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Revised Paper for
Engineering, Construction & Architectural Management

**Manageability of Stress among Construction
Project Participants**

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MANAEGABILITY OF STRESS AMONG CONSTRUCTION PROJECT PARTICIPANTS

Abstract

33 stressors covering various aspects of project implementation, such as organisation policies, working relationships, communication and personal factors, are identified and the manageability of the common stressors faced by management of construction projects in Hong Kong is assessed by means of a questionnaire survey. It is shown that the most difficult stressors to manage are “*bureaucracy*”, “*lack of opportunity to learn new skills*”, “*work-family conflicts*” and “*different view from superiors*”. The results also revealed that the patterns of stress manageability differ between clients, consultants and contractors. The relationships among individual stressors are similarly examined. The extent to which stress effects combine and accumulate when related stressors coexist is also considered.

Keywords: Stressors, stress manageability, correlation, project management

INTRODUCTION

Construction projects seldom run smoothly. Their complex and dynamic nature, together with the often confrontational attitude of its participants, results in the occurrence of frequent major problems or difficulties (Liu and Leung, 2002; Jang *et al*, 2003). In such conditions, events can be objectively harmful physically or mentally to the individuals involved. In the extreme case, when these are seen to be a negative influence, stress will be experienced. That is, untypical individual responses occur (Seyle, 1976) due to the physical and mental effort needed to recover from being diverted from the normal situation (Holmes and Rahe, 1967). More typically though, the effect of stress on performance follows a bell-shaped pattern (Yerkes and Dodson, 1908; Leung *et al*, 2004), with too little and too much stress being equally inhibiting (Lingard and Sublet, 2003).

The significance of the effects of occupational stress in general has prompted several studies aimed at identifying the causes of stress in various disciplines, including nurses (Dailey *et al*, 1986), managers (Davidson and Cooper, 1986) and teachers (Byosiere, 1988). These indicate that stress can be related to (i) physical condition (Braham, 1994); (ii) organisational culture (Cooper, 2001; Moorhead and Griffin, 2001); (iii) interpersonal conflict (Toates, 1995; Cooper, 2001); (iv) personal characteristics (Caplan and Jones, 1975; Alluisi, 1982; Cooper and Roden, 1985; Hurrell, 1985; Dailey *et al*, 1986; Caudron, 1998; Bliese and Britt, 2001); and (v) job nature (Caplan and Jones, 1975; Matteson and Ivancevich, 1987). Other studies have focused on the effects of stress on the performance of various professions – such as physicians (Richardson and Burke, 1991), managers (Jex, 1998), nurses (Jeanie, 2001), teachers (Sadowski *et al*, 1986; Chaplain, 1995) and police (Storch and Panzarella, 1996).

To date, little research has been conducted with construction project participants, with the exceptions of Sutherland and Davidson (1989), Djebarni (1996) and Haynes and Love's (2004) work with site/project managers and Leung *et al's* (2004) study on cost estimators. However, as conflicts may arise when role ambiguity exists (Nordqvist *et al*, 2004), the origins of stresses may vary amongst different project participants. There is a need to examine whether the various construction stakeholders can adequately cope with the stresses they are confronting. This paper reports on the results of research aimed at ascertaining the situation for these other construction project participants by (i) identifying the origins of stresses being experienced by management in the construction industry in terms of individual and situational factors; (ii) assessing the manageability of stresses and its impact on the management of different disciplines; and (iii) determining the relationship between different stresses and their associated effects.

STRESSORS PERTINENT TO CONSTRUCTION PARTICIPANTS

An extensive literature review was carried out to establish the common origins of stresses. However, as little research effort has been directed to investigating stresses in the construction industry, a series of semi-structured interviews were conducted with the clients, consultants and contractors to gather opinions of the common stresses faced in their daily management activities. As a result, a total of 33 common stressors[†] were identified, covering all the origins of stresses *viz.* the problems associated with work overload, occupational frustration, occupational change, and other situational and personal factors.

[†] Details of each of the 33 stressors can be made available by the first author upon request

A close scrutiny to the identified stressors revealed that they could be meaningfully categorised according to their distinctive nature and characteristics (*cf.* Holt, 1993; Djebarni, 1996). For example, some of the stressors are concerned with the time allowed for work execution, such as “*quantitative work overload*” and “*tight time frame for work*”. In contrast, stressors such as “*lack of career guidance*” and “*poor communication with counter players*” are typified by the personal relationships among different parties of work. For “*bureaucracy*”, “*inadequate room for innovation*”, “*unsatisfied salary*” etc, the policies of the organization play a significant role in their formation. By grouping stressors with similar properties together, seven basic categories can be derived, namely: (i) work-nature related stressors – *WN*; (ii) work-time related stressors – *WT*; (iii) organisation policy related stressors – *OO*; (iv) organisation position related stressors – *OP*; (v) situational/environmental stressors – *S*; (vi) relationship related stressors – *R*; and (vii) personal stressors – *P*.

