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Some moderators of the work stress- burnout relationship

Dixon, Karen V

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TABLE 10: Descriptive statistics for the study v[illegible] at Time 1, (N = 70)

VARIABLE	1	2	3	4	5	6	7	8	9	10
ALPHA		0,78	0,81	0,78	0,77	0,78	0,83	0,69	0,83	0,69
		Mean 17,02		Mean 8,08		Mean 32,43				
		S.D. 6,14		S.D. 3,87		S.D. 7,49				
1 Age										
2 Emotional Exhaustion (Frequency)	-0,109									
3 Emotional Exhaustion (Intensity)	0,029	0,691								
4 Depersonalisation (Frequency)	-0,321**	0,326**	0,045							
5 Depersonalisation (Intensity)	-0,053	0,311*	0,302*	0,636***						
6 Personal Accomplishment (Frequency)	0,230*	-0,503***	-0,363**	-0,345**	-0,308*					
7 Personal Accomplishment (Intensity)	0,093	-0,270*	-0,170	-0,369**	-0,229*	0,757***				
8 Self-efficacy Belief	-0,185	-0,095	-0,082	-0,188	-0,300*	0,174	0,239*			
9 Achievement Motive	-0,197	-0,145	-0,335**	0,066	-0,046	0,066	0,[illegible]4	0,373**		
10 Hardiness	0,017	-0,254*	-0,218	-0,170	0,038	0,202	0,143	0,051	0,164	

TABLE OF CORRELATIONS

* p <0,05
** p <0,01
*** p <0,001

TABLE 11: Descriptive statistics for the study variables at Time 2, (N = 53)

VARIABLE	1	2	3	4	5	6	7	8	9
ALPHA	0,82	0,86	0,83		+	0,89	0,89	0,74	
1 Emotional Exhaustion (Intensity)									
2 Depersonalisation (Intensity)	-0,053								
3 Personal Accomplishment (Intensity)	-0,090	-0,131							
4 Stress at Time 1	-0,161	-0,136	-0,090						
5 Stress at Time 2	-0,112	-0,058	0,116	-0,065					
6 Self-efficacy Belief	-0,369**	0,174	0,191	0,220	-0,038				
7 Achievement Motive	0,344**	-0,232*	0,459***	0,053	0,053	0,452***			
8 Hardiness	-0,327**	-0,004	0,416***	0,114	0,265*	0,307*	0,484***		
9 Age	-0,104	-0,065	0,039	-0,039	0,062	-0,232*	-0,107	0,164	

TABLE OF CORRELATIONS

* p <0,05
** p <0,01
*** p <0,001

\+ reliability coefficients for the negative score have been reported as 0,56 and 0,88 (Johnson and Sarason, 1979).

Tests for multicollinearity and linearity Prior to conducting a moderated multiple regression, two of the major assumptions that have to be satisfied are that there must be no high multicollinearity, and that the relationships between predictor variables and dependent variables are linear (Pedhazur, 1982).

With regard to multicollinearity, as no correlations produced a value greater than $r = 0,8$, the assumption of multicollinearity had not been violated according to Nie et al, (1975). Should collinearity exist, a linear regression analysis may not be appropriate (Pedhazur, 1982). The intensity and frequency dimensions of each aspect of burnout showed moderate intercorrelations at Time 1 see TABLE 10: emotional exhaustion $r = 0,69$, $p<0,001$; depersonalisation $r = 0,64$, $p<0,001$; reduced personal accomplishment $r = 0,76$, $p<0,001$. These intercorrelations justified the use of the intensity dimension only in the moderated multiple regression analyses.

Moderated regression analysis was justified as an appropriate and effective statistical technique for investigating moderator effects and for providing information regarding main and interaction effects, as low correlations were found between predictor and dependent variables (Zedeck et al, 197-): relationships between negative life/work-related stress and emotional exhaustion ($r = -0,16$, $p<0,05$; $r = -0,11$, $p<0,05$), depersonalisation ($r = -0,14$, $p<0,05$; $r = -0,06$, $p<0,05$), reduced personal accomplishment ($r = -0,09$, $p<0,05$; $r = 0,12$, $p<0,05$) are low.

With regard to linearity, summary tables of linearity tests revealed that no variables was found with a significant value for the F ratio (deviation from linearity $p<0,01$), and no variable was revealed with a proportion of non-linear variance ($eta^2 - R^2$) accounting for more than 8% of the explained variance in the dependent variables, thus the assumption of linearity was satisfied. TABLE 12 presents these results.

TABLE 12: Tests for linearity

Dependent Variable	Independent Variable	F Ratio	Proportion of Non-linear Variance
		Deviation from linearity	($eta^2 - R^2$)
Emotional exhaustion (intensity)	Self-efficacy belief	0,508	,009
	Achievement motive	0,120	,002
	Hardiness	0,058	,001
Depersonalisation (intensity)	Self-efficacy belief	2,169	,035
	Achievement motive	3,041	,056
	Hardiness	0,289	,006
Personal accomplishment (intensity)	Self-efficacy belief	0,907	,017
	Achievement motive	0,000	,000
	Hardiness	4,391	,079

The third assumption which has to be satisfied prior to the use of MMR is that there should be no measurement error (Pedhazur, 1982). However, because measurement error cannot be totally eliminated (Lehmann, 1985), it was minimised by establishing acceptable reliabilities (internal consistency) for the measuring scales for both Times 1 and 2 using Cronbach's Alpha formula, and these are included in TABLES 10 and 11 All the scales yielded values of >0,6 and were therefore deemed acceptable. Temporal consistency (tert-retest reliability) could have

been calculated by using a control group of subjects, but this was deemed outside the scope of the present study.

2. RESULTS OF THE MODERATED MULTIPLE REGRESSION ANALYSIS

In separate analyses for each dependent variable, emotional exhaustion, depersonalisation and personal accomplishment were regressed on to self-efficacy belief, achievement motive and hardiness, and on to the interactions of each of these independent variables with stress at Time 2. In every regression, age and stress at Time 1 were controlled for by being treated as covariates, and these were entered into the equation first, whereas the interaction term was always entered last.

