APM RESEARCH FUND SERIES

The wellbeing of project professionals

FULL REPORT BY CLARA M CHEUNG, KEITH S CATTELL, PAUL A BOWEN AND JOCELYN S DAVIS

Association for Project Management
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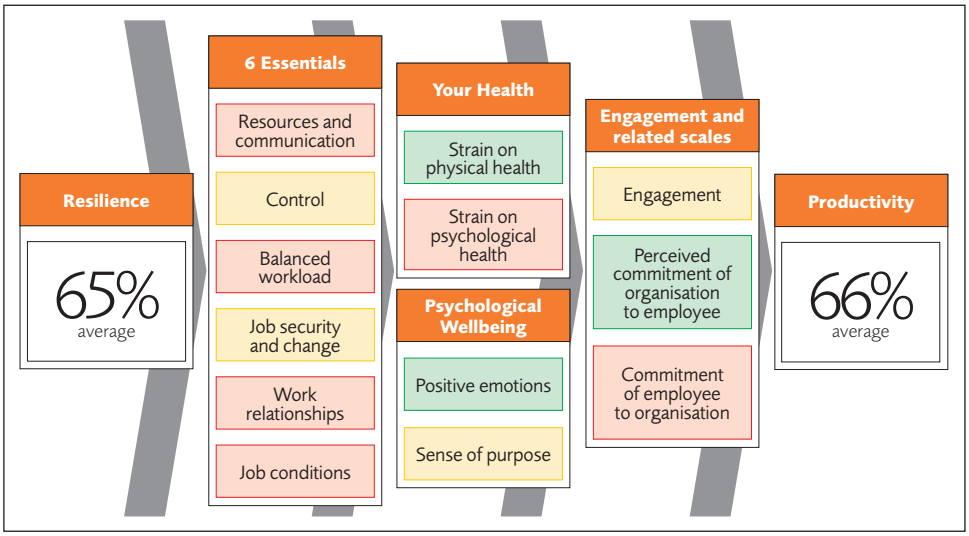
Executive summary

The current survey of APM members was conducted in 2018 and 2019 using two psychometrically validated scales: *A Shortened Stress Evaluation Tool* (*ASSET*) (comprising the core scales: *6 Essentials*; *Your Health, Psychological Wellbeing*; and *Engagement and Related Scales*); and the *Work-related Resilience* scale – to measure wellbeing and resilience, respectively. The findings of the current study were benchmarked against the norm group that involved approximately 70,000 people surveyed between 2013 and 2017 from various organisations in the private and public sectors, which were collated in a database and referred to in this study as the *General Working Population (GWP) 2017 norm*, or the 'norm group'. The benchmarking against the norm group makes it possible to evaluate the relative state of wellbeing and resilience in the project management profession, with a view to recommending ways of improving wellbeing and enhancing business outcomes. The results (see Figure 1), although partially positive (green shading), highlight several areas of concern (yellow and red shading).



Remarks: relative to the norm group, green = typical; yellow = approaching high risk; red = atypical (high risk)

Figure 1: Scales used and outcome of the current study

The *Work-related Resilience* scale portrays project professionals as a less resilient group (65 per cent average) compared with the norm group (77 per cent average). This means there is much room for improvement in their levels of confidence, adaptability, purposefulness and social support in the face of difficulties.

Four of the *6 Essentials* subscales, ie *Resources and communication*, *Balanced workload*, *Work relationships* and *Job conditions*, show project professionals to be atypical, indicating high-risk areas, compared to the norm group. The *Control* and *Job security and change* subscales measured them as approaching high risk.

As for the two *Your Health* subscales, although project professionals' level of *Strain on physical health* was typical compared to the norm group, their level of *Strain on psychological health* was atypical, indicating it to be a high-risk area.

Regarding the two *Psychological Wellbeing* subscales, the *Positive emotions* subscale indicates that project professionals were typical compared to the norm group (despite all aspects of the *6 Essentials* being either in the high-risk area, or approaching high risk), while the *Sense of purpose* subscale showed that it is an approaching high-risk area for project professionals.

The subscales of the *Engagement and Related Scales* indicated that project professionals' *Perceived commitment of organisation to employee* was aligned with that of the norm group. However, their level of *Engagement* was approaching high risk, and the level of *Commitment of employee to organisation* was high risk compared with the norm group.

The *Productivity* scale measured project professionals' productivity level as 66 per cent. This level is considerably lower than the range of 70-75 per cent typically measured in the general working population.

Tests for significant differences were conducted between men and women, managers and employees, married and unmarried individuals, people from European and other countries, and according to basis of employment. Measured at the composite scale level, two of these, ie managerial/employee status and basis of employment, accounted for the majority of the significant differences found. The differences were as follows: for the *6 Essentials* scale they were between managers and employees, people working in European and other countries, and according to basis of employment; for both the *Psychological Wellbeing* scale and the *Engagement and Related Scales* scale they were between managers and employees; and for the *Your Health* scale they were according to basis of employment. The significant differences in the *Productivity* scale were according to basis of employment, while in the *Work-related Resilience* scale, they were between managers and employees and according to basis of employment. In all cases, managers were better off than were employees, and self-employed people were better off than were people employed on any other basis.

Recommendations on interventions were made with respect to both the organisational and individual levels. Organisational-level interventions are designed to enable the reduction of the adverse impacts of major project professionals' workplace stressors. The interventions were categorised as: *overall strategic interventions* (ie create a positive workplace culture); *operational planning interventions* (ie strengths-based management and corporate-level project planning); *execution interventions* (ie performance management); and *continuity and growth* (ie strategic training programme). Individual-level interventions within the workplace were proposed to help project professionals themselves to reduce their adverse response to workplace stressors. These include learning to actively manage workplace stress through time, stress and energy management techniques, and the adoption of a strengths-based approach to their work assignments.

The benchmarking against the norm group makes it possible to evaluate the relative state of wellbeing and resilience in the project management profession, with a view to recommending ways of improving wellbeing and enhancing business outcomes

1. Introduction

In recent decades, nations around the world have recognised that economic measures of success are insufficient to accurately measure how well a country's people are living. Including national measures of wellbeing along with traditional economic measures, such as Gross Domestic Product (GDP), provides a more complete picture of a country's success than do economic measures alone (OECD, 2017).

This thinking about having economic and wellbeing components to measurements of national success has been taken up by organisations across sectors and industries as a means of improving workplace performance outcomes. For example, the Department for Business, Innovation and Skills in the UK published a comprehensive report that concluded employees' wellbeing has a significant impact on workplace performance in terms of labour productivity, financial performance and the quality of output and services (Bryson, Forth & Stokes, 2015).

This thinking about having economic and wellbeing components to measurements of national success has been taken up by organisations across sectors and industries as a means of improving workplace performance outcomes

Project professionals, a subset of the working population, deliver on strategic projects in many sectors and industries, creating key outcomes for their organisations. To date, however, limited research has focused on assessing the level of workplace wellbeing for project professionals in comparison with the general working population, with the aim of identifying key factors that enhance or detract from their workplace wellbeing (Cui et al. 2016). Against this backdrop, this study aims to deepen our understanding of:

1. the current level of project professionals' workplace wellbeing compared to a valid benchmark of workplace wellbeing;

2. the factors that support or detract from project professionals' workplace wellbeing;

3. the differences in workplace wellbeing experienced by project professionals on the basis of gender, organisational status, marital status, geographical location of employment, and basis of employment; and

3. the preliminary direction of targeted interventions likely to improve project professionals' workplace wellbeing.

2. Purpose

In order to achieve the above aims, the analysis in this report includes independent samples *t*-tests aimed at identifying significant differences between: managers (managers, owners, partners and directors – grouped and hereinafter referred to as 'managers') and employees; men and women; married and unmarried people; and people working in European and non-European countries. Welch ANOVA and Games-Howell post-hoc tests were also conducted to identify significant differences between those in self-employment, casual employment, part-time employment, fixed-term employment and full-time employment (hereinafter referred to as 'basis of employment'). Although we did collect data from people who classified themselves as unemployed, we excluded them from the analysis of and discussion about significant differences, because unemployment is out of the scope of this study and the proposed interventions are not targeted at this group of people. The results of these tests are reported in each section of the analysis, with the relevant statistics presented as footnotes.

The independent samples *t*-tests and the Welch ANOVA and Games-Howell post-hoc tests essentially test hypotheses that assume significantly different responses would not be obtained from these groups, at a 95 per cent confidence level.

3. Method

3.1 Primary data collection

Supplementary questions, designed to gather demographic information, respondents' characteristics and details of employment were also included in the survey

The survey population consisted of members of APM. Working with psychological wellbeing specialists Robertson Cooper Ltd for the collection of the data, APM assisted by emailing their members details of the URL for online access to the *ASSET* and *Work-related Resilience* questionnaires and asking them to participate. Most respondents emanated from Europe (55 per cent), followed by Asia (38 per cent), Africa (four per cent), North America (two per cent), and Australia/Oceania (one per cent). The geographical scope of the survey responses reflects the nationality of APM's members, which was skewed towards Europe and Asia.

Of the 184 responses received, 183 were suitable for analysis after elimination of the case with missing values. Missing values were missing completely at random. This represents one per cent of the total professional membership of APM. Respondents described their job functions as follows: project or programme managers (22 per cent); and academics or trainers (16 per cent); The rest described themselves as project planners and project administrators (62 per cent). The industries in which they were employed included construction (20 per cent), education (13 per cent), IT (12 per cent), logistics (10 per cent), consulting (nine per cent) and other (36 per cent). Respondents described their roles in organisations as partners/owners/directors (22 per cent), registered professional employees (28 per cent) and employees (50 per cent).

3.2 Questionnaire items

The study employed the psychometrically validated *ASSET* scale (Faragher, Cooper & Cartwright, 2004), a model of workplace wellbeing, the *Work-related Resilience* scale (Robertson Cooper, 2012) and the single-item *Productivity* measure (Donald, Taylor, Johnson, Cooper, Cartwright & Robertson, 2005). Supplementary questions, designed to gather demographic information, respondents' characteristics and details of employment, were also included in the survey.

The 'core' scales of the *ASSET* model used for this study comprised the *6 Essentials*, *Your Health*, *Psychological Wellbeing* and *Engagement and Related Scales* (see Figure 2).

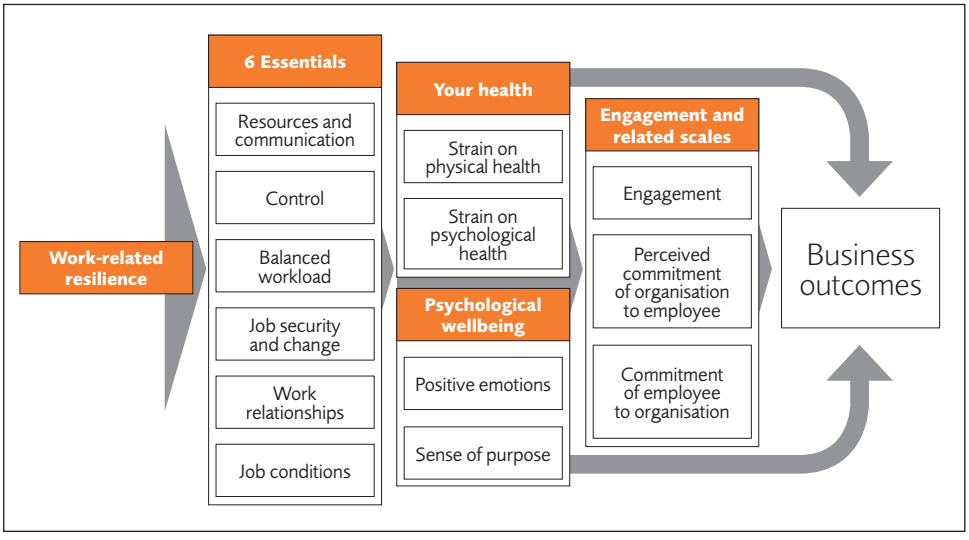


Figure 2: The core scales of the ASSET model

All items in the *6 Essentials* subscales are preceded by the phrase: "I am troubled that...". Examples include:

(i) ***Resources and communication*** **subscale –** "I do not feel I am informed about what is going on in this organisation" and "I am not adequately trained to do many aspects of my job";
(ii) ***Control*** **subscale –** "I have little control over many aspects of my job" and "My ideas or suggestions about my job are not taken into account";
(iii) ***Balanced workload*** **subscale** comprises two subscales: ***Work-life balance*** **subscale** and ***Workload*** **subscale**. Examples of questions in these subscales are: ***Work-life balance*** **–** "I work longer hours than I choose or want to" and "I spend too much time travelling in my job"; ***Workload*** **–** "The technology in my job has overloaded me" and "I am given unmanageable workloads";
(iv) ***Job security and change*** **subscale –** "My job is insecure" and "My job skills may become redundant in the near future";
(v) ***Work relationships*** **subscale –** "My boss behaves in an intimidating and bullying way towards me" and "My relationships with colleagues are poor"; and
(vi) ***Job conditions*** **subscale –** "My physical working conditions are unpleasant (eg noisy, dirty, poorly designed)" and "My pay and benefits are not as good as other people doing the same or similar work".

Regarding their *Psychological Wellbeing*, respondents were asked how often, during the past three months, they had felt like what was expressed in the questionnaire statement. Examples of the statements are as follows:

(i) ***Sense of purpose*** **subscale –** "My current job goals are specific" and "I am committed to achieving the goals of my job"; and
(ii) ***Positive emotions*** **subscale –** "Inspired", "Enthusiastic" and "Contented".

For the *Your Health* scale, respondents were asked how often, during the preceding three months, they had experienced the symptoms or changes stated in the questionnaire. Examples of the statements are:

(i) ***Strain on physical health*** **subscale –** "Lack of appetite or over-eating"; and
(ii) ***Strain on psychological health*** **subscale –** "Panic and anxiety attacks".