In operationalising the 33 stressors, it was realised that the terms may be interpreted differently due to a divergence in backgrounds and working experience. For example, the meaning of the stressor “*ambiguity of job requirements*” may easily be confused with another stressor “*inadequate knowledge of project objectives*”. At the same time, the term “*role conflicts*” may also be taken to have a similar meaning. These were, therefore, replaced with more straight forward phrases/sentences in this study. For the above examples, the stressor “*ambiguity of job requirements*” was replaced by the sentence: “*I am not sure about the scope and responsibilities of my post*”. “*Inadequate knowledge of project objectives*” was replaced by “*the project objectives have not been clearly conveyed to different working levels*”, while “*role conflicts*” was converted to “*there may be occasions of conflicts between my role in the*

organisation and that under individual project". The full list of operationalisations is shown in Table 1.

< *Table 1* >

RESEARCH METHOD

To assess the corresponding attitudes towards the 33 identified stressors, a questionnaire was designed and sent to members of the construction industry. The respondents were asked to give a rating of the manageability of stress for each of the 33 operationalised stressors. The level of manageability of stress was defined as the ability of an individual to handle the stress experienced without causing a negative effect on his/her overall performance. A Likert scale of 1-5 was provided representing five different levels of stress manageability: (1) totally unable to manage; (2) difficult to manage by oneself – external assistance is needed; (3) moderately manageable – performance is slightly affected; (4) able to manage with effort – adequate time for adaptation required but without influencing the outcomes; and (5) well managed without any difficulty.

Copies of the questionnaire were sent to a stratified sample of 52 consultants and contractor firms selected from the Hong Kong Institution of Engineers' Yearbook, covering various aspects of the construction industry. For government departments, copies were also distributed to different divisions of the Drainage Services Department, Highways Department, Water Supplies Department and Civil Engineering Development Department. Out of the 300 questionnaires distributed, 97 completed questionnaires were received -

representing a response rate of 32.3%. These were from respondents working at different levels (e.g. Inspector of Works, Site Agent, Engineer, Project Manager and even Director,) with 51.5%, 25.8% and 22.7% being from respondents working in the various government departments, consultancy firms and contractors respectively. 34.0%, 41.2% and 24.8% respondents were aged from 25 to 35, 35 to 45 and over 45 years respectively.

The level of manageability of stress was analysed by visual comparison and the arithmetical mean. Through the arithmetical mean, the most unmanageable stressors to the construction project participants could be identified. However, since it is possible to have more than one stressor occurring concurrently, the relationship between two stressors and hence their combined impacts should be carefully scrutinised. In this study, the Pearson correlation analysis was adopted to establish which stressor pairs have a stronger correlation. A Pearson correlation coefficient (p) of over +0.6 is considered as having a strong positive correlation, whereby the potential impacts could be much more serious should they occur concurrently.

To help interpret the results of the questionnaire survey, three supplementary interviews were carried out with members of a client department, consultancy office and contractor firm. The interviewees had ample practical experience (i.e. 7 – 30 years) in the construction industry. During the interviews, they were asked to express their views on the stresses confronted by construction participants. Particular attention was drawn to the 33 identified stressors, their personal experience of each of them and the associated strategies in handling these stressful situations.

RESULTS

Manageability Patterns of Different Groups

For each stressor, the number of responses given to each of the five available ratings were totalled and plotted in the form of bar charts. For the ease of analysis, these “manageability charts” were grouped according to the seven stressor categories. This was carried out over all respondents and broken down by the various industry and age groups.

Figure 1 highlights the manageability of quantitative and qualitative workload based on the combined results, in which the percentage of responses for each of the five available ratings is plotted against the level of stress manageability. As can be seen, the most frequent ratings for the stressor “*quantitative work overload*” are the stress manageability levels 3 and 4. In other words, this stressor is generally considered as fairly easy to manage. However, there is a more scattered pattern for the other stressor “*qualitative work overload*”. While the majority of the responses provide a rating of 4, another smaller peak of responses occurs at a rating of 2. Therefore, a major group of people find “*qualitative work overload*” rather easy to manage, while another group of people find it difficult to manage without external assistance.

< *Figure 1* >

Figure 2 provides another example, this time of relationship-oriented stressors for clients. This shows the percentage of responses increasing generally for the 6 stressors involved, with the major portion occurring at a rating of 4. In other words, most of the respondents find that these relationship-related stressors can be managed with little difficulty. A similar trend was

also found for organisation-policy-related stressors, organisation-position-related stressors and works-nature-related stressors in the group of responses for clients, consultants and contractors.

