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Some moderators of the work stress- burnout relationship

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I Hardiness, self-efficacy belief and achievement motivation moderate the relationship between occupational stress and burnout.

II The null hypothesis states that hardiness, self-efficacy belief and achievement motivation do not moderate the relationship between occupational stress and burnout.

In terms of Hypothesis I, it is proposed that those individuals high in hardiness and/or self-efficacy belief and/or achievement motivation are less susceptible to burnout when exposed to a period of intense work-related stress.

FIGURE 5, based on Cherniss's (1980) transactional definition of burnout, describes the hypothesis.

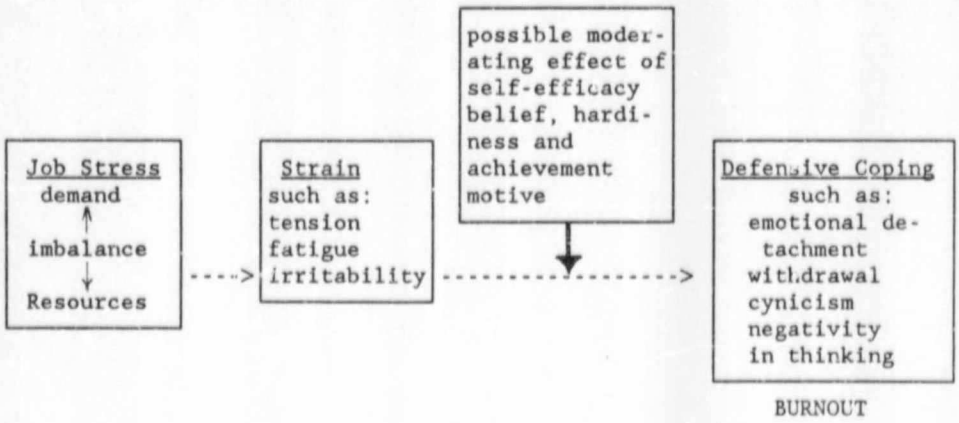


FIGURE 5: Proposed model to explain moderating effects of certain personality variables on the job stress-burnout relationship (based on Cherniss' (1980) Transactional Definition of Burnout).

Cognitive theorists advocate that subjective and internal aspects of the individual are the prime determinants of behaviour, and

consequently a cognitive interactionist approach has been chosen for the present study as the most rewarding for conceptualising stress processes and the experience of burnout. It has also been shown that coping is a cognitive mechanism, and that the variables of hardiness, self-efficacy belief and achievement motivation involve cognitive elements; possibly these variables facilitate successful or transformational coping behaviour.

Locus of control was not investigated as a separate entity because its contribution as a personal variable is already accounted for in the measuring instruments. The Kobasa and Maddi (1982) Hardiness Scale specifically incorporates six items directly taken from Rotter's (1966) Internal-External Scale. In line with recent research (Barling and Abel, 1983; Beattie, 1981; Keyser and Barling, 1981) self-efficacy belief is examined in an academic and social context rather than in the more traditional laboratory or phobic orientation.

If hardiness, self-efficacy belief and achievement motivation prove to moderate the relationship between stress and burnout, the development of a screening mechanism to identify burnout-prone and burnout resistant individuals would be of value to industry. A restriction on individuals liable to burn out would have a marked effect on stress-related costs, and on production. From the viewpoint of the individual, there would appear to be potential for enhancing the relevant attributes from early childhood via specialised training programmes. Findings from the research might also suggest ways for refining the methods of intervention currently being used for those suffering from chronic stress and burnout.

II METHODOLOGY

1. SUBJECT SAMPLE

Participants in the study were drawn from a potential number of 118 incumbents to the full time Master of Business Administration (MBA) Programme at Graduate Schools of Business connected to the Universities of Cape Town and the Witwatersrand. Of this total potential, 73 full time MBA students chose to participate in the survey by returning completed questionnaires, yielding a response rate of 61,8% return for the first test administration. As response rates to research inquiries rarely show more than a 70% return (Lehmann, 1985), 61,8% was judged sufficiently representative of the sample.

The sample included a small number of females and blacks, and in order to avoid obvious discrimination on the grounds of gender or race, they were included in the invitation to participate in the research. However, there were too few of either category to be included in the statistical analysis, and the questionnaires [illegible]cted by one white female and one black male were excluded. Also discarded was an incomplete questionnaire. Furthermore, males and females may experience burnout differently (Maslach, 1982a; Maslach and Jackson, 1981), and researchers commonly differentiate between burnout subjects

in terms of gender (Etzion, 1984; Gaines and Jermier, 1983; Pratt and Barling, 1987). There may also be gender differences in the effectiveness of personality hardiness (MacEwen and Barling, 1986; Pratt and Barling, 1987; Schmeid and Lawler, 1986) and achievement motive (Horner, 1968). Blacks have been shown to experience less emotional exhaustion, and much less depersonalisation than whites, both in intensity and frequency (Maslach, 1982a). Consequently, the final response rate for the first test administration was a 59,3% return.

This first test administration yielded a final sample of 70 white males (59,3% of the target population) with a mean age of 29,3 years (S.D. = 4,44), and an age range of 22 to 47 years. They had completed an average of 6,6 years in a working capacity. A further 24,3% of the sample was lost by the second test administration; however, statistical analysis (T-tests) confirmed that there were no significant differences between those who remained in the survey and those who dropped out. The final sample from the second testing numbered 53 white males with a mean age of 29,4 years (S.D. = 4,45) and an age range of 22 to 47 years. The final response rate for the University of Cape Town business school was 52,8%, and for the University of the Witwatersrand business school (Johannesburg) was 47,2%.

It was found that amalgamation of the two samples into one representative sample was justified on the basis that it represents an homogeneous group of MBA students. T-tests showed that no significant differences existed between the two populations in terms of the

variables under investigation, with the exception of age. The variance in the response rates between the two universities was insignificant (Cape Town = 52,8%; Johannesburg = 47,2%). Furthermore the two groups were of similar size and core content. All MBA incumbents, in order to qualify for the Programme, had obtained a satisfactory rating in the GMAT examination and had been subjected to a personal interview. A further precondition was that at least one prior degree be held. At Cape Town, 60% already held a B.Sc. degree, whereas 33% held a B. Comm. degree; at Johannesburg 56% held a B.Sc., and 28% a B. Comm. In addition, all subjects came from English-speaking universities.

