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The impact of stress in site management effectiveness

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This paper reports on the findings of a piece of research work aimed at investigating and analysing the impact of stress on the effectiveness of site managers as leaders. The sample of the study included semi-structured interviews with 71 site managers at the sharp end of production and their superiors. The investigation was more specifically concerned with the impact of three types of stressors, namely boss stress, job stress and environment–job stress. It was revealed, among other findings, that the impact of stress on site managers followed to a great extent the typical inverted U-shaped pattern. Moreover, the results showed that the impact of stress is contingent to a large extent upon the type of stressors.

Keywords: Stress, stress management, site managers, effectiveness, leadership.

Introduction

The role the construction site manager plays is crucial to the success of their organization. It is on-site that the contractor's cash flow is generated, claims are circumvented and the reputation of companies is built. To this effect, there is a consensus on the important influence site managers exercise in ensuring the success of a project (Wakefield, 1985; Lovell, 1993; Matthews, 1993). Moreover, the leadership qualities and interpersonal skills of site managers have been recognized as a prime key to achieving good performance (Bresnen *et al.*, 1986; Mustapha, 1990; Djebarni and Lansley, 1995).

Site managers carry out one of the toughest and hardest jobs in the construction process. Site management is characterized by a high work overload, long working hours, and many conflicting parties to deal with including the management, the subcontractors, the subordinates, the client, etc. This trait of the job makes it very prone to stress.

Stress can have serious implications for both the individual's health and performance. In terms of health, the relationship between stress and different serious illnesses has been scientifically established (e.g. Schleifer *et al.*, 1983; Kiecolt-Glaser *et al.*, 1985; Camara and Donao, 1989). Heart disease, depression, anxiety, low self-esteem, reduced job performance and burn-out are cases in point from a long list of negative outcomes of stress. Brummet *et al.* (cited in Cooper and Makin, 1984) asserted that managers suffer extreme physiological symptoms from stress at work, which compel them to premature retirement from work before they have had the opportunity to complete their potential organizational life. This is a serious loss to the organization in terms of valuable human resources and, consequently, financial ones. In terms of performance, decision making under stress becomes faulty. Instead of undertaking careful analysis or effective use of heuristics, the stressee (individual under stress) becomes trapped in a vicious circle of non-productive intuitive personal emotional needs. It may result in faulty decisions made hastily or in defensive reactions. Considerable evidence is available to support the claim that leaders speed up their decision making as a consequence of stress. Their failure to do so leads to their rejection as leaders by their subordinates.

This paper reports on the results of a research study investigating the effect of stress on leadership effectiveness of construction site managers with a particular focus on the impact of certain types of stress on effectiveness.

Theoretical background

The concept of psychological stress is a relatively recent one. It was first introduced by endocrinologist Hans Selye in 1936 and was being used in psychological research by 1955 (Selye, 1979). There is, however, no one universally accepted definition of stress. Mikhail (1985) reported that three important aspects of stress were identified: firstly individuals differ in their reaction

to stress, secondly, stress is determined by the perception of the stressful situation rather than by the situation itself and, thirdly, the impact of stress is partly contingent upon the capability of the individual to cope. These aspects were taken into account when Lazarus and Cohen (1977) defined stress as 'demands that tax or exceed the resources of the system' (p. 109). Likewise, Antonovsky (1985) defined stress as a 'demand made by the internal or external environment of an organism that upsets its homeostasis, restoration of which depends on non-automatic and not readily available energy-expending action (p. 72). This line of thinking was also adopted in Miller's (1978) and Miller and Miller's (1990) definition which regards stress as an overload or underload of matter, energy or information input to or output from a living system.

Managerial stress

Managerial jobs have been identified as being potentially high stressors and in most cases inherently stressful (Latack, 1986). Lack of resources, insufficiency of time, pressure to make urgent decisions without adequate information, interpersonal conflicts and making hiring and firing decisions are but a few examples of the factors that may provoke managerial stress. In a study of 236 managers in Canada 60% were classified type A[1] (Howard *et al.*, 1977) and in another study, conducted by Boyd (1984), 82% per cent of managers were classified type A. McClelland (1975) found in his 20 years' follow-up study of Harvard graduates that 58% of those who had scored high on the need for power had developed high blood pressure.

In addition to job stress, many researchers assert that the leader's superior is one of the most important sources of managerial stress. The tyrannical boss is the most frequently mentioned source of stress (McCormick and Powell, 1988). Baglioni *et al.* (1990) identified stress from superiors, work-load and home versus work conflict as the most salient factors.

Buck (1972), on the other hand, reported that managers who saw their superior as untrustworthy and unfriendly reported more job pressure than other managers.

Fiedler and Garcia (1987), in a comprehensive research work, asserted that most people spent a good deal of their time worrying about what their superiors think of them and how their superiors evaluate their work. In addition, the authors argued that self-esteem was contingent to an unexpectedly large degree upon the sanction of one's superior. The authors reported that a leader who was under stress provoked by their superior – Boss stress – would be more concerned about this stress than about their job. This situation did not necessarily yield poor performance as leaders might have learned how to deal with various situations automatically without any kind of conscious thinking about them. Moreover, they found that perceived superior's stress is of stronger impact on performance than job stress.