A general interpretation of the results of multiple regression involves the consideration of three major elements: regression coefficients, standard error of estimate, and coefficient of multiple determination (R^2) (Lehmann, 1985). Statistically, the significance of the entered variables is determined by comparing the derived F values to tabled F values. Failure to be significant indicates that although a relationship may exist between the independent variable and the dependent variable, the independent variable fails to marginally affect the dependent variable when the effects of other independent variables are removed (Lehmann, 1935).

The coefficient of multiple determination, R^2, is then assessed. R^2 reflects the proportion of variation in the dependent variables 'explained' by all the independent variables (Lewis-Beck, 1980) and thus a change in R^2 reflects the contribution of each independent variable in

terms of main effects or interaction effects. The increment in the proportion of variance due to a particular variable may be determined by subtracting the R^2 obtained in the preceding step of the regression equation from the R^2 obtained in the current step (Pedhazur, 1982). R^2 change is a squared semi-partial correlation (Pedhazur, 1982), while R, the coefficient of multiple correlation, is an index of the closeness of the relation between the dependent variable and the independent variables; it is calculated as the square root of R^2. If F tests of R are insignificant, it means that the regression is essentially of no value (unless a negative result was anticipated) (Lehmann, 1985). The results will be reported using emotional exhaustion, depersonalisation and personal accomplishment as dependent variables.

Intensity of emotional exhaustion at Time 2 was regressed on to each of self-efficacy belief, achievement motive, and hardiness, and on to the two-way interactions of self-efficacy belief x stress at Time 2, achievement motive x stress at Time 2, and hardiness x stress at Time 2, while controlling for age and stress at Time 1, which were treated as covariates. Results of the moderated multiple regression analyses are presented in summary TABLES 13, 14 and 15.

The covariates accounted for a total of 3,8% of the variance, and when stress at Time 2 was entered into the equation it resulted in an R^2 change of 1,3%, as depicted in each of TABLES 13, 14 and 15. However, the effects of self-efficacy belief were shown to account for a further 14,3% of the variance in emotional exhaustion (F [3,49] = 3,414, $p<0,01$, R^2 change = 0,143), see TABLE 13.

TABLE 13: Moderated multiple regression for intensity of emotional exhaustion on self-efficacy belief (N = 53)

Variable Entering Equation		R^2	R^2 change	β	F
Covariates	(df)				
Age	(1,51)	0.011	0.011	-0.167	1.562
ST2T1	(1,51)	0.038	0.027	-0.077	0.338
Main Effects					
ST2T2	(2,50)	0.052	0.013	-1.267	2.020
SEB	(3,49)	0.194	0.143	-0.603	8.414**
Interaction Effects					
SEB x ST2T2	(4,48)	0.222	0.028	1.169	1.688

* p<0,05
** p<0,01

NOTE: ST2T1 ..... Stress at Time 1
ST2T2 ..... Stress at Time 2
SEB ..... Self-efficacy belief

Neither stress at Time 2 nor hardiness separately had any significant main effect on emotional exhaustion, see TABLE 14. However, the interaction of these two variables indicated that they contributed to the variance in emotional exhaustion by an increment of 4,5%, by acting as a joint moderator variable (F [4,48] = 2,56, $p<0,05$, R^2 change = 0,045). Hardiness was not found to moderate the relationship between stress occurrence and either of the depersonalisation (TABLE 18) or personal accomplishment (TABLE 21) dimensions of burnout.

TABLE 14: Moderated multiple regression for intensity of emo. exhaustion on hardiness (N = 53)

Variable Entering Equation		R^2	R^2 change	β	F
Covariates	(df)				
Age	(1,51)	0.011	0.011	-0.030	0.048
ST2T1	(1,51)	0.038	0.027	-0.142	1.113
Main Effects					
ST2T2	(2,50)	0.052	0.013	1.531	2.381
HDY	(3,49)	0.127	0.076	-0 041	0.038
Interaction Effects					
HDY x ST2T2	(4,48)	0.172	0.045	-1.67[illegible]	2.555*

* $p<0,05$
** $p<0,01$

NOTE: ST2T1 ..... Stress at Time 1
ST2T2 ..... Stress at Time 2
HDY ..... Hardiness

The analysis of covariance (ANCOVA) was calculated in order to confirm the interaction effect, and evidence for the moderating role of hardiness in the relationship between stress and emotional exhaustion is provided in

FIGURE 6. This diagram illustrates the degree and direction of effect that occurred. Using ANCOVA, the two-way interaction of stress x hardiness yielded a significant value for $F = 29,06$ $p < 0,01$, which overrides the two main effects of hardiness ($F = 10,04$ $p<0,01$) and stress ($F = 0,02$ $p>0,05$), thereby confirming the moderator effect.

From FIGURE 6 it can be seen that where high negative stress occurred, people with high hardiness recorded less intensity of emotional exhaustion (22,31) than did low hardiness individuals experiencing low stress conditions (29,59). However, they did not differ significantly from the low hardiness individuals under conditions of low stress (28,80), which suggests that at low stress, hardiness does not appear to play a significant moderating role. In the case where high levels of stress occurred for the low hardiness individual, the level of emotional exhaustion was highest (37,6).

Where the incidence of stress was low, there was no significant difference between high and low hardy individuals in the experience of emotional exhaustion (F [1,26] = 0,039). In the high stress condition, however, this figure was highly significant (F [1,25] = 23,534). This result indicates that individuals with high hardiness experience far less stress in a high stress situation than do those with low hardiness. Hardiness is therefore a significant moderator variable in the mediation of the stress-burnout experience, specifically in high stress conditions.