At Time 1, 36 respondents were married, 33 single, and three divorced, while at Time 2 there were 25 marrieds, 26 singles and two divorcees. Time 2 represents the sample which chose to participate in both questionnaires. At neither Time 1 nor Time 2 did any of the marrieds live in residence, while 13 singles did so. It has been found that for those who work with other people, single individuals experience the most burnout and married individuals the least, with divorcees falling somewhat between the two groups. Divorcees tend to be closer to singles in terms of the experience of emotional exhaustion, but closer to marrieds in terms of lower depersonalisation and a greater sense of accomplishment (Maslach, 1982a). However, Maslach (1982a) cites age as the more important factor in burnout, and consequently age was controlled for in the analysis.

Though amalgamation of the two samples into a single homogeneous sample has been justified, it might be argued that the two schools

could possibly have attracted individuals with different needs, in view of the Cape Town Programme duration being one year and that of Johannesburg's being 18 months. This proposition is unlikely, however. Different people do have different needs, but in terms of the courses the Programme content was considered to be of so similar a nature at each business school, and the entry requirements especially similar in terms of GMAT scores, personal questionnaires, interviews, academic and extramural achievement, and related business experience, that the types of people accepted would match comparable entry requirements at each business school.

Unless one could work with a sample where each individual was highly similar in demographic and need-related aspects, one would have to make the calculated judgement that the profile of an MBA student from two highly reputable and similarly structured English medium business schools, at equally renowned South African universities, would be very similar. Furthermore, many candidates chose (as was disclosed by both schools' administrations) to apply to both universities, knowing full well that should they have the necessary prerequisite entry qualifications, they might only in fact gain acceptance at one or other business school based on whether or not that business school still had space within its student quota.

Another reason why one business school may have found preference over the other, thereby making redundant the relevance of the different time span of each Programme, is the fact that many of the students on the Cape Town Programme came from Cape Town and its environs, whereas those on the Johannesburg Programme came from that area. This is

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relevant in that the cost of completing an MBA on either Programme was similar, and consequently a student that would have to relocate either himself or his family may very well have put himself under further financial strain as a result, despite the fact that he may have wanted to choose one school over the other. Because of this factor, some students may have simply chosen to apply to that Programme that was located in their area of residence.

The two sets of advertisements independently advertise for a type of person with similar characteristics and achievement criteria (see APPENDIX C), and this may well validate, albeit at a very cursory level, the equatability of the two samples in that the same type of individual would feel comfortable responding to either advertisement without feeling that one was prejudicial over the other.

The subject sample therefore comprised an homogeneous group of individuals considered to be persevering, competent, and capable of achievement. Furthermore, it represents individuals who have high expectations of their abilities to succeed. Freudenberger (1980) and Maslach (1982a) have depicted high achievers as potential burnout candidates. Placing such individuals in highly demanding conditions likely to be perceived as stressful will further increase the likelihood of burnout.

2. DESIGN

The present study was designed to combine the two contingencies of subject (high achiever) with context (MBA Programme) in order to

simulate an ideal burnout paradigm, albeit as a pilot project. It was anticipated that those individuals with relatively higher levels of the three variables under investigation would cope more constructively with the stresses inherent in the Programme. The effects of the Programme in predisposing individuals to burnout would therefore be studied indirectly.

Though five main categories of variables may be conceptualised as having important associations with burnout as depicted in TABLE 6, (Perlman and Hartman, 1982), the scope of the present study was limited, being a pilot venture, and not all categories could be fully taken into account. Consequently the questionnaire was designed to incorporate certain of the variables relating to each category: the organisational characteristic was represented by a heavy workload; organisational perceptions included aspects of administrative support and clarity; role perceptions include autonomy and feedback (individual coping ability); outcome variables included satisfaction; individual characteristics such as age and leisure level were also covered.

The full time MBA Programme was specifically chosen for its degree of content, both qualitative and quantitative, and because it represents a preplanned schedule of increasingly pressured situations. The Programme complies with Maslach's (1982a) definition of an overload situation, with its compulsory and elective courses, assignments, numerous examinations (of which no more than four can be failed), plus its extraneous demands. It culminates in the writing of a comprehensive technical report which has to be passed in order for the

individual concerned to successfully complete the MBA. There is also an obligation for students to form study groups and to work together in handling various projects and presentations, with the result that this places heavy demands on interpersonal skills. This situation also necessitates a high level of responsibility for the individual, as success of the group depends upon effective contribution by all its members. Lastly, and particularly for financial reasons, students are in all likelihood under a heavy obligation to complete the MBA course successfully. The MBA Programme is therefore designed to test not only academic achievement and initiative, but also endurance and the ability to handle conditions of intense stress.

It follows that several factors were expected to be perceived as specifically stressful on the Programme, all of which are known antecedents to the development of burnout. These are the intense involvement of individuals with other people under demanding situations, the bearing of various responsibilities, and an accumulation of role stressors (Maslach, 1982a).

Burnout may be inevitable when unmediated stress is experienced, (Cherniss, 1980; Farber, 1983). The MBA Programme presents a situation of virtually unmediated stress, in which psychological accommodation to work stressors approaches the strain and coping methods associated with burnout. Furthermore the scale used in the present study to measure these strains specifically taps those listed by Cherniss (1980), such as fatigue, irritability, emotional detachment and cynicism. The MBA Programmes offered at both Cape Town and Johannesburg represent full time courses within a prescribed

period, with the emphasis on intensity of volume and content. Only relatively short breaks are provided for in the Programmes. There is no option available whereby participants may choose to interrupt the course at certain intervals, in order to complete semesters as and when desired, as is the case at certain American universities. The stress experienced is therefore, unmediated.