Few researchers have attempted to study the impact of stress on the relationship between managerial leadership and effectiveness and even fewer have tried to do it in the context of the construction industry. Sutherland and Davidson (1989), in a preliminary study investigating the impact of stress upon construction site managers in the UK, found that construction site managers frequently cited 10 sources of stress. Top of the list was task clarity or, more specifically, inadequacy of communication flow, as illustrated in Table 1.

The impact of stress on organizations' members can be the result of conflicts between their independence and their commitment to the organization, organizational pressures, day-to-day demands of work, etc. There are innumerable such sources of stress. Table 2 shows some of those sources investigated by different researchers. This research, however, was not concerned with sources of stress. Its focus was rather on the impact of certain stressors on leadership effectiveness.

Three important stressors were selected on the basis of literature review and two pilot studies carried out prior to the main survey. These stressors were boss stress, job stress and environment–job stress. The third stressor was added after the conduct of pilot studies that revealed that site managers were affected by pressures from an

Table 1 Source of stress amongst construction site managers

Sources of stress	(%)[a]
Inadequacy/inconsistency of communication flow	75
Paperwork – too much, too much unnecessary, high volume of reading material	69
Work-load – constant time pressure	67
Lack of competent staff to do the job properly	67
Inadequate number of staff to do the job properly	64
Unable to delegate because of staffing problems	53
Conflict of boundary situations	50
Working long hours	44
Insufficient time spent in family	44
The company strategy – competitive/dynamic/ go-getting image, changing staffing problems	44

[a]Percentage of total managers

Source: adapted from Sutherland and Davidson (1989).

[1] Friedman and Rosenman (1974) who identified type A and type B behaviours define type A behaviours patterns as '... an action–emotion complex that can be observed in any person who is aggressively involved in a chronic, incessant struggle to achieve more and more in less and less time, and is required to do so, against the opposing efforts of other things or persons' (p. 67).

Table 2 Examples of types of stress

Physical properties of the working environment
Physical hazards, chronic dangers
Extremes of heat, cold, humidity, pressure, etc.
Bad man-machine design
Time variables
Non-standard working hours (shift work)
Deadlines
Time pressure
Social and organizational properties of work and its setting
Work-load, overload
Responsibility load
Monotony
Poor labour–management relations
Changes in job
Qualitative changes in job
Overpromotion
Transfer of job focus
Null changes (non-events)
Role related
Role ambiguity
Role conflict
Role strain
Degree of control over work processes
Responsibility for people
Miscellaneous
Job complexity, qualitative load
Quantitative overload or underload
Relationship to supervisor
Inadequate support from or performance by supervisors
Ambiguity about future, job insecurity
Monotony
Person–environment (job) fit
Role ambiguity responsibility for people
Job complexity
Off-job stress
Disturbed life pattern of miscellaneous stresses
Stressful life events
Demands of husband and children on working women

Source: adapted from Holt (1993).

unstable situation characterized by the shift from a centralized system of economy to a decentralized one, with all the pressures and risks such a shift produces in addition to an explosive political climate. Therefore, environment–job stress was defined as the outside work stress that affects the interviewee while working.

Leadership styles

The literature on leadership in organizations is extensive, voluminous and intricate. Sometimes, it may appear to the general reader that researchers have been repeating each other. The fact is that although behaviour categories may be labelled similarly, their conceptualization and operationalization, however, are in most cases totally different.

The first comprehensive situational model of leadership was developed by Fiedler who began his research on leadership effectiveness in 1953 in Illinois University. Fiedler's (1964, 1967) model proposed for the first time that group effectiveness is contingent upon the proper match between the leader's style and the extent to which the situation gives control and influence to the leader. The concept that Fiedler (1967) used to describe leadership style is that of the least preferred co-worker or LPC. The LPC scale is a leader's description of the person with whom he or she has had the greatest difficulty working with. The leader rates this person on a set of semantic differential ratings. The resulting score reflects a basic leadership style.

According to Fiedler and Garcia (1987), a leader with a high LPC score is primarily motivated by their interpersonal relationships with their staff. They act in a considerate and supportive way. Achievement of task objectives emerges only after the establishment of good interpersonal relationships. A leader with a low LPC score, on the other hand, is primarily motivated by achievement of work objectives. The motivation of establishing good interpersonal relationships becomes important only when the group is performing well and there are no significant difficulties affecting the achievement of the task. A third category in Fiedler's model (1987) is labelled as socioindependent. This refers to leaders who tend to be less involved with either their subordinates or their superiors or in the way their personality impinges on others.

Fiedler's contingency model (1967) has stimulated a large number of studies and yet, like many other models derived in the social sciences, it has stimulated a great deal of controversy. Schriesheim and Kerr (1977) argued that Fiedler's model did not meet the criteria of theoretical adequacy and that the LPC is still without adequate meaning. Ashour (1973, 1979) observed that the model is not a theory and that it simply is a set of relationships without substantial explanations as it does not give valid or meaningful predictions.

Fiedler and Chemers (1984) did recognize some shortcomings of the model as a whole. Fiedler (1977), however, maintained that the model is highly predictive. A large number of studies using Fiedler's contingency model (1967) were reviewed by Strube and Garcia (1981) meta-analytically after which they concluded that the research tends to generally support the model.