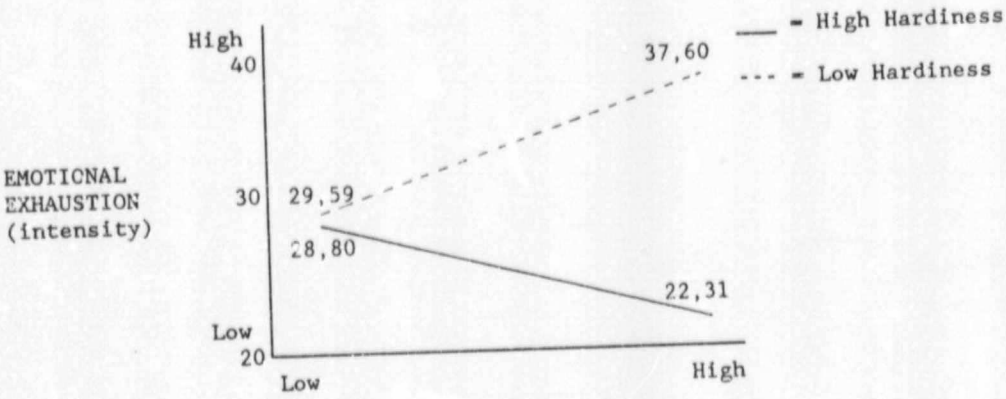


FIGURE 6: Diagrammatic representation of significant interaction effects for the emotional exhaustion dependent variable

TABLE 15 depicts the results of the MMR analysis for intensity of emotional exhaustion on achievement motive. No significant findings emerged, as neither stress at Time 2 nor achievement motive had any main effect on emotional exhaustion. The interaction of these two variables indicated no moderating effect on emotional exhaustion. All F values were insignificant at the 5% level.

TABLE 15: Moderated multiple regression for intensity of emotional exhaustion on achievement (N = 53)

Variable Entering Equation		R^2	R^2 change	β	F
Covariates	(df)				
Age	(1,51)	0.011	0.011	-0.124	0.832
ST2T1	(1,51)	0.038	0.027	-0.146	1.205
Main Effects					
ST2T2	(2,50)	0.052	0.013	0.782	0.349
HDY	(3,49)	0.169	0.117	-0.242	1.139
Interaction Effects					
AM x ST2T2	(4,48)	0.177	0.008	-0.893	0.443

NOTE: ST2T1 ..... Stress at Time 1
ST2T2 ..... Stress at Time 2
AM ..... Achievement motive

TABLE 15 depicts the results of the MMR analysis for intensity of emotional exhaustion on achievement motive. No significant findings emerged, as neither stress at Time 2 nor achievement motive had any main effect on emotional exhaustion. The interaction of these two variables indicated no moderating effect on emotional exhaustion. All F values were insignificant at the 5% level.

TABLE 15: Moderated multiple regression for intensity of emotional exhaustion on achievement (N = 53)

Variable Entering Equation		R^2	R^2 change	β	F
Covariates	(df)				
Age	(1,51)	0.011	0.011	-0.124	0.832
ST2T1	(1,51)	0.038	0.027	-0.146	1.205
Main Effects					
ST2T2	(2,50)	0.052	0.013	0.782	0.349
MDY	(3,49)	0.169	0.117	-0.242	1.139
Interaction Effects					
AM x ST2T2	(4,48)	0.177	0.008	-0.893	0.443

NOTE: ST2T1 ..... Stress at Time 1
ST2T2 ..... Stress at Time 2
AM ..... Achievement motive

Intensity of depersonalisation and intensity of reduced personal accomplishment at Time 2 were separately regressed on to the same variables as were included in the analysis involving emotional exhaustion. Age and stress at Time 1 were again treated as covariates. None of the main or interaction effects were found to contribute significantly to the variance in the dependent variables. Results of these non-significant analyses are presented in TABLES 16 to 21, which follow.

TABLE 16 shows that F values were insignificant at the 5% level, and it can be stated that no results were significant. Self-efficacy belief neither contributed to the variance in the depersonalisation aspect of burnout, nor moderated the relationship between stress and depersonalisation.

TABLE 16: Moderated multiple regression for intensity of depersonalisation on self-efficacy belief (N = 53)

Variable Entering Equation		R^2	R^2 change	β	F
Covariates	(df)				
Age	(1,51)	0.004	0.004	-0.017	0.014
ST2T1	(1,51)	0.023	0.019	-0.186	1.636
Main Effects					
ST2T2	(2,50)	0.027	0.004	-0.174	0.032
SEB	(3,49)	0.067	0.039	0.188	0.683
Interaction Effects					
SEB x ST2T2	(4,48)	0.067	0.000	0.115	0.014

TABLE 17 depicts F values as insignificant at the 5% level, and consequently no significant results emerged. Achievement motive neither contributed to the variance in the depersonalisation component of burnout, nor moderated the relationship between stress and this component.

TABLE 17: Moderated multiple regression for intensity of depersonalisation on achievement motive (N = 53)

Variable Entering Equation		R^2	R^2 change	β	F
Covariates	(df)				
Age	(1,51)	0.004	0.004	-0.043	0.092
ST2T1	(1,51)	0.023	0.019	-0.157	1.244
Main Effects					
ST2T2	(2,50)	0.027	0.004	-0.238	0.029
AM	(3,49)	0.084	0.057	0.221	1.047
Interaction Effects					
AM x ST2T2	(4,48)	0.084	0.000	0.163	0.013

TABLE 18 shows that no F values were found to be significant at the 5% level. Hardiness was not shown to moderate the relationship between stress occurrence and the depersonalisation aspect of burnout. Moreover, hardiness did not contribute to the variance in the depersonalisation aspect.

TABLE 18: Moderated multiple regression for intensity of depersonalisation on hardiness (N = 53)

Variable Entering Equation		R^2	R^2 change	β	F
Covariates	(df)				
Age	(1,51)	0.004	0.004	-0.090	0.378
ST2T1	(1,51)	0.023	0.019	-0.144	0.986
Main Effects					
ST2T2	(2,50)	0.027	0.004	-0.978	0.842
HDY	(3,49)	0.029	0.002	-0.099	0.193
Interaction Effects					
HDY x ST2T2	(4,48)	0.044	0.015	0.961	0.732

With regard to TABLE 19, no F values were found to be significant at the 5% level and therefore no results emerged as significant. Self-efficacy belief neither contributed to the variance in the personal accomplishment aspect of burnout, nor moderated its relationship with stress.