In the *Engagement and Related Scales* scale, example statements included:

(i) ***Engagement*** **subscale –** "I am committed to achieving the goals of my job";
(ii) ***Perceived commitment of organisation to employee*** **subscale –** "I feel valued and trusted by the organisation"; and
(iii) ***Commitment of employee to organisation*** **subscale –** "I feel that it is worthwhile to work hard for this organisation".

In the *Work-related Resilience* scale, respondents were asked to give their level of agreement (0-100) on a sliding scale with statements that measure resilience, using the constructs of confidence, adaptability, social support and purposefulness. Examples of these are, respectively:

(i) "Right now at work I feel confident that I can deal with difficulties when they arise";
(ii) "At the moment, I adapt my approach to deal with work challenges as they come up";
(iii) "These days I feel that I will get the support I need to meet my job challenges"; and
(iv) "I feel that my current job goals are really worth striving for"

In addition to the core *ASSET* scales and the *Work-related Resilience* scale, the *Productivity* scale was used, where respondents were asked to indicate on a sliding scale how productive (0-100 per cent) they felt they had been over the preceding three months.

3.3 The General Working Population comparison (norm) group

The results from the current survey were compared to the results of the *General Working Population (GWP) 2017* data, which includes approximately 70,000 responses to *ASSET* surveys from a range of organisations and industries in the public and private sectors, obtained over the period 2013 to 2017. Public sector organisations included local governments, universities, the National Health Service, various police organisations and European government bodies. The private sector organisations included financial services, pharmaceutical, engineering/construction, retail and manufacturing industries.

The vast majority of the surveys were initiated from the UK, but several private sector companies included employees from other countries. The GWP 2017 norm provides a useful baseline against which to compare the results of the current study, since it can be regarded as a proxy for the general working population. It is a potential limitation of this study that the GWP 2017 norm might not be an appropriate proxy in respect of nationally defined (non-UK) subsets of the current study's population.

3.4 Sten scores

When comparing the data from the current survey to the norm group, a 1 to 10 (sten) score is produced for each *ASSET* scale and for each item within each subscale. Similarly, a sten score is produced for the *Work-related Resilience* subscales and items, but not for the *Productivity* scale. Colour shading indicates ranges of responses. Scores in the bright green range indicate a response (eg to *Positive emotions*) that is typical of the norm group used for comparison. A more extreme score (in the bright green or bright red range) indicates that participants have responded atypically (eg more stressed by *Work relationships*). The bright green range is more positive (low risk) and the red range is less positive (high risk). Scores in the yellow range are defined as 'approaching high risk'. The scores reported as stens are therefore not absolute scores, but an indication of how the results fare relative to the comparison group

3.5 Raw scores

A mean raw score is provided for each item in every subscale, as well as the range in which the majority of responses were found. The orange vertical bar on the raw score diagram represents the mean score. The black horizontal bar shows the range in which 68 per cent of the participants' raw scores fell (ie within one standard deviation either side of the mean). Finally, the light-orange triangle represents the mean score for the norm group used in the comparison. The rating scales (eg 1-5, 1-6) used for the questions are provided in a key above the figures.

For the GWP 2017 data, the vast majority of the surveys were initiated from the UK, but several private sector companies included employees from other countries

4. Findings

4.1 Characteristics of the sample

Fifty-five per cent of participants were women. Fifty-seven per cent were unmarried. The mother tongue of respondents was mostly English (44 per cent), followed by Mandarin (32 per cent) and 'other' (18 per cent), French (two per cent) and Cantonese (one per cent). The language of work was English (63 per cent), followed by Mandarin (25 per cent), 'other' (seven per cent), French (two per cent) and Cantonese (one per cent).

Most respondents emanated from Europe (55 per cent), followed by Asia (38 per cent), Africa (four per cent), North America (two per cent) and Australia/Oceania (one per cent). Most reported working in the UK (48 per cent) and China (23 per cent).

Respondents described their job functions as being project or programme managers (22 per cent), academics or trainers (16 per cent), with the rest describing themselves as project planners and project administrators (62 per cent). Industries represented included construction (20 per cent), education (13 per cent), IT (12 per cent), logistics (10 per cent), consulting (nine per cent), manufacturing (nine per cent), financial services (seven per cent), defence (six per cent) and 'other' (14 per cent). Respondents described their roles in organisations as partners/owners/directors (22 per cent), registered professional employees (28 per cent) and employees (50 per cent).

Experience within their current organisation was as follows: not exceeding five years (47 per cent); six to 10 years (24 per cent); and 11-15 years (17 per cent). A minority (13 per cent) had been with the same organisation for at least 20 years.

Twenty-two per cent of participants reported working less than 40 hours per week. Most (26 per cent) reported working 41-50 hours per week, with 24 per cent reportedly working 51-60 hours per week. A minority (seven per cent) reported working in excess of 60 hours per week. Time spent travelling to and from work each day was reported by 27 per cent as less than one hour, by 30 per cent as one to two hours, and by 33 per cent as exceeding two hours.

Respondents described their job functions as being project or programme managers, academics or trainers, with the rest described by various project professionals' titles

4.2 The 6 Essentials

4.2.1 Resources and communication

This subscale measured the extent to which respondents were concerned about a lack of resources and/or inadequate communication.

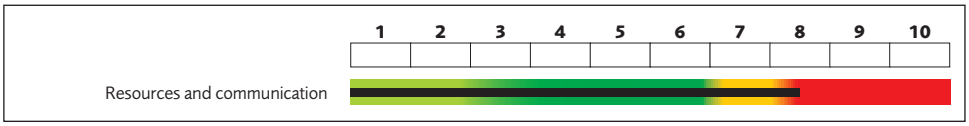


Figure 3: Sten scores for the Resources and communication subscale

Overall, this subscale shows a high-risk score relative to the norm group (see Figure 3). It can be seen in Figure 4 that the main cause of this heightened risk was *lack of feedback on performance* and *lack of adequate training to do the job*.

Significant differences were found in the scores for managers and employees, for project professionals working in European and non-European countries, and according to basis of employment. In particular, employees were more concerned than were managers[1], casual employees were more concerned than were the self-employed[2], and those working in non-European countries were more concerned than were people working in European countries[3] about lacking adequate training. In addition, people working in non-European countries were more concerned than were people working in European countries[4] about a lack of equipment or resources. No significant differences were found between men and women, nor between married and unmarried participants.

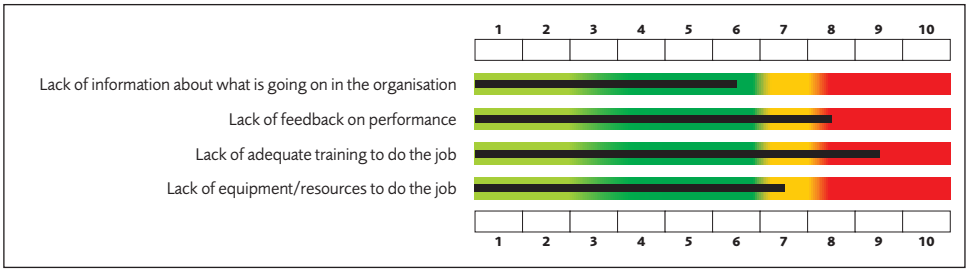


Figure 4: Sten scores for the Resources and communication subscale items

All the mean values of the raw scores (see Figure 5) were greater for project professionals than for the norm group. This indicates that they perceived themselves to be relatively more troubled about all these issues. The greatest difference between the mean values concerned the issues of *lack of adequate training to do the job* and *lack of feedback on performance*, indicating that project professionals were most stressed by these stressors, relative to the norm group.

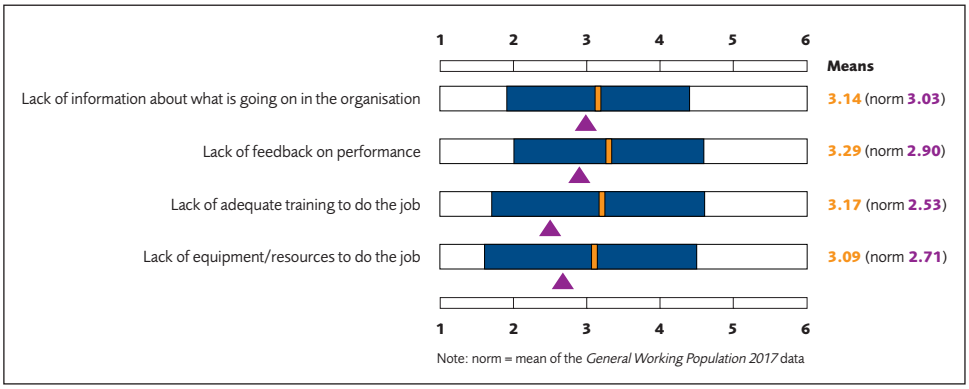


Figure 5: Raw scores for the Resources and communication subscale items

[1] Independent-samples *t*-test: Managers ($M = 2.77$, $SD = 1.29$), Employees ($M = 3.29$, $SD = 1.39$; $t(181) = -2.12$, $p = .04$, two tailed)

[2] Welch ANOVA test: $F(5, 23.08) = 2.70$, $p = .04$. Games-Howell post-hoc test: Self-employed ($M = 2.44$, $SD = 1.50$), Casual employed ($M = 4.00$, $SD = 1.41$)

[3] Independent-samples *t*-test: European ($M = 2.95$, $SD = 1.47$), Non-European ($M = 3.37$, $SD = 1.28$; $t(181) = 2.04$, $p = .04$, two tailed)

[4] Independent-samples *t*-test: European ($M = 2.83$, $SD = 1.57$), Non-European ($M = 3.32$, $SD = 1.21$; $t(181) = 2.37$, $p = 0.02$, two tailed)

4.2.2 Control

This subscale measured the extent to which a lack of control, ie feeling unable to influence a situation, was a source of workplace stress.

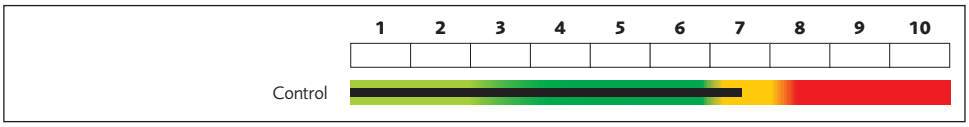


Figure 6: Sten scores for the Control subscale

The overall finding for the *Control* subscale was approaching high risk relative to the norm group (see Figure 6). It can be seen in Figure 7 that the main cause of this heightened risk was that respondents felt troubled that their ideas/suggestions about the job were not being taken into account, to a greater extent than the norm group.

A significant difference was found between the scores for managers and employees, and according to basis of employment. Particularly, employees were more concerned about their *lack of involvement in decision-making*[5] and *lack of influence over performance targets*[6] than were managers. Part-time employed project professionals were more concerned about *account not taken of staff ideas/suggestions about the job*[7] and casual employed project professionals were more concerned about *lack of influence over performance targets*[8] than were self-employed professionals. No significant differences were found between men and women, between married and unmarried people, nor between project professionals working in European and non-European countries.

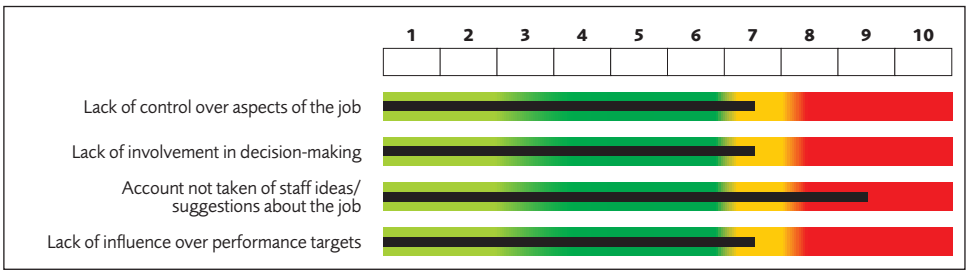


Figure 7: Sten scores for the Control subscale items

[5] Independent-samples *t*-test: Managers (M = 3.03, SD = 1.27), Employees (M = 3.66, SD = 1.37; t (181) = -2.55, p = .01, two tailed)

[6] Independent-samples *t*-test: Managers (M = 2.90, SD = 1.21), Employees (M = 3.36, SD = 1.38; t (181) = -2.16, p = .04, two tailed)

[7] Welch ANOVA test: F (5, 22.88) = 2.84, p = .04. Games-Howell post-hoc test: Self-employed (M = 2.56, SD = 1.38), Part-time employed (M = 3.50, SD = 1.47)

[8] Welch ANOVA test: F (5, 22.62) = 3.06, p = .03. Games-Howell post-hoc test: Self-employed (M =2.28, SD = 1.17), Casual employed (M = 3.50, SD = 1.27)

A comparison of the mean values of the raw scores (see Figure 8) for project professionals and the norm group shows them to be greater for project professionals in all the items. This indicates that they perceived themselves to be more troubled about all of these issues than did respondents in the norm group. The greatest difference between the mean values concerned the issue of *account not taken of staff ideas/suggestions about the job*, indicating that project professionals were most stressed by this stressor, relative to the norm group.

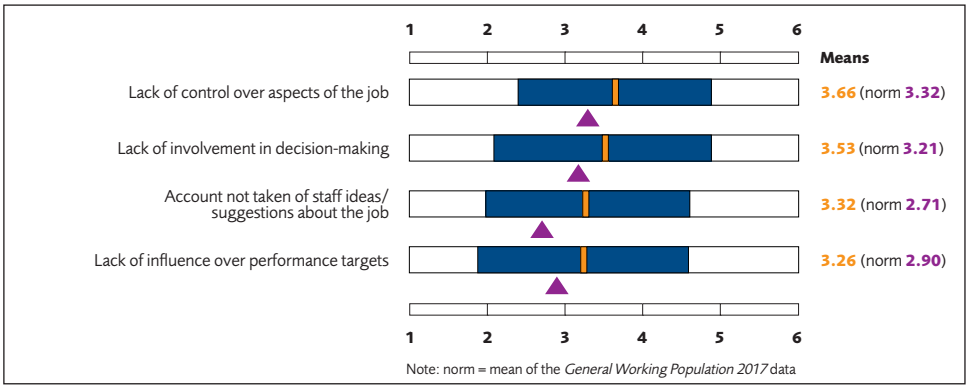


Figure 8: Raw scores for the Control subscale items

4.2.3 Balanced workload

This subscale measured a combination of two related pressures, namely workload and the work-life balance.

