Daily work role stressors, mood and emotional exhaustion

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This paper suggests that role stressors (role ambiguity, conflict and overload) influence emotional exhaustion both directly and indirectly through their effects on negative mood. Fifty-three instructors in the military (M age = 36.8 years) completed questionnaires at the end of each work day for between 10 and 20 workdays (M = 17.8 days). Path analyses showed that only role overload exerted a direct effect on emotional exhaustion, that mood mediated the effects of both role overload and role ambiguity on emotional exhaustion, and that role conflict exerted neither direct nor indirect effects on emotional exhaustion. The model obtained using daily data was replicated using cross-sectional data. These results provide an innovative way of understanding the effects of role stressors on emotional exhaustion, and suggestions for further research are offered.

1. Introduction

There is a considerable body of research on the predictors of burnout. One work variable that consistently predicts burnout is work role stress. Work role stress has been linked to burnout in teachers (e.g. Finnian and Blanton 1987, Russell et al. 1987), public service lawyers (e.g. Jackson et al. 1987), human service professionals (e.g. Brookings et al. 1985) as well as police officers, mental health workers, physicians and nurses (Maslach and Jackson 1981). Burnout is characterized by emotional exhaustion (no longer able to give of oneself at a psychological level), depersonalization (development of negative, cynical attitudes about clients) and a perceived lack of personal accomplishment (decreased feelings of competence and successful achievement; Maslach 1982, Maslach and Jackson 1981, 1984). In the current study only the emotional exhaustion dimension of burnout is considered, for several reasons. First, factor-analytic studies consistently show that emotional exhaustion is the primary aspect of burnout (Green and Walkey 1988, Maslach and Jackson 1981). Second, emotional exhaustion has been conceptualized as the first stage in the process of burnout, providing a logical point for intervention (Gaines and Jermier 1983).

With very few exceptions (e.g. Jackson et al. 1986), data on burnout have been derived from cross-sectional research. Jackson et al. (1986) have recently challenged researchers to confront burnout research in novel ways. They express concern that 'burnout researchers will travel the familiar and well-worn paths blazed by their forefathers in stress research, the result being that twenty years from now we will have more data but not much more knowledge' (p. 637). In this study we accept their challenge, and investigate emotional exhaustion using innovative approaches. First, we propose and test a model specifying that work role stressors influence emotional exhaustion through their effects on mood. Second, instead of treating emotional exhaustion solely as an enduring, stable condition, we propose that there are daily variations in the experience of emotional exhaustion, and contrast daily and cross-sectional models linking role stressors, mood and emotional exhaustion.
Role conflict and role ambiguity and their consequences have received considerable attention for several decades (Kahn et al. 1964). More recently, these two role stressors have been consistently linked to burnout (Kelloway and Barling 1991). There are also data which show that a third aspect of role stress, namely quantitative overload, is associated with burnout. For example, Dignam et al. (1986) showed that work load predicted burnout among correctional officers; quantitative load predicted emotional exhaustion in Jackson et al.'s (1987) sample of public service workers; and the amount of time spent with patients is associated with physicians' emotional exhaustion (Maslach and Jackson 1982). Accordingly, our model posits that role conflict, role ambiguity and role overload all exert direct effects on emotional exhaustion.

An understanding of the effects of role stressors can be advanced by asking not only whether, but also how, role stressors affect emotional exhaustion. In addition to the direct links between role stressors and emotional exhaustion identified in previous research, we suggest that the influence of role stressors on emotional exhaustion is transmitted indirectly through their effects on negative mood. Support for this suggestion emanates from research on role stressors and on general stress. First, there are data showing that the effects of role conflict and role ambiguity on work-related outcomes can best be understood by considering their direct and indirect effects simultaneously, with job-related tension mediating their indirect effects (e.g. Nettemeyer et al. 1990). Second, both daily and chronic work stress are consistently associated with mood (Barling and Kryl 1990, MacEwen et al. 1992, Motowidlo et al. 1986, Stewart and Barling 1991). In turn, mood predicts interpersonal effectiveness on the job (Motowidlo et al. 1986, Stewart and Barling 1991). Consequently, there is a growing body of research suggesting that work-related stressors in general, and role stressors in particular, exert both direct and indirect effects on work-related outcomes. In this study we investigate the direct effects of role conflict, ambiguity and overload on emotional exhaustion, as well as their indirect effect on emotional exhaustion through the mediating influence of mood.

