Worry in Managers: An Inventory of Job-Related Worries and Correlates with Job Involvement and Self-Reliance

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Summary

This report describes the development of the "Worry Inventory for Managers" (WIM), a 24-item measure of job-related worries in managers. After item selection by expert ratings, a sample of 138 managers rated each item for the intensity of worry, the extent to which they worry about it during work, and the extent to which they worry about it after work. In addition, measures of pathological worrying, job involvement, and self-reliance were administered. Factor analysis of the WIM revealed two facets of job-related worry, namely worry about (1) Organizational Processes and (2) Work Overload, of which the latter predominated after work. Job-related and pathological worry showed distinct patterns of correlation with the three factors of self-reliance, that is Counterdependence, Overdependence, and Secure Relationships. The potentially detrimental effects of worry both during work (e.g., performance decrements) and after work (e.g., recreation failure) are briefly discussed.

Keywords
anxiety / occupational stress / managers / attachment / job involvement

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Introduction

Over the last three decades, worry has been a popular topic in the domain of anxiety research. The initial impulse came from test anxiety research when Liebert and Morris (1967) discriminated between a cognitive component of anxiety (worry) and a physiological component (emotionality). The worry component comprised doubts about one's performance and negative expectations with respect to the evaluation by others during test taking, whereas the emotionality component comprised the experience of somatic anxiety symptoms like sweating, accelerated heartbeat, tension, and nausea. L. W. Morris and Liebert (1970) subsequently demonstrated that worry, and not emotionality, was responsible for the detrimental effects of test anxiety on performance stimulating a great number of studies on anxiety and academic performance (cf. the meta-analyses of Hembree, 1988; Seipp, 1991).

At the beginning of the eighties, a second line of worry research emerged. Originally coming from insomnia research (Borkovec, Robinson, Pruzinsky, & DePree, 1983; Watts, Coyle, & East, 1994), this new line of investigations received major attention when the revision of the "Diagnostic and Statistical Manual of Mental Disorders III" (DSM-III-R; American Psychiatric Association, 1987) established excessive, uncontrollable worry as the central diagnostic criterion differentiating Generalized Anxiety Disorder (GAD) from other anxiety disorders. While this soon inspired a great deal of clinically oriented research, some authors (e.g., Stöber, 1996; Tallis, Davey, & Capuzzo, 1994) pointed out that worry is also a phenomenon in the everyday life of most normal individuals, deserving more attention outside the clinical context. Here, worry is not uniformly regarded as dysfunctional, as there seems to be a worrying continuum (Davey, 1994). At the pathological end, worrying has been identified as an important characteristic of psychological dysfunction. In contrast, nonpathological worrying at the other end of the continuum is often seen as a constructive activity that helps to solve potential problems (pp. 37-38).

Despite the conceptual differences of functional and dysfunctional worry, the contents of worries reported by normal samples do not differ significantly from those reported by GAD patients. In terms of frequency, even the rank order of the various worry domains reported is relatively stable across samples (Borkovec *et al.*, 1983; Craske, Rapee, Jackel, & Barlow, 1989): Achievement at work/school consistently ranks first, followed by interpersonal relationships and finances. Only then comes the domain of health and physical harm, although older sample report more worries in this domain (cf. Wisocki, 1994). The domains listed above illustrate that individuals usually do not worry about minor issues. Instead, the worrisome thoughts focus on problems which relate to the individual's *central* goals and values, a point that was elaborated by Tallis and Eysenck (1994). In their stage model of the worry process, worry is initiated by the perception of threat, of which the appraisal of anticipated cost is one major factor. The greater the potential costs associated with the threatening event, the greater the anticipatory anxiety. Citing the work of Paterson and Neufeld (1987), Tallis and Eysenck suggest three criteria for the evaluation of cost: "(i) The number of goals threatened; (ii) The importance of each goal; and (iii) The extent to which the goal/s will be available after the event has occurred" (Tallis & Eysenck, 1994, p. 39). All major worry domains--achievement, interpersonal relationships, finances, and health--reflect multiple goals. Thus threats in these domains are likely to result in violations of further goals and subgoals.

In this respect, work is a prototypical worry domain because work not only determines a person's future to a great extent, but also provides a major means of personal identity and self-realization (Cooper & Baglioni, 1988). Especially, the work of managers contains many sources for self-fulfillment. From traditional management functions (e.g., planning, decision-making, con-

trolling) to human resource management (e.g., motivating employees, conflict management, personnel development) and across all levels of management, most of the activities of managers can be a continuous source for personal fulfillment. For many managers work is a "central life-interest" (Starcevich, 1973). However, managers are also part of organizations that are open to and dependent on the surrounding, complex socio-economic environment. Hence, managerial decisions have to be made under uncertainty, and challenges can easily turn to threats. Summarizing the difficult working conditions for managers, Schirmer (1995) describes two basic "management dilemmas": first, the need to make plans whose consequences--due to information overload or due to lack of information--cannot be fully recognized; and second, the need to set these plans into action with the help of others who can only partly be controlled and influenced by management. Apart from this, managers often have to tackle their own imperfections, insecurities, and dependencies (Grunwald, 1991). With such a wide range of potentially problematic, stressful, or even threatening issues, managers have plenty to worry about.