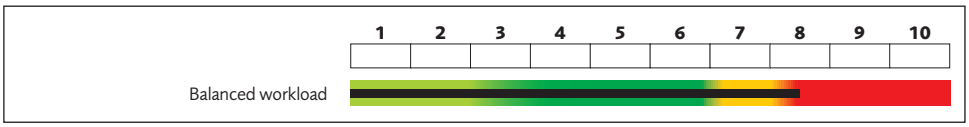


Figure 9: Sten scores for the Balanced workload subscale

The score for the *Balanced workload* subscale shows it to be a high-risk area compared with the norm group (see Figure 9). In the following two sections the scores for this subscale are reported at the level of its subscales, namely, *Work-life balance* and *Workload*.

4.2.3.1 Work-life balance

This subscale measured the extent to which difficulty in maintaining a satisfactory work-life balance was a source of concern for respondents.

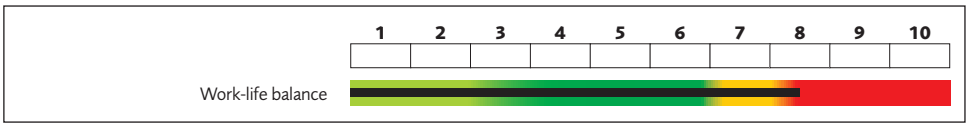


Figure 10: Sten scores for the Work-life balance subscale

The *Work-life balance* subscale indicates a high-risk area compared with the norm group (see Figure 10). All of the subscale items, except *long hours* and *work interfering with home/ personal life* (which were both approaching high risk), were high risk compared with the norm group (see Figure 11). The most serious problem was *excessive travel time*.

Significant differences were found between the scores for project professionals working in European and non-European countries, married and unmarried people, and according to basis of employment. Specifically, project professionals working in non-European countries were more concerned about working long[9] and unsocial hours[10] than were project professionals working in European countries. Unmarried project professionals were more concerned about working long[11] and unsocial hours[12] than were married people. Part-time employed project professionals were more concerned about working unsocial hours[13] than were self-employed people. No significant differences were found between managers and employees.

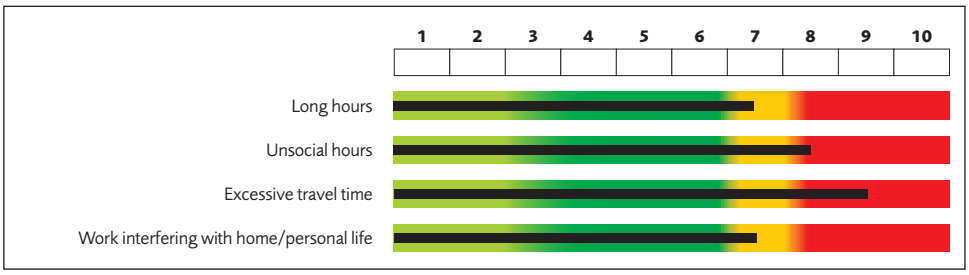


Figure 11: Sten scores for the Work-life balance subscale items

The mean values of the raw scores (see Figure 12) were all found to be higher for project professionals, indicating that they were more troubled about all of the items than were respondents in the norm group. The greatest difference between the mean values concerned the issues of *excessive travel time* and *unsocial hours*, indicating that project professionals were most stressed by these two stressors, relative to the norm group. This was also reflected in the responses to the demographic questions, where 31 per cent of the respondents reported working in excess of 50 hours per week and 33 per cent reported travelling two to three hours per day to and from work.

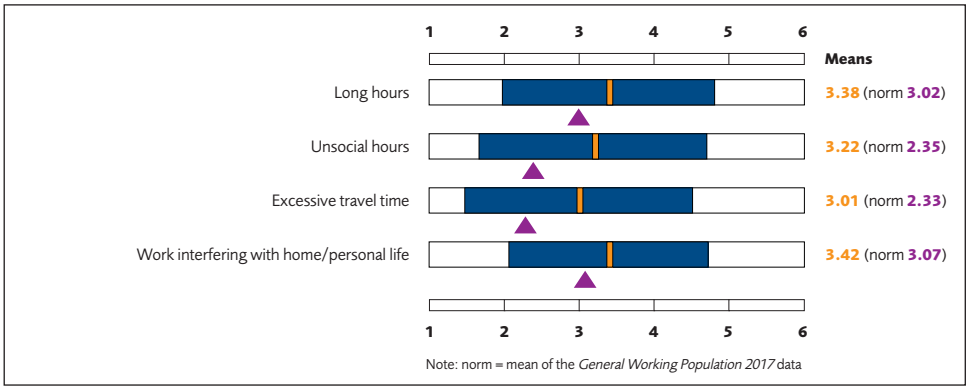


Figure 12: Raw scores for the Work-life balance subscale items

[9] Independent-samples *t*-test: European ($M = 3.06$, $SD = 1.49$), Non-European ($M = 3.64$, $SD = 1.23$; $t(181) = 2.89$, $p = .00$, two tailed)

[10] Independent-samples *t*-test: European ($M = 2.68$, $SD = 1.61$), Non-European ($M = 3.65$, SD = 1.28; $t(181) = 4.55$, $p = .00$, two tailed)

[11] Independent-samples *t*-test: Married ($M = 3.12$, $SD = 1.42$), Unmarried ($M = 3.52$ $SD = 1.32$; $t(181) = -2.28$, $p = .02$, two tailed)

[12] Independent-samples *t*-test: Married ($M = 2.87$, $SD = 1.62$), Unmarried ($M = 3.48$ $SD = 1.37$; $t(181) = -2.72$, $p = .01$, two tailed)

[13] Welch ANOVA test: $F(5, 23.02) = 3.30$, $p = .02$. Games-Howell post-hoc test: Self-employed ($M = 2.61$, $SD = 1.46$), Part-time employed ($M = 3.90$, $SD = 1.19$)

4.2.3.2 Workload

This subscale measured the extent to which individuals felt the demands of their workload and associated time pressures were a source of concern.

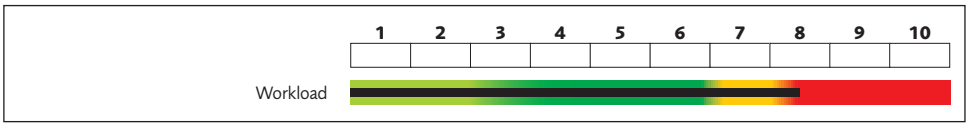


Figure 13: Sten scores for the Workload subscale

The *Workload* subscale score (see Figure 13) can be seen to be high risk compared with the norm group. All items in the subscale were high risk or approaching high risk compared with the norm group (see Figure 14), except *lack of time*. The most serious problems were perceived to be *technology overload* and *unrealistic deadlines*.

A significant difference was found in the scores for men and women, project professionals working in European and non-European countries, married and unmarried people, and according to basis of employment. In particular, men were more concerned about *lack of time* than were women[14]. Project professionals working in non-European countries were more concerned about *technology overload* than were their counterparts working in European countries[15]. Unmarried project professionals were more concerned about *technology overload* than were married people[16]. Casual project professionals were more concerned about *technology overload* than were self-employed professionals[17]. No significant differences were found between managers and employees.

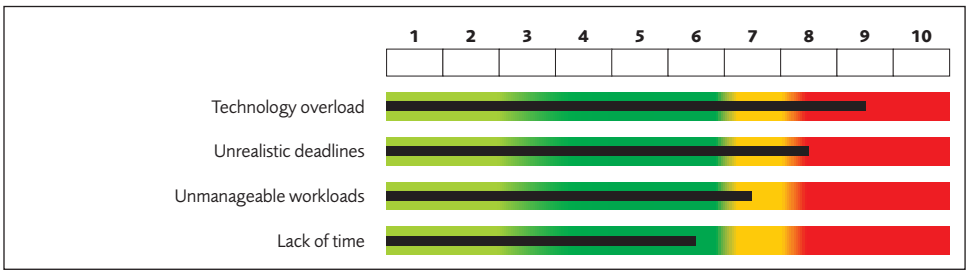


Figure 14: Sten scores for the Workload subscale items

A comparison of the raw score mean values for project professionals and the norm group shows all of them to be higher for project professionals, indicating their greater concern about the issues (see Figure 15). The greatest difference between the mean values concerned the issues of *technology overload* and *unrealistic deadlines*, indicating that project professionals were most stressed by these particular sources of stress, relative to the norm group.

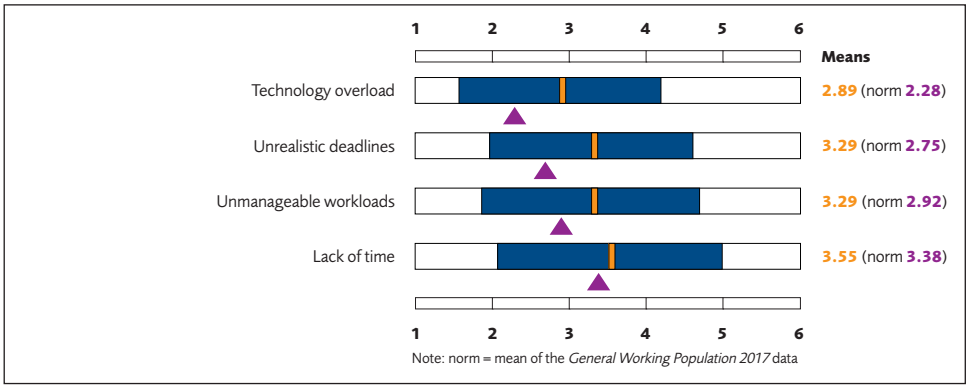


Figure 15: Raw scores for the Workload subscale items

[14] Independent-samples *t*-test: Men ($M = 3.80$, $SD = 1.44$), Women ($M = 3.64$, $SD = 1.42$; $t(181) = 2.05$, $p = .04$, two tailed)

[15] Independent-samples *t*-test: European ($M = 2.54$, $SD = 1.30$), Non-European ($M = 3.16$, $SD = 1.19$; $t(181) = 3.38$, $p = .00$, two tailed)

[16] Independent-samples *t*-test: Married ($M = 2.64$, $SD = 1.33$), Unmarried ($M = 3.06$, $SD = 1.21$; $t(181) = 3.38$, $p = .00$, two tailed)

[17] Welch ANOVA test: $F(5, 23.03) = 4.50$, $p = .01$. Games-Howell post-hoc test: Self-employed ($M = 2.56$, $SD = 1.38$), Casual employed ($M = 3.25$, $SD = 1.25$)

4.2.4 Job security and change

This subscale measured the extent to which job security and change were perceived sources of concern.

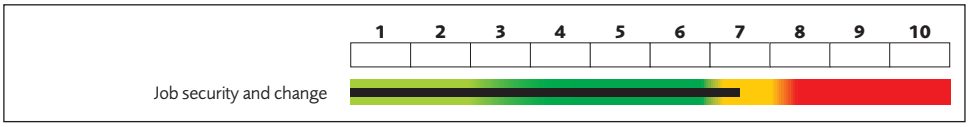


Figure 16: Sten scores for the Job security and change subscale

Figure 16 indicates that respondents' concerns over *Job security and change* were approaching high risk compared with the norm group. Although most of the items (see Figure 17) were scored in the typical range, the items *lack of job permanence* and *fear of skill redundancy* were high risk relative to the norm group.

Significant differences were found in the scores for men and women, project professionals working in European and non-European countries, married and unmarried people, and according to basis of employment. In particular, women were more concerned about *lack of job permanence* than were men[18]. Project professionals working in non-European countries were more concerned about *lack of job permanence*[19], *future job change*[20] and *fear of skill redundancy*[21] than were project professionals working in European countries. Unmarried project professionals were more concerned about *lack of job permanence*[22], *future job change*[23] and *fear of skill redundancy*[24] than were married people. Casual employed project professionals were more concerned about *lack of job permanence*[25] and *fear of skill redundancy*[26] than were self-employed professionals. No significant differences were found between managers and employees.