Our choice of mood as mediator of the link between work role stressors and burnout was based on several sources. First, the role fulfilled by negative affect in stress research is currently being debated. Brief et al. (1988) suggest that one of two strategies should be followed. Either negative affect should be treated as a confounding variable in the stress process, and its effects controlled, or it should be considered to be of conceptual significance. We chose this latter option. Second, as already noted, work stress is associated with negative mood (Barling and Kryl 1990, Bolger et al. 1989, Caspi et al. 1987, MacEwen and Barling 1991, MacEwen et al. 1992, Motowidlo et al. 1986, Stewart and Barling 1991). Third, role conflict and role ambiguity are consistently associated with one aspect of negative mood, namely job-related tension (Fisher and Gitelson 1983, Jackson and Schuler 1985). Finally, there are other studies showing the mediating role of mood. For example, employment-related stressors influence mother-child interactions through their effects on mood (MacEwen and Barling 1991); and daily work stress influences interpersonal job performance directly and through mood (Stewart and Barling 1991). Therefore, unlike other studies that have focused on mood solely as an outcome of daily stress (Barling and Kryl 1990, Bolger et al. 1989, Caspi et al. 1987, Eckerman 1984), its mediating effects are addressed in this study. The proposed model is presented in Figure 1.

Without exception, emotional exhaustion has been considered either explicitly or by default as a stable, enduring condition. Our approach to the understanding of burnout differs from the traditional perspective by challenging this notion, and focusing on daily variations in emotional exhaustion. Our 'daily' approach is predicated on the assumption that variation occurs within people across days on role stressors, mood and emotional exhaustion. Most of us have had the opportunity to observe daily mood fluctuations and work-related experiences in ourselves and in others. As Caspi et al. (1987, p. 184) note: 'Some days everything seems to
go wrong, and by day’s end, minor difficulties find their outlet in rotten moods.’ Further evidence of daily fluctuations emerges from the finding that mood is significantly better following a stressful day, better in fact than had the stressor not occurred (Bolger et al. 1989), and that daily fluctuations in two aspects of mood (depression and anger) are associated with daily role overload after controlling for previous day’s mood (MacEwen et al., 1992).

On a conceptual level, daily stressors are increasingly viewed as being as important as chronic stressors (e.g. Jandorf et al. 1986) or acute stressors (Caspi et al. 1987). In addition, work-related daily stressors exert at least as negative an impact on same-day mood as daily stressors from other domains (Stone 1987). Although numerous studies have purported to measure daily stress (e.g. DeLongis et al. 1988, Ivancevich 1986), ‘daily’ stressors are usually measured intermittently over a protracted period, after which the daily stress scores are cumulated to form a single index. However, this approach fails to capture day-to-day variations in stress, mood or behaviour and their interrelationships (Bolger et al. 1989). This is an important flaw, because more recent studies have shown that daily mood (Barling and Kryl 1990, MacEwen et al. 1992), work performance (Repetti 1989), and interpersonal behaviours (Bolger et al. 1989) are all associated with daily variations in work stress when work stress is measured on consecutive days. In addition, we test whether a model that characterizes daily variations in role stressors, mood and emotional exhaustion is also applicable to cross-sectional data obtained from the same subjects.