< Figure 2 >

Figures 3-5 provide the responses for different sectors of the industry for the works-nature-related stressors. This shows the general trend of responses to be towards the right for the clients, consultants and contractors respectively. While the majority of ratings for all 3 graphs occur at a manageability level of 4, the corresponding peaks for clients and consultants are about 40% to above 50% respectively. In case of contractors, there are a fewer number of ratings at manageability level of 1 and 2, indicating that those working in contractor firms tend to be more confident in managing more types of stresses than those working in government departments and consultants firms. Similar differences were also found between the client, consultant and contractor respondents for the relationship oriented stressors, organisation policy related stressors and situational/environmental stressors.

< Figure 3 >

< Figure 4 >

< Figure 5 >

For the different age groups, respondents over 45 tended to have less difficulty in managing the various categories of stresses than their more junior colleagues.

Ranking of Stressors

Table 2 provides the rank ordering of the manageability of stress. This shows the stress most difficult to manage to be “*bureaucracy*”, followed by “*lack of opportunity to learn new skills*”, “*work-family conflicts*” and “*different views from superiors*”.

< **Table 2** >

Correlation for Groups of Stressors

Tables 3-9 provide matrices of Pearson correlation coefficients (p) for the various categories of stressors. Table 3 indicates 3 pairs of stressors with significant correlations – “*quantitative work overload*” and “*tight time frame for works*”, “*quantitative work overload*” and “*unstable working hours*”, “*tight time frame for works*” and “*unstable working hours*”. In Table 4, several potential correlations among works-nature-related stressors were identified. Among these cases, only one pair of stressors shows a closer relationship with each other, namely “*qualitative work overload*” and “*job renders too much contact with people*”. In Tables 5, it is shown that, although there some correlations among the organisation-position-related stressors, none of them is strong enough to attract particular attention. Table 6 shows two particularly strong correlations, i.e. “*inadequate room for innovation*” with “*bureaucracy*” and with “*adaptability problem with change of job natures*”. Tables 7 and 9 show a lack of any strong correlations, while in Table 8, one close correlation is observed between “*lack of career guidance*” and “*problem with superior’s management style*”.

< **Table 3** >

< **Table 4** >

< *Table 5* >

< *Table 6* >

< *Table 7* >

< *Table 8* >

< *Table 9* >

Manageability of Correlated Stressors

The pairwise correlations greater than 0.6 of stressors belonging to different categories are summarised in Table 10.

< *Table 10* >

DISCUSSION

The economic recession in Hong Kong in recent years has induced an exceptionally high stress level on construction project participants, as projects have to be finished within a very tight budget and time frame in order to attain maximum savings. While there has been a general decline in consultancy fees and tender prices, the requirements of the clients in terms of quality, safety and environmental awareness has become increasingly stringent. To survive in the industry, many project participants have to work extremely cautiously through extra long hours (normally more than 60-hour per week) at a much reduced salary. As a result, the stresses experienced by project participants in Hong Kong and the extent to which they able

to cope may not be the same as other advanced countries in the western world under which the interests of project staff are better protected by trade unions and/or relevant legislation.

Manageability Patterns

Apart from occupational stresses common to everyone in the construction industry, those working in contractor firms are more familiar with, and therefore have more experience in handling, potential stressful situations. As one interviewee who had been working for contractor firms for more than 30 years pointed out, the continuous demands from the managing parties to maintain progress was the major source of pressure for him. In many cases, regular reminders about meeting target completion dates were given, irrespective of whether any delays had taken place. Also, whenever additional works were required, unless issued in a form of variation on which the basis of cost evaluation was available, the managing parties tended to disagree with the contractor on the amount of reimbursable cost prior to the execution of the work. While appreciating that the decisions made may have been based on appropriate grounds, the financial pressures on the contractor can be great, especially on the recovery rate of expenditure. Being familiar with such pressures, therefore, may account for the contractors finding them relatively easier to manage than their counterparts working in consultants firms and government departments.

Similarly, the reason for the more experienced personnel being better able to manage stress is likely to be because they have more experience in handling potentially stressful situations (*cf.* Albrecht, 1979). For instance, communication skill, which is the main determinant of any negotiation process and dispute resolution, requires time to develop. Also, in Hong Kong at least, while a good relationship with the other project participants is important for the smooth

running of contracts, it can only be promoted through the mutual understanding gained through long-term interaction over various issues. Two interviewees also pointed out that the demands of their supervisors were additional major stressors!

Ranking of Stressors

The main stressors identified in the rank ordering are of different origins and natures. While “*bureaucracy*” relates to organisational policy, “*lack of opportunity to learn new skills*” is primarily concerned with the personal expectation of continuous self-improvement. The stressor “*work-family conflicts*” occurs when there are difficulties in simultaneously meeting family and job demands (Cox *et al*, 1982), while “*different view from superiors*” is concerned with how well the demands from different superiors are coordinated.