Because stress is a recognised precursor of burnout, each subject had to be assessed for stress and burnout at the start and toward the end of the MBA Programme. All individuals can be measured for both a degree of stress, and a degree of burnout. Consequently the research was of within-subject longitudinal design using a repeated measures procedure. A longitudinal design ensures that the effects of continual stress events may be measured as they accumulate and burnout develops. It follows that this design is more appropriate than cross-sectional for a moderator hypothesis because the data collected will be used to answer the question, "What will moderate or buffer the potentially negative effects of prolonged stress as they occur?" In the present study the moderating process is essentially the continued efforts to cope, via personal variables, with stressful experiences.

3. PROCEDURE

One aim of the study was to measure the increased stress and aspects of burnout which it was expected would be manifested toward the end of a demanding study course. The times of actual measurement were therefore important. For the first testing individuals had to be at

a stage where they had become conscious of the demands ahead of them in the MBA Programme, and where they were starting to experience some pressure; however, they must neither be completely fresh to the course, nor engulfed under too much pressure. For the second testing, individuals must have experienced a buildup of physical and mental pressures, covered the majority of the compulsory work and passed the required number of examinations, yet still have the anxiety of some final sets of examinations and the technical report with which to contend.

One problem concerned the argument that the two business schools might possibly have attracted persons with different requirements, because the course offered at Johannesburg was longer than that of Cape Town by six months. However, all the MBA modules requiring examination took place at both business schools within the first 11 months, but in Johannesburg a further six months was allowed for completion of the compulsory technical report. Furthermore, the difference in time period was considered in the context of the present study, as it could otherwise have allowed systematic bias to develop between the two sample groups. The times at which both sets of questionnaires were administered was investigated with the help of both schools' administrations. This ensured that such tests took place at times considered by both Cape Town and Johannesburg to be comparable in terms of course pressure, as determined by those who had developed the Programme and those who were lecturing. Though no completely foolproof method was available for guaranteeing that the administration of the questionnaires would take place at a time when exactly equal course pressures would come to bear upon the students,

it was felt following consultation with those closest to the development and implementation of the MBA Programmes, that the times chosen to administer the questionnaires would be equatable in terms of what was being investigated. Consequently this method was regarded as the best possible way to avoid unwanted bias from arising.

After careful consideration, and after consultation with the two sets of administrators, equivalent test dates were planned for each school. The first date was fixed within the fourth week of Programme commencement, some time after orientation lectures, and the second date was set for three weeks prior to the examinations marking the commencement of the third term of the curriculum. This second date apparently coincides with a time of extreme stress at both the business schools.

It was also important to match the conditions for administering the questionnaires. The Maslach Burnout Inventory (MBI) manual lists special instructions emphasising standardised conditions, and contends that state of mind at the time of responding is a significant factor. Consequently in every case, participating students were given to understand that personal information and questionnaires would not be passed on to the universities concerned, nor was the person presiding involved in the study in any way. The research was being conducted independently of the Graduate Schools of Business, and only overall trends and results would be made available in a final report to the business schools.

Full time MBA students were invited to participate in the study on a voluntary basis, and questionnaires plus a covering letter were handed

out following morning lectures. Questionnaires were to be completed individually there and then, and would take approximately 50 minutes. The covering letter (see APPENDIX A) pointed to the pervasive effects of stress and its cost to industry and personnel, and appealed to individuals to take part in the study so that they could contribute to an enhanced understanding of both the nature of stress and the trends responsible for its growing prevalence. The ultimate aim was described as the improvement of intervention strategies and human resource management techniques to the benefit of individual and organisation. In order to avoid response bias, emphasis was placed on the work 'stress' rather than 'burnout'.

Participants were told that it would be necessary to complete a similar package later in the year for the study to be of value, and were given some incentive to do so by being promised two individual 'stress' ratings, and a personal follow-up letter. They were invited to estimate their own stress levels in the second questionnaire.

4 QUESTIONNAIRES

The questionnaires were comprised of the self-report scales described below, a sample of which is to be found in APPENDIX A. All the scales used were tested for their internal reliability at each time of testing. To avoid response bias, none was given its formal title, and each was presented in its published format. The word 'burnout' was avoided since it tends to have provocative and ambiguous connotations,

and is typically regarded as a buzzword by many individuals (Maslach, 1982b; Maslach and Jackson, 1984a; Paine, 1982). No indication was given with regard to correctness of answers, nor were points assigned. Apart from biographical data, answers were indicated by a cross or tick. TABLE 7 summarises the measuring instruments used in the research study.

TABLE 7: Summary of measuring instruments used in the research

Instrument	Author Reference	Measure of ..
Life Experiences Survey Scale (LES) (1978)	Sarason, I.G, Johnson, J.H. and Siegel, J.M.	Life stress in study conditions
Hardiness Scale (1982)	Kobasa, S.C. and Maddi, S.R.	Hardiness
Maslach Burnout Inventory (MBI) (1981)	Maslach, C. and Jackson, S.E.	Burnout components of emotional exhaustion, depersonalisation and reduced personal accomplishment
Keyser/Barling Self-efficacy Scale (1979) (adapted for study)	Keyser, V.	Self-efficacy belief
Achievement Motive Questionnaire (AMQ) (1985)	Tziner, A. and Elizur, D.	Achievement motive

The first section of the questionnaire investigated biographical data which has been found to have relevance in research studies on stress and burnout. Responses were recorded via the use of yes/no and Likert-type scales.

Gender, age, educational standard, ethnic group, marital and family status are known to have relevance to the experience of burnout (Maslach, 1982a; Maslach and Jackson, 1981, 1984a), as has been documented earlier in the study. Age has particular significance to the onset of burnout. Burnout is greatest when individuals primarily working with people are young, and it is lower for older workers (Maslach, 1982a): consequently age was treated as a covariate in the moderated multiple regression. Some of the data was obtained in order to provide a profile of a typical MBA student, for example educational standard, and this is to be found in APPENDIX B.