2. Method

2.1. Subjects

Approximately 100 instructors from a Canadian Armed Forces Training School were asked to participate in this study. The 70 participants who agreed were each given a supply of questionnaires to be completed at the end of each work day over a 4-week period (i.e. 20 consecutive work days). Not all of the subjects completed the daily questionnaires for the full 4-week period of assessment (M response = 13.9 days; SD = 7.59). Because our analysis required a within-subject approach, a decision was made to include only those subjects who completed a minimum of 10 daily questionnaires (2 weeks). This eliminated 17 subjects, leaving 53 (48 males, five females) of the volunteers for inclusion in the final analysis (M response = 17.8 days, SD = 2.2). To assess whether significant differences existed between participants and non-participants, a series of t-tests were conducted comparing the 53 subjects who completed the daily assessments with the 17 subjects who completed less than 10
questionnaires. No significant differences ($p > 0.05$) emerged for the demographic variables (age, gender, rank, number of years instructing, number of years employment with the organization, and educational level).

The 53 instructors who participated in the study ranged in age from 20 to 47 years ($M = 30.81, SD = 5.91$). Their average level of completed formal education was 12.45 years ($SD = 1.64$, range 10–17); they had an average of 12.13 years of service with the organization ($SD = 5.64$, range 3–27), and an average of 2.06 years experience as instructors ($SD = 1.56$, range 0–7).

2.2. Procedure
All subjects were briefed in groups prior to their participation. The voluntary and confidential nature of the study was emphasized. At this initial meeting, subjects completed Rizzo et al.’s (1970) role ambiguity and conflict scales, Beehr et al.’s (1976) role overload scale, and the nine-item emotional exhaustion subscale from the Burnout Inventory (Maslach and Jackson 1981). In addition, we used the 20-item depression scale from the CES-D (Radloff 1977) because it is appropriate for use within non-clinical populations. Subjects were then provided with the daily questionnaires and detailed instructions for their completion. After this meeting, the daily questionnaires were completed and returned at the end of each work day for up to 4-work weeks, excluding holidays and week-ends.

2.3. Measures
The cross-sectional data derived from the above scales (which were scored consistent with their usual instructions) yielded adequate reliability at this initial testing (role conflict = 0.75, role ambiguity = 0.63, role overload = 0.59, emotional exhaustion: alpha = 0.89).

The daily questionnaire consisted of measures of work role stressors (role ambiguity, overload and conflict), emotional exhaustion and mood. In all cases, available questionnaires with known psychometric properties were used; however, items were re-worded slightly to refer to daily work experiences, mood and emotional exhaustion. Because subjects completed the scales on a number of occasions, a single day was selected for the calculation of reliability coefficients. Since it has been suggested (Brantley et al. 1988) that data from the first day of daily self-monitoring studies might be influenced by reactivity problems, day 2 was selected for assessing internal reliability. All items were measured on a seven-point scale.

Rizzo et al.’s (1970) scales were used to assess role conflict (eight items) and role ambiguity (six items), and Beehr et al.’s (1976) three-item scale assessed quantitative and qualitative overload. Sample statements from the scales are: 'Today it seemed like I had too much work for one person to do' (overload); 'Planned goals and objectives were not clear for my job today' (ambiguity); and 'I had to do things today that should be done differently' (conflict). Recent research suggests that these three subscales are empirically distinct, and not confounded by item wording (Kelloway and Barling 1990). Internal reliability (alpha) for the three scales was 0.87 for daily role ambiguity, 0.73 for daily role conflict, and 0.63 for daily role overload.

The Emotional Exhaustion subscale of the Maslach Burnout Inventory (Maslach and Jackson 1981) contains nine items that assessed feelings of being emotionally overburdened or exhausted by one’s work, and was amended to reflect daily emotional exhaustion (e.g. ‘Working with people all day was really a strain for me today’). The subscale is reliable, and both convergent and discriminant validity have been demonstrated (Jackson et al. 1987, Maslach and Jackson 1981, Meier 1984). Again using the second day’s data, internal reliability (alpha) for this subscale was 0.94. Although the Maslach Burnout Inventory assesses both
frequency and intensity of feelings. These dimensions are strongly correlated (Brookings et al., 1985, Jackson et al., 1987, Maslach and Jackson, 1981) and only intensity was used in this study.