Effectiveness

The measurement of effectiveness is an intricate and troubled issue. Cameron and Whetten (1983), in their

review of effectiveness, reported that many researchers acknowledged the conceptual disarray and methodological ambiguity surrounding the construct in addition to the fact that there was little agreement on the definition and measurement of effectiveness. They asserted that 'Unfortunately, this plethora of writing and research has failed to produce a meaningful definition of organisational effectiveness, let alone a theory of effectiveness. The writing has been fragmented, noncumulative and frequently downright confusing' (Cameron and Whetten, 1983, p. 1).

Different measures and constructs were used to gauge leadership effectiveness. Fiedler (1967) evaluated leadership effectiveness in terms of group performance on the group's primary task. Likert (1961, 1967) used several criteria to evaluate effectiveness including productivity per man-hour, job satisfaction, turnover and absenteeism. Reddin (1983) argued that managerial effectiveness should be measured objectively by maximum output, market share and other similar criteria. Stogdill (1974) suggested the use of performance, integration and job satisfaction as measures of effectiveness. In general, the most commonly used outcome to measure effectiveness in leadership studies is the degree to which the leader's group performs its assignment successfully.

The few studies that were carried out in the construction industry also used different criteria to measure leadership effectiveness. Lansley *et al.* (1974) measured effectiveness according to respondents' judgement and to financial performance. Maloney and McFillen (1987) used three criteria to measure effectiveness: quantity of work, quality of work and amount of effort expended. These criteria were also measured according to the leader's own judgement. Bresnen *et al.* (1987) used the opinion of the site manager on the progress of work.

The difficulty of measuring leadership effectiveness in the construction industry is caused by many factors among which are the following.

1. The unavailability of objective data as asserted by some researchers (e.g. Lemna *et al.*, 1986).
2. The inaccessibility to the data for various reasons. The reasons can be complicated such as the instability of the political climate or a simple one such as the straightforward unwillingness of the management to cooperate with the researcher. Peil (1985) noticed that 'it often takes longer to get the necessary permission to carry out the research as to complete the fieldwork ... Gatekeepers will see their job as preventing any research which might cause trouble to themselves or anyone else in authority, and may be more harsh in their judgements of local researchers than foreigners' (p. 131). To this effect, the pilot study proved that it is extremely difficult to get access to interview site managers, let alone collect information from the companies' documents.
3. The difficulty of measurement of effectiveness in the construction industry as reported by many researchers (e.g. Logecher and Collins (1978)).

The measurement of effectiveness is undoubtedly a very intricate matter especially since there are so many situational factors that have a significant influence on it. However, there is one criterion that takes into account the effect of these situational factors, that is the judgement of the leader's superior. The reason is that the latter knows to a large extent the situational constraints under which the leader – and their counterparts – are carrying out the work and takes these into account when making their judgements. Moreover, asking site managers' superiors would limit the effect of individual differences in rating. In order to limit the subjectivity of this criterion, one can include some other available criteria, as Stogdill (1974) and Yukl (1989) suggested.

Hypotheses

This research investigated the effect of stress on the leadership effectiveness of construction site managers. The independent and dependent variables were the site manager's leadership and effectiveness at the site level, respectively, while the situational variables were boss stress, job stress and environment–job stress. Stress is defined here as an underload or overload in accordance with Miller's definition (1978) stated earlier. Two working hypotheses were consequently formulated.

H_1: there is an association between site manager's leadership and project effectiveness.
H_2: The leadership–effectiveness association is contingent upon stress.

Stress has often been conceptualized as unpleasant, aversive and resulting in reduced effectiveness. It has been shown empirically, however, that a moderate level of stress can have a positive impact on performance. Research studies on stress (e.g. Hebb, 1955; Malmo, 1959; Fisher, 1986) assert that there is an inverted U-shaped relationship between degrees of stress and levels of performance as depicted in Figure 1. The human being can be stimulated and challenged by different types of stressors[2] and what may appear to be stress and pressure can be a needed stimulation to attain desired objectives. It is a common observation that jobs characterized by routine and dullness do not motivate people and do not arouse their alertness. Hence, such jobs are carried out in a careless and sloppy way.

[2] Some writers refer to sources of stress as stressors. The stressor is basically defined as the event that evokes the reaction of the living system. The reaction is stress itself according to Hinckle (1973). In this paper, however, the two terms are used interchangeably.

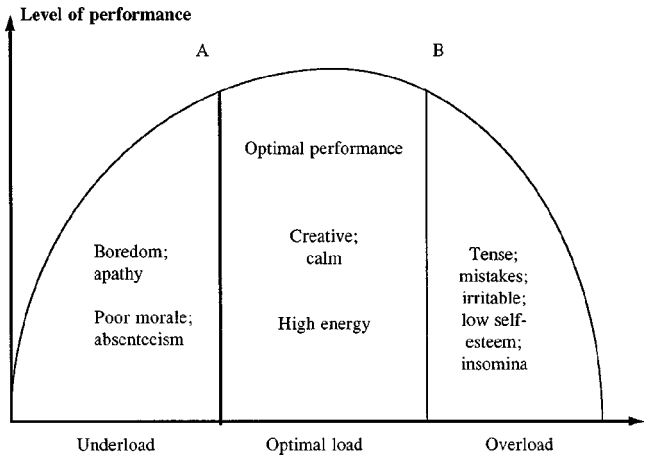
The thresholds where a stressor changes from being an underload to optimal or from optimal to an overload are not determined (see Figure 1). The difficulty in determining these threshold points is caused mainly by the fact that stress is a perceived quality that is personal to the individual (Cox, 1983). People differ from each other in their intrapsychic tension and as Bass (1990) says 'It is all in the eyes of the beholder'. Keenan and Newton (1987) noted that the precise pattern of occupational stress is likely to vary from one job to another.

