Motivation, Overcommitment and Psychological Health at Work: A Path Analytic Approach

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Abstract: Overcommitment is formulated in the Effort-Reward Imbalance occupational stress model as a critical coping pattern in individuals, and refers to a strong tendency to commit oneself to work activities. Motivation in working life is related to employees’ productivity and good mental health. A total of 556 employees completed a questionnaire package relating to overcommitment and motivation in working life, as well as the 28-item version of the General Health Questionnaire. Path analysis revealed that motivation and overcommitment are positively related to each other but that the health consequences are different. It is justifiable to draw a distinction between overcommitment and high motivation at work, as modifying a coping pattern of overly committing to work on the one hand and enhancing motivation on the other may lead to improved mental health for employees.

Key words: work motivation, overcommitment, psychological health, stress, path analysis.

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Introduction

The Effort-Reward Imbalance model at work has gained attention in occupational research because of its predictive validity for various health outcomes [1,2]. One of the unique features of the Effort-Reward Imbalance model concerns the inclusion of a personal component in an otherwise situational model of occupational stress. Overcommitment defines a set of attitudes, behaviors and emotions reflecting excessive striving in combination with a strong desire to receive approval and esteem in one’s working life. People characterized as overcommitted have a strong tendency to commit themselves to work activities and make exaggerated efforts beyond levels normally considered appropriate.

With a few exceptions [3], evidence supports the idea that overcommitment is associated with various health outcomes, such as abdominal and musculoskeletal symptoms [4–6], burnout, depression [7,8] and cardiovascular risk factors [9–11]. A case-control study [12] demonstrated an increased risk of myocardial infarction in overcommitted employees, but due to the design of this study, these findings should be interpreted cautiously. A one-year follow-up prospective study showed a predictive effect of overcommitment on self-reported health [13]. In another study, a stronger progression of carotid atherosclerosis was shown in overcommitted patients compared to their counterparts [14]. Further evidence suggests that modifying the overcommitment coping pattern is an efficient interventional strategy for stress reduction in the workplace [15,16].

Motivation is an important variable for employee productivity in occupational and organizational psychology [17,18]. Motivation consists of multi-faceted concepts [19]. The two main concepts are achievement motivation and intrinsic/extrinsic motivation. Achievement motivation can be defined as an individual’s tendency to desire and work toward challenging personal and professional goals. Intrinsic motivation refers to the natural human propensity to perform an activity for its own sake, to seek out the pleasure and satisfaction inherent in the activity [20]. Extrinsic motivation refers to the performance of an activity to obtain some separate, extrinsic outcome. An extrinsically-motivated person will work on a task even when they have little interest in it because of the anticipated satisfaction they will get from a reward, such as money or grades. Individual differences in achievement motivation have gained attention as they are related to employee productivity [17,18]. In addition, intrinsic motivation may be associated with good mental health [19], although the health effects of motivational behaviors in working life have rarely been investigated.

One may doubt whether the concepts of overcommitment and motivation in working life are clearly distinguished. From a practical perspective, for instance, do occupational health specialists have to modify the behavioral patterns of highly motivated employees? It seems legitimate that motivation in working life, at least in part, underlies overcommitment but that the consequences are different. These associations should be elucidated. To approach this issue, we simultaneously applied the relevant scales and examined the associations using a path analysis. We hypothesized that 1) motivation in working life and overcommitment are positively related to each other, 2) overcommitment is positively correlated with adverse psychological outcome, but 3) motivation has a negative correlation, or at least null associations, with adverse psychological outcome.
Method

Subjects
Since 1991, an annual survey, in the form of a self-administered questionnaire, has been carried out as part of occupational health management by the health and safety section of a Japanese appliance manufacturing company. The analysis in this study was based on the survey conducted within the company during July 2000, at which time the company had 822 full-time employees. The analysis was carried out with the employees’ informed consent, and full confidentiality of the gathered information was guaranteed. The psychological questionnaire package included Japanese versions of the Effort-Reward Imbalance questionnaire, the motivational scale, and the 28-item version of the General Health Questionnaire (GHQ-28). In total, 595 employees responded (response rate = 72%). Of the responses, we analyzed those with complete data (n = 556). Table 1 shows the profile of the study population.