The reason for “*bureaucracy*” being the most difficult manageable stressor is obvious to those familiar with the Hong Kong construction environment. While rules and procedures undoubtedly help ensure the proper use of resources and that a fair system is followed for project implementation, the resulting reduced flexibility can lengthen the time frame for public sector projects (Spittler *et al*, 1996). Similarly, a major portion of construction projects in Hong Kong are funded directly by the government and quasi-government companies with the implementation of these projects being subject to numerous administrative procedures, such as Environmental Impact Assessment and Traffic Impact Assessment, involving lengthy rounds of comment-and-response from interested parties.

At first glance, the second most difficult manageable stress – “*lack of opportunity to learn new skills*” – is a surprise. However, the recent increases in promotion of lifetime learning

have led to increased expectations, and failure to provide an adequate learning requirement is being taken as a serious threat to the long-term career development of the individuals concerned.

At the other extreme, the most easily managed stressors of “*work underload*”, “*too specialised job nature*” followed by “*exposure to dangerous working conditions*” and “*poor relationship with colleagues*” are also a mixture of work-time-related, work-nature-related, situational/environmental and relationship-related factors. The reason for “*work underload*” being ranked the least problematic is obvious (*cf.* Langford *et al*, 1997). As the interviewees pointed out, work underload is almost impossible in Hong Kong’s current economic environment, where that every industry is putting increased efforts into value adding.

The second lowest ranked stressor “*too specialised job nature*” depends very much on the personal expectations of recognition by others and feeling of contribution to the project success. As for “*exposure to dangerous working conditions*”, such as working at height and in confined space, while worrying and feeling nervous is usual, it can be mitigated by the provision of adequate safety training, safety measures and personal protection equipment.

Correlation of Stressors

The likely interpretation of a strong correlation between stressors is that they often occur together. This is particularly apparent in Table 3, since the 3 mutually correlated stressors are of the same origin and of similar nature. According to one of the interviewees, when two or more stressors occur at once, the effect of stress is usually combined provided each stressor is also not easy to handle individually. For example, he found the stress arising from the

concurrency of “*quantitative work overload*” and “*tight time frame for works*” definitely more difficult to manage than when they happen separately.

The same interviewee was also able to shed light on the “*qualitative work overload*” and “*job renders too much contact with people*” relationship (Table 4), pointing out that views from various stakeholders are often required during project implementation. To solicit these, calls for good communication skills and negotiation techniques, which can be acquired only through years of practice. The problem is also exacerbated when there are conflicting interests between the parties (Sommerville and Langford, 1994). For example, when a piece of land earmarked for development use is also being sought by another department for another development, the program interface required for sharing the use of works areas during construction creates a major hurdle that is often very difficult to overcome. Such complicated issues concerning the interests of different authorities may often only be successfully resolved by a policy level decision. In the meantime, however, the consultants’ experience tremendous pressure because they have a contractual responsibility to coordinate, resolve and propose recommendations on the issues.

Regarding organisation-policy-related stressors, there are two particularly strong correlations, i.e. “*inadequate room for innovation*” with “*bureaucracy*” and with “*adaptability problem with change of job natures*” (Table 6). For the first correlation, it is apparent that both stressors have a common origin of stress, i.e. constraints due to the policies and procedures of the organisation. As one interviewee explained, having been involved in design of highway structures, disappointment was usual whenever any innovative design involving the use of unconventional technologies or new construction materials were disapproved by relevant authorities. In his experience, any proposal of this nature from lower-level management is

not likely to be accepted without a supporting directive from top-level management. Of course, anyone coming into this situation from the private sector, where room for innovation is usually greater, experiences some frustration, which helps to explain the second correlation.

In Table 8, the rationale behind the correlation of “*lack of career guidance*” and “*problem with superior’s management style*” is clear enough. Fundamentally, the major source of career guidance in practice is from the direction, training or inspiration of the superior. Frustration can occur when the subordinate is uneasy with the superior’s management style, especially when insufficient guidance of the job requirements is given. Of course, assistance and experience sharing with colleagues can help to relieve the problem, but without addressing the cause.

It is of interest to note that “*inadequate recess*” is not related to most of the other stressors, which implies that in most cases, whether an individual has adequate rest depends largely on his/her personal time management, rather than the requirements of the job.

Manageability of Correlated Stressors

In general, the correlations (Table 10) seem to arise from common origins. For example, correlations between “*work underload*” and “*ambiguity on job requirements*”, “*too specialised job nature*”, “*poor relationship with colleagues*” are concerned mainly with expectations of personal performance and self-fulfilment. In Maslow’s (1954) terms, provided that the lower hierarchies of need are satisfied, these combinations of stressors tend to exacerbate feelings of disappointment and enjoyment involved. Also, while “*work*

underload’ is the easiest to manage stressor generally, the other 3 stressors are also ranked among the lowest few. This suggests that the correlations among these 4 stressors are due to their ease of management.