Bearing this in mind, three subhypotheses were drawn up.

H_3: Under high boss stress, the association between site managers leadership motivation and project effectiveness is lower.
H_4: Under high job stress, the association between site managers leadership motivation and project effectiveness is lower.
H_5: Under high environment–job stress, the association between site managers leadership motivation and project effectiveness is lower.

Research operationalization

The research sample included 71 construction site managers from 11 small to medium-sized construction companies in Algeria. In addition, the site managers' superiors ($n = 11$) were asked to rate the performance of their site managers and the quality of the finished work. Personal interviews included mostly closed-ended questions in addition to informal ones and lasted between 60 and 90 mins. The results were analysed statistically using SPSS/PC+.



Source: Sutherland & Cooper, 1993:35

Figure 1 The underload–overload inverted 'U' diagram

Leadership

The managerial leadership style was measured in terms of a scale which enabled a leader to describe the person with whom they had greatest difficulty working with. The least preferred co-worker (LPC) scale rates the leader description in a way which reflects the leadership style of the interviewee. A high LPC score indicates a relationship-motivated leadership style, a moderate LPC score indicates a socioindependent leadership style, while a low LPC score indicates a task-motivated leadership style.

Project effectiveness

In the light of the earlier discussion on effectiveness, the following measures were used to reflect project effectiveness.

Leadership performance

This variable was measured by asking the site manager's superior to evaluate the performance of the site manager on a Likert-like scale, which ranges from very good to very bad. Performance was defined as the extent to which the site manager was successful in managing the project taking into account outside constraints which were not under their direct control.

Relative delay of the project

The relative delay of the project was used as a variable to gauge the degree to which a project is completed on the specified time. In other words, this variable gauged the expected overrun of the project. The relative delay of the project was obtained mathematically from a combination of three answers: duration of the project, actual start of the project, and expected end of the project according to the management estimation based on the progress of work. The value of relative delay is then extracted by computing the percentage difference between the time from the actual start to the expected end of the project to its contract duration. The author believes that the use of delay in its absolute value is misleading. Two projects with a duration of 12 and 48 months, both with a delay of 2 months cannot be considered as having the same delay.

Quality of finished work

This variable is the last element of effectiveness criteria. While the relative delay reflects a quantitative facet, the quality of finished work (QFW) reflects a qualitative facet. It should be mentioned that QFW has nothing to do with quality management systems (QMS) or total quality management (TQM) as they are not applied in the Algerian construction industry. It is merely the opinion of the site manager's superior on the extent of conformity to the set standards in the country. This variable is measured on a five-point Likert scale.

Stress

Participants in the study were asked to rate the stress caused by their bosses in terms of overall stress in relation to all other bosses they have had or known about. The respondents were able to select from three responses: high, moderate and low. The same question was asked for job stress and environment–job stress. The formulation of stress questions in this way allows the respondent to compare the current level of each stressor with past experience which gives them a point of reference to measure the level of stress.

Results

The results of this research are presented in two parts. The first presents descriptive data regarding the main variables, while the second deals with the hypotheses' verification and discussion of the results.

Descriptive results

Leadership style

The results showed that the mean LPC score of the respondents was 66.37 (sd = 27.11) which, compared to the results obtained in other settings, is about average as Table 3 shows (Larson and Rowland, 1974; Fiedler and Chemers, 1984; Bryman *et al.*, 1987). Analysis by size

Table 3 Average LPC scores obtained for various occupational samples

Occupational samples	Mean
Second level managers, Iran[a]	84.03
Head nurses, US and Canada[a]	80.80
Middle and upper managers, US[b]	71.82
Second level managers, US[a]	71.40
Lieutenants, urban fire department, US[a]	69.57
Captains, urban fire department, US[a]	68.67
Public school principals, US[a]	66.37
Construction site managers, Algeria[c]	66.37
National Guard senior officers, US[a]	64.09
State executives, reporting to the governor, US[a]	64.00
Battalion chiefs, urban fire department, US[a]	63.12
Construction site managers, UK[d]	62.40
Battalion staff officers, US Army[a]	62.30
Company commanders, US Army[a]	60.32
State executive assistants, US[a]	57.96
Administrators, city treasury, US[a]	52.00

[a]From Fiedler and Chemers (1984).
[b]Larson and Rowland (1974). The LPC score was based on a 17-item scale, but adjusted here to an 18-item mean.
[c]The present study.
[d]Bryman *et al.* (1987). The LPC score was based on a 16-item scale, but adjusted here to an 18-item mean.

