi^2 \)) of improvement in model fit relative to corresponding Model 2 was significant at \( p < .05 \). 

2.16 points on the rating scale. Likewise, when the target possessed the attribute "smokes marijuana," the neutral judges' ratings of impairment increased by 1.06 points. The attribute "drinks alcohol" did not significantly alter the neutral judges' ratings of impairment (ratings increased by only 0.11 points on the rating scale).
<table>
<thead>
<tr>
<th></th>
<th>Unstandardized structural coefficients</th>
<th>Level 2 model regressing Level 1 coefficients, $\pi_{pp}$ onto SAAS* subscales</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\pi_{p'}$</td>
<td>Treatment optimism ($\beta_{p1}$)</td>
</tr>
<tr>
<td>Regressing impairment rating</td>
<td></td>
<td></td>
</tr>
<tr>
<td>onto target attributes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept term$^b$</td>
<td>2.70**</td>
<td>.20</td>
</tr>
<tr>
<td>Smokes marijuana</td>
<td>1.06*</td>
<td>.17</td>
</tr>
<tr>
<td>Drinks alcohol</td>
<td>0.11</td>
<td>.16</td>
</tr>
<tr>
<td>Uses narcotics</td>
<td>2.16**</td>
<td>.26</td>
</tr>
<tr>
<td>Has made one medication error</td>
<td>1.37**</td>
<td>-.03</td>
</tr>
<tr>
<td>Has made more than one medication error</td>
<td>2.09**</td>
<td>.00</td>
</tr>
<tr>
<td>Has depression</td>
<td>1.40**</td>
<td>-.06</td>
</tr>
</tbody>
</table>

*Note. Approximate df for all tests = 122.*

*SAAS = Substance Abuse Attitude Survey (Chappel et al., 1985). $^b$Level 1 predictors were centered within each judge, whereas Level 2 predictors were uncentered so that the intercept and slope coefficients were estimated for judges with neutral attitudes.

*p < .10. **p < .05.
The relative magnitude of these effects appeared to parallel conventional stereotypes regarding the psychotropic properties of the substances. When the target possessed the attribute "has made one medication error," the neutral judges' impression of impairment increased significantly by 1.37 points. This effect was stronger when the target possessed the attribute "has made more than one medication error" (neutral judges' ratings increased significantly by 2.09 points). For neutral judges, the effect of the target attribute "has depression" increased ratings of impairment significantly by 1.40.

In Model 3, these parameters varied systematically across judges, in part because of individual differences in attitude toward substance use. Notably, the more permissive the judges' attitude was toward substance use, the lower their overall impression of impairment was across all scenarios. For every unit increase on this attitude scale, ratings of impairment decreased by 0.24 units (see Table 2, Column 5). Judges' overall impression of impairment did not show significant variation related to the other two attitudes, treatment optimism and moralism.

Accentuation of differences (and similarities) among target stimuli was evidenced by the significant $\beta_{p3}$ coefficients associated with the target attributes. To the extent that the judges were nonneutral on the permissiveness–restrictiveness toward substance use dimension, the effects of target attributes were altered (see Table 3 for illustration).

Coefficients from the model shown in Table 2 may be used to estimate the judgments made under certain conditions (i.e., combinations of attributes) by judges with various attitudes (permissive, neutral, or restrictive) toward substance use. For example, the model predicts that a neutral judge will rate the impairment of the target "a nurse who smokes marijuana, has depression, and has made one medication error" as $(2.70 + 1.06 + 1.40 + 1.37) = 6.53$. Actually, the full model contains interaction terms between the attributes and attitude (in this case, zero) stemming from the judges' neutral position on the attitude scale. For comparison, consider the extremist judge with the most restrictive (observed minimum) attitude score of $-4.60$. The model predicts that such an extreme judge will rate the same target as $[2.70 + 1.06 + 1.40 + 1.37 + (-4.60)(-0.24) + (-4.60)(-0.44) + (-4.60)(0.14) + (-4.60)(0.06)] = 8.74$. Similar calculations were carried out to fill in the cells of Table 3.