<table>
<thead>
<tr>
<th>Study variables</th>
<th>Study variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex, n (%)</td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>450 (81)</td>
</tr>
<tr>
<td>Women</td>
<td>106 (19)</td>
</tr>
<tr>
<td>Mean ± SD age, years (range)</td>
<td>39 ± 11 (20-65)</td>
</tr>
<tr>
<td>Mean ± SD duration of work experience, years (range)</td>
<td>10 ± 8 (0-42)</td>
</tr>
<tr>
<td>Education, n (%)</td>
<td></td>
</tr>
<tr>
<td>Completion of university or postgraduate education</td>
<td>223 (40)</td>
</tr>
<tr>
<td>Less than university</td>
<td>333 (60)</td>
</tr>
<tr>
<td>Employment status, n (%)</td>
<td></td>
</tr>
<tr>
<td>Holding a managerial position</td>
<td>138 (25)</td>
</tr>
<tr>
<td>General employee</td>
<td>418 (75)</td>
</tr>
<tr>
<td>Performing shift work, n (%)</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>33 (6)</td>
</tr>
<tr>
<td>No</td>
<td>523 (94)</td>
</tr>
</tbody>
</table>

The questionnaires
Overcommitment.

The distinct personal pattern of coping with job demands was theoretically extracted from global type A behaviors [21,22]. The overcommitment scale (29 items) was composed of four subscales to measure relevant aspects of this coping pattern: “need for approval” (6 items, e.g., “I get especially frustrated when my work is not properly appreciated”), “competitiveness and
latent hostility” (6 items, e.g., “I don’t let others do my work”), “disproportionate irritability” (8 items, e.g., “I get easily overwhelmed by time pressures at work”), and “inability to withdraw from work” (9 items, e.g., “Work is usually still on my mind when I go to bed”) [21]. The four respective subscales were repeatedly found to load on one latent factor in second-order factor analysis. The response options for overcommitment on a 4-point scale, ranging from “strongly agree” to “strongly disagree,” were based on intensity. The score was established by separating the answers to each item— the worst two categories of the critical coping pattern (coded as 1) versus the rest (coded as 0)— and adding them together. The scores were then summed across the 29 items to produce a possible range of scores from 0 to 29 [23]. Psychometric properties of the Japanese version of the overcommitment scale were evaluated, including the theory-drive factorial validity (confirmatory factor analysis) [24]. Briefly, in our sample, a measure of goodness of fit (GFI; see Statistics section) indicated almost perfect fit (0.999) in the second-order factor analysis testing the four subscales, whereas the respective measure was 0.802 when the uni-dimensional factor was tested. The Cronbach α coefficient of the overcommitment scale was 0.72. Although a shorter version of the overcommitment scale was developed later [25], we used the original version in the present study, because it was composed of entirely relevant overcommitment dimensions and had enough variance for analytical purposes (path analysis).

Motivation.

Based on Item Response Theory [26], Sakazume et al. developed a scale to measure employees’ motivation at work. The scale was composed of four uni-dimensional subscales: self-fulfillment achievement motive, competitive achievement motive, intrinsic motivation and extrinsic motivation [27]. Two achievement motive scales were derived from scales developed by Horino and colleague [28,29], and were applied to working personnel. The self-fulfillment achievement motive refers to the motive to reach one’s goal irrespective of how one is respected by others (4 items, e.g., “Even though I am allowed to do only a predetermined set of tasks, I still want to make the most of my ability at work”). The scores were summed across the four items to produce a possible range of scores from 4 to 20 (α = 0.70). The competitive achievement motive taps motivation derived from competing or a desire to be better than others (5 items, e.g., “It is good to know that I am considered more competent than some of my colleagues”). The scores were then summed across the five items to produce a possible range of scores from 5 to 25 (α = 0.80). Intrinsic motivation refers to doing an activity for itself, for the pleasure and satisfaction derived from participation. Deci and Ryan [30] conceived intrinsic motivation from the innate psychological needs of competence and self-determination. A 10-item scale was developed to measure employees’ intrinsic motivation (e.g., “I work to gain a sense of delight and satisfaction from work”). The scores were then summed across the 10 items to produce a possible range of scores from 10 to 50 (α = 0.89). Extrinsic motivation is relevant for a variety of behaviors which are engaged in as a means to a goal but not for their own sake [31]. A six-item scale was developed for extrinsic motivation in working life (e.g., “I work to earn enough income to improve my standard of living”), and the scores were summed across the six items to produce a possible range of scores from 6 to 30 (α = 0.72). The scores were then summed.
across the 25 items to produce a possible range of scores from 25 to 125. Investigation into the psychometric properties of the scale showed the discriminant validity with respect to major socio-demographic variables. For instance, levels of achievement motives both for self-fulfillment and competition were higher among younger employees than older employees, and the level of intrinsic motivation was highest among those at the highest occupational position, e.g., the head of a department [27]. In our sample, we confirmed that the second-order factors corresponded to the construct of interest much better than the first-order factors did (GFI = 0.984 vs. 0.671). The Cronbach α coefficient of work motivation scale was 0.91.