Mood was assessed with the single item used by Caspi et al. (1987): "My spirits were extremely good today." As with the work role stressor scales, subjects responded to the question using a scale ranging from 1 (very true) to 7 (very false).

3. Results

One problem encountered in daily studies in which a person-days approach (i.e., using a pooled data matrix consisting of n people each measured at t time points) is followed is that within-person and between-person variation must be separated. To ensure that our focus is on within-person variation, we followed Bolger et al.'s (1989) procedure to some extent. They created within-person residualized scores for the outcome variable, arguing that this procedure eliminates the effects of individual differences. We accept that this procedure permits a within-person focus, and chose therefore to compute residualized scores for all daily variables within the model.

Means, standard deviations, reliabilities and intercorrelations for all daily variables are presented in Table 1. None of the assessed relationships deviated significantly from linearity, multicollinearity was not a problem, and the internal consistency of the scales was adequate.

We computed path analyses (Pedhazur, 1982) to test our model on the daily data. The just-identified model was first computed, in which all possible paths between endogenous and exogenous variables were calculated. Any paths that did not attain statistical significance (p < .05), or that could not be justified conceptually were deleted. Thereafter, an over-identified model was computed with the remaining paths. The goodness-of-fit of the over-identified (trimmed) model was then calculated using Specht's Q statistic. Q represents the ratio of the variance explained by the over-identified model to the variance explained by the just-identified model. Computation of the just-identified model using daily data suggested that two direct paths (namely, emotional exhaustion regressed on role ambiguity and role conflict) be deleted because their betas were not statistically significant. Path coefficients resulting from the computation of the over-identified model are presented in Figure 2; Q was 0.99, which indicates an excellent fit of the proposed model to the data. 

To test whether our empirically derived model fitted the cross-sectional data, we then computed a confirmatory path analysis. We calculated a just-identified model on the cross-sectional data (i.e., in which all paths are specified). Instead of trimming statistically insignificant paths, we compared the just-identified model to the over-identified model obtained from the daily data. Following the confirmatory path analysis based on the cross-sectional data, two criteria suggested that the empirically derived model from the daily data provided an adequate fit to the data. First, the obtained Q statistic was 0.89, and second, all the predicted paths were significant. Thus, our model provided an adequate representation of both the daily and cross-sectional data.

4. Discussion

Our findings refine previous research which has invariably shown zero-order correlations between role stressors and emotional exhaustion. Using multivariate data, only role overload exerted a direct effect on emotional exhaustion. Neither role ambiguity nor role conflict

3Although we could not control males' and females' responses because of the limited number of female respondents, we did recompute the model on the data from the males only. No differences were observed, inasmuch as the model still provided an excellent fit to the data.
Table 1. Descriptive data and intercorrelations of daily and cross-sectional data†

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>Alpha</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>M</th>
<th>SD</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Role ambiguity</td>
<td>14.81</td>
<td>6.66</td>
<td>0.87</td>
<td>19</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>14.60</td>
<td>4.95</td>
<td>0.63</td>
</tr>
<tr>
<td>2. Role conflict</td>
<td>24.22</td>
<td>9.89</td>
<td>0.73</td>
<td>36**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>36**</td>
<td>11</td>
<td>0.75</td>
</tr>
<tr>
<td>3. Role overload</td>
<td>8.15</td>
<td>4.13</td>
<td>0.63</td>
<td>33**</td>
<td>42**</td>
<td></td>
<td></td>
<td></td>
<td>42**</td>
<td>24</td>
<td>0.59</td>
</tr>
<tr>
<td>4. Mood</td>
<td>2.99</td>
<td>1.57</td>
<td></td>
<td>49**</td>
<td>30**</td>
<td>42**</td>
<td></td>
<td></td>
<td>52</td>
<td>29.20</td>
<td>0.87</td>
</tr>
<tr>
<td>5. Emotional exhaustion</td>
<td>10.34</td>
<td>11.08</td>
<td>0.94</td>
<td>35**</td>
<td>34**</td>
<td>50**</td>
<td>58**</td>
<td></td>
<td>22.17</td>
<td>11.85</td>
<td>0.89</td>
</tr>
</tbody>
</table>

†Daily data presented below the diagonal; cross-sectional data above the diagonal (decimal points omitted within the matrix).