As predicted, judges with the most extreme restrictive attitudes (i.e., who considered substance users as an out-group on the basis of their attitudes) accentuated the influence of the negative attribute "smokes marijuana" relative to the neutral judges (3.08 vs. 1.06, respectively) and gave higher ratings of impairment when this attribute was present. The analysis revealed an interesting and unexpected relationship: The more restrictive judges showed a diminished influence of other negative attributes such as "has made one medication error" relative to neutral judges (0.73 vs. 1.37, respectively). They showed less of an increase than did neutral judges in their ratings of impairment when this attribute was paired with substance abuse attributes such as "smokes marijuana."
TABLE 3. Examples Showing Differences in Social Judgments of Professional Impairment by Judges With Neutral and Extreme Attitudes Toward Substance Use

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Attitude^a</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Permissive</td>
</tr>
<tr>
<td></td>
<td>(2.30)</td>
</tr>
<tr>
<td>A nurse who smokes marijuana, has depression, and has made one medication error</td>
<td>5.43</td>
</tr>
<tr>
<td>A nurse who does not use any drugs, has depression, and has made one medication error</td>
<td>5.38</td>
</tr>
<tr>
<td></td>
<td>0.05</td>
</tr>
<tr>
<td><em>Effects of smoking marijuana</em></td>
<td></td>
</tr>
<tr>
<td>A nurse who smokes marijuana, has depression, and has made no medication errors</td>
<td>3.73</td>
</tr>
<tr>
<td></td>
<td>1.69</td>
</tr>
<tr>
<td><em>Effects of making one error</em></td>
<td></td>
</tr>
</tbody>
</table>

Note. The interactions of target stimulus attributes with judges' attitudes are illustrated as the differences in the impairment ratings between scenarios. ^Values in parentheses are the maximum, neutral, and minimum observed attitude scores.

Judges at the other (permissive) end of the attitude continuum showed the opposite pattern of effects when compared with neutral judges. As predicted, these in-group judges showed a diminished influence of negative attributes such as “smokes marijuana” (see Table 3). However, the influence of technical incompetence attributes such as “has made one medication error” appeared to be accentuated. One may derive similar examples by using the parameter estimates in Table 2 for various combinations of target attributes and attitude scores.

**Discussion**

Past research (as summarized earlier) has shown that attitudes are involved in evaluative processing and that evaluative processes affect social judgments. Using a nontraditional paradigm and recent developments in statistical modeling, the present study demonstrated that attitudes toward specific attributes of fictitious targets interacted with the salience of these attributes during the participants’ formation of social judgments. Some, but not all, of these effects are consistent with predictions made by accentuation theory, self-categorization theory, and social identity theory. In addition, this study provided estimates of the relative importance of the attributes substance use, technical incompetence, and
depression as they combined to influence impressions of professional impairment provided by a sample of nurses.

This study used sophisticated hierarchical linear modeling (HLM) rather than traditional multiple regression to elucidate key relationships in the data and test multilevel hypotheses. Traditional multiple regression and correlation (MRC) methods are limited in their ability to model hierarchical structures. These limitations have generated concerns centered on aggregation bias, misestimated precision, and heterogeneity of regression coefficients. Aggregation bias can occur when a variable takes on different meanings and, therefore, may have different effects at different levels. HLM resolves this problem by decomposition of any observed relationship between variables into separate Level 1 and Level 2 components. Thus, nesting of target attributes within levels of attitude variables was accurately represented in the analysis. Misestimated standard errors occur with multilevel data when one fails to take into account the dependence among responses within the same individual. HLM resolves this problem by incorporating into the statistical model a unique random effect for each judge. The variability in these random effects was taken into account in estimating the standard errors of attribute and attitude variables. Heterogeneity of regression occurs when the relationships between stimuli and responses vary across judges. It is precisely this heterogeneity of regression coefficients relating target attributes to responses that was the focus of the present investigation. The HLM approach uses maximum likelihood estimators to model this variation as a function of between-judges differences in attitude. Had MRC methods been used to obtain ordinary least squares (OLS) estimates for each judge, the dispersion of these estimates would have greatly exceeded the variation produced by maximum likelihood estimators. This could have led to inflated Type I errors simply because of chance differences in the OLS slope estimates.