TABLE 19: Moderated multiple regression for intensity of personal accomplishment on self-efficacy belief (N = 53)

Variable Entering Equation		R^2	R^2 change	β	F
Covariates	(df)				
Age	(1,51)	0.001	0.001	0.080	0.298
ST2T1	(1,51)	0.009	0.008	-0.135	0.872
Main Effects					
ST2T2	(2,50)	0.021	0.012	0.265	0.074
SEB	(3,49)	0.075	0.054	0.271	1.430
Interaction Effects					
SEB x ST2T2	(4,48)	0.075	0.001	-0.157	0.025

TABLE 20 illustrates that no significant F values were shown at the 5% level of significance. It may be stated that no results were significant in the MMR of personal accomplishment on achievement motive.

TABLE 20: Moderated multiple regression for intensity of personal accomplishment on achievement motive (N = 53)

Variable Entering Equation		R^2	R^2 change	β	F
Covariates	(df)				
Age	(1,51)	0.001	0 001	0.050	0.150
ST2T1	(1,51)	0.009	0.008	-0.121	0.910
Main Effects					
ST2T2	(2,50)	0.021	0.012	-1.451	1.339
AM	(3,49)	0.237	0.216	0.287	2.185
Interaction Effects					
AM x ST2T2	(4,48)	0.260	0.024	1.560	1.504

The final table shows that F values were found to be insignificant at the 5% level, and it may therefore be stated that there was no significant result forthcoming, see TABLE 21. Hardiness was not found to moderate the relationship between stress occurrence and the personal accomplishment aspect of burnout. In addition, hardiness did not contribute to the variance in the personal accomplishment aspect of burnout.

TABLE 21: Moderated multiple regression for intensity of personal accomplishment on hardiness (N = 53)

Variable Entering Equation		R^2	R^2 change	β	F
Covariates	(df)				
Age	(1,51)	0.001	0.001	-0.054	0.164
3T2T1	(1,51)	0.009	0.008	-0.138	1.089
Main Effects					
ST2T2	(2,50)	0.021	0.012	-0.829	0.729
HDY	(3,49)	0.194	0.173	0.310	2.249
Interaction Effects					
HDY x ST2T2	(4,48)	0.260	0.012	0.875	0.730

IV DISCUSSION

In this chapter, a consideration of the general results will be followed by an in-depth discussion of the results relating to hardiness, self-efficacy belief and achievement motive in turn. Limitations of the present study will then be discussed, with recommendations for overcoming some of the problems. Finally, implications of the present study are examined and some suggestions for future research offered.

1. DISCUSSION OF THE GENERAL RESULTS

The results of the present study indicate firstly, that burnout did develop in the MBA context, and this represents a different research environment from those that have typically been the subject of research to date. Secondly, a significant moderating effect was demonstrated by the interaction of the hardiness variable with stress at Time 2 on the variance in emotional exhaustion.

The hypothesis had stated that each of the personal variables being investigated, that is, hardiness, self-efficacy belief and achievement motive, would act as moderators of burnout for individuals exposed to a stressful work/study environment.

Because the statistical analysis of the present study indicated that hardiness produced the only significant moderating effect on negative stress and the emotional exhaustion dimension of burnout, portion of the hypothesis could be accepted. The portion relating to self-efficacy belief and achievement motivation had to be rejected because these variables did not moderate the work stress-burnout relationship along any dimension of burnout. Consequently the null hypothesis was accepted with regard to these personal variables.

Furthermore, self-efficacy belief, while not acting as a moderator, was found to have a main effect on emotional exhaustion. However, it did not contribute to the variance in depersonalisation or personal accomplishment. No other significant findings emerged from the results. Summaries of the significant and non-significant findings relating to the three dimensions of burnout are provided in TABLES 13 to 21.

With regard to the hypothesis, the main finding indicates that where the individual is working under conditions of high stress, the personality disposition of hardiness significantly moderates the work stress-burnout relationship. Where the individual is experiencing low stress, however, hardiness does not moderate this relationship significantly. In terms of Maddi and Kobasa's (1984) conceptualisation of transformational coping, it appears that the capacity of the individual to cope successfully with work-related stress is enhanced by hardiness, which helps to buffer highly stressful conditions. Hardiness is an effective mechanism, in that it predisposes the individual to interact with and alter the events which precipitate feelings of stress before they result in strain.

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It may therefore be assumed that hardiness has considerable importance as a moderator of the work stress-burnout relationship.

Supplementary findings, unrelated to the hypothesis, are as follows. In both populations measured stress and self-efficacy belief declined while achievement motive and hardiness increased by Time 2. The fluctuations were, however, insignificant. In terms of burnout, the dimensions of depersonalisation and personal accomplishment barely fluctuated, but there was a general rise in emotional exhaustion for the total sample, (TABLES 8 and 9).

Though none of the above variations is statistically significant, personality variables constitute the main subject of the present study. Consequently the variations are worthy of discussion. Furthermore, although the mean for hardiness increased almost imperceptibly, hardiness was found to be a moderator of the stress-burnout relationship. Had, for example, the increase in achievement motivation been significant, this variable might also have contributed significantly to the increase in burnout that occurred for the sample. Similarly, had there been a significant drop in the mean for self-efficacy belief, it would have been more feasible to adopt the 'deficit' models of burnout as an explanation. Loss of self-efficacy and competence as precursors to burnout accord with the theories of Cherniss (1980, 1983) and Harrison (1983) in terms of 'deficit' models. In the present study, however, the 'deficit' framework does not provide a satisfactory scenario for possible explanations to account for the rise in burnout.