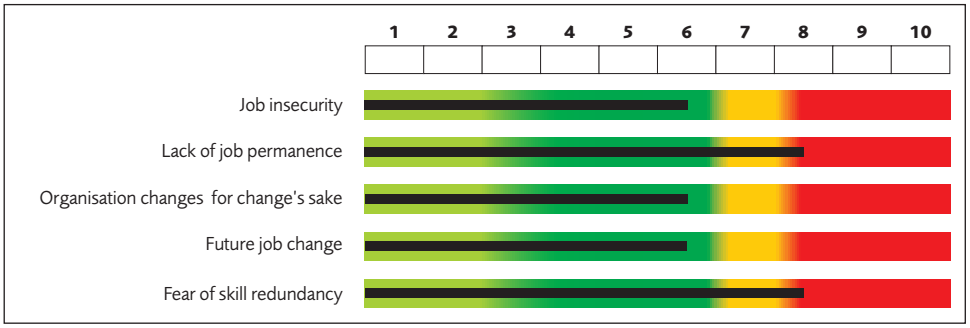


Figure 17: Sten scores for the Job security and change subscale items

[18] Independent-samples *t*-test: Men ($M = 2.49$, $SD = 1.35$, Women ($M = 3.01$, $SD = 1.31$; $t(181) = -2.62$, $p = .01$, two tailed)

[19] Independent-samples *t*-test: European ($M = 2.34$, $SD = 1.27$), Non-European ($M = 3.13$, $SD = 1.32$; $t(181) = 4.09$, $p = .00$, two tailed)

[20] Independent-samples *t*-test: European ($M = 2.90$, SD = 1.40), Non-European ($M = 3.38$, $SD = 1.22$; $t(181) = 2.45$, $p = .02$, two tailed)

[21] Independent-samples *t*-test: European ($M = 2.38$, $SD = 1.31$), Non-European ($M = 3.23$, SD = 1.07; $t(181) = 4.83$, $p = .00$, two tailed)

[22] Independent-samples *t*-test: Married ($M = 2.26$, $SD = 1.18$), Unmarried ($M = 3.16$, $SD = 1.35$; $t(181) = -4.74$, $p = .00$, two tailed)

[23] Independent-samples *t*-test: Married ($M = 2.87$, $SD = 1.35$), Unmarried ($M = 3.38$, $SD = 1.26$; $t(181) = -2.62$, $p = .01$, two tailed)

[24] Independent-samples *t*-test: Married ($M = 2.39$, $SD = 1.14$), Unmarried ($M = 3.19$, $SD = 1.23$; $t(181) = -4.53$, p = .00, two tailed)

[25] Welch ANOVA test: $F(5, 22.46) = 2.84$, $p = .00$. Games-Howell post-hoc test: Self-employed ($M = 2.89$, $SD = 1.64$), Casual employed ($M = 3.75$, $SD = 1.26$)

[26] Welch ANOVA test: $F(5, 22.64) = 4.48$, $p = .00$. Games-Howell post-hoc test: Self-employed ($M = 2.33$, $SD = 1.28$), Casual employed ($M = 3.75$, $SD = 1.23$)

Comparing the raw mean scores for project professionals and the norm group, it can be seen that they were all greater (but equal to in the case of *organisation changes for change's sake*) for the former, indicating that project professionals perceived these items to be more problematic (see Figure 18). The greatest difference between the mean values concerned the issue of *lack of job permanence* and *fear of skill redundancy*, indicating that project professionals were most stressed by these stressors, relative to the norm group.

The greatest difference between the mean values concerned the issue of lack of job permanence and fear of skill redundancy, indicating that project professionals were most stressed by these particular sources of stress, relative to the norm group

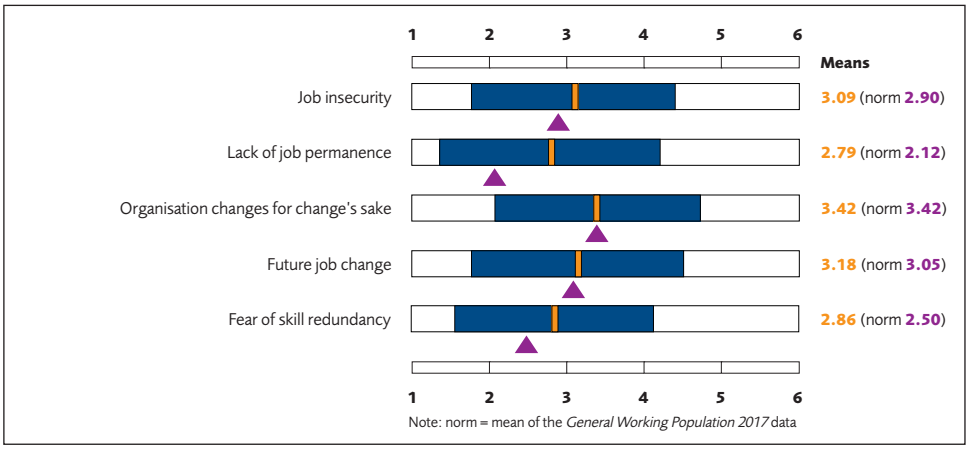


Figure 18: *Raw scores for the Job security and change subscale items*

4.2.5 Work relationships

This subscale measured the extent to which work relationships were a source of concern.

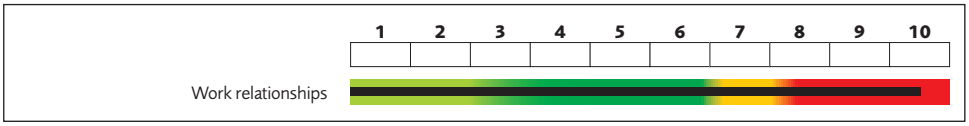


Figure 19: Sten scores for the Work relationships subscale

The *Work relationships* subscale (Figure 19) shows that project professionals were far more concerned about the quality of work relationships than were respondents in the norm group. All of the subscale items, except *others not pulling their weight* (which was approaching high risk), were found to be high risk compared to the norm group (see Figure 20). The biggest differences between project professionals and the norm group occurred in *aggressive management style*, *isolation at work*, *unclear what boss expects*, *boss is forever finding fault*, *others take credit for my achievements* and *poor relationships with colleagues*.

Significant differences were found between the scores for managers and employees, men and women, people working in European and non-European countries, married and unmarried people, and according to basis of employment. In particular, employees were more concerned than were managers about *unclear what boss expects*[27]. Men were more concerned about *support from others*[28] and *others not pulling their weight*[29] than were women. Project professionals working in non-European countries were more concerned about *aggressive management style*[30], *support from others*[31], *boss is forever finding fault*[32] and *poor relationships with colleagues*[33] than were people working in European countries. Unmarried people were more concerned about *aggressive management style*[34], *unclear what boss expects*[35] and *boss is forever finding fault*[36] than were married people. Part-time employed project professionals were more concerned about *aggressive management style*[37], *boss is forever finding fault*[38] and *others take credit for my achievements*[39] than were self-employed project professionals.

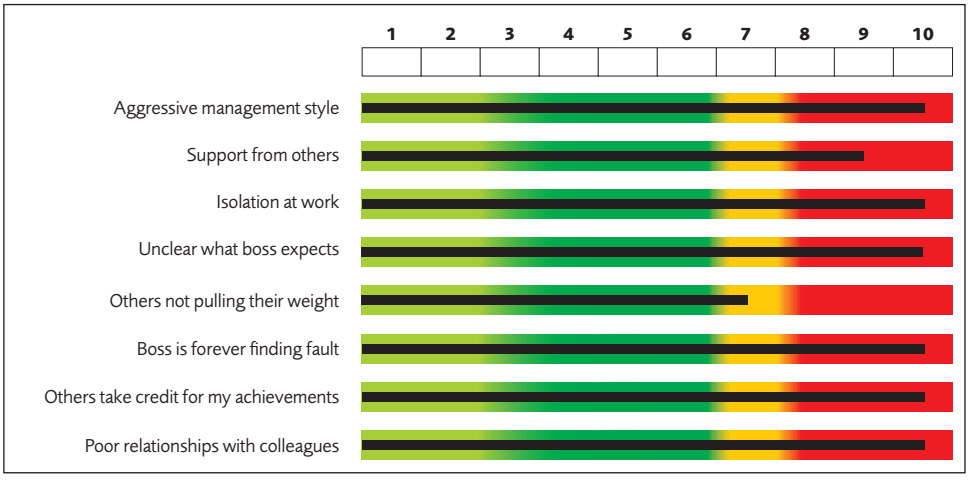


Figure 20: Sten scores for the Work relationships subscale items

[27] Independent-samples *t*-test: Managers (M = 2.82, SD = 1.17), Employees (M = 3.29, SD = 1.35; t (181) = -1.99, p = .04, two tailed)

[28] Independent-samples *t*-test: Men (M = 3.51, SD = 1.46), Women (M = 2.99, SD = 1.31; t (181) = -2.47, p = .02, two tailed)

[29] Independent-samples *t*-test: Men (M = 3.80, SD = 1.44), Women (M = 3.30, SD = 1.18; t (181) = -2.61, p = .01, two tailed)

[30] Independent-samples *t*-test: European (M = 1.86, SD = 1.23), Non-European (M = 2.91, SD = 1.43; t (181) = 5.06, p = .00, two tailed)

[31] Independent-samples *t*-test: European (M = 3.02, SD = 1.28), Non-European (M = 3.48, SD = 1.57; t (181) = -2.17, p = .03, two tailed)

[32] Independent-samples *t*-test: European (M = 2.46, SD = 1.39), Non-European (M = 3.05, SD = 1.19; t (181) = 3.08, p = .00, two tailed)

[33] Independent-samples *t*-test: European (M = 2.32, SD = 0.99), Non-European (M = 2.70, SD = 1.08; t (181) = 2.49, p = .00, two tailed)

[34] Independent-samples *t*-test: Married (M = 2.08, SD = 1.38), Unmarried (M = 2.74, SD = 1.46; t (181) = -3.03, p = .00, two tailed)

[35] Independent-samples *t*-test: Married (M = 2.96, SD = 1.39), Unmarried (M = 3.36 SD = 1.25; t (181) = -2.04, p = .04, two tailed)

[36] Independent-samples *t*-test: Married (M = 2.45, SD = 1.36), Unmarried (M = 3.04, SD = 1.22; t (181) = -3.08, p = .00, two tailed)

[37] Welch ANOVA test: F (5, 23.71) = 3.70, p = .00. Games-Howell post-hoc test: Self-employed (M = 1.94, SD = 1.43), Part-time employed (M = 3.41, SD = 1.31)

[38] Welch ANOVA test: F (5, 22.57) = 3.70, p = .01. Games-Howell post-hoc test: Self-employed (M =2.06, SD = 1.31), Part-time employed (M = 3.31, SD = 0.98)

[39] Welch ANOVA test: F (5, 22.76) = 3.00, p = .03. Games-Howell post-hoc test: Self-employed (M =2.22, SD = 1.26), Part-time employed (M = 3.55, SD = 1.06)

A comparison of the raw score mean values for project professionals and the norm group shows the mean values for project professionals to be higher for all items (see Figure 21), indicating that they were more concerned about all the issues. The biggest differences between the mean values of the two groups were in *isolation at work*, followed by *aggressive management style*, *unclear what boss expects*, *others not pulling their weight* and (lack of) *support from others*, indicating that project professionals were most stressed by these stressors, relative to the norm group.

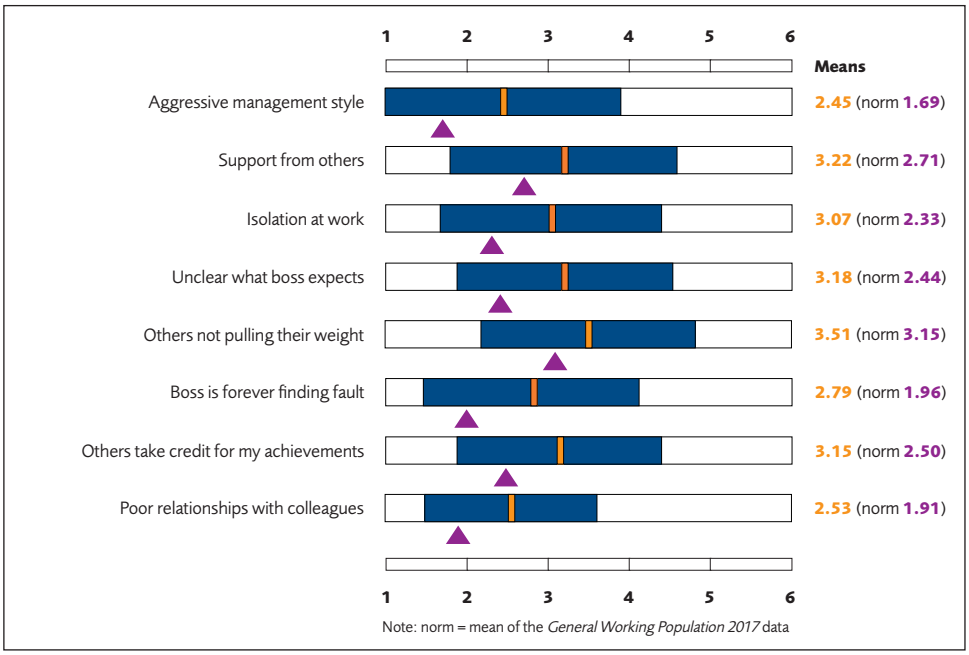


Figure 21: Raw scores for the Work relationships subscale items

4.2.6 Job conditions

This subscale measured concerns about incentives, working conditions and satisfaction.

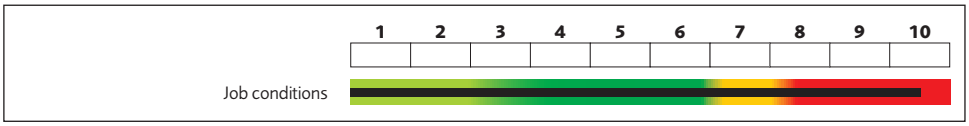


Figure 22: Sten scores for the Job conditions subscale

Figure 22 shows concerns among project professionals about *Job conditions* to be at high risk. The main causes of this were *dull and repetitive work*, *dealing with difficult customers/clients* and *lack of enjoyment of job* (see Figure 23). The items *poor physical working conditions*, *risk of physical violence* and *work performance closely monitored* were also found to be causes of concern approaching high risk.

Significant differences were found between the scores for managers and employees, men and women, project professionals working in European and non-European countries, married and unmarried people, and according to basis of employment. In particular, employees were more concerned about *poor physical working conditions*[40] and *risk of physical violence*[41] than were managers. Women were more concerned about *poor physical working conditions*[42], *risk of physical violence*[43] and *work performance closely monitored*[44] than were men. Project professionals working in non-European countries were more concerned about *risk of physical violence*[45], *work performance closely monitored*[46] and *dull and repetitive work*[47] than were project professionals working in European countries. Unmarried people were more concerned about *poor physical working conditions*[48], *risk of physical violence*[49], *work performance closely monitored*[50] and *dull and repetitive work*[51] than were married people. Fixed-term employed project professionals were more concerned about *poor physical working conditions*[52], *risk of physical violence*[53] and *dull and repetitive work*[54] than were self-employed project professionals.

