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Can worriers be winners? The association between worrying and job performance

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Abstract

We explored the association between the tendency to worry (also known as trait anxiety) and workplace performance. We hypothesized that worrying would correlate positively with workplace performance, basing our hypothesis on the idea that, far from being a disorder, anxiety is an important component of motivated cognition, essential for efficient functioning in situations that require caution, self-discipline and the general anticipation of threat. In a commercial ($N = 68$) sample, we found support for this hypothesis but only amongst individuals at the higher end of the ability scale. Specifically we found that, in the more cognitively able individuals, worrying was positively correlated with performance but as ability declined this relationship disappeared. Results suggest that links between ability and neuroticism could make a contribution to future research.

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1. General introduction

Psychologists ascribe a significant proportion of the variance in personality to a dimension that is concerned with an individual's tendency to experience unpleasant feelings such as anxiety, unhappiness, pessimism and depression. This dimension of personality, often labeled neuroticism, is a powerful indicator of general psychological dysfunction and correlates positively with a wide range of clinical complaints from drug addiction to eating disorders (Claridge & Davis, 2001).

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Given these associations, high levels of neuroticism would seem likely to impair job performance. Salgado (1997), in a study that spanned a wide range of occupational groups, found that this seemed to be the case. However, when certain occupational groups are examined the picture is less clear, with several studies suggesting that a tendency to neuroticism may be beneficial. For example, Barrick and Mount (1991) found that the best performers in responsible, professional-level jobs tended towards emotional instability. Similarly, Corr and Gray (1995) found that, in 196 financial services salesmen, success correlated positively with a negative attributional style (a facet of neuroticism linked to self blame and pessimism), but only in the more able salesmen.

One explanation for findings relating elevated levels of neuroticism to superior job performance is the idea that anxiety, far from being a disease state, is a central component of general motivational control, essential for the proper planning and regulation of behavior (Luu, Tucker, & Derryberry, 1998)—indeed this idea underlies the evolution of this major dimension of personality. If this viewpoint is adopted then results of the type reported by Barrick & Mount become more understandable: of all the various occupational categories, success in responsible, professional-type jobs would seem most likely to depend upon well planned and regulated behavior. Identifying the internal processes that produce anxiety is important but beyond the scope of a small study such as this one; however, we hope to lay some groundwork on the practical effects of anxiety in the workplace by testing the hypothesis that a tendency to worry will benefit job performance in a sample of white collar financial workers.

2. Method

2.1. Sample

The participants in this study were 68 managers from a range of functional areas in a global securities company which was part of a larger UK financial institution. The managers volunteered to take part in the study in return for feedback on their results and were 89% white, 76% male and had an average age of 42 years. 69% of the sample had been in their current job for less than four years and 39% described themselves as being “Junior management/Professional” or “Supervisory”; and 11% of the sample were graduates.

Measures of cognitive ability and personality were administered using the same protocol for the whole cohort and each participant was rated by their line manager on scales of current job performance, overall promotability and management competency.

2.2. Psychometric predictors

2.2.1. Cognitive ability

The cognitive ability score used in this study was obtained by totaling the final mark on the VMG1 and NMG1 tests (part of the Management Graduate Item Bank which was created to assess verbal and numerical reasoning in managers and graduates, Saville & Holdsworth Ltd., 1998). They have internal consistency and parallel forms reliability values around 0.80 and scores on these tests have been shown to correlate around 0.30 ($p < 0.05$) with managerial and graduate job performance (Saville & Holdsworth Ltd., 1998).

2.2.2. *Personality*

The Occupational Personality Questionnaire (OPQ) Concept Model 4.2 (Saville & Holdsworth Ltd., 1993a) is a personality questionnaire, designed specifically for the occupational domain, that consists of 30 scales measuring aspects of personality likely to be relevant in an occupational context (e.g. detail conscious, forward planning, decisive). In order to reduce impression management, items are presented in a forced choice ipsative format, where subjects are required to choose the most relevant of two options (e.g. “I am shy” vs. “I am a worrier”). Some researchers suggest that ipsative scales are inappropriate for comparison between individuals (e.g. Johnson, Wood, & Blinkhorn, 1988), however others (e.g. Bartram, 1996) maintain that the ipsative effect is largely cancelled out in questionnaires with more than ten scales, as long as scale intercorrelations are below 0.30. Studies using the OPQ support the latter viewpoint, with similar validation results being found for the ipsative and normative versions of the questionnaire (e.g. Saville, Sik, Nyfield, Hackston, & MacIver, 1996). Of the 30 scales measured by the OPQ cm 4.2, this study made use of only that relating to worrying as this is most closely matched to our hypothesis. Sample items include “Is nervous about doing well” and “Is anxious to get things right”. Published normative data for the OPQ Concept Model 4.2 suggest that the worrying scale has an internal consistency (alpha coefficient) of 0.73 and a test re-test coefficient of 0.85 (based on a four week interval between testing, Saville & Holdsworth Ltd., 1993a).