Whereas many studies have shown problems on the job to be a main source of stress in managers, the experience of anxiety has been given relatively little attention in the literature on management stress (cf. Moss, 1981). Moreover, the distinction between different components of anxiety--some researchers propose up to four "anxiety systems" (Koksal & Power, 1990)--has not yet carried over to the domain of occupational and organizational psychology. For example, Parker and DeCotiis (1983) showed that anxiety was a major component of job stress in managers and that it was uniquely determined by two organizational factors, namely formalization (structure, climate, information) and role conflict. While the authors made fine-grained distinctions concerning different factors on the side of the organization, they used an ad-hoc scale with items that mingled worry and emotionality to measure anxiety. However, previous research in the fields of test anxiety and GAD has demonstrated the importance of a separate assessment of worry. Therefore, the first aim of our study was to develop a short and reliable measure for worry in managers.

With respect to the development of worry questionnaires, two approaches have emerged in the line of worry research following the establishment of GAD. One approach is the construction of "content-free" measures, the other the construction of "content-based" measures. Coming mainly from research in pathological worry, content-free measures are instruments that assess the excessiveness, duration, and uncontrollability of worry and associated stress. The most prominent example of this approach is the Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990). Without referring to any specific worries, the PSWQ asks of the respondents to give ratings of how typical the dysfunctional worry characteristics described above are for him or her (e.g., "My worries overwhelm me" or "Once I start worrying I cannot stop"). In contrast, the other approach comes mainly from research in nonpathological worry and is explicitly content-based. Here, the questionnaires contain a list of potential worry contents and ask of the respondents to give ratings of the intensity or frequency of their worry for the items listed. The most prominent example of this second approach is the Worry Domains Questionnaire (WDQ; Tallis, Eysenck, & Mathews, 1992). Covering the major domains of worry--relationships, lack of confidence, aimless future, work incompetence, and finances--the WDQ presents a list of specific worries (e.g., "that I will lose close friends" or "that my money will run out"). Because the WDQ has shown to be a reliable and valid instrument for the content-based measurement of nonpathological worry (Joormann & Stöber, in press; Stöber, 1995, 1997), we used the WDQ as a model in the construction of a questionnaire for the measurement of job-related worry in managers.

Moreover, we intended to look at work-related individual differences that might constitute potential correlates of worry in managers. One possible candidate was *job involvement* because a high psychological identification with the job would be indicating that the job plays a central role

in the individual's life. Problems that arise on the job would be likely to threaten a highly involved person's central goals and result in higher degrees of job-related worry compared to a person with low job-involvement. A review of the literature on job involvement and job-related anxiety, however, could neither subdue nor support this assumption. First, the findings were rather ambiguous. Whereas some studies report positive correlations of job involvement and anxiety (e.g., Bajaj, 1978), others report negative correlations (e.g., Anantharaman & Kaliappan, 1982). Furthermore, most of the studies were conducted with blue-collar or white-collar workers, not with managers. Finally, the instruments used were rather general measures of job stress and/or of anxiety, the latter sometimes simply indicating the anxiety about loosing one's job (e.g., Roskies & Louis-Guerin, 1990). As a consequence, the relation between job involvement and anxiety, particularly with respect to worry in managers, still warrants empirical investigation.

A broader theoretical and empirical basis exists for the second variable that we considered, namely *self-reliance*. Hazan and Shaver (1990) were the first to outline a research perspective for investigations on the influence of personal attachment-styles on work performance and social relations on the job. Quick, Joplin, Nelson, and Quick (1992) subsequently developed a measure of self-reliance and started an investigation into the relationship between adult attachment-styles and anxiety on the job. Quick and collaborators describe self-reliance as a paradoxical phenomenon: self-reliant persons appear autonomous and independent because they have secure attachments and know that they can rely on others in times of need. In contrast, persons with low self-reliance are not sure of their attachments so that they will follow one of two insecure strategies: the dismissing strategy or the preoccupied strategy. The dismissive strategy results in a behavioral pattern of *counterdependence*. Individuals who display counterdependent behavior establish inappropriately distant positions in their relationships with others. They have few, if any, close personal or professional relationships upon which to draw in times of need. In contrast, the preoccupied strategy results in a behavioral pattern of *overdependence*. Individuals who display overdependent behavior attempt to establish inappropriate close relationships with others. They have close personal and professional relationships with too many people because they fear that no one will be there when problems arise (cf. Quick *et al.*, 1992; Quick, Joplin, Nelson, Mangelsdorff, & Fiedler, 1996).

As a measurement instrument for self-reliance, Quick *et al.* (1992) developed the Self-Reliance Inventory (SRI). Originally, the SRI was constructed to measure only counterdependence and overdependence. However, a factor analysis for their sample of 310 college students suggested a three-factor solution for the 20 SRI items. Besides the factors "Counterdependence" and "Overdependence", they found a third factor which they named "Autonomy at Work" (see Quick *et al.*, 1992, for details). The status and the meaning of the latter, however, is somewhat unclear: First, some studies have failed to find a reliable third factor (cf. Quick *et al.*, 1996). Second, while originally referred to as "Autonomy at Work", subsequent publications labeled the third factor "Interdependence" and/or "Secure Relationships" (Joplin, Quick, Nelson, & Turner, 1995; Quick *et al.*, 1996).

In the original study by Quick and colleagues (1992), a subsample of 225 also responded to a series of health measures including a scale measuring "anxiety and insomnia". The counterdependence subscale correlated substantially with the anxiety and insomnia subscale (r = .33), but the overdependence subscale only showed a trivial correlation with this subscale (r = .15). Quick *et al.* interpreted these findings in the way that overdependence, as the tendency to move into, not out of, relationships may not pose a health risk. Instead, overdependence may pose a risk such as the inability to make timely decisions because overdependent individuals tend to seek more information than is appropriate for the given problem. Because elevated evidence requirements are

also characteristic of high-worriers (Metzger, Miller, Cohen, Sofka, & Borkovec, 1990; Tallis, Eysenck, & Mathews, 1991), counterdependence and overdependence might be more clearly related to worry, the cognitive component of "anxiety and insomnia".