The Life Experiences Survey Scale (LES) was developed by Sarason, Johnson and Siegel (1978) for "assessing the impact of life changes" (p. 932). It was used in the present study to measure the combined stress of life change and study conditions. The scale was designed to assess the impact of both positive and negative life experiences on the individual. Individuals rate desirable and undesirable changes experienced during the previous year, to give a total change score, and it is reasonable to assume that the effects of positive change may in part ameliorate the stress produced by negative experiences; however, the general contention of researchers is that only the negative measure should be used if the purpose is to determine degree of life stress (Holahan and Moos, 1985; Sarason, Johnson and Siegel, 1978; Vinokur and Selzer, 1975). In completing the scale the individual ranks each item for its personal impact on a -3 to +3 continuum.

Apart from the LES being chosen because of the special section directed at study orientation, it was also used because it is suggested (Bhagat,

1980) that there is an interactive relationship between work stress and life stress, and it has been noted that high levels of such work-related stresses as role conflict tend to exacerbate the impact of life stress on individual work performance (Farber, 1983). Role conflict and work overload are two of the factors expressly mentioned in the section relating to research findings, which are particularly relevant to the MBA context.

The scale takes into consideration 57 categories of change which require social or behavioural adjustment, and includes 10 items specifically related to study orientation, which has direct relevance for the MBA sample. In the life events section, a typical event inviting personal assessment reads "major change in financial status (a lot better off or a lot worse off)"; in the work study section, a typical item reads "failing an important exam." The compounded negative score for both sections designated as ST2 was used in the statistical analyses.

Sarason, Johnson and Siegel (1978) conducted a study to determine whether mood state had an effect on the number of life changes reported and on the actual scores assigned to them, by experimentally inducing a depressive state of mind on the respondents. Results suggested that any significant correlations between the LES and depression did not result from the effects of the depressive mood state, and that responses to the LES are not unduly influenced in terms of mood state. In addition, responses to the LES appear relatively free from the influence of social desirability response bias (Sarason, Johnson and Siegel, 1978). In two test-retest reliability studies (Sarason,

Johnson and Siegel, 1978) the reliability coefficients for the negative change score were found to be 0,56 ($p < 0,001$) and 0,88 ($p < 0,001$). The coefficients for the total change score were 0,63 ($p < 0,001$) and 0,64 ($p < 0,001$).

Sarason, Johnson and Siegel (1978) have argued that although certain individual variables may influence the way in which individuals perceive control over certain environmental events and may mediate the effects of life stress generally, the LES possesses sufficient reliability and correlates with a variety of relevant dependent measures to enable it to be used in studies aimed at identifying moderator variables and their effects.

The 20 item short-form Hardiness Scale, as constructed by Kobasa and Maddi (1982) of Chicago University for use by researchers, was used to measure the individual disposition of hardiness. Its 20 items represent a condensation from 72 components originally contained in five separate scales, details of which follow. The short version was generated by Kobasa and Maddi (1982) because test administration was otherwise too time consuming.

Hardiness is a personality construct featuring the dispositions of control, commitment and challenge as first defined by Kobasa (1979), and consequently the present scale contains properties relating to each of these qualities. In the original version, commitment was revealed in a negative capacity by the Alienation from Self and the Alienation from Work Scales of the Alienation Test (Maddi et al, 1979). Control was also measured negatively, by the original External Locus of Control

Scale (Rotter, Seeman and Liverant, 1962)[2] and the Powerlessness Scale of the Alienation Test (Maddi et al, 1979). The challenge disposition was measured in a negative capacity by the Security Scale of the California Life Goal Evaluation Schedule (Hahn, 1966) and by the Cognitive Structure Scale of the Personality Research Form (Jackson, 1974).

Prior to use of the short version of the Hardiness Scale (1982), Kobasa, Maddi and Courington (1981) and Kobasa, Maddi and Kahn (1982) had extracted six appropriate subscales from four standardised tests, in order to measure the specific components of hardiness, while Kobasa and Puccetti (1983) measured hardiness by using a composite score derived from five scales. In terms of reliability the 20 items selected for the present scale were those which correlated most highly with the total hardiness score derived via the previous methods (coefficient alpha = 0,81) and duplicate key findings have been obtained for both the 20 item and the full length versions (Kobasa and Maddi, 1982). Kobasa, Maddi and Kahn (1982) report that the five hardiness scales finally selected reveal significant inter-correlations ($p < 0,005$) in the predicted direction.

Recent reliabilities pertaining to the short version of the Hardiness Scale are given as internal consistency coefficient of 0,76, and a three month test-retest reliability coefficient of 0 63 (MacEwen and

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Barling, 1986); the scale has also been found internally reliable (alpha = 0,76) (Barling, 1986). The present study yielded reliabilities of alpha = 0,69 and 0,74.

Kobasa (1979) has identified the component of commitment as the most relevant stress-reducing property of the hardy personality, while Ganellen and Blaney (1984) confirm commitment as moderating the effects of life stress. In the present study, however, the 20 item short form was used to obtain a composite score in place of discrete disposition measures: it was chosen for its psychometric properties and its length, and because the composite score was considered adequate and relevant for the assessment of MBA students. Hardiness is usually treated as a composite measure in research (Bluen, 1986; Kobasa, Maddi and Kahn, 1982; Kobasa and Puccetti, 1983).

The Hardiness Scale refers to attitudes, and respondents are asked to rate 14 such statements as "the young owe the old complete economic security" on a scale ranging through 'agree' (rated as 1) 'not sure' (2), to 'disagree' (3). Absence of an opinion was rated as zero. The remaining six forced choice items are derived directly from Rotter's I-E Scale (1966), the answer depicting the hardiness disposition being allied to the internal perspective of control.

Burnout was measured using the 22 item Maslach Burnout Inventory (MBI)[3] constructed in 1981 after years of exploratory research by

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[3] Reproduced with permission from the Consulting Psychologists Press, Inc., Palo Alto, Ca.

Maslach and Jackson for use in the human service professions. Recently Golembiewski et al (1985) have also proved it suitable for the commercial sector. It is presently the most widely used measure of burnout and its 22 items assess three aspects of the burnout syndrome: emotional exhaustion, depersonalisation and reduced personal accomplishment. It is usually presented under the title of the Human Services Survey to obviate any reaction to the term 'burnout'. (Maslach and Jackson, 1981; Maslach, 1982b).