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For the remainder of the general results, therefore, t..ose relating to stress and burnout are briefly discussed below. The major part of the chapter is devoted to a comprehensive discussion of the results pertaining to the three personality variables under investigation. Explanations will be proffered as to why hardiness only moderated the emotional exhaustion dimension of burnout, when all three aspects of burnout had been expected to develop, and also as to why only hardiness and self-efficacy belief produced significant results.

Findings related to the demographic data are included in APPENDIX B, as these were not directly relevant to the present research hypothesis. A profile of the typical white male MBA subject was derived from this data, which covered perceptions relating to financial support, personal health, sense of accomplishment, and related items.

The decrease in self reported stress was unexpected, and may have been due to the choice of measure (the Life Experiences Survey) which emphasises life events requiring adjustment during the past year. At Time 2, particular items may have lost relevance during the intervening period between test administrations. It is also possible that study items could have superceded life events in subjective importance, because the MBA Programme lays great emphasis on the intensiveness of content (see APPENDIX C). (Neither of these contingencies were specifically tested for using the present data because the increase in burnout was of more importance in testing the moderator hypothesis). Because life events account for approximately 50 items, and study oriented items number only 10, there is a

disproportionate loading over the study period. It was found that certain items included in the study orientation section of the questionnaire typically attained greater significance as the course progressed, these being the items involving a change to a new (work) learning experience, failing courses or examinations, and financial considerations. Though study items in the LES could have been isolated to ascertain whether they did in fact attain greater significance as sources of stress during the study time period, this again was not considered important to the central hypothesis.

Entering a new social milieu was never considered negatively stressful, a point that emerged from among the 10 study items, whereas major changes in the usual type and amount of recreation, and separation from loved ones (life events section) were frequently mentioned as negatively stressful. Both these life event items could be considered as having associations with an MBA course for many of the participants.

The increase in burnout that occurred for the total sample appeared to take the form of emotional exhaustion. The slight rise in emotional exhaustion (TABLES 8 and 9) may be an indication that this dimension of burnout was the first to be experienced by the subjects, which would support the conceptualisation of aspects of burnout occurring in stages and commencing with emotional exhaustion (Maslach, 1982a). However, no statistical test was utilized to confirm this proposition. According to previous research on burnout (for example, Cherniss, 1980, 1982; Gaines and Jermier, 1983), if burnout occurs in discrete stages, then emotional exhaustion is the

first symptom to be experienced followed by depersonalisation. The initial results appear to support this proposition because there was a comparatively greater increase in emotional exhaustion for the two populations over the research period than there was for depersonalisation (the mean for the total sample rose by 3,7 during the study period while depersonalisation only varied by 2,3). However, the increase was not large enough to confirm this proposition, and no specific statistical test was conducted to ascertain whether this was in fact the case.

The increase in burnout which emerged over the study period had been anticipated in terms of the study design: it was precipitated as a response to the stimulus of a highly stressful environment. Furthermore, in terms of the Cox and Mackay (1987) transactional model of stress that has been operationalised in the present study, there was much in the MBA context that could be perceived as stressful by the subjects. It is likely that students on the MBA Programme perceived three main factors as particularly stressful, all of which are important antecedents to the development of burnout: intense involvement with other people under demanding situations; bearing of responsibilities; accumulation of role stressors.

The first two factors were particularly prevalent. The structure of the MBA Programme ensures that teamwork, delegation and power sharing are emphasised, because this is the basis of good business administration. It is achieved on the course by obliging students to cooperate on competitive group assignments. A student's performance and his passing or failing a specific course module is very often directly linked to his performance within a group, that is, students

are examined, and marks are awarded for group projects, with the individual student belonging to these specific groups receiving the same mark that is achieved by the group as a whole. Consequently it is intended that responsibility for individual achievement often becomes the responsibility of the individual as a group member rather than the responsibility of the individual to himself. To this end, an increased level of responsibility becomes incumbent upon the individual, because should he fail to meet what is required of him in the preparation and completion of a group assignment, the group as a whole suffers the consequence, and therefore group pressure is always a factor for each individual. Responsibility for others was clearly the intention of group assignments, and by enrolling in the business programme a student had the prior knowledge that he would be responsible at some time during the course for the performance of both himself and others. The anxiety associated with (avoiding) failure is a source of stress enumerated in the LES.

Role stressors are positively related to burnout (Maslach, 1982a; Paine, 1982) and represent major determinants of workplace stress (Kahn et al, 1964). Chronic workplace stress precipitates burnout (Maslach and Jackson, 1982; Paine, 1982; Strümpfer, 1983a; Tubesing and Tubesing, 1982), and in the MBA environment subjects were exposed to each of the stressors of role conflict, role ambiguity, and role overload, with overload almost inevitably being the most serious and common source of strain (Caplan and Jones, 1975; Cherniss, 1980; Cooper and Marshall, 1980; French and Caplan, 1972; Kahn, 1974; Maslach, 1976, 1982a; Pines, 1982).

Financial problems relating to study are another source of stress mentioned in the LES. The present research only included white males, that is, members of a 'first world' culture prescribing to the norms and financial principles inherent in white South African society. Consequently, certain pressures came to bear on the subject sample. The male individual has a responsibility to provide the income if he is married, or support himself if single, and upon electing to enrol on an MBA Programme this income in all probability falls away for the duration of study. A financial pressure comes to bear, not only because of this loss of income, but because the financial level of responsibility to self, and in many cases to spouse and family, is increased. Furthermore, failure to succeed in the MBA could result in loss of expected income as well as the ability to ascend to a higher paid position. Apart from these financial considerations, personal accomplishment is also an important factor for the individual of which he is well aware.