Psychological outcome.

Psychological outcome was measured using the GHQ-28, which is one of the most commonly used screening instruments to detect current and diagnosable psychiatric disorders [32]. The questionnaire refers to a respondent’s experience over the past week. The GHQ-28 includes items related to somatic symptoms, anxiety and insomnia, social dysfunction and severe depression. It was coded in the conventional fashion, “GHQ scoring,” with scores potentially ranging from 0 to 28. Again, in our sample, GFI was substantially improved (0.996) in the second-order factor analysis testing the four subscales when compared to the uni-dimensional factor analysis (0.661). The Cronbach α coefficient of the GHQ-28 scale was 0.89.

Statistics

Based on the evidence that unidimensionality was achieved by respective subscales for the constructs of interest (i.e., overcommitment, motivation at work and adverse psychological outcome), we decided to build our measurement models based on the subscale scores of each construct and carry out our main analyses. The mean and standard deviation (SD) were calculated for each psychological score. Pearson’s correlation coefficients among the psychological variables were then calculated. Before hypothesis testing, the appropriateness of the measurement model was tested by the full confirmatory factor analyses including the three constructs of overcommitment, motivation and GHQ [33]. Firstly, a one-factor model was estimated proposing that all 12 subscales load on the same underlying dimension. Secondly, two models were estimated positing the original three factors representing overcommitment, motivation and GHQ. Variants reflecting differing constructs were compared within the models by constraining inter-factor correlations to 0 (i.e., orthogonal model) or allowing them to freely correlate. As the models estimated stand in a nested sequence, the relative fit of the models was tested using the chi-square difference test (Δχ²). We then employed a path analysis to test the hypothesized model relating overcommitment, motivation and GHQ-28 (Fig. 1). The overall fit of the model to the data was assessed by multiple fit indices, including the chi-square statistic, the root mean square error of approximation (RMSEA), the normed fit index (NFI), the comparative fit index (CFI), the goodness-of-fit index (GFI), the adjusted goodness-of-fit index (AGFI) and the Akaike information criterion (AIC). The effect of model complexity was compensated for by dividing the discrepancy due to approximation by the number of degrees of freedom for testing the model. Taking the square root of the resulting ratio gave the population
RMSEA. An RMSEA value of about 0.05 or less indicates a close fit of the model in relation to the degrees of freedom, but the model cannot be employed if the RMSEA is greater than 0.1 [34]. GFI and AGFI indicate the amount of variance and covariance explained by the model [35]. GFI and AGFI are sensitive to variations in sample size. In large samples, models rarely fit the data, even when the difference between the true model and the hypothesized model is negligible [36]. NFI and CFI are fairly robust and independent of sample size. NFI, CFI, GFI and AGFI should be greater than 0.90 to indicate an acceptable model fit. The AIC is another measure of the goodness of fit of an estimated statistical model and an operational way of trading off the complexity of an estimated model against how well the model fits the data. The preferred model is the one with the lowest AIC value [37]. The maximum likelihood method was applied to estimate the parameters [38]. To confirm our hypothesis, we tested an alternative model. We tested whether individuals’ psychological state would influence both overcommitment and motivation by drawing the paths from GHQ-28 to overcommitment and motivation. Statistical analyses on reliability were undertaken with SPSS 14.0 for Windows. The path analysis was carried out using the statistical package AMOS 6.

Results

The results in Table 2 show the summary measures and correlations among the variables. As expected, overcommitment subscale scores were positively correlated with motivation scores, except among the scales of need for approval, competitiveness and latent hostility, self-fulfillment achievement motive and competitive achievement motive ($r =$ from 0.32 to 0.44). Here the correlation levels were slightly lower than those for the overcommitment subscale scores and those for the motivational scores. Expected correlations were found in the associations between overcommitment/motivations and GHQ-28 subscales. The overcommitment subscale scores were positively correlated with GHQ-28 subscale scores of anxiety/insomnia and social dysfunction, except for one pair (competitiveness/latent hostility and social dysfunction). The score of inability to withdraw from work was positively associated with somatic symptoms and severe depression (more critical components of the GHQ-28). On the other hand, motivational scores generally had null associations with GHQ-28 subscale scores. In particular, although the associations were weak, statistically significant negative correlations were found between intrinsic motivation and three out of four GHQ-28 subscales.