The MBI comprises three subscales that assess the different aspects of experienced burnout, and these are rated by the individual on the dimensions of frequency (0 = never, 6 = every day), and intensity (0 = never, 7 = major, very strong). Burnout is conceptualised as a continuous variable and is reflected as being present to a high degree by high scores on the emotional exhaustion and depersonalisation subscales, and by low scores on the personal accomplishment subscale (Maslach and Jackson, 1981). A further three items relating to an involvement factor are not usually included as a fourth subscale because the factor has an eigenvalue of less than unity (Maslach and Jackson, 1981) and shows unsatisfactory reliability of alpha = -0,05 (Pratt and Barling, 1987).

The four subscales are not highly correlated, which emphasises the importance of conceptualising burnout in terms of its specific dimensions. However, there is correlation between the frequency and intensity dimensions of each aspect, and only the intensity dimension was utilized in the present study. This is in keeping with current research, which has found correlation between frequency and intensity

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items and scales to be consistently positive and moderate or substantial (Brookings, Bolton, Brown and McEvoy, 1985; Gaines and Jermier, 1983; Iwanicki and Schwab, 1981; Maslach and Jackson, 1981; Pratt and Barling, 1987). Recent findings have questioned the obligatory use of both dimensions (Brookings et al, 1985; Gaines and Jermier, 1983; King and Beehr, 1985; Jackson et al, 1986). Furthermore, multicollinearity, which refers to a situation in which some or all the independent variables are very highly correlated with intercorrelations in the 0,8 to 1,0 range, was anticipated with regard to the intensity and frequency dimensions of burnout. Multicollinearity should be avoided when using moderated multiple regression analysis because one of the uses of multiple regression as an interpretive tool is to evaluate the relative importance of independent variables. One solution is to use only one of the variables in the highly correlated set to represent the dimension of the variable under investigation (Nie et al, 1975).

A typical question from the emotional exhaustion category reads "I feel fatigued when I get up in the morning and have to face another day on the job". A question relating to depersonalisation reads "I feel recipients blame me for some of their problems" and a question reflecting the degree of personal accomplishment reads "I deal very effectively with the problems of my recipients". In each case a scale of 0 to 6 reflects how often the subject identifies with the particular situation, and a scale of 0 to 7 determines how strongly he agrees with the statement. Both frequency and intensity dimensions were measured in the questionnaire to enable multicollinearity tests to be conducted.

If both frequency and intensity are taken into account, scoring yields six scores for each subject, because scales are analysed separately and not used to provide a single composite score (Maslach and Jackson, 1981). Included on the MBI manual scoring card are numerical cutoff points for high, moderate and low frequency and intensity of experienced burnout. Numerical score is, however, regarded as more important than categorization score, and Maslach and Jackson (1981) state that the power of statistical analyses is greatly enhanced by using the full range of scores. A typical reading of a person with 'high' burnout would show emotional exhaustion with a frequency of 30 or over at intensity 40 or over, depersonalisation with a frequency of 12 or over at intensity 15 or over, and personal accomplishment with a frequency of 0 to 33 at intensity 0 to 36. By contrast, an individual with 'low' burnout would show the scores 0 to 17, 0 to 25, 0 to 5, 0 to 6, 40 or over and 44 or over respectively.

The MBI claims convergent and discriminant validity, and none of the subscales have been found to be influenced by social desirability bias. Reliability coefficients for the subscales were found as follows: 0,90 (frequency) and 0,87 (intensity) for emotional exhaustion; 0,79 (frequency) and 0,76 (intensity) for depersonalisation; 0,71 (frequency) and 0,73 (intensity) for personal accomplishment (Maslach and Jackson, 1981). The present study yielded internal reliabilities for the subscales as follows: emotional exhaustion (intensity) alpha = 0,81 and 0,82; depersonalisation (intensity) alpha = 0,77 and 0,86; personal accomplishment (intensity) alpha = 0,83 and 0,83.

Because burnout is a focal point of the present research, considerable care was taken to ensure choice of the most appropriate scale. The MBI was chosen from the five published burnout scales available because of its wide and successful use by other researchers.

The MBI was considered superior to the Pines and Aronson (1981) Tedium measure for use with MBA students, because it places emphasis on the work setting rather than on satisfaction related to work and life. The Tedium measure covers physical, emotional and mental experiences and attitudes but expands on the emotional exhaustion and depersonalisation components to the detriment of personal accomplishment, which is an important issue on an MBA Programme.

The Staff Burnout Scale (SBS) developed by Jones (1980) is also similar to the MBI but it includes behavioural and physiological items in addition to the cognitive and emotional ones. Tension, job dissatisfaction, physical illness/distress and unprofessional patient relationships are factors explicitly assessed, and these were not directly relevant issues in the MBA situation. The present research also emphasises cognitive factors throughout all the scales, rather than physiological factors. Where the MBI does not include an index of social desirability (the tendency of responders to give skewed answers) the SBS does, although the MBI includes specific instruction to the test administrator regarding the minimisation of response bias (MBI Manual, 1981: 2,3).

The Berkeley Planning Associates (1977) define burnout as job alienation and the scale is highly related to job satisfaction (r = 0,59) but burnout is today conceptualised as involving far more than

job alienation. A self-assessment measure rather than an intended research tool, and unrelated to work settings Freudenberger and Richelson's (1980) scale measures exhaustion, sadness and withdrawal from routine activities, and though it comprises a further content area related to burnout, this scale was obviously not suitable for the MBA orientation.

Self-efficacy belief was measured using a modified version of the 20 item Keyser/Barling Self-efficacy Scale, which was developed for use with schoolchildren Rotter's (1982) construct, the expectancy of success at a given task, which corresponds to self-efficacy as defined by Bandura (1977), was operationalised in this scale. Keyser's perspective on self-efficacy contends that as efficacy belief comprises both efficacy expectations and response-outcome beliefs, and due to the importance placed on equally weighted contributions of these two components to self-efficacy beliefs, they are held to interact multiplicatively. Based on this assumption, the self-efficacy scale was constructed to provide separate scores for the two components, which could then be multiplied to provide a total index of self-efficacy estimations.