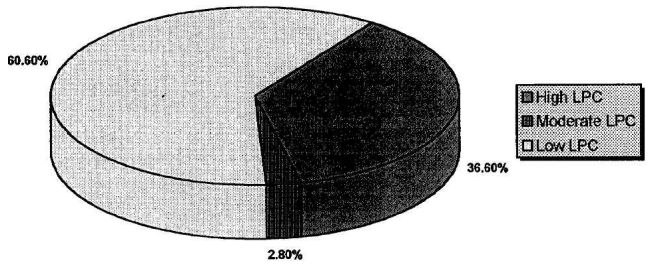


Figure 2 The least preferred co-worker

category as displayed in Figure 2 shows a dominance of low LPC, that is task-motivated style. Approximately two-thirds of the site managers interviewed appeared to be task motivated, one-third were relationship motivated and only 3% were socioindependent[3].

Project effectiveness

As mentioned earlier, work effectiveness included multiple criteria, namely project performance, quality of finished work and delay of the project.

The site managers' superiors' evaluation of their site managers' performance revealed that more than half of the projects (61%) had good performance, approximately one-fifth (21%) had moderate performance and only 18% had poor performance.

The analysis of results regarding the quality of finished work of projects showed the majority (75%) of projects as having good quality of finished work, 21% as having a moderate quality and less than 4% as having a poor quality of finished work. The relative delay of projects varied from a minimum of zero indicating no delay to a maximum of 78.60% of the project duration. The sample mean was 16.32 with a standard deviation of 15.92. Boussabaine (1989) noticed that a delay of 30 months in Algeria does not necessarily result in any penalties or actions taken against the contractor.

Stress

The results indicated that approximately one-third of interviewed site managers felt they were under high superior stress. One-quarter of the respondents reported that they were under moderate superior stress, while around half of the respondents felt they were under low superior stress.

Analysis of the responses regarding job stress revealed that almost one-fifth of the respondents saw their job as highly stressful relatively to other jobs they had had, while two-fifths felt their current job was moderately stressful. The remainder (44%) felt that their job stress was low.

The reply concerning whether environment stress

[3] This subgroup was not used because valid inferences cannot be made from such a small size.

influenced the interviewees while at work revealed that more than one-third of the site managers reported that the impact of environment stress on them while at work was high, less than one-third reported a moderate influence and one-third of the sample said the influence was low. Figure 3 depicts these results graphically.

Table 4 Correlation of LPC with effectiveness indicators

LPC	ρ	*p*
Performance	0.44	0.001
Project's delay	0.38	0.000
Quality of finished work	0.42	0.000

Inferential results

Hypothesis 1

A strong association was revealed between site managers LPC and all three of the measures of effectiveness as depicted in Table 4. The level of correlation varied from 0.34 for project delay to 0.43 for performance. For the composite measure based on all three measures the correlation was 0.42. The strength of this association was unexpectedly high given that many variables could affect effectiveness and that none of these has been eliminated. The association, however, was about average comparatively to some other studies such as Bresnen *et al.* (1986) which reported an association of 0.38 consecutively. As the correlation is statistically significant at the level of 0.05, H_1 is therefore retained.

The results suggest that site managers who were relatively strongly task motivated achieve higher levels of project effectiveness than those site managers who were relationship motivated. One explanation of this result may be best captured in terms of the popular saying that states 'service service, comarade aprés[4]' that is, the achievement of work comes before that of friendship. This reflects one aspect of the Algerian culture which is the belief that task achievement is of primary importance and only after the satisfactory achievement of the task is friendship possible or worthwhile.

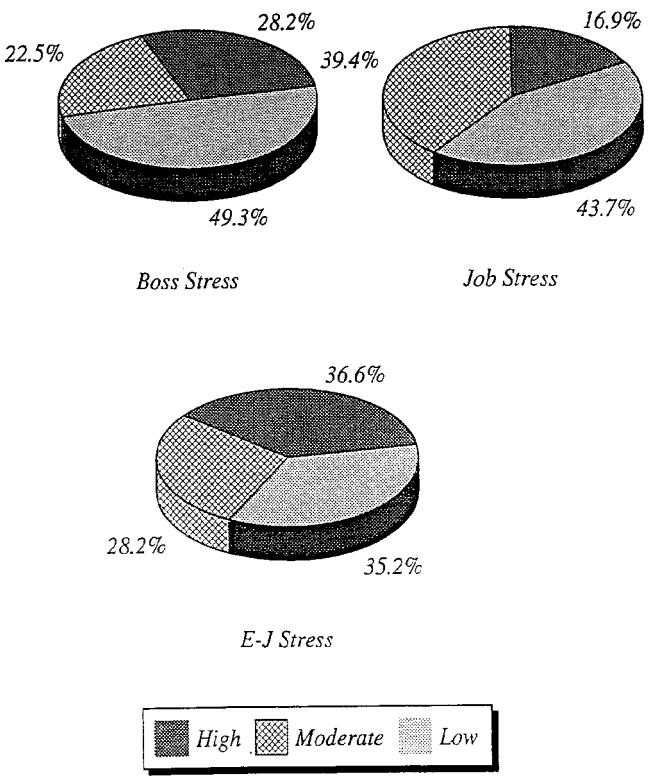


Figure 3 Levels of stress

It may also reflect a psychological distance[5] (Fiedler, 1964) or barrier between the leader and the followers which exists in Algerian organizations. This barrier does not constitute an impediment to effectiveness as long as the leader does not attempt to undermine the dignity of their staff or to dominate them. Subordinates prefer their superior not to intervene in their work life except when really necessary. Generally, Algerian workers resent close supervision and regard it in a negative way. These findings seem to differ from those found by Farris and Butterfield (1972). The authors reported that Brazilian employees favoured supervisors who were considerate but at the same time provided closer supervision which suggested a preference for a closer relationship between the superiors and their staff and an acceptance of close supervision. The reported findings also appear to be in the opposite direction to those found by Bresnen *et al.* (1986, 1987) for UK site managers. However, it seems consistent with findings from other studies reviewed by Sinha (1973) where it was reported that task-motivated leaders achieved higher levels of effectiveness. Smith and Peterson (1988) rightly remarked that