The MBA Programme represents both a qualitative and quantitative overload situation, as the course is heavily demanding in terms of some unfamiliar and difficult content, and the number of tasks/ modules to be completed within the prescribed time period. As many individuals entered the business programme from an employed capacity it is likely that many would have found readjustment to the student mode a source of all three types of role stressor. Again, this is a source of stress specifically included in the LES. It is also known that role overload, or having too much to do of work with increasing complexity, may also lead to both role ambiguity and role conflict (Farber, 1983). Unlike the options available at many universities

elsewhere, for example in the United States, the programmes at Cape Town and Johannesburg do not offer planning of semesters to suit individual needs over an extended period. The MBA has to be completed within either 12 (Cape Town) or 18 (Johannesburg) months, with the tutorial content compulsory within the first year.

1.1 Results and discussion concerning the hardiness variable

After the effects of covariates (age and stress at Time 1) had been removed, which accounted for 3,8% of the variance in emotional exhaustion, hardiness was found to moderate the emotional exhaustion dimension, the most immediate and obvious effect of prolonged stress (F [4,48] = 2,56, $p<0,05$, R^2 change = 0,045). This finding supports those by Kobasa (1979, 1982) and Kobasa et al (1982) which demonstrate positive moderating effects of hardiness in other all male populations.

Results of the present study indicate that individuals with a high sense of hardiness experience significantly less emotional exhaustion when under conditions of high stress than do those who are low in hardiness. However, when low levels of stress occur, there is no significant difference between the two types of individual with regard to the experience of emotional exhaustion. This result suggests that hardiness only acts as a moderator in high stress situations, and it is in these conditions that burnout develops. Hardiness can therefore be acknowledged as a moderator variable capable of mediating the work-related stress-burnout relationship.

High hardiness appears to enable individuals to cope more effectively with stress, and allows them to experience less emotional exhaustion. Because hardiness incorporates the component of control, this allows for decisional ability regarding the course of action to follow, and cognitive control regarding the interpretation and appraisal of stressors. Such control enables individuals to develop a broad and varied range of responses to stress upon which they can draw in threatening circumstances (Averill, 1973), and to incorporate them into a 'working plan' (Fisher, 1984). Earlier discussions on coping mechanisms included the disposition to re-evaluate and change one's perceptions, and also mentioned the constant reappraisal that occurs during the coping response (Lazarus, 1966, 1976, 1981). These mechanisms constitute managing the source of the problem, with the result that there is a successful resolution of the perceived stress situation: the control component of hardiness is directly involved, so modifying the impact that stressful events have on the person. It is not the amount of stress that is critical in coping behaviour, but how the person perceives the impact of that stress. High hardiness buffers against stressful events by increasing transformational coping and decreasing regressive coping (Maddi and Kobasa, 1984).

In the present study, hardiness has been found to be a significant moderator of the relationship between stress and burnout, but the sample was composed of males only. The sample was confined to males because it is known that burnout is experienced differently by males and females (Maslach, 1982a), and there were too few females to include in the study. Furthermore, MBA Programmes are typically characterised by a predominance of men. The present findings

therefore contribute to the stress and burnout research literature where male samples have been used (e.g. Etzion, 1984; Kobasa, 1982) with the finding that hardiness is an effective coping resource in the moderation of burnout development.

Though hardiness was found to act as a significant moderator of the emotional exhaustion dimension of burnout, it had no effect on either depersonalisation or personal accomplishment. This finding raises two questions: does hardiness have no moderating effect on the two burnout dimensions, or had they not developed among the subjects in the sample and so were not available for mediation?

There is the theory that burnout occurs in progressive stages (Berkeley Planning Associates, 1977; Burke and Deszca, 1982, 1986; Cherniss, 1980, 1982; Edelwich and Brodsky, 1980, 1982; Farber, 1983; Gaines and Jermier, 1983; Glicken and Janka, 1984; Golembiewski et al, 1983; Maslach, 1982a; Perlman and Hartman, 1981, 1982; Pfifferling and Eckel, 1982). These stages are known to vary across individuals, and it is possible that all individuals may not become susceptible to all dimensions of burnout (Barling, 1986; Maslach, 1982a; Carroll and White, 1982). Furthermore, some researchers argue that burnout does not occur in a linear progression starting with emotional exhaustion and culminating in reduced personal accomplishment as maintained by Maslach and Jackson (1981), but that depersonalisation shows the most evidence as being the first to occur (Burke and Deszca, 1986; Golembiewski et al, 1983; Lemkau et al, 1987), followed by reduced personal accomplishment, and finally emotional exhaustion (Golembiewski et al, 1983).

Though results of the present study indicated that emotional exhaustion might have been the first dimension of burnout to develop, (if burnout does, in fact, develop in stages) although this was not specifically investigated, then it could be argued that the widely accepted Maslach and Jackson (1981) model does not generalise to MBA participants. Possibly the very structure (and time period) of the MBA period inhibits the development of depersonalisation and a sense of reduced personal accomplishment, in which case there would be no opportunity to reveal the role of hardiness as a moderator of these other dimensions of burnout. This provides one explanation as to why hardiness was not shown to moderate depersonalisation and personal accomplishment. Had the period of the study encompassed a longer time period, these two components may have developed, but to test this theory a similar longitudinal study should be conducted using a different sample than MBA students.

The whole concept of the MBA Programme is based on accomplishment, and so it is unlikely that with such an emphasis, a sense of reduced personal accomplishment would develop within a year. It is more likely to occur where there are no defined limits to the individual's endeavours (Cherniss, 1980; Maslach, 1982a; Pines and Aronson, 1981). Secondly, the responsibility for completing the MBA course successfully was in effect shared by all the participants. The MBA emphasises co-operation and teamwork among students, and all persons are involved in participative project assignments. Depersonalisation would not inevitably develop, because it is more likely to set in where the individual develops a psychological distance between himself and those for whom he carries responsibility or who

constantly require his care and attention. Depersonalisation involves suspicion, cynicism and a reluctance to become overinvolved, none of which would be typical behaviours displayed in co-operative group assignments.

This raises a third issue. Much of the earlier research on burnout was conducted among the human service professions, and it was based on this empirical work that Maslach and Jackson (1981) derived their model of progressive stages of burnout. When Golembiewski and his associates (1983) utilised the MBI in a number of studies in the commercial sector, they did not find support for Maslach and Jackson's (1981) phase model. The MBA context is different from the environment of caring professions, and is more akin to the business world investigated by Golembiewski.