Prior to 1979 there was a lack of any existing standardised self-efficacy test instruments other than those to assess the self-efficacy beliefs of snake phobics (Bandura, 1977; Bandura et al, 1975; Bandura, Adams and Beyer, 1977). During 1979 the Schunk Efficacy Scale was also developed but found to be highly arithmetically oriented. It also showed a significant correlation with I.Q. ($r[177] = 0,49$) whereas the Keyser/Barling (1979) scale was lower ($r[185] = 0,25$)

(Patz, 1981), and was found more suitable to the present study. The 44 item Beattie (1981) Self-efficacy Belief Scale was developed specifically for the industrial setting for use by insurance salesmen, but many items covering efficacy expectations were too closely oriented to the insurance sales training manuals from which they had been extracted to be suitable for the present study. Emphasis was placed on anticipated mastery in terms of self-efficacy and performance.

The Keyser/Barling (1979) scale was therefore considered the most suitable for adaptation to the MBA context as it had specifically been developed with an academic orientation, and did not include general items relating to self-efficacy beliefs. It was modified by upgrading the itemised academic tasks, and the equal contribution of efficacy expectation and response-outcome expectation items was retained. Of the 10 items formulated to assess efficacy expectation, a typical question reads "I can handle the Lotus computer programme proficiently"; the remaining 10 items were formulated to incorporate response-outcome beliefs, for example "I can manage the various accounting procedures more easily by following the lecturer's examples carefully". Five items (Nos. 6, 9, 15, 18, 19) formulated in a negative manner were interspersed with positive items such as the above to obviate socially desirable responses. Items are answered on the basis of 'no' (0), 'sometimes' (1), 'usually' (3), and 'yes' (4) The score of 2 is reserved for items with eith - more than one, or no response. Reversed scoring applies to the negative items depicted above. The present study yielded reliabilities of alpha = 0,69 at both times of testing.

The 18 item Achievement Motive Questionnaire (AMQ) was developed by Tziner and Elizur in 1985. It was chosen, firstly, because although it was devised to assess achievement tendencies amongst managers, its multifaceted approach has value beyond the field of managerial performance. Secondly, the scale reflects three facets of achievement motivation which are especially pertinent to the MBA situation, namely the challenge involved (type of confrontation), the time perspective relative to task performance, and the behaviour modality in terms of cognitive attitudes, affective attitudes and instrumental aspects. The six achievement components explored in terms of task performance are uncertainty, difficulty, personal responsibility, calculated risk, matching solutions to problems, and satisfaction of one's needs to succeed. In the 18 item questionnaire three items are included to represent each of three behaviour modalities of response to six achievement components. A total score may be derived, as well as a summary score computed for each of the six achievement components.

A typical question regarding preferences concerning task performance in general reads "Do you generally prefer tasks involving calculated risk or tasks whose accomplishment is ensured?" The respondent ticks one of five alternatives as his general preference, for example "Tasks involving calculated risk a little more than tasks whose accomplishment is ensured". Points are allotted according to alternative chosen, the score of five being given to the choice involving the highest degree of achievement component being investigated. In the example a score of four would be awarded.

Tziner and Elizur (1985) claim good validity and reliability for the AMQ; almost all measures exceed a Cronbach's alpha of 0,80. The present study yielded reliabilities of alpha = 0,83 and 0,89. In addition to the already mentioned advantage of its multifaceted orientation, the AMQ, unlike projective tests purporting to measure Need for Achievement (N ach.) does not require inferential interpretation. Most current measures of achievement motive have been derived from instruments such as the Thematic Apperception Test (TAT), the Manifest Needs Questionnaire (MNQ) and the Iowa Picture Interpretation Test (IPIT), and have internal consistencies below 0,7 (Elizur, 1986). The AMQ is superior in that it was developed in empirical fashion in a commercial environment.

In the Work and Family Orientation Questionnaire (WFO) (Spence and Helmreich, 1978), achievement motive is reconceptualised in terms of three correlated factors, namely work needs (or the motivation to perform tasks well), masterly needs (or the desire to undertake new and challenging tasks) and competitiveness (a desire to surpass others' performances). However, it has been suggested that although the scale may prove valuable in predicting certain criteria, managerial achievement motive is not one of them. Many MBA's endeavour to rise in the sphere of management and so the WFO was not considered sufficiently appropriate. Furthermore, it appears that indexes of attainment in the scale tend to be related to areas of concern rather than to the actual measure of performance.

5. STATISTICAL ANALYSES

The aim of the present study was to see if certain individual factors (self-efficacy belief, hardiness and achievement motive) moderate the work stress-burnout relationship. The investigation into this relationship was carried out using moderated multiple regression (MMR) analysis, which allows for the examination of non-linear moderator effects, and provides information about main and interaction effects (Cohen, 1978; Zedeck, 1971; Zedeck et al, 1971). It has been found that this technique is most effective where there is low correlation between the predictor and dependent variables (Zedeck et al, 1971), as was the case in the present study.

MMR is useful in that it not only accounts for interactions (non-linear) in addition to main effects (linear) (Zedeck et al, 1971), but it also allows for the inclusion of several moderator variables. Furthermore, these moderators, because they cannot be treated in isolation, may have to be combined, and MMR provides for the effects of 'joint moderators' (Zedeck et al, 1971). In the present study three moderator variables are being investigated which require concurrent assessment. The reasoning for choosing MMR for the analysis in this study is therefore threefold: it assesses the contribution of each of:

(1) the independent variables;

(2) purported moderators as independent variables;

(3) interaction terms to the percentage of explained variance in the dependent variable: interaction signals the presence of a moderator variable (Stone, 1986).

As the present study requires that a large number of tests be computed, and at the same time the sample at Time 2 is relatively small (N = 53), care has to be taken to correctly interpret the resultant patterns that emerge. Some relationships may appear to develop which could be due to chance. It may be argued that multivariate analyses of covariance might overcome this problem. Furthermore, though it may be questioned whether MMR is an appropriate statistical technique in that it is too conservative a test of the moderator hypothesis, it was still considered preferable to other methods. Stone (1986) has demonstrated that artificial masking of moderators need not occur, and proposes traditional hierarchical regression as the best technique to employ. MMR has also been used successfully in recent research (Bluen, 1986; Kruger, 1987) to detect moderator variables, and as the present study was a pilot study MMR was considered acceptable.