As indicated in the Table 10, “*poor relationship with colleagues*” and “*adaptability problem with change of job natures*” are frequently correlated with other stressors. In fact, the correlation between these two is 0.71. Being widely considered to be a governing factor of working performance, communication and relationships with colleagues is clearly expected to be major source of occupational stress. Similarly, it is also important for individuals to adapt to new working environments (Holt, 1993), especially when a change in the nature of work is involved. Another stressor that is strongly correlated with “*poor relationship with colleagues*” is “*ambiguity on job requirements*”. As can be imagined, when an individual finds difficulties in fulfilling the requirements of his/her work – possibly due to insufficient information, communication and guidance – discussion and help from colleagues is very beneficial. This obviously depends on having a good relationship with colleagues. While the impacts of some common stressors are already very high, when these stressors emerge concurrently the combined effect would be even more severe (Table 11).

< **Table 11** >

A final point was made by one of the interviewees concerning the stresses involved in working for two managers simultaneously. There were several occasions when the assignments given by these two managers needed to be completed in nearly the same period. Although each individual assignment could have easily been completed within the required time, their concurrence exceeded his capabilities (Djebarni, 1996). Tremendous pressure was

then experienced – greatly affecting the interviewee’s diligence for carrying out the works. As a result, his working performance was affected which in turn aggravated the level of stress involved. To make good the situation, he tried to discuss the matter with both the managers involved, with a view to exploring the possibility of rearranging the priority of work. It is interesting to learn from the interviewee that, although such frank discussions would work and resolve the issues on many occasions, he had begun to worry that his actions cast doubt about his abilities in the minds of the managers.

CONCLUSIONS

Work fulfils a number of basic human needs. Whenever there is a failure to satisfy these needs, or of potential threats to their satisfaction, stresses may occur. While previous researches and studies mainly concentrated on the effect of stress and its effect on the performance of an individual and the project outcome, very few have touched on stress experienced in the construction industry.

The research described in this paper aimed to assess the manageability of the common stressors faced by management of construction projects in Hong Kong. 33 stressors covering various aspects of project implementation, such as organisation policies, working relationships, communication and personal factors, were identified from a series of interviews with various construction industry participants. A questionnaire survey was then conducted with members of the industry working in different sectors to ascertain the associated manageability of these stressors. A major finding was to show the most difficult stressors to manage are “*bureaucracy*”, “*lack of opportunity to learn new skills*”, “*work-family conflicts*”

and “*different view from superiors*”. The results also revealed that the patterns of stress manageability differ between clients, consultants and contractors. With the aid of further interviews, these results were interpreted in the light of actual industry practice. The relationships among individual stressors were similarly examined and which indicated that stress effects may be combined and accumulated when related stressors coexist.

Though not studied here, the research reported in this paper constitutes a significant step towards the understanding, and management of, potentially stressful situations and their influence of the efficiency and effectiveness of construction industry participants. Similarly, there are triple bottom line implications for all concerned. In particular, those most likely to be exposed to high stressors may expect to at last receive some serious consideration from their managers and advice for self-help.

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LIST OF CAPTIONS

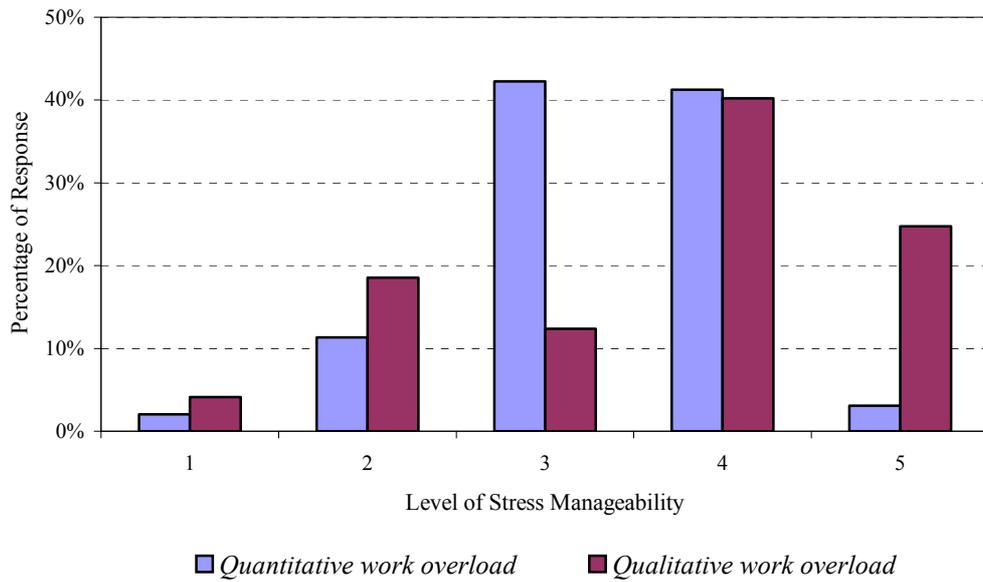


Figure 1: Combined result on manageability of quantitative and qualitative workload