In summary, the aim of the present study was to construct a brief and easy-to-use inventory for the measurement of job-related worries in managers. In addition, we wanted to explore the relationship of the managers' worrying with other job-related measures of individual differences. For this, we included a scale for the measurement of job involvement and Quick *et al.*'s Self-Reliance Inventory for the measurement of secure and insecure adult-attachment styles.

Materials and Method

Construction of the Worry Inventory for Managers

Selection of the Initial Item Pool

The first phase in the development of the worry inventory for managers was the generation of items covering a broad range of potential job-related worries of managers. Following the procedure that Tallis *et al.* (1992) used in the construction of the WDQ, we first distributed open-end questionnaires to a sample of managers, asking them to list worries that they had experienced in their field. However, this attempt failed because of low return rates. Subsequently, we chose an alternative approach. We reviewed the literature on stress in managers and inspected the measures used in previous research on job stress, burnout, and work environment perceptions (e.g., Cooper & Baglioni, 1988; Hodapp, Neuser, & Weyer, 1988; Indik, Seashore, & Slesinger, 1964; Jones & James, 1979; Kahn & Cooper, 1992; Turnage & Spielberger, 1991), looking for potential domains and contents of managerial worries. This approach yielded a pool of 100 statements. These statements covered the following eight domains: (I) Control, Support, and Feedback, (II) Power and Influence, (III) Changes and New Developments, (IV) Conflict, Competition, and Career, (V) Leadership Role and Responsibilities, (VI) Work Processes and Deadline Pressure, (VII) Personal Relationships and Leisure Time, and (VIII) Health and Physical Strain. After deletion of redundant items, we retained six items for each of the eight domains. These 48 items were then rated by experts.

Expert Rating and Item Selection

A group of 16 experts was asked to rate the 48 selected items for their relevance. The experts were a heterogeneous group of executive managers, management trainers and consultants, organizational psychologists, and economists specializing in the field of management processes. Each expert was given a questionnaire with a list of the items. On top of this list, there was the question "How relevant do you consider the following problems for the field of management?". Items were rated on a five-point scale from "Not relevant" (scoring 0) to "Exceedingly relevant" (4). To assess the agreement between the 16 experts across the 48 items, we computed intraclass correlations (Shrout & Fleiss, 1979). The agreement for the relevance ratings was .80. Thereafter, we selected from each of the eight domains the three items with the highest relevance ratings. The selected 24 items had mean relevance ratings between 2.00 ("rather relevant") and 3.19 (above "very relevant"). Because domain-wise item blocking has shown to decrease the reliability of personality questionnaires (Krampen, 1993), the items were placed in a random order. Adding the

response format of Tallis *et al.*'s Worry Domains Questionnaire, this resulted in the Worry Inventory for Managers (WIM).

Psychometric Study

Procedure

To obtain responses from a comprehensive sample of organizations, questionnaire booklets were sent to 700 managers listed in the "marken handbuch" (Team-Fachverlag, 1994). This handbook contains the addresses of all German, Austrian, and Swiss companies that have an advertising department of their own. It also publishes the names of the heads of production, marketing, and advertising departments so that all recipients could be addressed personally. The booklets were distributed from December 1995 to February 1996 through regular mail. A cover letter explained that the purpose of our study was to examine the relationship between worry and "features of personal working-style." Each booklet was accompanied by an unstamped return-envelope. Nevertheless, 141 booklets (20.1%) were returned.

Participants

Three booklets were sent back with some questionnaires left unanswered. Therefore a total sample of 138 respondents, all from different companies, was analyzed. Of this sample, 82 (59.4%) were male and 50 (36.2%) female; 6 respondents did not give an answer to the question regarding gender (4.3%). Each booklet also contained a questionnaire with personal and job demographic variables. However, to emphasize anonymity, respondents were encouraged to leave out items that they felt uneasy about. Nevertheless, between 124 and 128 respondents replied to the demographic questions: With respect to position currently held, 38 (30.2%) respondents described themselves as belonging to the top management level, 30 (23.8%) to the middle management level, and 58 (46.0%) to the lower management level. With respect to their department, 48 (38.1%) managers marked "Marketing", 18 (14.3%) "Sales", 17 (13.5%) "Chief executive", 8 (6.3%) "Personnel", 5 (4.0%) "EDP [Electronic Data Processing]", 3 (2.4%) "Development", 2 (1.6%) each "Production" and "Organization", and 1 (0.8%) each "Finances" and "Technical"; the rest of the participants responding to this item, that is 21 (16.7%), marked the category "Other". Table 1 displays the sample characteristics for the rest of the demographic variables.

Measures

Worry Inventory for Managers (WIM). Following the formulations that Tallis *et al.* (1992) used for their WDQ, respondents were asked to indicate the intensity of each worry using a five-point response scale with the following categories: "Not at all" (scoring 0), "A little" (1), "Moderately" (2), "Quite a bit" (3), and "Extremely" (4). Table 2 lists all the WIM items in their English translation. Additionally, respondents were asked to give ratings of how often each problem presented in the WIM was on their mind (a) during work and (b) after work. The answer format for these two questions was "Never" (scoring 0), "Seldom" (1), "Sometimes" (2), "Often" (3), and "Very often" (4).