MMR analysis adopts an hierarchical method of inclusion of variables in the regression equation (Pedhazur, 1982). Though both main effects (linear) and possible interaction effects (non-linear) terms are included in the regression equation, Cohen (1978) maintains that the problem of linear transformation is overcome if variables are included hierarchically into the equation.

There is controversy (Stone, 1978; Stone and Hollenbeck, 1984) concerning the strategy that should be employed in detecting moderating effects, as certain techniques may fail to indicate effects that are actually present. For example, Blood and Mullet (1977) argue that by utilizing conventional moderated regression, where the

interaction term is entered last into the equation, a common result is that the technique is generally incapable of detecting moderating effects; these are shown where the R^2 obtained by regressing the dependent variable on to the independent variables plus the interaction, is significantly different from the R^2 obtained from regressing the dependent variable on to the independent variables alone. Blood and Mullet (1977) argue that by entering the interaction term last, virtually all the variance in the dependent variable has already been 'absorbed' by the main effects of the independent variables, and that if it is entered first, before the main effects terms, the existence of a moderating effect can be assessed by the significance of the regression at the initial step. However, in testing and comparing these conventional and backward regression techniques, Stone and Hollenbeck (1984) found that the backward strategy produced results that were highly inconsistent with the nature of the data sets, and that it often exacerbated the very problem it was intended to correct.

In the present study the interaction term was entered as the final step in the regression, that is, the procedure was a 'conventional' moderated regression (Stone and Hollenbeck, 1984). Variables can be controlled statistically by being entered into the equation first, and this strategy would be used where causal relationships are being established (Holahan and Moos, 1981), but in that case only subsequent partial correlations may be assessed.

MMR is suitable for both cross-sectional (e.g. Etzion, 1984) and longitudinal research (e.g. Holahan and Moos, 1981) and its additional

advantage lies in the fact that variables can be optionally controlled in the analysis, thereby likening it to analysis of covariance (ANCOVA) (Pedhazur, 1982). In the present study the establishment of causal relationships was not of issue, as was the case in the study by Holahan and Moos (1981). Instead, the comparative contribution by each of the 'joint moderators' required assessment, and three separate MMR's were conducted - one for each of the three aspects of burnout (emotional exhaustion, depersonalisation, and reduced personal accomplishment).

In the present study, a longitudinal design was necessary because the ongoing experience of stress, culminating in the strain of burnout, is a process which involves time. Changes in the dependent variable were expected to develop differentially for individuals over the time period. The study investigated the effects of a certain type of study course in predisposing certain individuals to burnout of a lesser or greater degree. For this reason stress, as the precursor of burnout, had to be assessed for each individual at the start of the study course (Time 1) in addition to its reassessment toward the end of the course (Time 2). Stress at Time 1 was considered a covariate, in addition to age, in the MMR analysis. Age is significantly related to burnout, and is more relevant than marital status and whether or not individuals have families, according to Maslach (1982a).

In each MMR the covariates were entered as the first step (age, and stress at Time 1) and were thereby statistically controlled (Nie et al, 1975). Stress at Time 2 (ST2T2) was entered next, followed by

the proposed moderator variable (self-efficacy belief, hardiness, or achievement motive). The two-way interaction term was entered last (self-efficacy belief x ST2T2, hardiness x ST2T2, or achievement motive x ST2T2) into the regression equation for the particular dependent variable being regressed. This hierarchical inclusion of variables allows for the testing of moderator effects: after accounting for the variance due to main effects, the increment in R^2 attributed to the interaction term can be assessed statistically (Zedeck, 1971). Using the analysis of covariance (ANCOVA), the means of any significant interaction effects were then plotted to determine directionality and degree of the interaction.

There are three major assumptions underlying MMR which have to be satisfied prior to its use (Pedhazur, 1982). These are:

(1) there must be no high multicollinearity;

(2) the relationships between predictor variables and dependent variables are linear;

(3) there is no measurement error.

Multicollinearity indicates there are strong interrelations between some or all of the independent variables, and it may be assessed by inspecting the correlation matrix of the zero-order Pearson Product Moment Coefficient of Correlation. Multi- collinearity is deemed to exist where $r = >0,80$. If it does exist, this may lead to difficulties in the estimation of regression statistics: linear regression may then be inappropriate (Pedhazur, 1982). If extreme collinearity exists (intercorrelations in the 0,8 to 1,0 range) it may not be possible to invert the correlation matrix of the independent variables (Nie et al, 1975).

With regard to linearity, a perfectly linear model could be seen to exist where changes in the dependent variable, Y, would be obtained solely by manipulation of one independent variable, X. When means of Y for different levels of X differ from each other and lie on a straight line, there is simple linear regression of Y on X. The higher the degree of linearity, the nearer $\underline{R}^2$ is to 1,0, because the total variance of Y is then explained by X. Accordingly, tests for linearity were conducted for each independent variable with the three aspects of the dependent variable.

The test for linearity provides a breakdown of between-groups sums of squares into the portion due to linearity and the portion attributable to the deviation from linearity. Using the $\underline{F}$ ratios and degrees of freedom, the significance of the linear and non-linear values can be determined. The combined linear and non-linear variance is also explained ($\underline{eta}^2$), and the variance attributable solely to the linear component of the independent variable ($\underline{R}^2$). Hence the non-linear contribution to the variance in the dependent variable can also be calculated (Nie et al, 1975).

Measurement error cannot be totally eliminated (Lehmann, 1985) and therefore it should be minimised. The extent to which measurement error was present was determined by calculating reliabilities of the instruments. Internal reliability was established for each scale at Time 1 and Time 2 using the standardised Cronbach's Alpha formula.