Theoretical Implications

Various theories of social judgment (e.g., AT, SCT, and SIT) make substantially similar predictions regarding the accentuation of negative attributes as judges evaluate members of out-groups. To the extent that differing attitudes define in-group–out-group boundaries, the participants holding less favorable attitudes toward substance use were expected to accentuate the importance of negative attributes (e.g., using drugs, technical incompetence, and having depression) as they formed social judgments. Conversely, participants holding more favorable attitudes toward substance use were expected to diminish the importance of these negative attributes. As predicted, out-group judges (i.e., those with restrictive attitudes toward substance use) accentuated the importance of substance use attributes, whereas in-group judges (i.e., those with permissive attitudes toward substance use) diminished their importance. However, contrary to predictions, the importance of technical incompetence was diminished by out-
group judges and accentuated by in-group judges. Furthermore, the importance of depression was not significantly related to judges’ social position on substance use. These data suggest that perhaps not all negative attributes are accentuated when associated with members of a social out-group. When judging multiattribute stimuli, people may accentuate some attributes at the expense of others, which are simultaneously diminished. On the basis of these data, attitudes toward a negative attribute, or toward a social group possessing the attribute, appear to have interacted with the relative importance of the attribute as it combined with other negative attributes during the formation of social judgments. Studying the relationship between a single attribute and an attitude in isolation may be misleading because cognitive processes of stimulus integration are overlooked.

Practical Implications for Nurses

The subjective importance of key attributes identified by the ANA as causes of professional impairment has been estimated empirically in a sample of nurses. Understanding how these attributes are combined and affected by attitudes to influence nurses’ subjective impressions of coworkers has implications for the development and implementation of quality assurance (i.e., continuous quality improvement) programs. For example, the study showed that nurses’ impressions of professional impairment in a fictitious coworker were not affected when the coworker possessed the attribute “drinks alcohol,” even though the deleterious effects of alcohol on cognitive and psychomotor skills are well known. Given that an estimated 92% of working nurses drink alcohol (see Trinkoff & Storr, 1994, 1998), it seems prudent to educate (or remind) nurses and nursing students that although alcohol is not an illicit substance, it still has the ability to affect nurses’ judgment and performance.

Attitudes toward substance use were shown to be related to the salience of both substance-use and technical-incompetence attributes as they were combined. Nurses who hold more permissive attitudes toward substance use may put less emphasis on this attribute when they consider it in combination with other attributes (e.g., technical incompetence) as they form impressions of coworkers. Conversely, those who hold less permissive attitudes toward substance use may put more emphasis on it (at the expense of attending to available information on technical incompetence) as they form such judgments in the work place. Furthermore, the accentuation of technical incompetence by nurses with more permissive attitudes toward substance use, as seen here, may be interpreted to suggest that some nurses who themselves use (or have used) substances for recreational purposes are more self-critical and hence may be more vigilant with regard to committing medication errors. Such nurses may engage in more self-monitoring behavior that could, in turn, reduce the likelihood that they make medication errors.

The inclusion of depression as an attribute of the target nurse affected perceived impairment ratings in a synergistic or summative way. These data showed
no evidence for an antagonistic effect among the stimulus attributes investigated here. Nurses do not appear to be more tolerant of depressed coworkers when they consider degree of technical incompetence or substance use.

Limitations

In the present study, it was assumed that in-group–out-group boundaries are defined by differing attitudes and that the judges would see fictitious target persons who behaved differently from themselves as members of a different social group. Unfortunately, it is not known whether the present judges themselves had used illicit substances. As part of the recruitment process, potential participants were told explicitly that they would not be questioned about their own behaviors. Asking for this information was assumed to produce a selection bias in the sample and that the veracity of responses to such a line of questioning would be tenuous at best.

Directions for Future Researchers

Subsequent studies with this paradigm will be conducted to further explore the conditions under which judges accentuate some negative attributes of out-group members while simultaneously diminishing others. In particular, taking advantage of the social group structure among health care professionals provides an obvious naturally occurring opportunity. Varying stimulus scenarios by manipulating whether the target person is a nurse or physician has the potential for elucidating stronger social context effects.

The results of this study confirm predictions derived from traditional theories of accentuation, as well as demonstrate findings that are inconsistent with these theories. In the paradigm used here, judges evaluated factorial combinations of the behavioral attributes of others rather than simply a collection of attitude statements. This approach allowed for the analysis of the relationships between each of these attributes and attitudinal differences among the judges. By modeling the data structure by using hierarchical analysis, it was possible to show a multiplicative, or moderating role played by attitude variables. This study demonstrated that judges can simultaneously contrast and assimilate negative attributes within the same social judgments as a function of attitudes toward specific attributes.

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