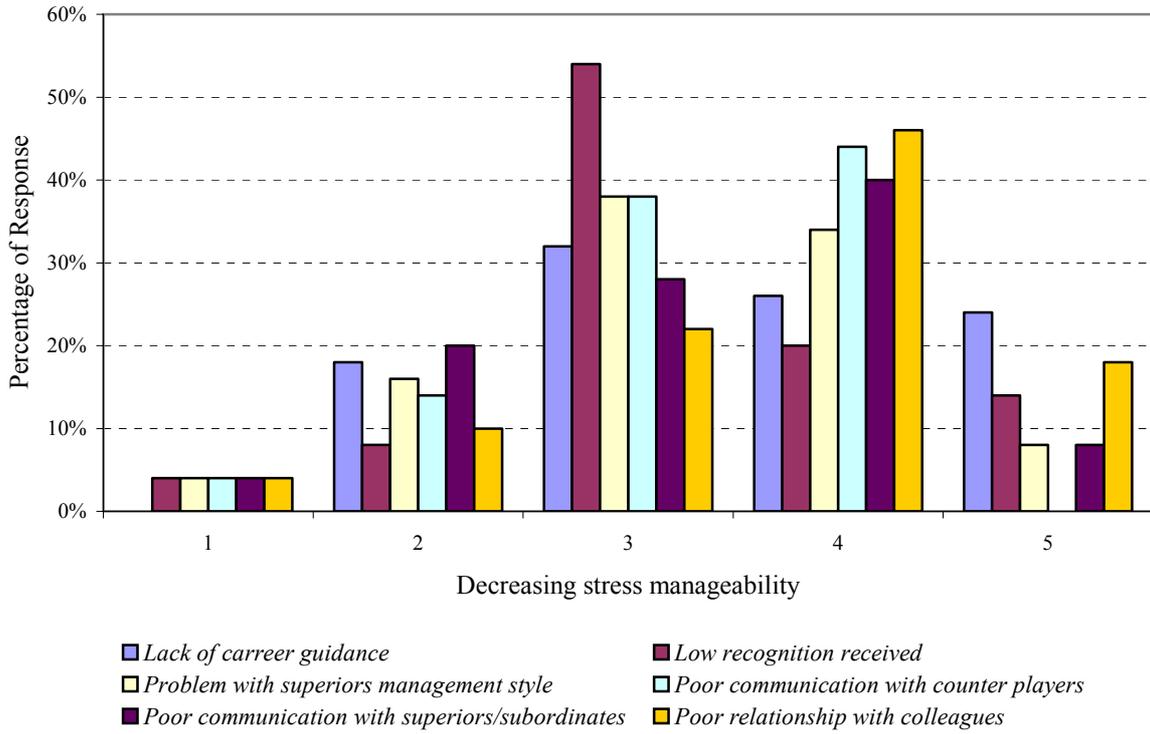


Figure 2: Relationship-related stresses responses for clients

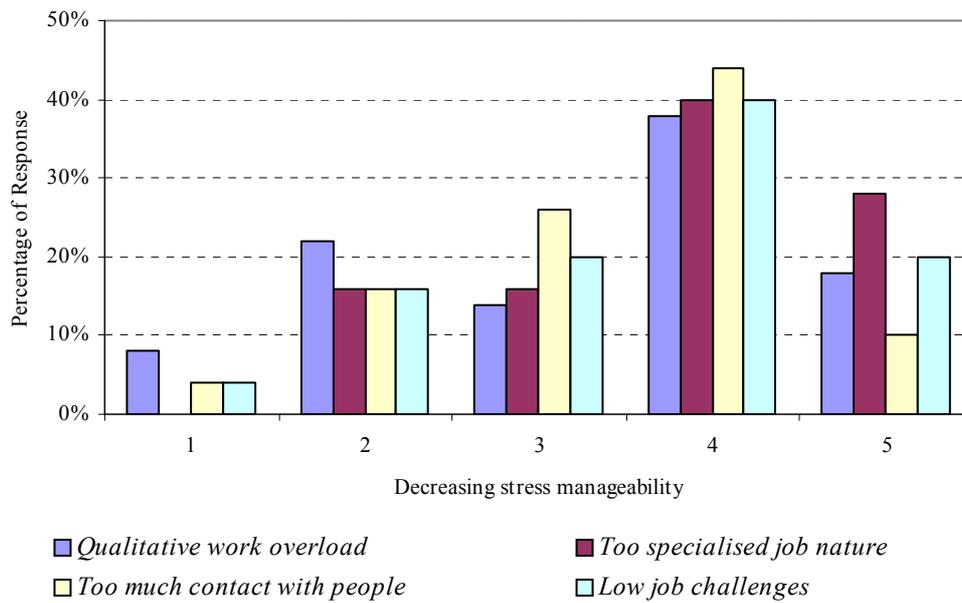


Figure 3: Works-nature-related stresses response for clients

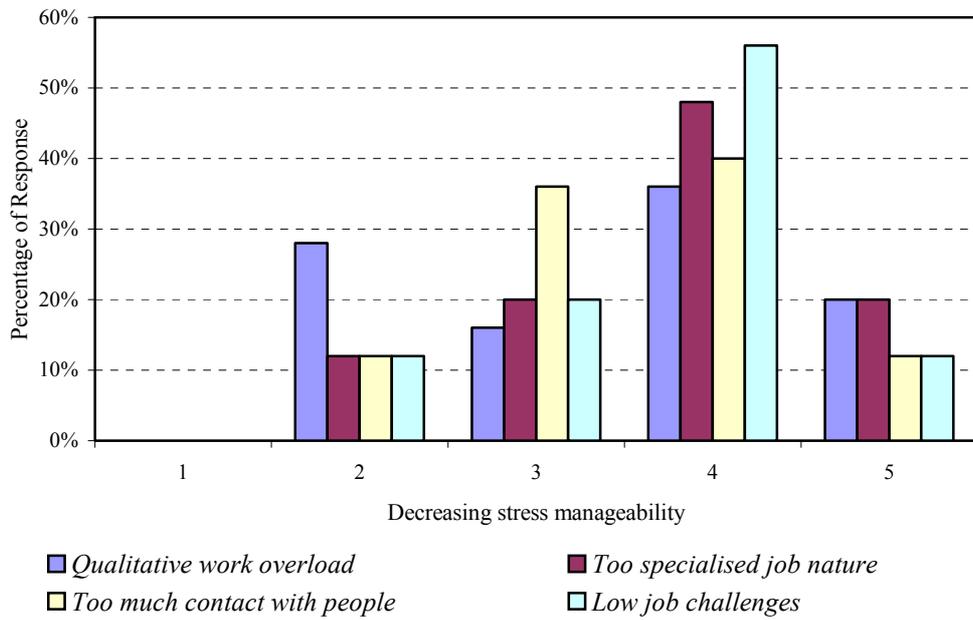


Figure 4: Works-nature-related stressors responses for consultants

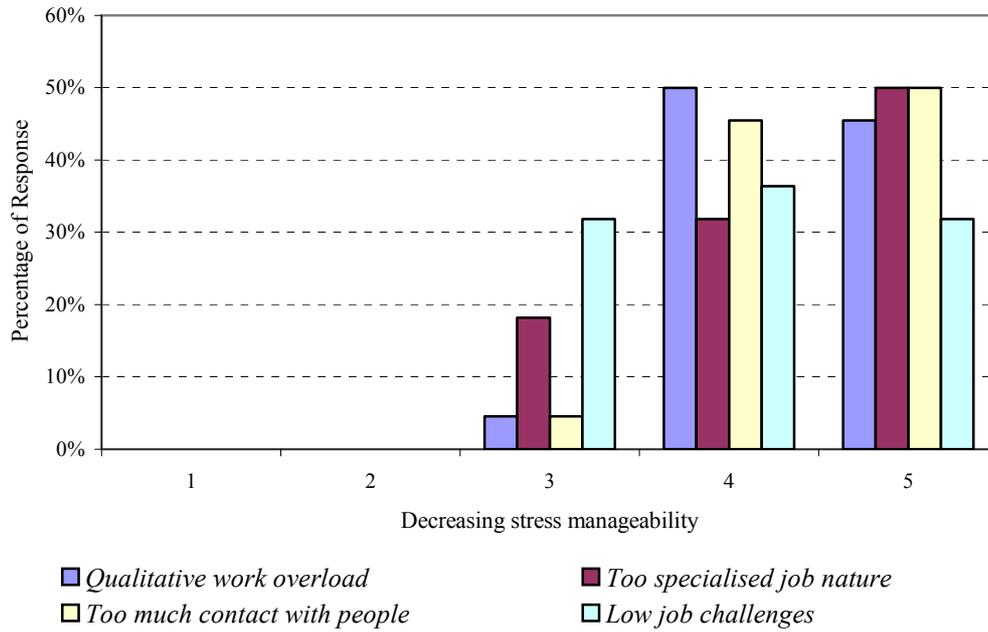


Figure 5: Works-related stresses responses for contractors

Table 1: Operationalisation of stressor terms

<i>Common Stress Inducers</i>		<i>Statements on Occupational Stresses</i>
<i>Work nature related</i>		
WN-1	Qualitative work overload	I may not have the required knowledge to complete the works assigned satisfactorily
WN-2	Too specialised job nature	My work is over-specialised and too remote from the project goals
WN-3	Job nature renders too much contact with people	My job nature renders too much contact with people
WN-4	Low job challenges	The routine nature of my job offers no challenges at all
<i>Work time related</i>		
WT-1	Quantitative work overload	My working list is too long to complete
WT-2	Tight time frame for works	I have to work overtime
WT-3	Unstable working hours	My working hours often change with the works demand
WT-4	Work underload	Boredom is often experienced due to work underload
<i>Organisational policy related</i>		
OO-1	Inadequate knowledge of project objectives	The project objectives have not been clearly conveyed to different working levels
OO-2	Conflicts among different job demands	I am working in more than one project and I find it difficult to assign fair effort to each of them
OO-3	Adaptability problem with change of job natures	Frequent reallocations of posts/projects make me frustrated
OO-4	Inadequate room for innovation	Innovation is discouraged due to too many constraints