The above assumption tests were therefore conducted prior to the MMR analysis. The test for multicollinearity was also pertinent in terms

of using the Maslach Burnout Inventory, where two dimensions are measured for each aspect of burnout. A further implication of multicollinearity lies in its propensity to interfere with the effectiveness of moderated regression as an interpretive tool in evaluating the relative importance of the independent variables. The situation is somewhat paradoxical. The more strongly the independent variables are correlated (excluding extreme multicollinearity), the more necessary to control the confounding effects; however, the greater the intercorrelation of the independent variables, the less the reliability of the relative importance indicated by the partial regression coefficients. Regression analysis using the given set of independent variables is then inappropriate (Nie et al, 1975). In the present study one of the solutions proved to be the viable alternative, where only one of the variables in the moderately correlated set may be chosen to represent the common underlying dimension (Nie et al, 1975) in this case the intensity dimension. The test for multicollinearity was therefore justified in the decision to use only one dimension of each of the three aspects of burnout.

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III RESULTS

The first part of this section is devoted to general findings relating to the sample, and to results of the assumption tests related to moderated multiple regression. Thereafter the results of the moderated regressions and analyses of covariance are set out. Findings relating to the demographic data are included in APPENDIX B, as they were not directly relevant to the research hypotheses.

1. GENERAL FINDINGS

TABLE 8 depicts the means and standard deviations of the six variables investigated for the total sample (N = 70), and for the University of Cape Town business School (N = 33) and the University of the Witwatersrand Business School (Johannesburg) (N = 37) separately, as at Time 1. The six variables investigated were age, stress, self-efficacy belief, hardiness, achievement motive, and the intensity dimension of the three components of burnout.

TABLE 8: Means and standard deviations of variables at Time 1, (N = 70)

VARIABLE	TOTAL SAMPLE			CAPE TOWN			JOHANNESBURG		
	N	MEAN	S.D.	N	MEAN	S.D.	N	MEAN	S.D
AGE	70	29,3	4,44	33	31,0	5,0	37	27,2	2,6
STRESS (ST2)	70	14,63	9,07	33	14,18	9,95	37	14,89	8,56
HARDINESS	70	36,82	4,80	33	38,45	4,63	37	35,27	4,60
EMOTIONAL EXHAUSTION	70	24,92	8,33	33	23,30	7,72	37	26,57	8,35
DEPERSONAL-ISATION	70	10,46	4,79	33	10,24	4,89	37	10,86	4,72
PERSONAL ACCOMPLISHMENT	70	35,06	7,62	33	33,97	7,74	37	35,89	7,61
SELF-EFFICACY BELIEF	70	51,01	9,06	33	48,24	7,69	37	53,03	9,63
ACHIEVEMENT MOTIVE	70	75,65	7,96	33	75,69	8,84	37	75,29	7,29

Note: Numerical scores of the Maslach Burnout Inventory (Maslach and Jackson, 1981) can be categorised into low, moderate and high for the intensity dimension, as follows:

EMOTIONAL EXHAUSTION :High = 40 or over; Moderate = 26-39; Low = 0-25

DEPERSONALISATION :High = 15 or over; Moderate = 7-14; Low = 0-6

PERSONAL ACCOMPLISHMENT :High = 0-36; Moderate = 37-43; Low = 44 or over

TABLE 9 presents the means and standard deviations for the six variables investigated in the analysis for the total sample (N = 53), and for Cape Town (N = 28) and Johannesburg (N = 25) separately, as at Time 2.

TABLE 9: Means and standard deviations of variables at Time 2. (N = 53)

VARIABLE	TOTAL SAMPLE			CAPE TOWN			JOHANNESBURG		
	N	MEAN	S.D.	N	MEAN	S.D.	N	MEAN	S.D
AGE	53	29,4	4,45	28	31,2	5,1	25	27,4	2,4
STRESS (ST2)	53	13,29	8,01	28	12,46	7,01	25	14,5	8,99
HARDINESS	53	37,71	4,76	28	38,64	4,99	25	36,74	4,39
EMOTIONAL EXHAUSTION	53	28,58	9,93	28	29,07	8,86	25	28,07	11,08
DEPERSONAL-ISATION	53	12,78	8,11	28	12,79	8,99	25	12,78	7,24
PERSONAL ACCOMPLISHMENT	53	34,25	7,17	28	34,71	5,86	25	33,78	8,39
SELF-EFFICACY BELIEF	53	49,62	9,09	28	47,57	7,81	25	51,74	9,96
ACHIEVEMENT MOTIVE	53	78,18	8,69	28	77,89	9,44	25	78,48	8,01

Note: Numerical scores of the Maslach Burnout Inventory (Maslach and Jackson, 1981) can be categorised into low, moderate and high for the intensity dimension, as follows:

EMOTIONAL EXHAUSTION :High = 40 or over; Moderate = 26-39; Low = 0-25

DEPERSONALISATION :High = 15 or over; Moderate = 7-14; Low = 0-6

PERSONAL ACCOMPLISHMENT :High = 0-36; Moderate = 37-43; Low = 44 or over

From TABLES 8 and 9 it may be seen that the number of respondents did not differ significantly between Cape Town and Johannesburg. Amalgamation of the subjects into a total sample is justified on the basis that the sample represents a homogeneous group of MBA students. T-tests were conducted to assess whether significant differences for the variables existed between the sample populations at Cape Town and Johannesburg. With the exception of age, no significant differences were found (T (df 51) = 3,34, $p<0,002$;

T (df 39,6) = 3,46, P<0,001), and consequently the two populations were treated as a single homogeneous sample. Age was controlled for in the subsequent analyses. Moreover, Maslach (1982a) has found a clear relationship between age and burnout, with age presenting a greater problem among young people, and for this reason age is typically treated as a covariate in the research literature. T-tests were also conducted to establish whether there were any significant differences with regard to the variables under investigation between those subjects who completed both questionnaires in the survey, and those who dropped out of the sample. No significant differences were found at the 5% significance level, and it was therefore possible to compare results from the sample at Time 2 (N = 53) with those of Time 1 (N = 70).

The Pearson correlation coefficients and other descriptive statistics for Time 1 are presented in TABLE 10, and for Time 2 in TABLE 11. The variable stress at Time 1 is deliberately excluded from TABLE 10, which presents data relevant to both dimensions (frequency and intensity) of each component of burnout. Stress at Time 1 is more appropriate placed in TABLE 11, where it may be compared with stress at Time 2 and with the other study variables at Time 2.

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