> A supervisor who frequently checks up that work is done correctly may be seen as a kind father in one setting, as task centred in another setting, officious and mistrustful in a third. The meaning of acts is given by the cultural context within which they occur ... Substantial variability in the samples and types of measurement used in different countries requires our continuing caution (p. 100).

Hypothesis 2

The impact of measured stressors on leadership effectiveness was analysed by means of elaboration technique. This technique has been widely used to assess the effect of a third variable on the main association between

[4] That is 'work is work, friendship after'.

[5] 'Psychological distance' is the initial interpretation of the LPC.

dependent and independent variables (e.g. Bons and Fiedler, 1976; Fiedler *et al.*, 1979; Frost, 1981).

The results of this analysis are shown in Table 5 which shows that the association between leadership orientation and effectiveness was contingent upon stress. The results demonstrated that under high levels of stress, the leadership–effectiveness was lower in the case of both boss stress and environment–job stress, but not in the case of job stress. Hence, subhypotheses H_3 and H_5 are retained while subhypothesis H_4 is rejected.

A low amount of stress, whatever its type, appeared to have a stimulating and challenging effect on the leader, as Table 5 shows. It arouses the leader's alertness to perform better. However, under a high amount of stress, the leadership–effectiveness association was of inverse direction but non-significant statistically, except for job stress where although the direction of the correlation was inverse it was, however, significant.

In the case of high boss stress the leadership–effectiveness association faded away, that is to say that the leadership orientation had no impact on site effectiveness. This result can be interpreted at two complementary levels.

The first is in the terms of the personal effect on the leader (feelings of threat, distraction, etc.). A site manager who is under a high amount of boss stress does not concentrate on their job any more. Their primordial interest will be on how to get away from their boss stress. According to Sem-Jacobson (1977) high stress makes the stressee lose their alertness and hence concentration on their work. In addition, Fiedler and Garcia (1987) reported that a leader who has a stressful relationship with their boss is likely to worry more about their relationship than about their job and this may lead to poor performance. Fiedler and Garcia (1987) asserted that 'perceived boss stress seems to have a stronger effect on the cognitive resources than does job stress' (p. 126). The second is in terms of organizational effect on the leader, namely their position power and to what extent they can influence their superiors. Stress with the boss usually indicates a strained relationship between the leader and the boss. If the leader is to succeed in influencing the activities of their subordinates, they must have an unstrained relationship with their own boss. The ability of the leader to sanction their leadership, or in other words their position power, hinges to a large extent on their relationship with their boss. The leader may wish to assist their labour force in satisfying their needs or may wish to punish them; however, if their recommendations to their superior are frequently turned down, they are likely to exercise any effective influence over their subordinates. This explains the finding of this research in that when boss stress is high, their impact on effectiveness ceases to exist. Pelz (cited in Sutermeister, 1976) found that when a non-influential supervisor tried to help his employees achieve their goals, his efforts would usually end in vain: employees' expectations got frustrated and consequently their satisfaction stagnated or decreased. Katz *et al.* (1950) found that, in contrast to highly productive ones, when supervisors of low productive groups recommended promotions their recommendations usually did not go through.

Table 5 Rank correlation between leadership and effectiveness under stress

Level of stress	Low	Moderate	High
Boss stress			
ρ	0.36*	−0.25	−0.09
n	35	16	20
Job stress			
ρ	0.46*	0.63**	−0.76*
n	31	28	12
Environment–job stress			
ρ	0.42*	0.33	−0.08
n	25	20	26

**Significant at 0.001.
*Significant at 0.05.

Under a moderate and high amount of boss stress and environment–job stress, as illustrated in Figure 4, the leadership–effectiveness association was statistically insignificant. Job stress, however, seemed to have a different impact on the leadership–effectiveness association. Under moderate job stress, the leadership–effectiveness was stronger, which meant that a large amount of this stressor kept its stimulating and challenging impact on effectiveness unlike other stressors as the U-shaped stress graph predicts. This result backs the argument that different stressors produce different outcomes.

Moreover, unlike other stressors, the leadership–effectiveness association, under high levels of job stress, was of inverse direction but statistically significant. This meant that task-motivated site managers were not the ones with the most effective sites. Instead, relationship-motivated site managers were the most effective when job stress was high.

The particularity of job stress is explained in terms of control[6] as argued by many researchers including Averill (1973), Kobasa (1985), Fisher (1989) and Fletcher (1991). It is asserted that when a person had the power of control over the environment, they would be less prone to the negative effects of stress. Hence, site managers adopting a relationship-motivated behaviour, when under high job stress, sought psychological comfort and

[6] Control is a complex term generally taken to imply power and mastery over the environment. It is defined as an objective characteristic of the work situation, reflecting the degree to which the design of work tasks and work environment more generally allow opportunities for control.