Moreover, the communal responsibility of MBA participants cannot be compared to the communal responsibility involved in a hospital, for example. There the dependence of many sick individuals on a single caregiver contrasts with the type of situation where each is dependent on the other to some extent, but is still responsible for his own wellbeing. Cherniss (1980), and Maslach (1982a) and Pines and Aronson (1981) have explained in realistic terms how and why emotional exhaustion is the first dimension of burnout to develop, and why depersonalisation ensues, followed very often by feelings of reduced accomplishment. Though the MBA Programme is extremely intensive, and emotional exhaustion was found to develop in the present study, it is possible that depersonalisation would not, in fact, have developed at all. It was not in the interests of the

individual to allow such tendencies to superimpose, because success of the individual was to a considerable degree dependent upon success of the group.

With regard to personal accomplishment, where this may develop in the caring professions because of a lack of feedback and sense of non-effectiveness, in the MBA context a final assessment of the individual's achievements (that is, passing or failing the MBA) would probably be a crucial factor.

In conclusion, hardiness may not have emerged as a moderator of the depersonalisation and personal accomplishment dimensions of burnout because they did not exist to any significant extent. In a business setting in the real world, away from the MBA type of situation, depersonalisation may be manifested before emotional exhaustion, but due to the extreme intensity of the specific MBA environment it appears possible that emotional exhaustion may have been the first aspect of burnout to develop.

The present study showed that the variance in emotional exhaustion explained by the interaction of hardiness with stress at Time 2 was highly significant. The stress and burnout literature would be complemented by further investigation in the commercial sector using both male and female populations to confirm the moderating effect on the stress-burnout relationship.

Finally, it is suggested that the moderating effect found in the present study could be improved upon by treating hardiness in terms

of its separate components. Ganellen and Blaney (1984) found that as a composite, the hardy personality did not moderate the relationship between life stress and depression, yet upon separate analysis commitment emerged as producing a moderating effect. Future research could differentiate between the three components in order to assess whether, say, challenge had a more marked effect on the development of emotional exhaustion.

1.2 Results and discussion concerning the self-efficacy belief variable

After the effects of the covariates (age and stress at Time 1) had been removed, which accounted for 3,8% of the variance in emotional exhaustion, and a further 1,3% for stress at Time 2 had been taken into account, self-efficacy belief was found to be significantly related to emotional exhaustion (F [3,49] = 8,41, $p<0,01$, R^2 change = 0,1%) and accounted for a further 14,3% of the variance.

As with hardiness, self-efficacy belief had no significant effect on depersonalisation or personal accomplishment, and the argument that was presented for the hardiness variable has similar relevance for self-efficacy belief. That is, depersonalisation and personal accomplishment may not inevitably have occurred for the MBA sample.

It was anticipated that under increased stress, individuals would become physically and emotionally exhausted on the MBA Programme. In terms of the degree of self-efficacy belief exhibited by the sample,

however, the results are somewhat contradictory because the level of self-efficacy belief declined slightly by Time 2. That the emotional exhaustion dimension of burnout should be affected by an initial high degree of self-efficacy belief might be expected for the following reasons. First, it is possible that a fairly high proportion of the subjects were burnout-prone: burnout-prone individuals are often those who start with high expectations of themselves and refuse to compromise on the way (Cherniss, 1980; Freudenberger, 1980; Maslach, 1982a), and to whom self-esteem is dependent on a high level of success. In terms of cognitive appraisal (Cox, 1978) individuals with 'high' self-efficacy belief may experience a discrepancy between perceived demands of the MBA course and perceived capabilities. Since self-efficacy depends to some extent on competence, actual competence and perceived competence are not invariably the same (Kazdin, 1978). In real terms, actual capability may not measure up to required capability, and so stress is exacerbated, which in turn leads to burnout via the feedback mechanism as was explained in the Cox-Mackay (1976) transactional model of stress, and the Cherniss (1980) transactional definition of burnout.

A second explanation relates to Lazarus's (1966, 1976, 1981) discussions concerning task appraisal. Under stress, evaluation of demand and capability may be impaired, and in fact reasoning processes may become less logical. It is possible that for some individuals self-efficacy belief became distorted during the MBA Programme as a result of intense and unremitting stress, and these individuals overestimated the extent of their self-efficacy. Once again a discrepancy would become evident between perceived demand and actual capability, resulting in increased stress.

Two of the symptoms of emotional exhaustion are negativism and depression (Cherniss, 1980; Freudenberger, 1980; Niehouse, 1981). According to Beck's (1976) cognitive theory of depression, the afflicted individual may develop negative self evaluations, and this would represent another case in which the demand situation was not realistically appraised. Here a decline in self-efficacy belief could develop. Furthermore, by Time 2 approximately 50% of the respondents had failed at least one course, which could also alter the belief in self-efficacy (Bandura, 1977). This percentage was derived from reports of negative stress being experienced by individuals who completed the study oriented section of the LES. Bandura (1977) has stated that beliefs can differ in terms of magnitude of the task, generalisability, and strength of conviction by the person concerned, and that failure can lower expectations of performance efficacy. He also holds the view that effects of motivational variables such as outcome expectancy vary with the perceived difficulty of the task, and only become significant once there is proof of the presence of requisite ability.

As further explanations for the drop in self-efficacy belief, MBA modules may have fluctuated in comparative difficulty for certain students. For example, those with accounting or engineering backgrounds may have found more difficulty with the qualitative courses, such as industrial relations, human resources management, and negotiation, than with the quantitative ones. As and where expectations of mastery declined, students could more easily succumb to the effects of stress and emotional exhaustion, as well as exhibit a decline in self-efficacy belief. Where more realistic assessments

developed regarding the ability to master the tasks inherent in the MBA Programme, this factor could also be associated with a decline in self-efficacy belief. However, this reasoning is open to debate, because the mean level of hardiness rose substantially for both populations during the period of the study, which indicates that the typical reaction to the task at hand was a rise in commitment and an embrace of the challenges involved.