A clear finding of the confirmatory factor analyses was that the one-factor model proposing that all 12 subscales load on the same underlying dimension did not account for the data ($\chi^2$ (54) = 1095.17, $P < 0.001$). The three-factor model with the factors freely correlated provided a significantly better fit to the data than the three-factor model with constraining inter-factor correlations to 0 ($\Delta \chi^2$ (3) = 176.49, $P < 0.001$), suggesting that some degree of association between the original three factors representing overcommitment, motivation and GHQ was important to consider.

Figure 1 shows the standardized regression coefficients for the hypothesized model. Motivation
Table 2. Summary measures and correlations among overcommitment, motivation and GHQ subscale scores

<table>
<thead>
<tr>
<th>Subscale</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Need for approval</td>
<td>3.38</td>
<td>1.52</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Competitiveness and latent hostility</td>
<td>2.00</td>
<td>1.40</td>
<td>0.42</td>
<td>***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Disproportionate irritability</td>
<td>3.55</td>
<td>1.68</td>
<td>0.46</td>
<td>***</td>
<td>0.52</td>
<td>***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Inability to withdraw from work</td>
<td>3.53</td>
<td>1.87</td>
<td>0.33</td>
<td>***</td>
<td>0.32</td>
<td>***</td>
<td>0.35</td>
<td>***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Self-fulfillment achievement motive</td>
<td>15.15</td>
<td>2.41</td>
<td>0.39</td>
<td>***</td>
<td>0.32</td>
<td>***</td>
<td>0.26</td>
<td>***</td>
<td>0.19</td>
<td>***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Competitive achievement motive</td>
<td>17.25</td>
<td>3.51</td>
<td>0.38</td>
<td>***</td>
<td>0.44</td>
<td>***</td>
<td>0.29</td>
<td>***</td>
<td>0.19</td>
<td>***</td>
<td>0.65</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>7. Intrinsic motivation</td>
<td>32.95</td>
<td>6.63</td>
<td>0.25</td>
<td>***</td>
<td>0.19</td>
<td>***</td>
<td>0.16</td>
<td>***</td>
<td>0.13</td>
<td>**</td>
<td>0.58</td>
<td>***</td>
<td>0.54</td>
</tr>
<tr>
<td>8. Extrinsic motivation</td>
<td>22.23</td>
<td>3.31</td>
<td>0.28</td>
<td>***</td>
<td>0.20</td>
<td>***</td>
<td>0.22</td>
<td>***</td>
<td>0.09</td>
<td>*</td>
<td>0.28</td>
<td>***</td>
<td>0.40</td>
</tr>
<tr>
<td>9. Somatic symptoms</td>
<td>2.36</td>
<td>2.08</td>
<td>0.08</td>
<td></td>
<td>0.02</td>
<td></td>
<td>0.05</td>
<td></td>
<td>0.21</td>
<td>***</td>
<td>-0.05</td>
<td></td>
<td>0.02</td>
</tr>
<tr>
<td>10. Anxiety and insomnia</td>
<td>2.08</td>
<td>1.93</td>
<td>0.20</td>
<td>***</td>
<td>0.16</td>
<td>***</td>
<td>0.25</td>
<td>***</td>
<td>0.35</td>
<td>***</td>
<td>0.03</td>
<td></td>
<td>0.11</td>
</tr>
<tr>
<td>11. Social dysfunction</td>
<td>1.74</td>
<td>1.81</td>
<td>0.11</td>
<td>**</td>
<td>0.05</td>
<td></td>
<td>0.14</td>
<td>**</td>
<td>0.26</td>
<td>***</td>
<td>-0.07</td>
<td></td>
<td>-0.04</td>
</tr>
<tr>
<td>12. Severe depression</td>
<td>0.51</td>
<td>1.33</td>
<td>0.08</td>
<td></td>
<td>0.05</td>
<td></td>
<td>0.10</td>
<td>*</td>
<td>0.18</td>
<td>***</td>
<td>-0.10</td>
<td>*</td>
<td>-0.05</td>
</tr>
</tbody>
</table>

*: P<0.05, **: P<0.01, ***: P<0.001, n = 556
Fig 1. Standardized regression coefficients for the hypothesized model.