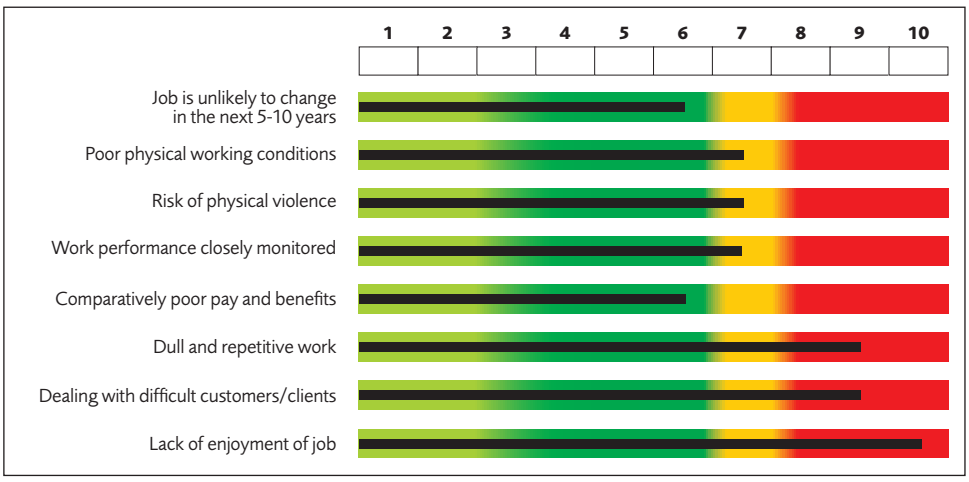


Figure 23: Sten scores for the Job conditions subscale items

[40] Independent-samples *t*-test: Manager ($M = 2.31$, $SD = 1.22$), Employee ($M = 2.90$, $SD = 1.40$; $t(181) = -2.39$, $p = .02$, two tailed)

[41] Independent-samples *t*-test: Manager ($M = 1.90$, $SD = 1.17$), Employee ($M = 2.35$, $SD = 1.48$; $t(181) = -2.04$, $p = .04$, two tailed)

[42] Independent-samples *t*-test: Men ($M = 1.89$, $SD = 1.32$), Women ($M = 2.98$, $SD = 1.39$; $t(181) = -2.27$, $p = .02$, two tailed)

[43] Independent-samples *t*-test: Men ($M = 2.52$, $SD = 1.34$), Women ($M = 2.56$, $SD = 1.45$; $t(181) = -3.24$, $p = .00$, two tailed)

[44] Independent-samples *t*-test: Men ($M = 2.59$, $SD = 1.12$), Women ($M = 3.03$, $SD = 1.30$; $t(181) = -2.36$, $p = .02$, two tailed)

[45] Independent-samples *t*-test: European ($M = 1.34$, $SD = 0.71$), Non-European ($M = 3.00$, $SD = 1.43$; $t(181) = 9.60$, $p = .00$, two tailed)

[46] Independent-samples *t*-test: European ($M = 2.34$, $SD = 1.27$), Non-European ($M = 3.13$, $SD = 1.32$; $t(181) = 3.38$, $p = .00$, two tailed)

[47] Independent-samples *t*-test: European ($M = 2.65$, $SD = 1.23$), Non-European ($M = 3.46$, $SD = 1.08$; $t(181) = 4.53$, $p = .00$, two tailed)

[48] Independent-samples *t*-test: Married ($M = 2.33$, $SD = 1.26$), Unmarried ($M = 3.10$, $SD = 1.39$; $t(181) = -3.82$, $p = .00$, two tailed)

[49] Independent-samples *t*-test: Married ($M = 1.74$, $SD = 1.16$), Unmarried ($M = 2.64$, $SD = 1.49$; $t(181) = -4.41$, p = .00, two tailed)

[50] Independent-samples *t*-test: Married ($M = 2.39$, $SD = 1.24$), Unmarried ($M = 3.16$, $SD = 1.19$; $t(181) = -4.28$, $p = .00$, two tailed)

[51] Independent-samples *t*-test: Married ($M = 2.76$, $SD = 1.37$), Unmarried ($M = 3.38$, $SD = 1.24$; $t(181) = -3.23$, $p = .00$, two tailed)

[52] Welch ANOVA test: $F(5, 22.41) = 6.63$, $p = .00$. Games-Howell post-hoc test: Self-employed ($M = 2.18$, $SD = 1.25$), Fixed-term employed ($M = 4.25$, SD = 2.06)

[53] Welch ANOVA test: $F(5, 22.04) = 5.16$, $p = .00$. Games-Howell post-hoc test: Self-employed ($M = 1.67$, $SD = 1.14$), Fixed-term employed ($M = 3.50$, $SD = 2.38$)

[54] Welch ANOVA test: $F(5, 22.83) = 4.30$, $p = .01$. Games-Howell post-hoc test: Self-employed ($M = 2.28$, $SD = 1.13$), Fixed-term employed ($M = 4.00$, $SD = 1.41$)

A comparison of the raw score mean values for project professionals and the norm group reveals that they were all higher for the former group (see Figure 24), indicating that project professionals were more concerned about all of these issues. The biggest differences between the mean values was for the items *dealing with difficult customers/clients*, *lack of enjoyment of job* and *risk of physical violence*, indicating that project professionals were most stressed by these particular sources of stress, relative to the norm group.

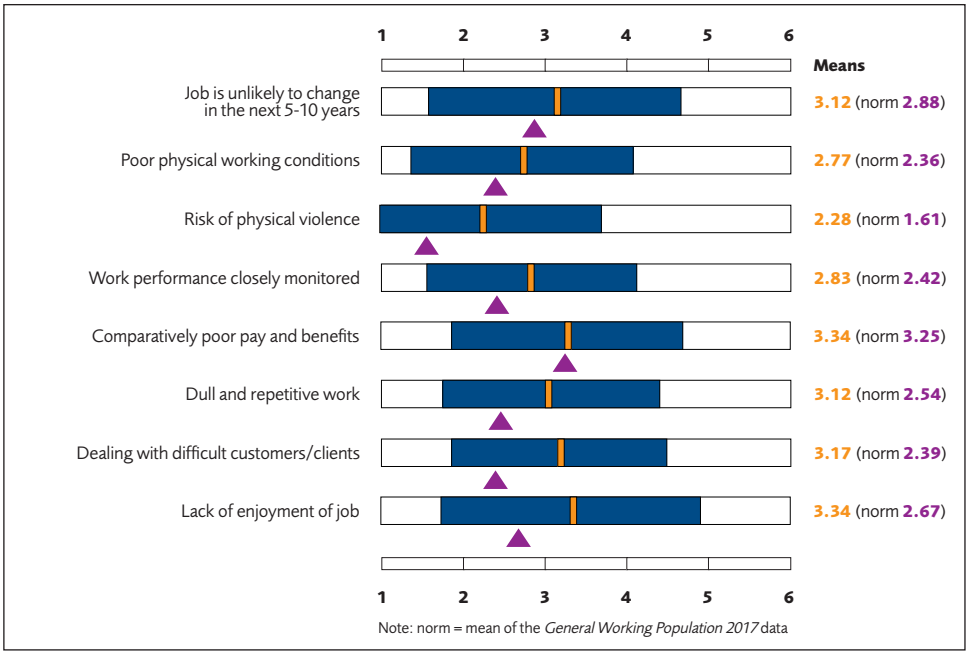


Figure 24: Raw scores for the Job conditions subscale items

4.3 Psychological Wellbeing

Starting from this section, the graphical presentation is reversed by illustrating the low-risk score (green) on the right-hand side, and high-risk (red) and approaching high-risk score (yellow) on the left side of the figure.

4.3.1 Positive emotions

This subscale measured the extent to which people experienced positive emotions at work.

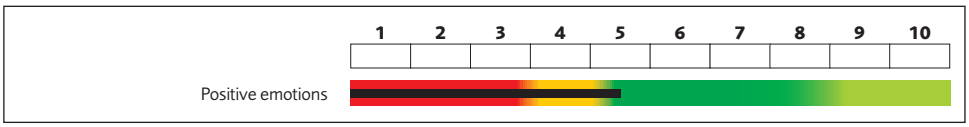


Figure 25: Sten scores for the Positive emotions subscale

From Figure 25 it can be seen that project professionals' experience of *positive emotions* at work was typical of the norm group. Figure 26 shows that, although most items were typical of the norm group, feelings of *alert*, *happy* and *determined* were atypical (high risk).

Significant differences were found between the scores for managers and employees, men and women, project professionals working in European and non-European countries, married and unmarried people, and according to basis of employment. Specifically, employees experienced all of the emotions listed in Figure 26 to a lesser extent than did managers[55]. Men felt *alert*[56] to a greater extent than did women, but women felt *contented*[57] to a greater extent than did men. Project professionals working in non-European countries felt *alert* to a lesser extent than did their counterparts working in European countries[58], while project professionals working in non-European countries felt *happy*[59] and *contented*[60] to a greater extent than did their counterparts working in European countries. Married project professionals felt *inspired*[61] and *happy*[62] to a lesser extent than did unmarried people. Fixed-term employed project professionals felt *inspired* to a lesser extent than did self-employed professionals[63].

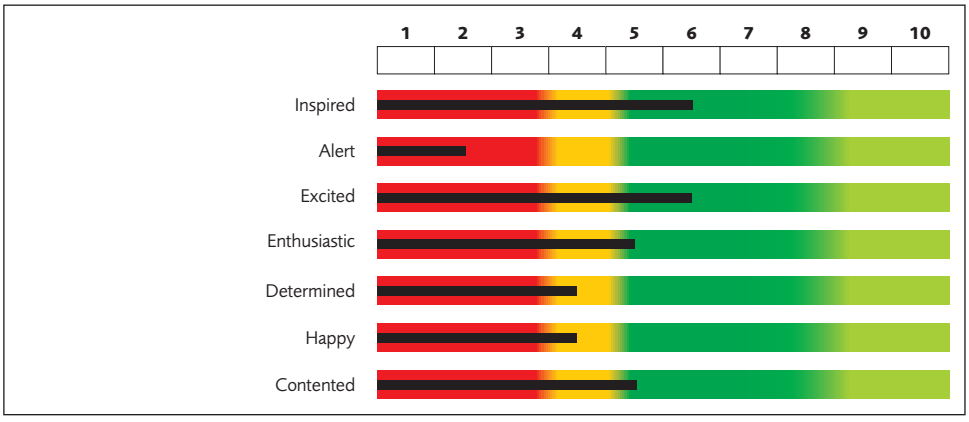


Figure 26: Sten scores for the Positive emotions subscale items

[55] Independent-samples *t*-test: Managers (M = 4.43, SD = 1.23), Employees (M = 3.97, SD = 1.37; t (181) = 1.88, p = .04, two tailed)

[56] Independent-samples *t*-test: Men (M = 3.33, SD = 1.04), Women (M = 3.00, SD = 1.02; t (181) = -2.14, p = .03, two tailed)

[57] Independent-samples *t*-test: Men (M = 2.72, SD = 1.12), Women (M = 3.12, SD = 1.08; t (181) = -2.44, p = .02, two tailed)

[58] Independent-samples *t*-test: European (M = 3.33, SD = 1.27), Non-European (M = 3.00, SD = 1.43; t (181) = -2.16, p = .03, two tailed)

[59] Independent-samples *t*-test: European (M = 2.77, SD = 1.07), Non-European (M = 3.13, SD = 1.07; t (181) = 2.38, p = .02, two tailed)

[60] Independent-samples *t*-test: European (M = 2.71, SD = 1.17), Non-European (M = 3.13, SD = 1.32; t (181) = 2.59, p = .01, two tailed)

[61] Independent-samples *t*-test: Married (M = 2.83, SD = 1.04), Unmarried (M = 3.20, SD = 1.17; t (181) = -2.26, p = .03, two tailed)

[62] Independent-samples *t*-test: Married (M = 2.78, SD = 0.99), Unmarried (M = 3.11, SD = 1.05; t (181) = -2.11, p = .04, two tailed)

[63] Welch ANOVA test: F (5, 23.63) = 2.89, p = .04. Games-Howell post-hoc test: Self-employed (M = 3.44, SD = 0.98), Fixed-term employed (M = 2.81, SD = 1.13)

Comparing the raw score mean values for project professionals and the norm group, it can be seen that *alert*, *enthusiastic*, *determined*, *happy* and *contented* were lower for project professionals, while *inspired* and *excited* were higher (see Figure 27). Respectively, this indicates that project professionals experienced the first set of items to a lesser extent, and the second set to a greater extent, than did the norm group. The biggest differences between the mean values, indicating areas of relatively more importance, were for the items *alert*, *determined* and *happy*, with project professionals experiencing these emotions to a lesser extent than did the norm group, and *inspired* and *excited*, which they experienced to a greater extent, relative to the other items in the subscale.

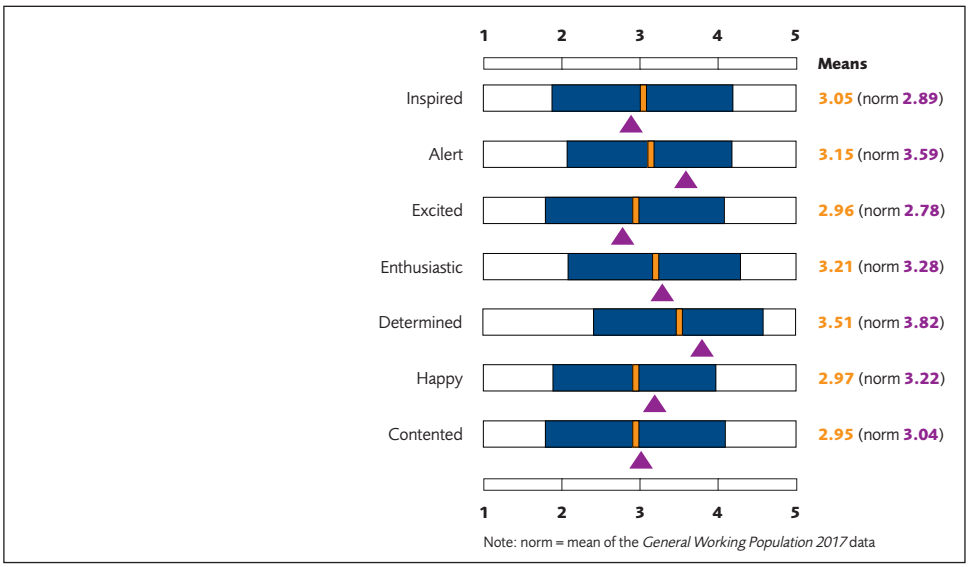


Figure 27: Raw scores for the Positive emotions subscale items

4.3.2 Sense of purpose

This subscale measured the extent to which respondents' views of their work goals gave them a sense of purpose.