Many of the explanations regarding self-efficacy belief and burnout posited so far involve work by Beck (1976), Freudenberger (198 and Lazarus (1966,1976, 1981) all of which are based on psychoanalytic or medical model interpretations. Could more satisfactory explanations be derived by approaching burnout from a competence-oriented viewpoint? Using Harrison's (1983) Social Competence Model of burnout (discussed in the Introduction) this perspective would explain both the decline in self-efficacy belief and the main effect self-efficacy belief had on emotional exhaustion in the present study.

In the MBA Programme, subjects held high expectations of their abilities to achieve, and Harrison's (1983) competence model suggests that high expectations may lead either to increased competence and achievement motivation, or to burnout and its characteristic reorientation of motivational patterns. Both Harrison (1983) and Meier (1983) regard burnout as a function of expectation and actual experience, which may develop as a result of the inability to attain the desired goals which the individual values highly. This inability occurs through a variety of personal and environmental factors, such

as (in the MBA context) personal stressors and size of work load: all MBA students were affected by these factors. According to Harrison (1983) burnout is primarily a function of perceived competence, and as the emotional exhaustion dimension of burnout was found to develop for the present sample, Harrison's view that competence declined is supported by this result. With a perception of lowered competence, there is a related decline in self-efficacy belief, and therefore self-efficacy belief contributed to the variance in emotional exhaustion.

1.3 Results and discussion concerning the achievement motive variable

Achievement motive was not found to show any main effects in the MMR, and thus did not contribute significantly to the variance in burnout. Neither did it feature as a moderator of burnout.

An increase in achievement motive on the MBA Programme had in fact been anticipated, but unfortunately the variance was minimal. Had there been a significant increase, the finding would have accorded with Kukla's (1972) research. This maintains that high achievement individuals tend to persist at tasks, primarily because failure is perceived as a result of personal lack of effort and because they generally perceive themselves to be high in ability. Subjects were already classed as 'high achievement' individuals in view of the fact that they had elected to embark on such a demanding course as the MBA. High achievement is also known to be particularly important to burnout-prone individuals (Cherniss, 1980; Freudenberger, 1980;

Maslach, 1982a), and if the MBA participants were in fact highly achievement oriented it follows that they may also have been more susceptible to burnout. The results indicated this to be the case, as there was a rise in the level of emotional exhaustion for the sample. It is possible that had the time period covered by the present study been longer, the rise in emotional exhaustion (and possibly achievement motivation) would have gained significance.

An increase in achievement motivation would also have been consistent with Bateman and associates' (1983) research which found that career transition, in the present case the change from a work environment to a demanding study programme, is an achievement motivator: achievement motive appears to be heightened when specific goals are set (Bateman et al, 1983; Locke et al, 1981). Furthermore, the MBA Programme represented a period equivalent to job enrichment; autonomy, skill variety and task significance, crucial in providing motivation (Eisenstat and Felner, 1983) were all significant factors.

It was hypothesised that achievement motive would buffer the effects of work-related stress and mediate in the experience of burnout, so acting as a moderator in the work stress-burnout relationship. Achievement motivation is a complex phenomenon: it is dependent on a number of factors, many of which are relevant to an MBA context. These include locus of control, ability, influences relating to goal setting procedures, and types of goal. Personal motives, cultural and social factors, and the intrinsic incentives to be gained are also involved, and herein may lie an explanation as to why the variable contributed no significant variance to burnout.

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According to Kahn and his associates (1964) high achievement motivated individuals may be categorised into three main types: those oriented toward status and career advancement, those whose satisfaction derives from work well done, and those whose most important reward is security. It is feasible that if individuals are motivated for such disparate reasons, they may vary in their susceptibility to burnout. The reason lies both with the specific motivating factor, and the characteristics of high achievement oriented burnout-prone individuals. Status, career and financial gain are directly implicated where self-esteem is dependent on a high level of visible success, a characteristic of the burnout-prone person (Cherniss, 1980; Freudenberger, 1980). This could represent one subgroup of MBA subjects. The second group might correspond to the security oriented and expertise oriented types in Kahn's classification, which, although still achievement oriented, might not be burnout-prone, since self-esteem is not dependent on flamboyant signs of material success. If both subgroups were of approximately equal size, achievement motive would not be found to affect the variance in burnout.

The argument suggests that an important factor in explaining whether high achievement individuals are susceptible to burnout or not could lie with the specific motives for their achievement, according to Kahn's (1964) categorisation. A similar type of argument is contained in Maslach's (1982a) views regarding methods used by the individual in achieving self worth. She maintains some methods are more burnout conducive than others, as also are certain personal motivations.

The problem in the present study is in explaining the non-significance of achievement motivation. The survey could not involve a categorisation into high and low achievement oriented persons (Atkinson and Feather, 1960; Kukla, 1972; Weiner et al, 1971), because it was not assumed there were many, if any, low achievers participating in the study. The foregoing discusses the possibility of motives determining the burnout-proneness of an individual, but a further difficulty lies with the choice of questionnaire that was used, and which has subsequently become apparent.

The Achievement Motive Questionnaire (AMQ) tends to be repetitive in layout and therefore could be open to response bias. It contains no reverse scored items, and scoring could be criticised because in each of 18 items the highest score is always awarded to the first category. This relates to an extreme choice, for example, "I generally feel satisfied with difficult tasks much more than with easy tasks" or "I generally prefer tasks requiring problem-solving much more than tasks carried out by following clear instruction". An improvement could be made by rearranging the alternatives for each section of items.

It has been found that on average in risk preference research (Weiner, 1980) individuals appear to prefer tasks of intermediate difficulty, with this preference more evident in the high achievement motivated category. The findings of the present study showed there was a significant preference for the high difficulty alternative, which indicates either that response set bias (Anastasi, 1976) did

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