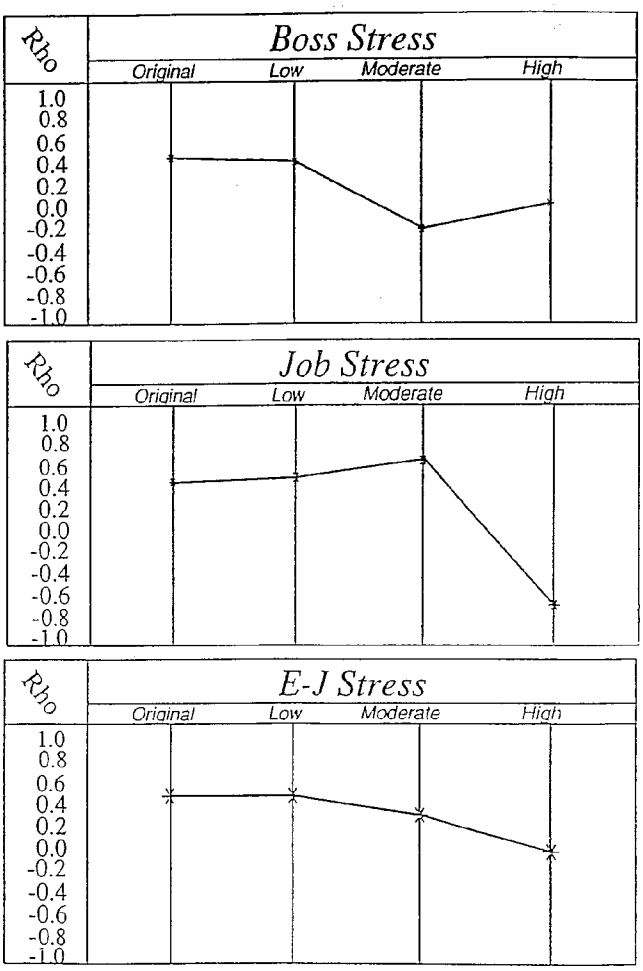


Figure 4. Variations of LPC–effectiveness association under different stressers

shelter in being close and friendly with their subordinates and look to job stress as a common problem which affects both sides to a lesser or greater extent. This is unlike boss stress and, to a lesser extent, environment–job stress which are seen as essentially the leader's very own problem in the first place and cannot be regarded as a common problem between the leader and subordinates.

This result backs Fiedler and Garcia's (1987) findings that the impact of job stress on leadership effectiveness is less than that of boss stress. Moreover, this goes along with Fiedler *et al.*'s (1969) findings that task-motivated leaders were more effective in a relatively stress-free environment, whereas relationship-motivated leaders were better in more stressful environments.

Stress management

Human resources are the most valuable asset any organization has. Taking care of these assets is one target that all successful companies do and ought to do. As Handy (1977) asserted

> Salaries and benefits are really regarded as maintenance expenses – something to be kept as low as possible as long as the machine does not break down. There is no capital cost and therefore no need for depreciation. Indeed, the return on investment of most companies would look strange if their human assets were capitalised at, say, ten times their annual maintenance cost, and depreciated over twenty years. Perhaps, one day, industrial and administrative organisations will start behaving like football clubs and charge realistic transfer fees for their key people assets (p. 251).

Stress can create various problems to people. These problems may be of a physical, psychological or behavioural nature. Response to stress is contingent not only on the personality of the stressee, but on the nature of the stressor as well. Coping with stress can take many shapes because stress and responses to stress are multifaceted concepts. If stress is seen as a lack of fit between the person, circumstances and reaction, henceforth, training may enble the gap to be filled. If it is believed that control is not effective, then helping people to master their immediate environment to a reasonable extent can be a determinant in combating stress.

Training programmes for managers should include a plan to teach managers how to cope with stress. It should also show them ways how to exploit stress in order to motivate their subordinates by keeping it at its optimal levels and how to cope with stress. Cooper *et al.* (1988) maintained that

> Occupational stress is inevitable in working life today. It is not itself a new phenomenon, but certainly it is only in recent years that managements have begun to recognise its existence and have had the courage to try and do something about it. ... The effective analysis and treatment of stress is an important aspect of human resource management if those resources are to be employed to their full potential. ... many organisations are now realising the full implications of [stress] effects and are becoming increasingly aware of the need to investigate stress-related problems (p. 1).

Stress management, that is training managers how to cope with different sources of stress, has to be based on the cognitive–behavioural approach rather than meditation, relaxation and the like, because the former can easily be incorporated in the training programme. Sutherland and Cooper (1993) reported that an increasingly large number of American companies are providing extensive health care, stress management and keep-fit programmes for employees. However, they added that only a few companies in Europe have flirted with stress prevention or counselling programmes.