Penn State Worry Questionnaire (PSWQ). As described above, the PSWQ (Meyer *et al.*, 1990) is a content-free measure of the pathological aspects of worry. Each of the 16 items is an-

swered on a scale ranging from "Not at all typical of me" (scoring 1) to "Very typical of me" (5). In this study, the German translation of the PSWQ was used which had displayed Cronbach's αs of .86 and .89 (Stöber, 1995; Stöber, 1997, respectively).

Self-Reliance Inventory (SRI). The SRI (Quick *et al.*, 1992) is a 20-item questionnaire assessing self-reliance in private and work relationships; lack of self-reliance is expressed either as counterdependence (e.g., "I make a strong effort to work alone and in a solitary fashion") or as overdependence (e.g., "I need to have colleagues or subordinates close in order to feel secure about my work"). Each item is answered on a scale from "Strongly disagree" (scoring 0) to "Strongly agree" (5). For the present study, we translated the SRI items of Quick *et al.* (1992 , S. 53-54) into German. The Appendix lists all SRI items in their original formulation.

Job Involvement Scale (JIS). The JIS (Moser & Schuler, 1993) is a 7-item scale assessing the degree of a person's psychological involvement in his or her work (e.g., "My job means a lot more to me than just money"). The authors report a Cronbach's α of .68. In the original version, the JIS items are rated on a seven-point scale for the degree to which subjects agree of disagree. To facilitate the ratings for the participants of the present study, however, we presented the JIS with the same six-point rating scale that was used in the SRI.

Results

The Worry Inventory for Managers (WIM)

To analyze the structure of the inventory as well as to explore potential facets of job-related worrying, a factor analysis was calculated. Principal component analysis resulted in five eigenvalues > 1. To decide how many factors should be retained, we used Cattell's scree test and Horn's parallel analysis because they have demonstrated to be far more reliable than the Kaiser criterion (Zwick & Velicer, 1986). For the WIM items, both procedures clearly suggested a two-factor solution that in total explained 43.7% of the variance. The first factor explained 32.9% of the variance and after varimax rotation covered all the items from the domains I to V (with the exception of Item 10); the second factor explained 10.5% of the variance and subsumed the rest of the items, that was the items from the domains VI to VIII (see Table 2).

Despite this rather clear loading pattern, there remained the problem of interpreting the two resulting factors (cf. Holz-Ebeling, 1995). The marker items for the first factor are items from two domains, (I) Control, Support, and Feedback and (II) Power and Influence, and they express concern about arbitrariness of feedback about one's performance and about important information. The marker items for the second factor are from all three domains subsumed under this factor (i.e., domains VI to VIII), and they express concerns related to work overload and lack of time both on the job (e.g., unplanned demands) and afterwards (e.g., no time for hobbies and friends). Therefore, Factor 1 could be summarized as worry about "Organizational Processes" and Factor 2 as worry about "Work Overload". Still, a consideration of other items that have high loadings on both factors suggests that the factors are not homogenous enough to strongly support the calculation of separate, psychologically meaningful WIM sub*scales*. Therefore, the two WIM factors should be regarded only as different "facets" of job-related worry in managers (cf. Joormann & Stöber, in press)

Consequently, we computed WIM total scores by summing the responses across all 24 items. With an internal consistency of .91 (Cronbach's α), the reliability of the WIM total score was well above the .80 recommended for widely-used scales (see Carmines & Zeller, 1979, p. 51). All

items displayed corrected item-total correlations ≥ .37. Following Schelten (1980, p. 135), who states that items with correlations above .30 are acceptable without revision, all items could therefore be retained. For our sample, the mean of the WIM was M = 33.50 (SD = 15.11; range: 2-81) with WIM scores not deviating significantly from normal distribution (Kolmogorov-Smirnov, p = .79).

With respect to the personal and job demographic variables, there was neither a notable gender difference ($t(130) = 0.25$, p = .81) nor a significant correlation with age (r = –.12, p = .18).[1] For the other demographic variables (cf. Participant section and Table 1), the associations with the WIM score were also non-significant (product-moment correlations, rank correlations, and ANOVA effects, all with $p \geq .18$). As an estimate of convergent validity, the WIM total score correlated r = .50 with the PSWQ. The correlations with the PSWQ, however, were higher for the factor scores calculated from the second WIM factor, Work Overload, (r = .42) than for the factor scores calculated from the first WIM factor, Organizational Processes, (r = .29; both ps < .001, one-tailed). Because the two factor scores both correlated significantly with the PSWQ, but to a lower degree than the WIM total score, it seems best to view the factors as facets of one construct than as independent constructs.

To examine the temporal aspects of job-related worry in managers, we averaged the responses to the two additional questions about the frequency of job-related worry (a) during work and (b) after work separately for each WIM domain. We then calculated a 2×8-factorial repeated measures ANOVA with the factors Time (during vs. after work) and Domain (domains I to VIII). This resulted in highly significant effects of Time ($F(1, 37) = 25.40$), of Domain ($F(7, 959) = 12.37$), and of Time × Domain ($F(7, 959) = 149.11$; all three with $p < .001$). Figure 1 illustrates these results. The fact that managers think about the problems presented in the WIM more often during work (M = 1.31, SD = 0.57) than afterwards (M = 1.18, SD = 0.62) may not be remarkable if one considers the predominance of work-related items in the WIM (see Factor 1), but one aspect of the data depicted in Figure 1 deserves closer attention: Although the interaction effect shows that the contents of the WIM domains I to VI are predominant during work and the contents of the WIM domains VII and VIII are predominant after work (all eight paired t tests with $p < .001$), all job-related problems occupy some portion of both work time *and* leisure time, thus indicating spillover between work and private life.