*p < .05, **p < .01
exerted direct effects on emotional exhaustion. Both role overload and role ambiguity exerted indirect effects on emotional exhaustion through their influence on mood. Thus, our results highlight the mediating function of mood in the link between role stressors and emotional exhaustion. Brief et al. (1988) questioned the specific role of mood when investigating stress. The results of this study and others show that the consequences of work stress are transmitted to various outcomes through the effects of mood (e.g. MacEwen and Barling 1991, MacEwen et al. 1992, Monowidjojo et al. 1996, Stewart and Barling 1991). Thus, wherever appropriate, it is suggested that the role of mood as a mediating variable be examined. In addition, other findings indicating that the influence of role stressors on job-related variables is both direct and indirect (e.g. Netemeyer et al., 1990) reinforce the suggestion that future research focus on variables that mediate any such effects.

The differences in relationships between role stressors and emotional exhaustion in our path models and the zero-order correlations of earlier studies is likely to be a function of our multivariate approach contrasted with the univariate approach of previous studies. Previous findings have typically been based on zero-order correlations between role stressors and emotional exhaustion. However, such an approach ignores the significant relationships between role stressors. Based on meta-analyses, Jackson and Schuler (1985) estimate the true correlation between role ambiguity and conflict to be 0.42; Fisher and Gutek (1983) calculated the true correlation to be 0.37. Likewise, significant correlations emerged between the three role stressors using both daily and cross-sectional data in this study (see Table 1). When these interrelationships are accounted for, as was the case in the present study, the independent effects of role conflict, ambiguity and overload are clarified. Thus, the model depicted in this study presents a more parsimonious multivariate perspective of the interrelationships between role stressors, mood and emotional exhaustion.

Our study also demonstrated that the three role stressors predict emotional exhaustion differently. Previous research has suggested that role ambiguity is more highly associated with strain than is role conflict (Fisher and Gutek 1983, Jackson and Schuler 1985). Our study supported and extended this finding when the effects of role stressors were examined simultaneously, role conflict was excluded from the model. In contrast, the magnitudes of the effects of role overload and role ambiguity on mood were comparable. Only role overload, however, exerted a direct influence on emotional exhaustion. MacEwen et al. (1992) showed that daily role overload predicted anger and depression, but they did not assess either role conflict or role ambiguity. Thus, there are few previous research findings to guide any conclusions about the function of role overload relative to role conflict and role ambiguity. We
would recommend, however, that future research investigating role stressors use multivariate approaches that explicitly account for the significant correlations between the three role stressors. Because our study differed in two ways from conventional research on role stressors and burnout by positing a mediating model and using daily data, it is not possible to ascertain initially which of these two factors accounts for our pattern of findings. On the other hand, our findings could reflect the role of mood as a mediating factor, and the redundancy of the three role stressors. On the other hand, our findings may be a function of daily variations in the exogenous and endogenous variables. However, because we collected cross-sectional as well as daily data, it was possible to examine whether the model obtained on the daily data (see figure 2) could be replicated using the cross-sectional data. A path analysis of the cross-sectional data replicated the daily model. Using confirmatory path analysis, the individual paths cross-validated those based on the daily data, and the Q statistic suggested that the model provided an adequate fit to the cross-sectional data.