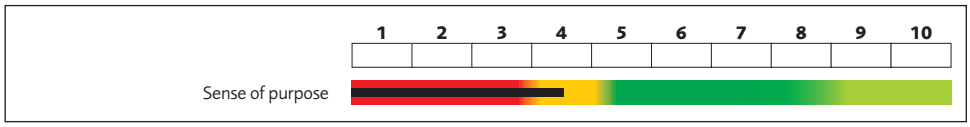


Figure 28: Sten score for the Sense of purpose subscale

Figures 28 and 29 show that project professionals' experience of a *sense of purpose* at work was approaching high risk. This is true for the overall subscale, as well as for all of the constituent items, except for *challenging goals*, which was typical compared with the norm group.

Significant differences were found in the scores for managers and employees, and project professionals working in European and non-European countries. Overall, managers experienced a *sense of purpose* to a greater extent than did employees[64]. Project professionals working in European countries experienced *committed to achieving job goals* to a greater extent than did project professionals working in non-European countries[65]. No significant differences were found in the experience of a *sense of purpose* between men and women, married and unmarried people, and according to basis of employment.

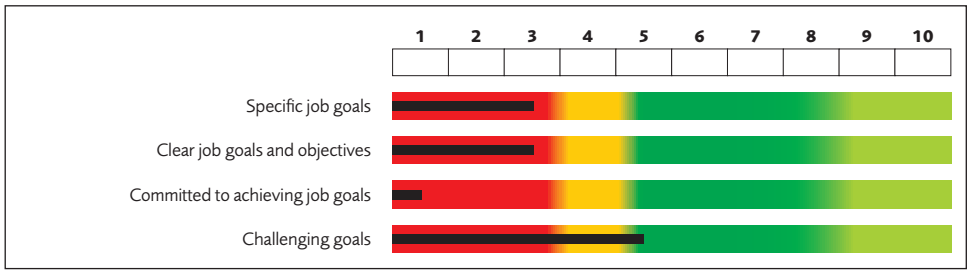


Figure 29: Sten scores for the Sense of purpose subscale items

[64] Independent-samples *t*-test: Managers (M = 4.44, SD = 1.23), Employees (M = 3.98, SD = 1.37; t (181) = 1.88, p = .04, two tailed)

[65] Independent-samples *t*-test: European (M = 4.94, SD = 1.01), Non-European (M = 4.55, SD = 1.07; t (181) = -2.54, p = .01, two tailed)

Comparing the raw score mean values for project professionals and the norm group, it can be seen that *specific job goals*, *clear job goals and objectives* and *committed to achieving job goals* were lower for project professionals, while *challenging goals* was equal (see Figure 30). This indicates that project professionals experienced the aforementioned items to a lesser extent than did the norm group. The biggest differences between the mean values, indicating areas of relatively greater importance, were for the items *specific job goals*, *clear job goals and objectives* and *committed to achieving job goals*, with project professionals experiencing these aspects of sense of purpose to a lesser extent than did the norm group.

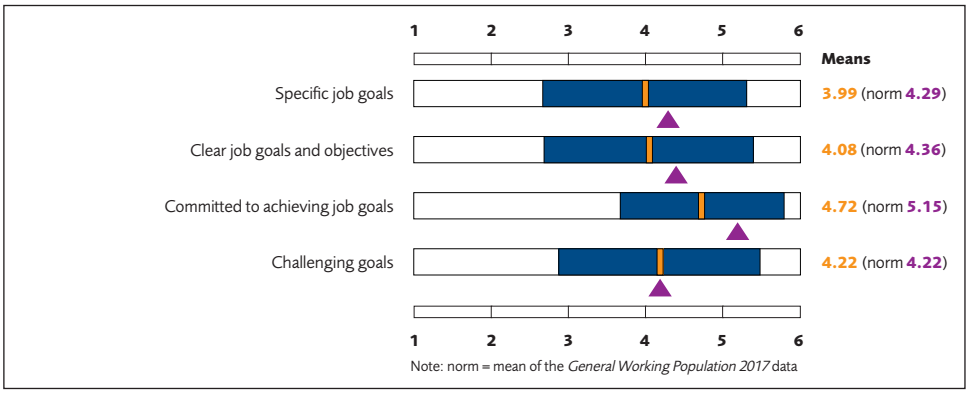


Figure 30: Raw scores for the Sense of purpose subscale items

4.4 Your Health

4.4.1 Strain on physical health

This subscale measured the extent to which people experienced physical health-related symptoms over the preceding three months.

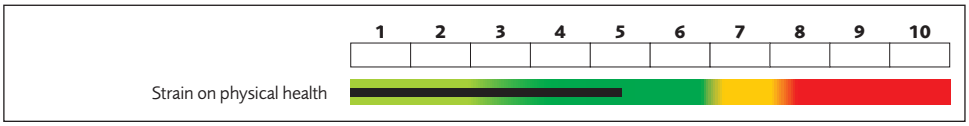


Figure 31: Sten score for the Strain on physical health subscale

Figures 31 and 32 show that project professionals' experiences of physical health-related symptoms were typical compared to the norm group, for all items except *feeling nauseous or being sick*.

Significant differences were found in the scores according to basis of employment. Specifically, casual employed project professionals were more concerned about experiencing the physical health symptoms than were self-employed project professionals[66]. No significant differences were found in the experience of the symptoms between managers and employees, married and unmarried people, men and women, and between people working in European and non-European countries.

Casual employed project professionals were more concerned about experiencing the physical health symptoms than were self-employed project professionals

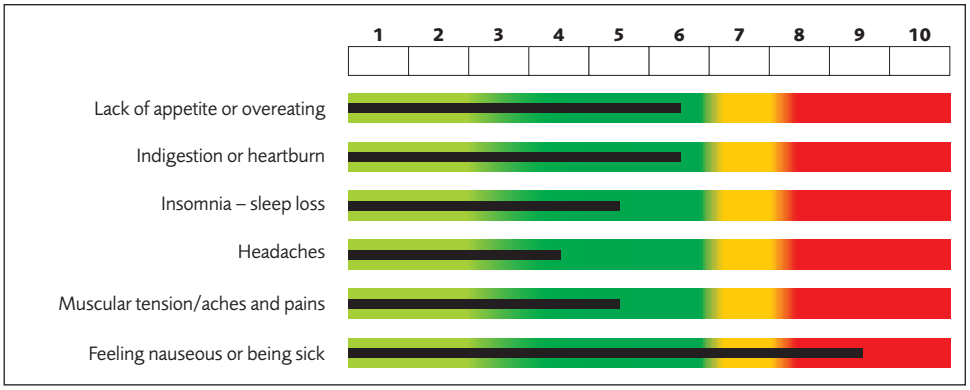


Figure 32: Sten scores for the Strain on physical health subscale items

[66] Welch ANOVA test: $F(5, 23.78) = 5.47$, $p = .00$. Games-Howell post-hoc test: Self-employed ($M = 1.83$, $SD = 0.62$), Casual employed ($M = 3.50$, $SD = 0.58$)

Comparing the raw score mean values in Figure 33 for project professionals and the norm group, it can be seen that two items (*headaches* and *muscular tension/aches and pains*) were lower for the former group (see Figure 33) and all other items were higher. The lower mean values indicate that project professionals experienced these ailments less often than did respondents in the norm group, and vice versa. The greatest difference between the means for project professionals and the norm group was for the *feeling nauseous or being sick* item, indicating that, relative to the other ailments, project professionals experienced this ailment much more frequently than did the norm group respondents.

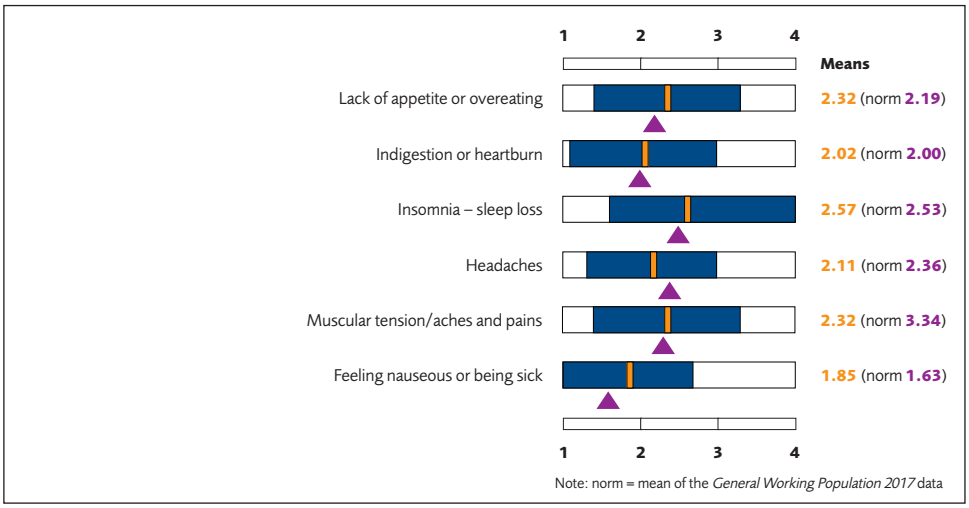


Figure 33: Raw scores for the Strain on physical health subscale items

4.4.2 Strain on psychological health

This subscale measured the extent to which people experienced psychological health-related symptoms over the preceding three months.

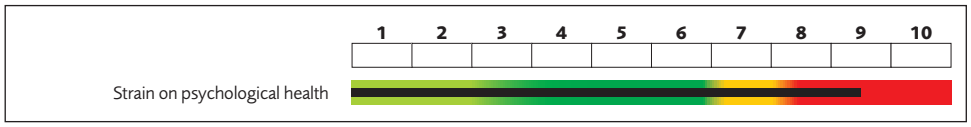


Figure 34: Sten score for the Strain on psychological health subscale

Figures 34 and 35 show that project professionals' experiences of psychological health-related symptoms were high risk compared with the norm group. This was true for all of its items except *constant irritability*, *constant tiredness* and *panic or anxiety attacks*.

Significant differences were found in the scores according to basis of employment. Specifically, fixed-term employed project professionals reported experiencing the psychological health symptoms more frequently than did self-employed project professionals[67]. No significant differences were found in the frequency of experience of the symptoms between men and women, managers and employees, married and unmarried people, and for people working in European and non-European countries.

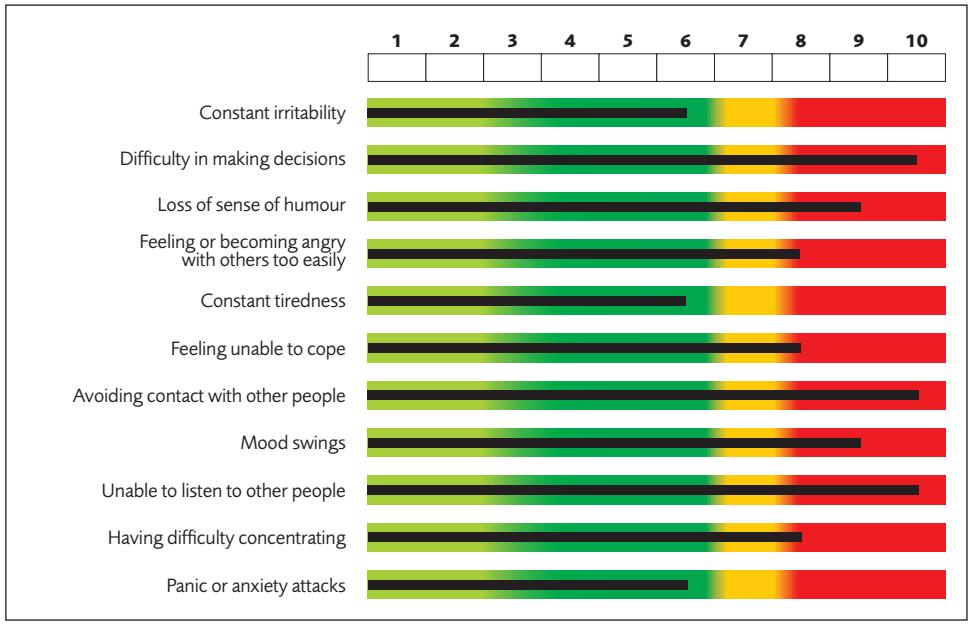


Figure 35: Sten scores for the Strain on psychological health subscale items

[67] Welch ANOVA test: $F(5, 23.99) = 3.85$, $p = .01$. Games-Howell post-hoc test: Self-employed ($M = 1.72$, $SD = 0.75$), Fixed-term employed ($M = 2.50$, $SD = 0.58$)

Higher mean values indicate that project professionals experienced the psychological health problems more frequently than did respondents in the norm group

Comparing the raw score mean values in Figure 36 for project professionals and the norm group, it can be seen that all of the items were higher for the former. Higher mean values indicate that project professionals experienced the psychological health problems more frequently than did respondents in the norm group. The greatest differences in the means between project professionals and the norm group concerned the items *avoiding contact with other people*, *difficulty in making decisions* and *unable to listen to other people*, which indicates that project professionals were affected more frequently by these psychological health issues than were people in the norm group.