WIM Correlations with Job Involvement and Self-Reliance

In the Introduction, it was hypothesized that high degrees of psychological identification with one's job might present a risk factor for job-related worrying because, for those highly involved in their work, the job would be central to their values and goals. However, as can be seen in Table 3, job involvement did not show the expected positive correlation with job-related worry. Instead, there even was a significant negative correlation of r = –.18 (p = .04) with the factor scores calculated from the first WIM factor, Organizational Processes. However, since this correlation was small and its direction unpredicted, this result should not be overrated.

The relationship between job-related worry and job involvement was examined on a rather tentative basis, but there was firmer theoretical and empirical ground for our hypotheses regarding worry and self-reliance. Before the respective analyses, however, the psychometric properties of our translation had to be examined first. For the responses to the SRI items, principal component analysis resulted in eight eigenvalues > 1. This time, however, the results both of Cattell's scree test and of Horn's parallel analysis were ambiguous as to whether two factors or three factors should be retained. Two reasons led us to favor the three-factor solution (see Appendix): first,

previous research had suggested a three-factor solution for the SRI version presented by Quick *et al.* (1992). Second and more importantly, the three-factor solution explained more variance, namely 34.6% (compared to 26.5% in the two-factor solution), and left only two items with loadings < .30 (compared to five items in the two-factor solution). When the three factors were rotated to the varimax criterion, the loading patterns of the first two factors corresponded closely to the counterdependence subscale (Factor 1) and to the overdependence subscale (Factor 2) as described by Quick *et al.* (1992, p. 47-48). However, Factor 3 did not correspond well to Quick *et al.*'s third factor "Autonomy at Work" (cf. Appendix). Instead, the third factor of our solution referred to relationships with friends and family *outside* work. In accordance with more recent formulations of Quick and collaborators, the third factor was named "Secure Relationships".

Although the interpretation of the three-factor solution of the SRI presented no problems, the calculation of subscales did. This was because two items did not show substantial loadings ≥ .30 on any factors, while at the same time three items showed substantial loadings on two factors simultaneously. This had two consequences: First, when calculating subscales scores by aggregating the responses for items with loadings ≥ .30 on one factor (herein reversing the items of Factor 3 in accordance with the positive label "Secure Relationships"), only the subscale resulting from Factor 1 had an acceptable internal consistency (Cronbach's $\alpha = .72$), whereas the subscales resulting from Factor 2 and Factor 3 did not ($\alpha = .61$ and $\alpha = .41$, respectively). Second, all subscales scores were significantly overlapping with correlations of r(subscale 1 with subscale 2) = –.31, r(1 with 3) = –.25, and r(2 with 3) = .27 (all ps < .01). Therefore, all subsequent analyses were performed with factor scores derived from the three-factor solution of the SRI. This approach has several advantages (cf. Dobie, McFarland, & Long, 1986; J. D. Morris & Guertin, 1977), all of which eventually enhance the ease of interpretation. First, when factor scores are calculated, the items are weighted with their factor loadings, which provides stronger weights to the items that clearly represent the respective attachment style as measured by the SRI. As to the second point, because the factors are rotated principal components, all factor scores are uncorrelated and provide sources of variance that are independent of each other so that more "pure" bivariate correlations are obtained.

Turning back to self-reliance and worry, it was expected that job-related worry in managers would be positively correlated both with counterdependence *and* overdependence. Table 3 presents the correlations between the three SRI factor scores--Counterdependence, Overdependence, Secure Relationships--and the different worry measures, the PSWQ and the WIM with its two facets. They form the following interesting pattern: As expected from Quick *et al.*'s (1992) correlations between their counterdependence subscale and the anxiety and insomnia subscale, Counterdependence was only related to pathological worrying as presented in the PSWQ. In contrast, Overdependence was related to both pathological worrying and job-related worrying as presented in the WIM, but more so to the latter. Looking at the two WIM facets, the .35 correlation between Overdependence and job-related worry reappeared only in the WIM facet Organizational Processes. In contrast, the –.27 correlation between Secure Relationships and job-related worry reappeared reliably only in the WIM facet Work Overload.[2]

Discussion

This study had two main objectives. The first was to construct a short and reliable inventory for the measurement of job-related worry in managers, and the second was to examine the relationship of managerial worrying to other job-related individual differences. As to the first objective, we compiled a pool of statements from eight domains that could present potential problems in the

work of managers and consequently be contents of job-related worrying. Following an expert rating, the 24 items with the highest relevance scores were retained for the Worry Inventory for Managers (WIM). The psychometric properties of the WIM total score were very satisfactory. It displayed normal distribution, high reliability (internal consistency), and acceptable convergent validity with the PSWQ, a measure that has demonstrated to possess high internal consistency and retest reliability as well as satisfactory validity (cf. Meyer *et al.*, 1990; Molina & Borkovec, 1994; Stöber, 1995, 1997). The .50 correlation between WIM and PSWQ may seem too low to manifest evidence for convergent validity. However, one has to take into account the different backgrounds and scopes of the two questionnaires: The PSWQ is a general, content-free measure of pathological worry whereas the WIM is a management-specific, content-based measure of non-pathological worry. With this in mind, the convergent validity of the WIM total score is acceptable.