\(^a\) Correlation coefficient. All the estimates were significant at \(P < .001\) level. Estimates for error variables are not shown. Latent factors are presented in circles; measured variables are presented in rectangles, \(n = 566\).
was significantly and positively associated with overcommitment, and overcommitment was significantly and positively associated with the GHQ-28 score, whereas motivation was significantly and negatively associated with the GHQ-28 score. The hypothesized model fitted the data relatively well. Although the chi-square value was significant ($\chi^2 (51) = 196.13, P < 0.001$) and the RMSEA value was slightly large (0.072), the NFI (0.91), CFI (0.93), GFI (0.95) and AGFI (0.92) met the acceptable benchmark values of 0.90 and above. The AIC was 250.13.

The path hypothesizing whether individuals’ psychological state influenced both overcommitment and motivation showed a worse model fit than that of our first hypothesis and the model fit indices other than RMSEA and GFI did not satisfy the criterion: $\chi^2 (52) = 337.69$, RMSEA = 0.099, NFI = 0.84, CFI = 0.86, GFI = 0.91, AGFI = 0.87 and AIC = 389.66, respectively.

**Discussion**

The findings of this study indicate that individual motivation in working life and overcommitment are related to each other, but that the associations with psychiatric indicators are different. Overcommitment is positively correlated with GHQ-28 score, whereas the association between work motivation and GHQ-28 score is negative. It is important to draw a distinction between high motivation and overcommitment at work, because enhancing one while reducing the other may lead to employee well-being as far as mental health is concerned.

As in previous studies [7,8], our study indicates that overcommitment to work is associated with an adverse psychological outcome. Work commitment is praiseworthy. However, commitment to work becomes a problem, when an employee overdoes it and cannot separate his/her work from his/her private life. Identifying such a behavioral pattern is a step which can lead to an effective individual stress-reduction approach in the workplace. Evidence implies that intervention aimed at stress reduction at the interpersonal level works by modifying the critical coping pattern [15]. The most promising approaches to modifying such behavioral patterns are cognitive-behavioral approaches [39], because their range of applicability is wide and current evidence shows their effectiveness [40]. Modification of overcommitment might be most beneficial in employees who work overtime [16].

Although the negative association between motivation and poor psychological state is not surprising, few studies have investigated the effects of motivation in working life on employees’ psychological health. Social environments can enhance intrinsic motivation and mental health by fulfilling innate psychological needs, such as competence, autonomy and good interpersonal relationships [19]. Examples of social environments include feedback, communication and rewards. Incorporating such factors in the workplace has the potential for positive motivation and, in turn, for the enhanced performance and mental health of intrinsically motivated employees [19].

Even the largest of these correlations ($r = 0.44$) accounted for only 19% of the variance in one overcommitment variable by variations in motivation. This finding implies the discriminant validity of the overcommitment concept with the related variables. In addition, an investigation
into some other psychosocial factors which may account for a portion of the remaining variations may provide clues for another stress-reduction approach. An individual coping pattern may be reinforced by specific circumstances in professional life [41,42]. The fact that there is little evidence shows the need for more research to explore the concept in relation to social context as well as by observation throughout a worker’s professional life.

Together with an investigation into the above-mentioned new study proposals, replication of our research is needed due to several study limitations. The cross-sectional design did not permit a causal interpretation between the studied variables. Although the sample size was sufficiently large in our practical investigation, the response rate was moderate [43], therefore the results may not be representative. The observed associations may be inflated, because response tendencies such as negative affectivity [44] were not taken into account. Despite obvious limitations, however, this study provided useful clues for occupational health specialist practices.

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仕事上のモチベーション、オーバーコミットメントと心理的健康：パス解析による検討

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要 旨：過度に仕事に傾注することを示すオーバーコミットメントは、努力～報酬不均衡職業性ストレスモデルに組み込まれている概念で、危険な行動パターンとされている。一方、仕事上のモチベーションは、就業者の生産性や良好なメンタルヘルスと関連があるとされている。556名の就業者に、オーバーコミットメント、仕事上のモチベーションと精神的健康度を測定するGHQ28を含む調査票を適用した。パス解析により、オーバーコミットメントとモチベーション間には正の相関があるものの、精神的健康度との関係は両者で異なることが示された。過度に仕事に傾注するような行動パターンはその行動変容を図ることが、一方、仕事上のモチベーションはその醸成を図ろうとする試みが、就業者のメンタルヘルス向上にそれぞれ寄与する可能性があるので、両者を弁別して対応することが望まれる。

キーワード：仕事上のモチベーション、オーバーコミットメント、精神的健康度、ストレス、パス解析。

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