OO-5	Bureaucracy	Many of the rules/procedures make doing a good job difficult
<i>Organisational position related</i>		
OP-1	Ambiguity on job requirements	I am not sure about the scope and responsibilities of my post. Confusion may exist as to what others expect from me
OP-2	Inadequate authority/freedom for decision	I am not charged with sufficient authorities to perform my daily works satisfactorily
OP-3	Unsatisfied salary	I am underpaid
OP-4	Lack of career guidance	My superior is not competent enough in his/her duties
OP-5	Lack of promotion opportunity	There is too little chance for promotion in my present position
OP-6	Lack of job stability	I am not satisfied with the job stability
<i>Situational/environmental</i>		
S-1	Different views from superiors	It is frustrating when views of superiors are different
S-2	Role conflicts	There may be occasions of conflicts between my role in the organisation and that under individual project
S-3	Unfair assignment of workload	I had to work harder because of the incompetence of people I work with
S-4	Poor working environment	The condition of my workplace is bad
S-5	Exposure to dangerous working conditions	I sometimes have to work in dangerous conditions
<i>Relationship related</i>		
R-1	Low recognition received for work done	My superior does not appreciate my effort
R-2	Problem with superiors management style	I don't feel easy with the management style of my superior
R-3	Poor communication with counter players	The counter players of my project are difficult to work with
R-4	Poor communication with superiors/subordinates	Communication seems poor in my organisation
R-5	Poor relationship with colleagues	I don't like the people I work with
<i>Personal</i>		
P-1	Problem with ability application	What I learnt in college has not been used in my daily work