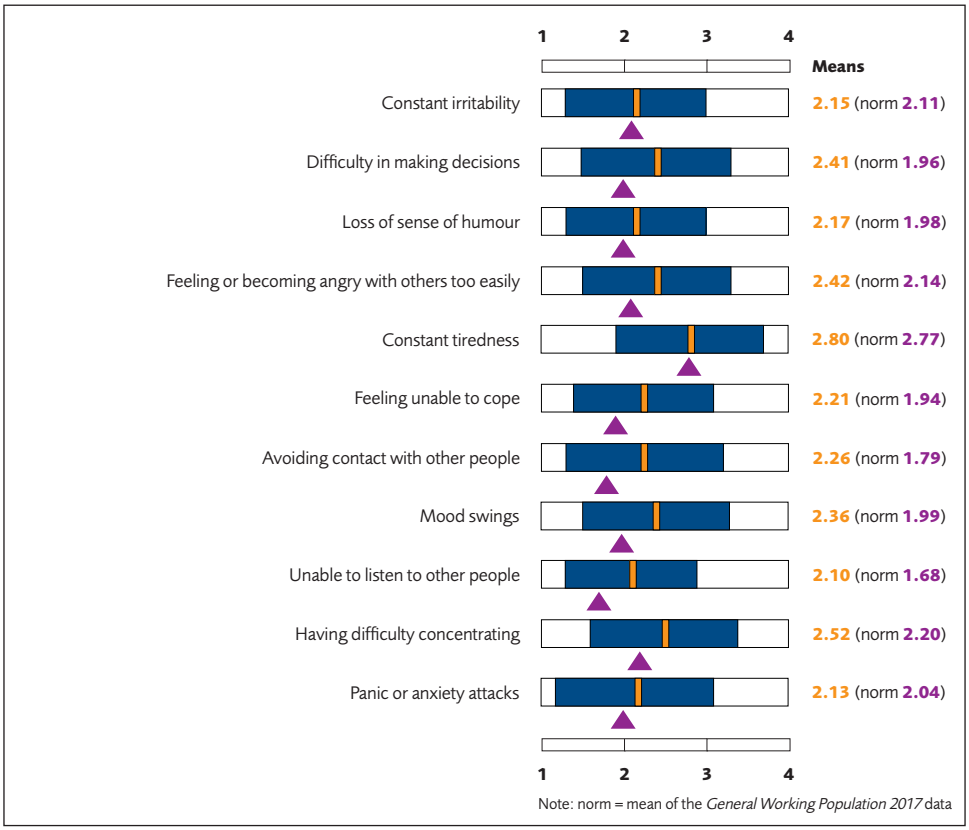


Figure 36: Raw scores for the Strain on psychological health subscale items

4.5 Engagement and Related Scales

4.5.1 Engagement

This subscale measured the extent to which respondents engaged with their work.

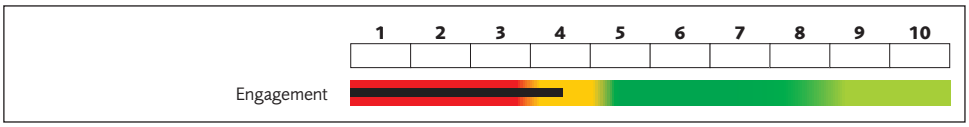


Figure 37: Sten score for the Engagement subscale

Figures 37 and 38 show that project professionals' engagement levels were approaching high-risk level. This was true for all of its items except for *organisation is motivating* and *work hard for this organisation*.

Significant differences were found in the scores for managers and employees, with managers being more engaged with the job than were employees

Significant differences were found in the scores for managers and employees, with managers being more engaged with the job than were employees[68]. No significant differences were found between men and women, married and unmarried people, people working in European and non-European countries, and according to basis of employment.

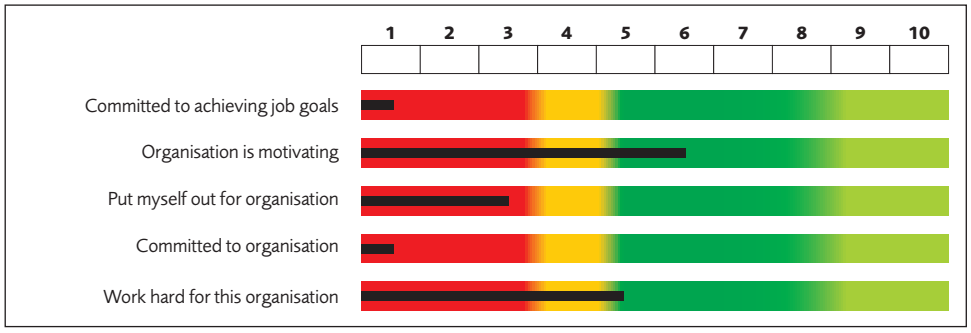


Figure 38: Sten scores for the Engagement subscale items

Comparing the raw score mean values in Figure 39 for project professionals and the norm group, it can be seen that project professionals scored higher for the *organisation is motivating* and *work hard for this organisation* items and lower for the *committed to achieving job goals*, *put myself out for organisation* and *committed to organisation* items than did the norm group. Higher mean values indicate that project professionals agreed more with the item statements than did norm group respondents, and vice versa.

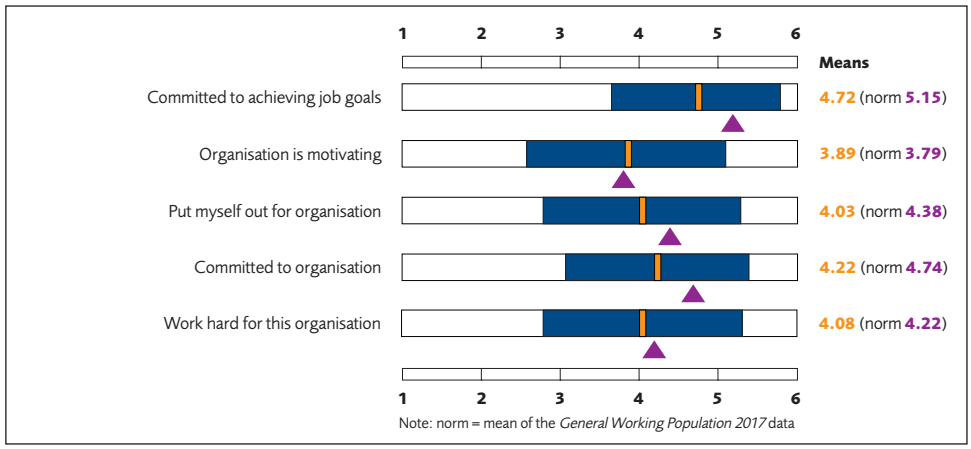


Figure 39: Raw scores for the Engagement subscale items

[68] Independent-samples *t*-test: Managers (M = 4.63, SD = 1.05), Employees (M = 4.36, SD = 1.02; t (181) = 2.69, p = .01, two tailed)

The greatest differences between the means for project professionals and the norm group concerned the items *committed to organisation* and *committed to achieving job goals*, indicating that, although project professionals agreed with both statements, they did so to a much lesser extent than did the norm group, relative to the other subscale items.

4.5.2 Perceived commitment of organisation to employee

This subscale measured the extent to which respondents perceived their organisations to be committed to them.

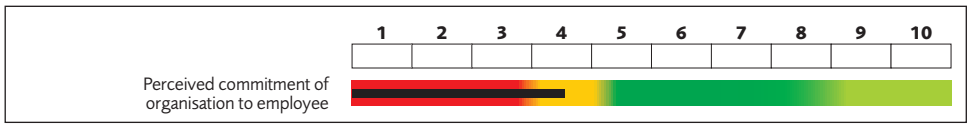


Figure 40: Sten score for the Perceived commitment of organisation to employee subscale

Figures 40 and 41 show that project professionals' perceived levels of organisational commitment to employee were typical compared with the norm group, for both items of the subscale.

A significant difference was found in the scores for managers and employees, with managers perceiving a higher level of *commitment of organisation* to them as employees than did employees[69]. No significant differences were found between men and women, married and unmarried people, people working in European and non-European countries, and according to basis of employment.

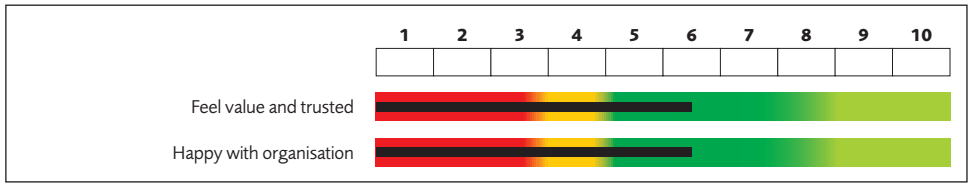


Figure 41: Sten scores for the Perceived commitment of organisation to employee subscale items

Comparing the raw score mean values in Figure 42 for project professionals and the norm group, it can be seen that project professionals scored higher for the *feel valued and trusted* item and lower for the *happy with organisation* item than did the norm group. The higher mean value indicates that project professionals agreed more with the item statement than did the norm group respondents.

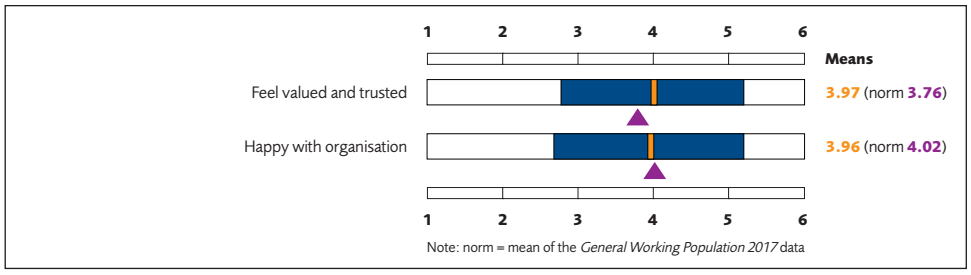


Figure 42: Raw scores for the Perceived commitment of organisation to employee subscale items

[69] Independent-samples *t*-test: Managers (M = 5.05, SD = 1.03), Employees (M = 3.78, SD = 1.24; t (181) = 2.41, p = .03, two tailed)

4.5.3 Commitment of employee to organisation

This subscale measured the extent to which respondents perceived themselves to be committed to their organisation.

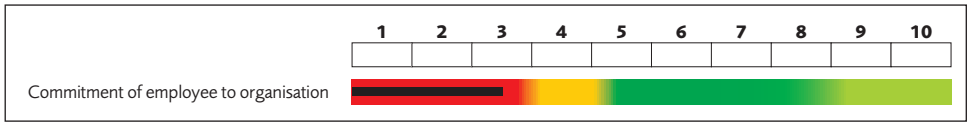


Figure 43: Sten score for the Commitment of employee to organisation subscale

Figure 43 shows that project professionals' perceived levels of *commitment of employee to organisation* were at high risk compared to the norm group. It can be seen in Figure 44 that the main cause of this heightened risk was the extent to which respondents were *committed to* [their] *organisation*.

A significant difference was found in the scores for managers and employees, with managers being more *committed to the organisation* than were employees[70]. No significant differences were found between men and women, married and unmarried people, people working in European and non-European countries, nor according to basis of employment.

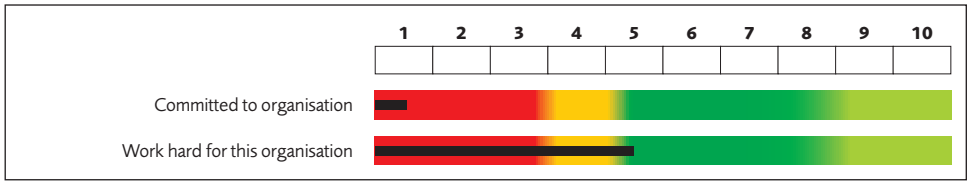


Figure 44: Sten scores for the Commitment of employee to organisation subscale items

Comparing the raw score mean values in Figure 45 for project professionals and the norm group, it can be seen that project professionals scored lower for both subscale items than did the norm group, indicating that they agreed less with the item statements than did the norm group respondents. The greatest difference between the means for the two groups concerned the *committed to organisation* item, indicating that project professionals agreed with this item to a much lesser extent than did the norm group respondents, relative to the other item.

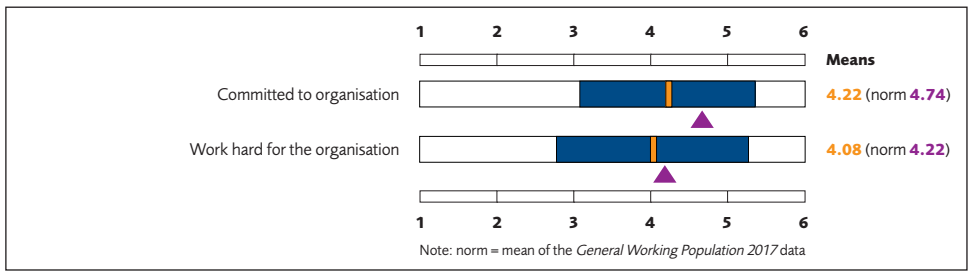


Figure 45: Raw scores for the Commitment of employee to organisation subscale items

[70] Independent-samples *t*-test: Managers (M = 4.41, SD = 1.14), Employees (M = 4.16, SD = 1.20; t (181) = 2.02, p = .04, two tailed)

4.6 Summary

The overall findings of the *ASSET* survey are shown below in Figures 46, 48, 50 and 52, where, respectively, the sten scores for the *6 Essentials*, *Psychological Wellbeing*, *Your Health* and *Engagement and Related Scales* scales are presented.