To explore the dimensionality of the WIM, an exploratory factor analysis was computed. It arrived at two factors. The first was named *Organizational Processes* and comprised items from the domains (I) Control, Support, and Feedback, (II) Power and Influence, (III) Changes and New Developments, (IV) Conflict, Competition, and Career, and (V) Leadership Role and Responsibilities. The second factor, named *Work Overload*, comprised items from the domains (VI) Work Processes and Deadline Pressure, (VII) Personal Relationships and Leisure Time, and (VIII) Health and Physical Strain. Although there was only a minor overlap between these two factors--merely two items displayed substantial loadings on both factors--we did not compute different subscales, but instead suggested interpreting the two factors as representing "facets" of worry in managers and used both the total score and the factor scores to explore the correlations of the WIM with the other personality variables.

Turning to this second objective of the present study, the assumption of a positive relationship between job-involvement and worry was not supported by our data. There even was a small, but significant negative correlation between job involvement and worry about Organizational Processes. A high psychological identification with one's work does not seem to be substantially related to job-related worry in managers.

With respect to the insecure attachment-styles associated with low levels of self-reliance, the picture was completely different. As was expected from the results of Quick *et al.* (1992), counterdependent behavior correlated significantly only with pathological worry but not with job-related worry. Managers who preferred more distant positions in their relationships with others had higher scores on the PSWQ. Having few, if any, close personal or professional relationships was related to more symptoms from the pathological end of the worry continuum, a result that corroborates Quick *et al.*'s (1992) findings that counterdependence was related to anxiety and insomnia. In contrast, overdependence in managers was significantly correlated to both pathological worry and job-related worry, but more strongly to the latter. Managers who tended to establish inappropriate close relationships with (too) many others report more worry in particular about the issues that are subsumed by the WIM factor Organizational Processes, for example, that their performance will not be appreciated or that information from the top will get to them too late. Although this could be interpreted in the way that worry in overdependent managers is to some extent task-oriented (Davey, 1994), one should not forget that Overdependence, like Counterdependence, was also significantly related to the pathological aspects of worrying as expressed in the PSWQ. Whereas Secure Relationships was not significantly related to pathological aspects, the negative correlations with the WIM total score and the second WIM facet suggest that managers with secure attachments (at home and with friends) experience less worry about work overload.

Some authors point out that nonpathological worry may have positive effects and that worriers are better prepared to tackle problems at hand (e.g., Davey, 1994; Schönpflug, 1989). But most of the time, the costs of worrying outweigh the potential benefits. In the study of Tallis *et al.* (1994), the majority of the participants reported that worrying made things worse in general. Investigating further the negative consequences of worry, Tallis and collaborators found four factors of perceived costs of worrying: The first factor captured items describing that worrying leads to pessimism and a negative outlook on things. Factor two subsumed items reflecting that worrying leads to the exaggeration of problems. The items of the third factor were largely related to the theme of performance disruption, and the items captured by factor four finally reflected the emotional discomfort associated with worrying. As we outlined earlier, the negative influence of worry on performance has been extensively studied in test anxiety research, and the worry component of anxiety has shown to be responsible for performance decrements. Particularly with respect to performance *efficiency*, worry is expected to be detrimental (cf. Eysenck & Calvo, 1992). Worriers might compensate for higher procrastination, elevated evidence requirements and task-irrelevant thinking with increased effort (e.g., time) and thereby arrive at the same performance effectiveness as non-worriers. However, taking effort into account, they show inferior performance efficiency. Moreover, this compensatory mechanism can only be applied when there are still some resources in reserve. As a consequence, the adverse effects of worry on performance will increase in line with task demands on the situational side--or with fatigue on the person side. As high levels of worry are know to be related to sleeping disturbances (i.e., difficulty falling or staying asleep, or restless unsatisfying sleep), worriers in management positions could be easily caught in a vicious circle: they need to compensate for the adverse effects of worry on their tasks (which are usually high in demand) while at the same time they might not be able to do so because of persistent fatigue. Evidence for this concurrence of anxiety and recreation failure was found in a study by Cooper (1983). Investigating stress in woman executives, he found that a considerable percentage of his sample suffered from excessive tension, anxiety, irritation, and fatigue and tiredness. The participants reported they felt that their symptoms, all of which are on the criteria list for a diagnosis of generalized anxiety disorder (cf. American Psychological Association, 1987), were a result of stress at work.

As to the potential for worry to clarify issues in management and job stress research, the current study is only a starting point. Still, we believe that the WIM represents a valuable addition to the existing instruments in the domain of management assessment (see Sarges, 1995, chaps. 8 and 9). First, the WIM can be used as an means to *point out problems* that are appraised as threatening by the managers of an organization, both at individual and suborganizational levels (e.g., within a group of managers in the marketing department). In this respect, job-related worry might constitute an important indicator variable for disturbances in the psychological climate (Jones & James, 1978). Subsequently, the WIM could be used to serve as an assessment instrument to measure the degree of *change* resulting from individual or organizational initiatives. For the WDQ, Bittencourt (1996) demonstrated that this instrument for the assessment of habitual worry could be converted into a change-sensitive evaluation instrument simply by adding a time frame, for example, by changing the item prefix to "During the last week, I worried..." instead of the original "I worry..." (cf. Table 2). Likewise, the WIM, having the same item format and the same response format as the WDQ, could easily be converted into an outcome measure for the evaluation of job stress interventions both at the individual level (e.g., stress management, communication training) and, perhaps more importantly, at the organizational level (e.g., organizational development and restructuring). Whether worry in managers is related more to organizational variables or whether it is

rather influenced by personality factors is still to be disputed. The inventory developed in the present study, however, may provide researchers with a means to tackle these questions.