2.3. *Criteria of management competency*

The criterion variable used in this study was obtained by combining the scores on three measures of managerial competency:

2.3.1. *The inventory of management competencies (IMC)*

This is a 160-item questionnaire that measures 16 general managerial work performance factors such as Organized, Decisive and Persuasive (Saville & Holdsworth Ltd., 1993b). Each of the factors is based on 10 normative items which are rated on a one to five frequency of observed behavior scale from “hardly ever” to “nearly always”. The internal consistency reliabilities range between 0.83 and 0.91 (Saville & Holdsworth Ltd., 1993b). Although the instrument is designed to allow self, peer, subordinate and supervisor ratings of performance only the latter were used in this study.

2.3.2. *Current job performance scale*

This scale was created for the present study and contained six items which were answered by the line managers of the participants on a five point response format. Raw scores for all items were totaled to give an overall score. The internal consistency reliability of this measure was 0.86. Examples of the items are: “This manager achieves the objectives of the job. This manager performs well in the job overall.”

2.3.3. *Overall promotability scale*

A six-item measure of a manager’s potential for promotion was also developed for this study. The internal consistency reliability for this measure was 0.84. Examples of the items are: “This manager meets the criteria for promotion. This manager seems likely to rise higher in the organisation.”

2.4. Statistical analysis

Hierarchical regression was used to test for the effects of worrying on performance, as well as any possible interaction between worrying and ability, with main effect predictor variables being entered in step one and the interaction term in step two. Significant interactions ($p < 0.05$) were then plotted for ease of interpretation. The performance variable (labelled management competency) was created by adding the average score obtained on the sixteen scales of the Inventory of Management Competencies (IMC) to raw scores on the scales of current job performance and overall promotability.

A three-dimensional surface graph were used in preference to the more usual two-dimensional categorical graphs because they provide greater granularity; SPSS 9.0 was used to generate the graphs by local linear regression, using a normal kernel and bandwidth of 1 (for further information, see Simonoff, 1996). Prior to analysis, all data were standardized (Cohen, 1968); thus in step two of the hierarchical multiple regression, the interaction terms were independent of the main effects, and their predictive power relative to the main effects could be determined by inspection of their β coefficients.

2.5. Results

Table 1 presents descriptive statistics and intercorrelations for measures of cognitive ability, worrying and management competency. The mean score on the worrying scale in this study (12.6, SD 3.8) is closely comparable to normative data for this scale (13.45, SD 4.09, Saville & Holdsworth Ltd., 1993a). Significant ($p < 0.05$) but small correlations exist between cognitive ability and management competency and cognitive ability and worrying. Table 2 presents the results of the hierarchical regression analysis. A significant ($p < 0.01$) interaction effect between cognitive ability and worrying was observed. Introducing the interaction term increased the amount of variance in management performance accounted for by cognitive ability and worrying from 4% to 19%. In other words the use of interaction analysis trebled the capacity of ability and worrying measures to predict performance.

2.5.1. Cognitive ability \times neuroticism interaction

Fig. 1 suggests that worrying was negatively related to performance amongst managers with relatively low cognitive ability scores, but positively related to performance amongst managers with relatively high cognitive ability scores. This was partially confirmed by statistical testing which revealed a significant positive relationship between worrying and management competency

Table 1
Descriptive statistics and intercorrelations for psychometric predictors and ratings of management competency

Variable	<i>M</i>	<i>SD</i>	1	2	3
1. Worrying	12.6	3.8	–		
2. Cognitive ability	46.9	11.7	–0.226*	–	
3. Management competency	75	11.2	–0.002	0.195*	–

Note: $N = 68$, * $p < 0.05$, ** $p < 0.01$.