Some of the pioneering researchers on coping with stress are Lazarus and his colleagues. Lazarus (1966) and Lazarus and Folkman (1984) assumed that cogni-

Table 6 Levels of interventions

Focus on	Interventions	Outcomes
The individual	Relaxation techniques Cognitive coping strategies Biofeedback Meditation exercise Employee assistance programmes Time management	Mood states (depression, anxiety) Psychosomatic complaints Subjectively-experienced stress Physiological parametres (blood pressure, catecholamines, muscle tension) Sleep disturbances Life satisfaction
The individual–organizational interface	Relationships at work Person-environment fit Roles issues Participation and autonomy	Job stress Job satisfaction Burn-out Productivity and performance Absenteeism Turnover Health care utilization and claims
The organization	Organizational structure Selection and placement Training Physical and environmental Characteristics of job Health concerns and resources Job rotation	Productivity Turnover Absenteeism Health and claims Recruitment/retention success

Source: adapted from Defrank and Cooper (1987).

tive factors play a primordial role in evaluation and adaptation. Cognitive evaluation or appraisal of potential stressors mediates psychologically between the individual and their environment when stress occurs. It is the individual's appraisal of the stressor that determines the intensity of this stressor and consequently its damaging effect. This appraisal itself is contingent on the resources available to the individual to neutralize or tolerate the stressor.

According to Lazarus (1966), the degree to which an individual experiences psychological stress is determined by the appraisal of stressors (primary appraisal) and by the appraisal of available coping resources (secondary appraisal). Lazarus and Folkman (1984) defined coping as the cognitive and behavioural efforts necessary to manage environment and internal demands and the conflicts between them. These cognitive and behavioural efforts are aimed at mastering, tolerating and minimizing environmental and internal demands that strain an individual's available resources.

Coping is hypothesized to have two main functions: alteration of the person–environment relationship (prob-

Table 7 Examples of coping behaviours

Stress agent	Adaptive behaviour	Maladaptive behaviour
Overwork	Delegates some work	Accepts work overload with result that general performance deteriorates
Lack of awareness of a particular company policy	Finds out what policy is	Guesses inappropriately
Poor working relationship with colleagues	Confronts issue with colleagues and negotiates better relationship	Attacks colleagues indirectly through third party
Underpromotion	Leaves organization for another	Loses confidence and becomes convinced of own inadequacy
Company versus family demands	Negotiates with boss more 'family time' (e.g. less travel)	Blames company for family discontent
Role ambiguity	Seeks clarification with colleagues or superior	Withdraws from some aspects of work role

Source: Cooper *et al.* (1988).

Table 8 Example of constructive self-talk

Situation	Typical mental monologue	Constructive self-talk alternative
Driving to work on a day which you know will be full of appointments and potentially stressful meetings	'Oh boy, what a day this will be!' 'It's going to be hell.' 'I'll never get it all done.' 'It'll be exhausting'	'This looks like a busy day' 'The day should be productive' 'I'll get a lot accomplished today' 'I'll earn a good night's rest tonight'
Anticipation of a seminar presentation or a public address	'What if I blow it?' 'Nobody will laugh at my opening joke' 'What if they ask about . . . ?' 'I hate talking to groups'	'This ought to be a challenge' 'I'll take a deep breath and relax' 'They'll enjoy it' 'Each presentation goes a little better'
Difficulty from a superior at work	'I hate that person' 'He makes me feel stupid' 'We'll never get along'	'I don't feel comfortable with him' I let myself get on the edge when he is around' 'It will take some effort to get along'
Flat tyre on a business trip	'Damn this old car' (Paces around the car, looking at tyre) 'I'll miss my meetings' 'It's hopeless'	'Bad time for a flat' (Begins to get tools out to start working) 'I'll call and cancel Jenkins at the next phone. I should make the rest of my appointments'

Source: adapted from Quick and Quick (1984), p. 221).

lem-focused coping) and control of stressful emotions or psychological arousal (emotional regulation). Problem-focused coping involves the individual's efforts to deal with the source of stress through the modification of their own problem-maintaining behaviour or through the modification of environmental conditions. An example of such problem-oriented coping would be learning appropriate ways of handling one's boss through various anger management approaches. Emotional regulation involves coping efforts aimed at adjusting emotional distress and maintaining a moderate level of arousal. An example of emotional regulation involves learning relaxation techniques or aerobic exercise with the intent of reducing the heightened levels of physiological arousal associated with the stress response.

There are five major types of coping according to the transactional model of Lazarus and Folkman (1984). These are information seeking, direct action, inhibition of action, cognitive processes and seeking others' support. Jaffe *et al.* (1986) asserted that the inclusion of different stress management packages depends on the desired intervention level. They defined five levels: education/awareness building, assessment focused, skill building, therapeutic counselling and organizational/environmental change. DeFrank and Cooper (1987) listed three levels of interventions on the basis of the focus unit, whether it is the individual, the individual–organizational interface or the organization. This is illustrated in Table 6 which describes the intervention levels and outcomes.

Each type of stressors has their own coping strategy. Rice (cited in Bass, 1990) suggested, for example, that the subordinate should observe how others succeed in getting along with the boss. The subordinate should offer to be helpful. They need to keep track of their boss's mood swings and they should avoid seeking the boss's approval when it is not required. Table 7 displays some simple examples on how to cope with stress, while Table 8 illustrates some constructive self-talk examples.

There are some integrated training programmes that have been developed to cater for a full spectrum of stress-related problems. The occupational stress indicators (OSI) for example, which were developed by Cooper *et al.* (1988) help users to define stress-related problems and provide a structure for future decision making and discovering effective strategies for coping with stress. Furthermore, it has been put into practice in many organizations in the UK.

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