P-2	Lack of opportunity to learn new skills	There is not enough training provided for my continuous career development
P-3	Work-family conflicts	Demands of my family conflict with demands of my job
P-4	Inadequate recess	I have not enough rest

Table 2: Rank ordering of the manageability of stress

	<i>Common Stressors</i>	<i>Mean</i>	<i>Ranking</i>
OO-5	Bureaucracy		1
P-2	Lack of opportunity to learn new skills		2
P-3	Work-family conflicts		3
S-1	Different views from superiors		4
P-4	Inadequate recess		5
WT-1	Quantitative work overload		6
R-4	Poor communication with superiors		7
OP-2	Inadequate authority/freedom for decision		8
OO-4	Inadequate room for innovation		9
R-3	Poor communication with counter players		10
R-2	Problem with superiors management style		11
OP-3	Unsatisfied salary		12
WT-2	Tight time frame for works		13
OO-2	Conflicts among different job demands		14
R-1	Low recognition received for work done		15
S-3	Unfair assignment of workload		16
OP-6	Lack of job stability		17
WT-3	Unstable working hours		18
OO-1	Inadequate knowledge of project objectives		19
S-4	Poor working environment		20
OP-5	Lack of promotion opportunity		21
WN-1	Qualitative work overload		22
WN-3	Job renders too much contact with people		23
WN-4	Low job challenges		24
OO-3	Adaptability problem with job nature		25
S-2	Role conflicts		26
OP-4	Lack of career guidance		27
OP-1	Ambiguity on job requirements		28
P-1	Problem with ability application		29
R-5	Poor relationship with colleagues		30
S-5	Exposure to dangerous working conditions		31
WN-2	Too specialised job nature		32
WT-4	Work underload		33

Note: *OO* = organisational policy related
OP = organisational position related
WN = work nature related
WT = work time related
P = personal
R = relationship related
S = situational/environmental

Table 3: Pearson coefficients among works-time-related stressors