One issue, therefore, is whether daily studies on emotional exhaustion and its antecedents are still justified. We would argue that, even though the model depicted in figure 2 is valid for daily or cross-sectional data, a daily approach is still warranted for several reasons. First, in contrast to the implicit assumption characterizing cross-sectional research that role stressors and emotional exhaustion are stable, and the explicit assumption that mood is stable (Brief et al. 1988), there was considerable day-to-day variation across the endogenous and exogenous variables in our study. An examination of the averaged within-subject mean and standard deviation on role ambiguity (average M = 2.48; average SD = 0.67), role conflict (average M = 3.03; average SD = 0.74) and role overload (average M = 2.75; average SD = 0.99), mood (average M = 2.65; average SD = 0.99) and emotional exhaustion (average M = 1.23; average SD = 0.67) illustrates this. Second, together with previous findings showing variations in daily stress and its consequences (Barling and Kryl 1990, Bolger et al. 1989, Caspi et al. 1987, MacEwen et al. 1992, Repetti 1989, Stewart and Barling 1991), and the fact that mood rebounds after a particularly stressful day (i.e., Bolger et al. 1989), the approach taken in this study presents a different perspective on emotional exhaustion and its antecedents than one that emphasizes their presumed stable and enduring nature. Third, because other daily studies have not assessed whether the results obtained are also appropriate for cross-sectional data (e.g., Bolger et al. 1989, Repetti 1989) and vice-versa, it may be premature to discard the notion that there are differences in the timing and duration of outcomes from daily and chronic stressors (Pratt and Barling 1988).

Some questions emerge from the current approach that should be confronted by future research. For example, do individuals who experience role stressors almost every day suffer different consequences from those who are subjected to one stressful day? Also, can the development of chronic emotional exhaustion be predicted from a knowledge of the pattern of daily emotional exhaustion? In other words, do a certain number of consecutive days of emotional exhaustion precede chronic emotional exhaustion? Several factors which could limit the validity of the current findings should also be addressed. First, we only investigated one component of burnout (emotional exhaustion). Because the correlates of emotional exhaustion may differ from the other components of burnout (e.g., Firth and Britton 1989, Kelloway and Barling 1991), future research should assess the way in which role stressors and mood predict depersonalization and a lack of performance accomplishments. Second, the subjects in our study were primarily male. Although the male female

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2For descriptive purposes we used within-subject standardized scores rather than within-subject standardized scores here, because within-subject standardized scores would not readily allow for between-subject comparisons.
ratio reflected that of the organization from which they were drawn, future research should assess whether the model is applicable to females. Third, like previous studies (Kelloway and Barling 1990), the reliability of the three-item role overload scale was somewhat low. Also, like previous studies (e.g. Caspi et al. 1987, Delongis et al. 1988), we assessed mood with a single-item scale. Because of the specific status fulfilled by role overload and mood in this study, and the increasing emphasis on role overload and mood in other studies, a psychometrically acceptable role overload scale that reflects both quantitative and qualitative overload is required. Likewise, because we could not assess the reliability of the single-item mood measure, a multiple-item measure might be more appropriate. Also, different aspects of negative mood (e.g. depression, anger, anxiety) should be assessed, particularly because they may exert different effects (MacEwen et al. 1992).

Lastly, the generalizability of these findings must be confronted. We studied instructors employed within the military context. Do these results generalize to teachers employed within the normal school context, or are they specific to the military context? Two factors do support the external validity of these findings. First, meta-analytic studies support the link between role stressors on the one hand, and mood and emotional exhaustion on the other, regardless of context (Fisher and Gitelson 1983, Jackson and Schuler 1985). Second, the classroom environment in which these instructors operated was more similar to a regular school class rather than a rigid bureaucratic organization. Nonetheless, the real answer to this question will come through constructive replication rather than speculation.

To conclude, this study represents an acceptance of the challenge extended by Jackson et al. (1986) for researchers to investigate burnout in innovative ways. By assessing the mediating influence of mood in the link between role stressors and emotional exhaustion, while simultaneously considering the effects of role ambiguity, role conflict and role overload, the links between role stressors and emotional exhaustion have been clarified and refined. Also, an alternative approach to one that assumes that role stressors, mood and emotional exhaustion are static, instead emphasizing their daily variability, is supported. As such, the present study contributes to an understanding of the effects of role stressors on emotional exhaustion, and new directions for research on burnout are offered.

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