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Footnotes

[1]All probabilities are from two-tailed tests unless otherwise indicated.

[2]This pattern remained stable after within-family Bonferroni correction: When the *p* values of the 12 correlations between worry and self-reliance were submitted to Holm's improved Bonferroni procedure (see Holland & Copenhaver, 1988, p. 145-146), all correlations, that are denoted significant in Table 3, remained significant, with the one exception of the –.15 correlation between Organizational Processes and Secure Relationships.

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Table 1
Sample Characteristics. Data Distributions, Means, and Standards Deviations of the Respondents' Personal and Job Demographic Variables

Variable		*n*	%	*M*	(*SD*)
Age	≤ 30	18	14.1		
	31–40	43	33.6		
	41–50	42	32.8		
	51–60	23	18.0		
	≥ 61	2	1.6	41.79	(9.51)
Years in present company	≤ 5	35	27.6		
	5–10	41	32.3		
	11–20	27	21.3		
	21–30	15	11.8		
	≥ 31	9	7.1	11.63	(9.84)
Hours at work per week	≤ 30	5	3.9		
	31–40	15	11.8		
	41–50	61	48.0		
	51–60	34	26.8		
	≥ 61	12	9.4	55.53	(10.48)
Number of subordinates	≤ 4	53	42.7		
	5–20	38	30.6		
	21-50	15	12.1		
	51–100	10	8.1		
	≥ 101	8	6.5	41.46	(155.28)
Size of company[a]	1 (= "up to 250")	67	53.2		
	2 (= "250–500")	18	14.3		
	3 (= "500–1000")	15	11.9		
	4 (= "1000–2000")	10	7.9		
	5 (= "2000–5000")	4	3.2		
	6 (= "5000 and more")	12	9.5	2.22	(1.66)

Note. 124 ≤ *n*s ≤ 128 due to missing values (see the Procedure section).
[a]number of employees

Table 2

The Worry Inventory for Managers (WIM). Item Wordings, Means and Standard Deviations, Corrected Item-Total Correlations, and Factor Loadings in the Two-Factors Solution after Varimax Rotation.

						Factor Loadings[c]	
No.	I worry …	Domain[a]	*M*	(*SD*)	r_{it}[b]	Factor 1	Factor 2
2.	that I may make decisions only after consulting with my superior	I	1.09	(1.08)	.44	*.65*	.04
3.	that important information from the top will get to me too late	I	1.51	(1.19)	.61	*.76*	.16
12.	that my performance will not be appreciated	I	1.04	(1.06)	.67	*.76*	.24
11.	that decision processes are not comprehensible due to unclear management policies	II	1.76	(1.25)	.54	*.72*	.09
20.	that power is misused	II	1.41	(1.12)	.37	*.49*	.09
21.	that I have to support the decisions of my superior even if I don't agree	II	1.26	(1.17)	.58	*.72*	.15
5.	that new developments in the company will be implemented too slowly	III	2.21	(1.12)	.42	*.51*	.14
7.	that collaborators will balk at innovations	III	1.54	(1.12)	.41	*.41*	.23
8.	that changes within the organization will endanger my job	III	0.96	(1.12)	.42	*.55*	.11
1.	that rivalry will lead to unfair conduct	IV	1.25	(0.98)	.47	*.46*	.27
9.	that personal conflicts are not openly discussed and thus continue to be problems	IV	1.63	(1.05)	.50	*.62*	.15
18.	that matter-of-fact debates get taken personally	IV	1.32	(1.03)	.54	*.52*	*.31*
6.	that I will not be given sufficient authority to do my job	V	0.88	(1.10)	.60	*.63*	.27
10.	that I cannot motivate my subordinates	V	0.91	(0.91)	.40	.11	*.54*
15.	that tasks are assigned to me which I do not agree with	V	0.79	(0.84)	.44	*.40*	.29

(Table 2, continued)

14.	that most of my working time will be taken up by unforeseen urgent requests	VI	1.54	(1.08)	.54	.14	*.72*
17.	that too much "administrative stuff " keeps me from working on my actual tasks	VI	1.69	(1.00)	.53	.25	*.60*
24.	that I have too few subordinates to finish my tasks in time	VI	1.38	(1.29)	.62	*.30*	*.68*
13.	that my job will have a negative influence on my marriage/romantic relationship	VII	1.25	(1.08)	.50	.16	*.64*
16.	that I neglect my hobbies	VII	1.65	(1.20)	.53	.10	*.76*
23.	that I do not have enough time for my friends	VII	1.80	(1.15)	.68	.25	*.79*
4.	that I will not get enough physical exercise because of my job	VIII	1.72	(1.28)	.53	.24	*.60*
19.	that the permanent stress and hectic pace will lead to a heart attack some day	VIII	1.36	(1.10)	.48	.09	*.68*
22.	that I pay too little attention to eating properly because of my work-load	VIII	1.56	(1.13)	.54	.17	*.68*
				eigenvalue		7.89	2.59
				% of var.		32.9	10.8
				cum % of var.		32.9	43.7

Note. $N = 138$.

[a]Domains: (I) Control, Support, and Feedback, (II) Power and Influence, (III) Changes and New Developments, (IV) Conflict, Competition, and Career, (V) Leadership Role and Responsibilities, (VI) Work Processes and Deadline Pressure, (VII) Personal Relationships and Leisure Time, and (VIII) Health and Physical Strain. [b]Corrected item-total correlation for the WIM total score. [c]Factor loadings ≥ .30 are underlined.