Table 2
Hierarchical multiple regression of predictor variables with management competency

Predictor of management competency	β Coefficients
<i>Step 1</i>	
Cognitive ability	0.073
Worrying	0.243
<i>Step 2</i>	
Cognitive ability \times worrying	0.466**

Note: $N = 68$, * $p < 0.05$, ** $p < 0.01$; R^2 for Step 1 = 0.040; ΔR^2 for Step 2 = 0.150 ($p < 0.01$).

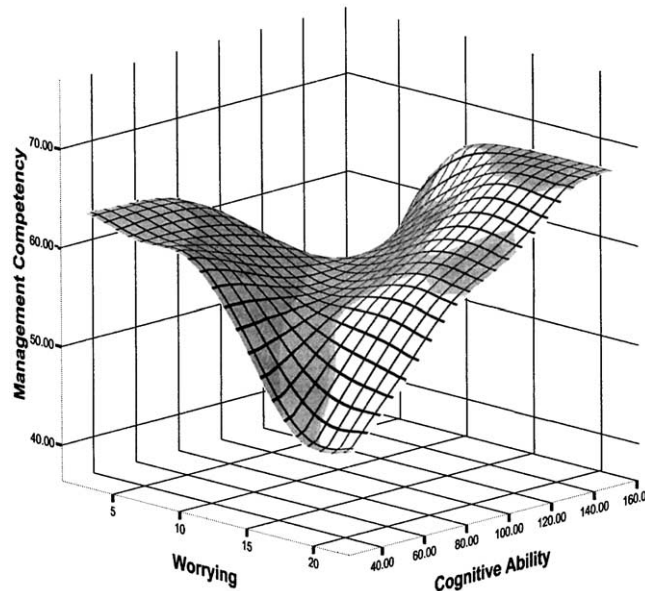


Fig. 1. Cognitive ability \times worrying interaction on management competency ratings.

for participants scoring in the highest 50% on cognitive ability, $F(1,32) = 7.673$, $p < 0.01$, however the observed negative relationship between worrying and performance in less able individuals narrowly failed to reach significance ($p < 0.05$).

3. General discussion

Our aim was to test the hypothesis that a tendency to worry would benefit workplace performance in a sample of financial services managers. Results provided partial support for this hypothesis, with worrying correlating positively with managerial performance, but only amongst managers in the upper half of the sample on ability. Overall these results suggest that worrying may indeed benefit performance, perhaps because it assists with the planning and regulation of behavior, but that attention should be paid to the seemingly important moderating role that cognitive ability plays in this relationship.

These results join a growing series of findings linking ability with various aspects of neuroticism (e.g. Allender & Greig, 2000; Corr & Gray, 1995; Hollenbeck, Brief, Whitener, & Pauli, 1988; Macklin et al., 1998; McNally & Shin, 1995; Pitman, Orr, Lowenhagen, Macklin, & Altman, 1991; Vasterling, Brailey, Constans, Borges, & Sutker, 1997; Watson, Davenport, Anderson, Mendez, & Gearhart, 1998) which, if coupled with studies showing that situational factors also alter the relationship between anxiety and behavioral output (e.g. Sarason, 1958; Sarason & Turk, 1983), broadly suggest that utilizing the variance in personality represented by traits in the neurotic spectrum may require, at the very least, a three way ability \times neuroticism \times situation interaction. A causal mechanism for a putative ability \times neuroticism \times situation interaction is unclear and it is beyond the scope of a small applied study to provide a solution to this problem. One possibility could be that, at the broadest level of description, reasoning ability acts as some sort of intermediary between the situation and the emotional impulse.

In summary, the results reveal a statistically significant and practically useful interaction between two of the most important psychological variables that suggests further applied and theoretical investigations of this area may have some utility. For example, in this study alone, the ability \times anxiety interaction term accounted for an extra 15% of variance in performance over main effects (to put this in perspective, values as low as 1% are viewed as having utility in large scale selection scenarios, Schmidt & Hunter, 1998). The causal processes underlying these factors have yet to be investigated, but we have found evidence for an interaction effect that suggests a more detailed exploration of what Sarason, Sarason, and Pierce (1995) call the “Intelligence-Personality Crossroads” may be worthwhile.

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