Table 3

Correlations of Worry Scores with Job Involvement and the Factors Scores of Self-Reliance

		PSWQ	WIM total score	WIM-F1 *Organizational Processes*	WIM-F2 *Work Overload*
JIS		–.02	–.05	–.18^{+}	.11
SRI-F1	*Counterdependence*	.36***	.06	–.01	.11
SRI-F2	*Overdependence*	.24**	.35***	.35***	.14
SRI-F3	*Secure Relationships*	–.10	–.27**	–.15*	–.24**

Note. N = 138. PSWQ = Penn State Worry Questionnaire; WIM = Worry Inventory for Managers, WIM-F1 = factor scores for Factor 1, WIM-F2 = factor scores for Factor 2 (cf. Table 2). JIS = Job Involvement Scale; SRI = Self-Reliance Inventory, SRI-F1 = factor scores for Factor 1, SRI-F2 = factor scores for Factor 2, SRI-F3 = reversed factor scores for Factor 3 (cf. Appendix).

$^{+}p < .05$, two-tailed test; $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$, one-tailed tests.

Appendix

Factor Analysis of the Self-Reliance Inventory. The Three-Factors Solution After Varimax Rotation.

No.	Original item wording	Factor 1	Factor 2	Factor 3
1.	I make a strong effort to work alone and in a solitary fashion.	*.67*	–.24	.11
2.	It is difficult for me to delegate work to others.	*.63*	–.01	.20
10.	I think I am the only one who can do a job right.	*.56*	.01	.08
5.	I regularly and easily spend time with other people during the work day.	*–.53*	.26	–.03
17.	Asking for help makes me feel needy, and I do not like that.	*.53*	.14	–.14
20.	It is difficult for me to leave home or work to go to the other.	*.52*	–.17	.24
14.	I am frequently suspicious of other people's motives and intentions.	*.48*	.18	*.34*
11.	I am comfortable working alone for extended periods of time.	*.48*	*–.47*	–.16
13.	I avoid depending on other people because I feel crowded by close relationships.	*.47*	–.21	–.16
6.	Developing close relationships at work will backfire on you.	*.32*	.06	–.01
9.	I trust at least two other people to have my best interests at heart.	–.26	–.07	.10
12.	I get upset and disturbed if I have conflicts in relationship(s) at work.	.21	.05	.14
3.	I need to have colleagues or subordinates close in order to feel secure about my work	.05	*.82*	–.03
16.	I prefer frequent feedback from my boss to know I am performing well.	.01	*.59*	.26
19.	I always consult others when I make decisions.	.14	*.57*	*–.32*
15.	On some tasks I can work effectively without other people.	.19	*–.50*	.28
4.	People will always be there when I need them.	.13	.22	*–.67*
7.	I become very concerned when I have conflict with family members at home.	.18	.13	*.55*
18.	I have a healthy, happy home life.	–.16	.06	*–.47*
8.	I have little difficulty leaving an old job and friends for a new job.	–.11	–.01	*.43*

Note. N = 138. Factor loadings ≥ .30 are underlined. Item wordings are taken from "Behavioral responses to anxiety: Self-reliance, counterdependence, and overdependence," by J. C. Quick, J. R. W. Joplin, D. L. Nelson, and J. D. Quick, 1992, *Anxiety, Stress, and Coping, 5*, 53-54. Copyright 1993 by Harwood Academic Publishers. Adapted with permission of the authors.

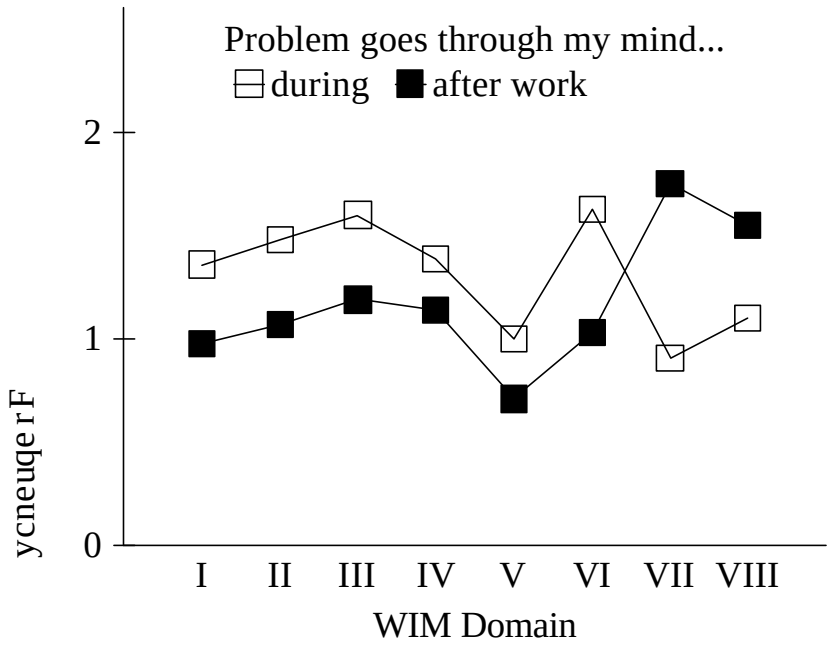

Figure 1. Frequency of job-related worries during and after work. The WIM domains are (I) Control, Support, and Feedback, (II) Power and Influence, (III) Changes and New Developments, (IV) Conflict, Competition, and Career, (V) Leadership Role and Responsibilities, (VI) Work Processes and Deadline Pressure, (VII) Personal Relationships and Leisure Time, and (VIII) Health and Physical Strain.