All the *6 Essentials* subscales show that project professionals were either at high-risk or approaching high-risk levels compared to the norm group. The *Resources and communication*, *Balanced workload*, *Work relationships* and *Job conditions* subscales were found to be at high risk, and the *Control* and *Job security and change* subscales were at approaching high-risk levels.

Significant differences were found in the scores for managers and employees, with managers being more engaged with the job than were employees

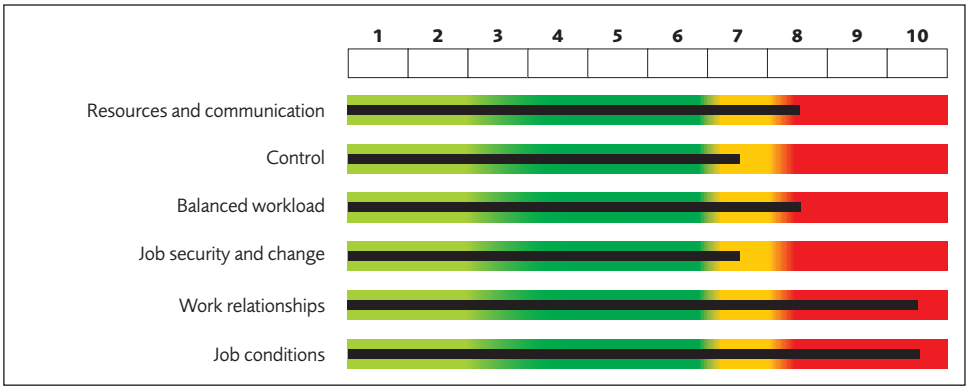


Figure 46: Overall ASSET sten scores for the 6 Essentials scale

Combining the *6 Essentials* subscales into a new *Composite 6 Essentials* scale, the mean of the raw scores is positioned approximately midway in the range, indicating a normal distribution (see Figure 47[71]).

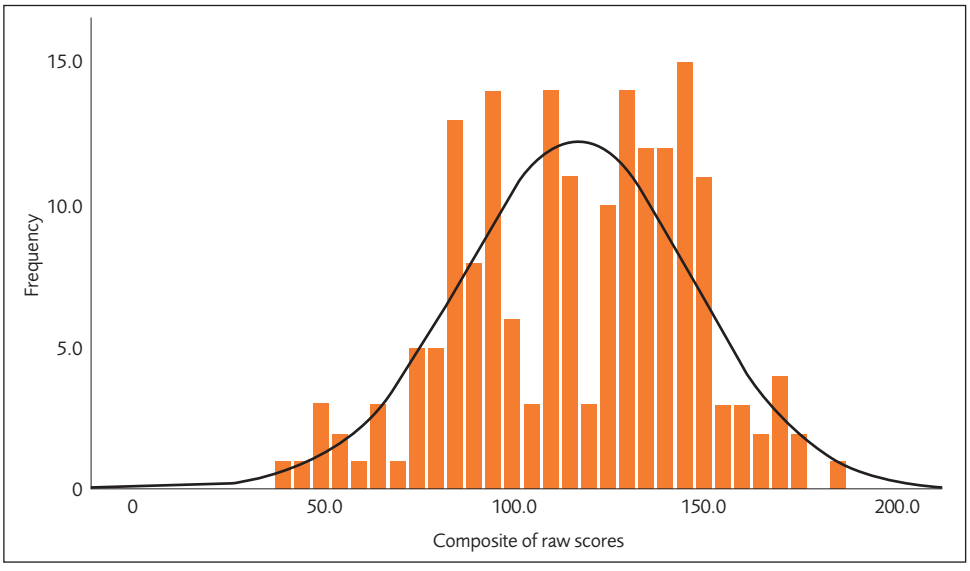


Figure 47: Frequency distribution – Composite 6 Essentials scale

[71] Comparison to the norm group is not available

Using this scale, significant differences were found between married and unmarried people, people working in European and non-European countries, and according to basis of employment. In particular, project professionals, who were unmarried[72], casual employed[73] and working in non-European countries[74], were more concerned about the issues represented by the *Composite 6 Essentials scale* (ie, all items of all *6 Essentials* subscales, unweighted) than were project professionals who were married, self-employed and working in European countries. No significant differences were found between women and men, and between managers and employees.

For the *Psychological Wellbeing* subscales, *Positive emotions* and *Sense of purpose*, project professionals were found, respectively, to be typical and approaching high risk, compared to the norm group (see Figure 48). This indicates that their experience of *Positive emotions* was aligned with the norm group, while their experience of *Sense of purpose* was not. The finding that project professionals' experience of positive emotions was typical compared with the norm group is surprising given that none of the subscales of the *6 Essentials* scale were typical.

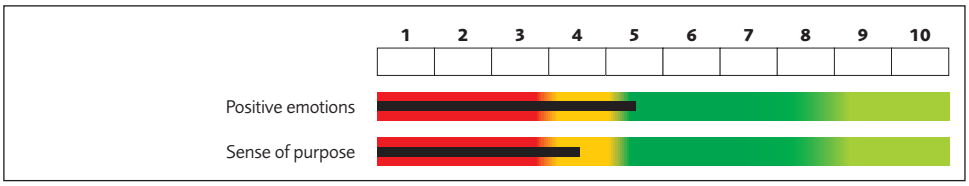


Figure 48: Overall ASSET sten scores for the Psychological Wellbeing scale

These two *Psychological Wellbeing* subscales were combined to create a new *Composite Personal Psychological Wellbeing* scale. The mean of the raw scores is positioned approximately midway in the range, indicating a normal distribution (see Figure 49[75]).

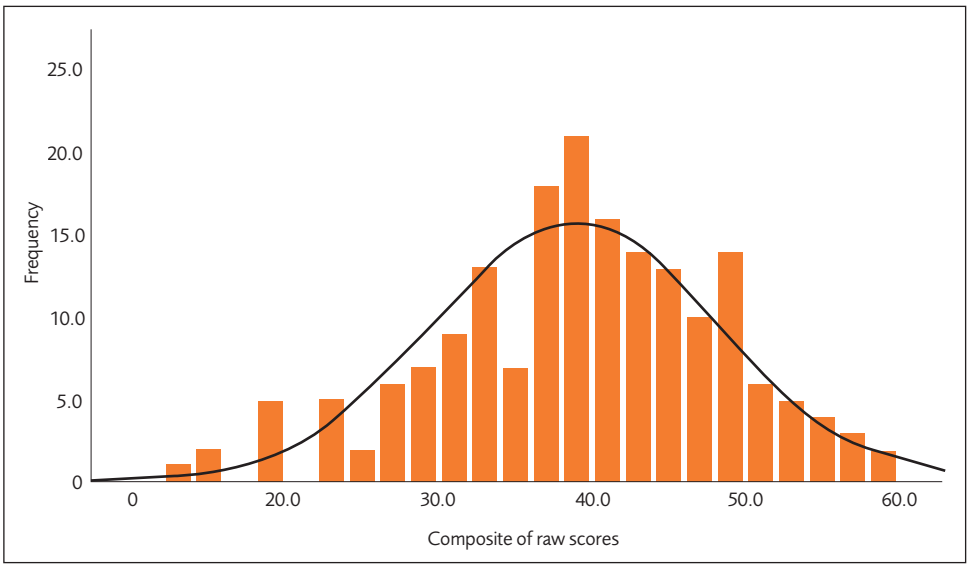


Figure 49: Frequency distribution – Composite Personal Psychological Wellbeing scale

Independent-samples *t*-tests indicated significant differences in the *Composite Personal Psychological Wellbeing* scale between managers and employees[76], with employees being worse off than managers. No significant differences were found between men and women, married and unmarried people, people working in European and non-European countries, nor according to basis of employment.

[72] Independent-samples *t*-test: Married (M = 109.39, SD = 33.11), Unmarried (M = 120.32, SD = 28.41; t (181) = -2.47, p = .01, two tailed)

[73] Independent-samples *t*-test: European (M = 109.06, SD = 30.04), Non-European (M = 121.02, SD = 29.04; t (181) = -2.73, p = .01, two tailed)

[74] Welch ANOVA test: F (5, 22.43) = 2.74, p = .04. Games-Howell post-hoc test: Self-employed (M = 99.78, SD = 41.94), Casual employed (M = 127.07, SD = 26.08)

[75] Comparison to the norm group is not available

[76] Independent-samples *t*-test: Managers (M = 41.05, SD = 9.18), Employees (M = 38.25, SD = 9.14; t (181) = 4.28, p = .00, two tailed)

The *Your Health* subscales (*Strain on physical health* and *Strain on psychological health*) measured project professionals as typical and high risk, respectively, compared to the norm group (see Figure 50). This indicates that their experience of *strain on physical health* was aligned with the norm group, while their experience of *strain on psychological health* was not. The high level of *strain on psychological health* could be a consequence of all of the *6 Essentials* subscales measuring project professionals as either high risk or approaching high risk.

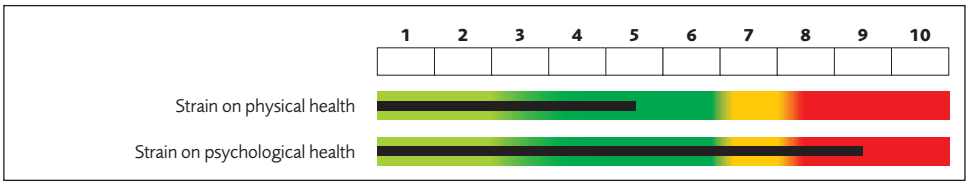


Figure 50: Overall ASSET sten scores for the Your Health scale

The high level of strain on psychological health could be a consequence of many items in the 6 Essentials being either high risk or approaching high risk

These two *Your Health* subscales were combined to create a new *Composite Your Health* scale. The mean of the raw scores is positioned approximately midway in the range, indicating a normal distribution (see Figure 51[77]).

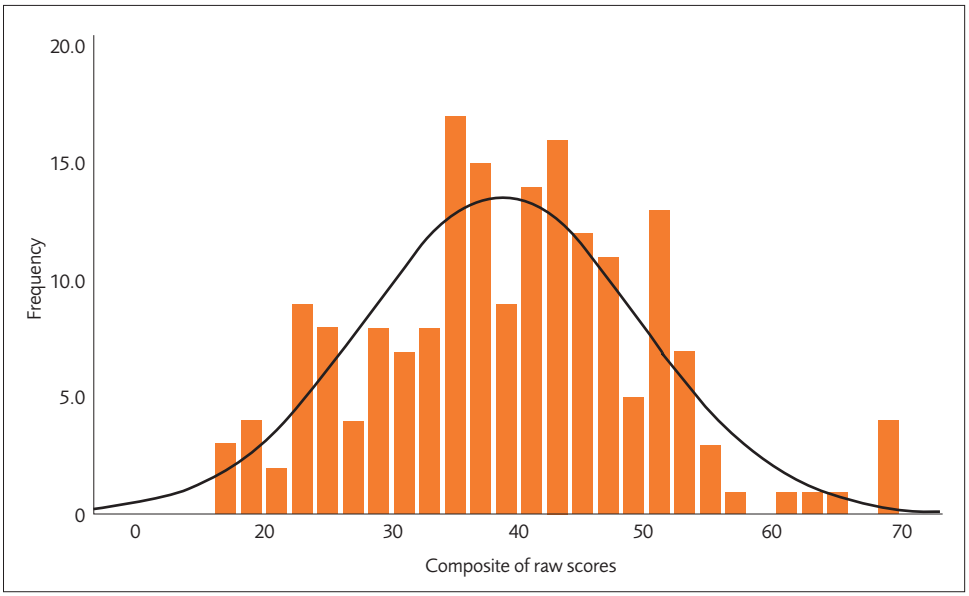


Figure 51: Frequency distribution – Composite Your Health scale

Welch ANOVA and Games-Howell post-hoc tests revealed a significant difference in the *Composite Your Health* scale according to basis of employment, with casual employed being worse off than self-employed project professionals[78]. No significant differences were found between managers and employees, men and women, married and unmarried people, and people working in European and non-European countries.

[77] Comparison to the norm group is not available

[78] Welch ANOVA test: $F(5, 25.18) = 4.24$, $p = .01$. Games-Howell post-hoc test: Self-employed ($M = 33.61$, $SD = 9.26$), Casual employed ($M = 48.00$, $SD = 4.83$)

Finally, the *Engagement and Related Scales* scale consists of three subscales depicted in Figure 52. Compared with the norm group, the *Engagement* and *Commitment of employee to organisation* subscales portrayed project professionals as approaching high risk and high risk, respectively, while the *Perceived commitment of organisation to employee* subscale, showed them as typical. This indicates that their levels of engagement with, and commitment to, their organisations were relatively lower than the norm group. These could be a consequence of all of the *6 Essentials* subscales being either high risk or approaching high risk.

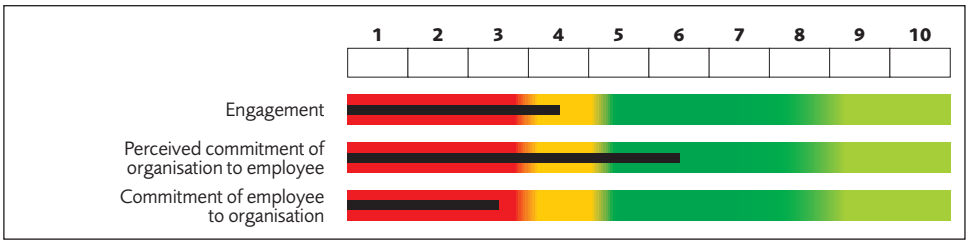


Figure 52: Overall ASSET sten scores for the Engagement and Related Scales scale

These three *Engagement and Related Scales* subscales were combined to create a new *Composite Engagement and Related Scales* scale. The mean of the raw scores is positioned approximately midway in the range, indicating a normal distribution (see Figure 53[79]).

Independent-samples *t*-tests indicated significant differences in the *Composite Engagement and Related Scales* scale between managers and employees[80], with employees being worse off than managers. No significant differences were found between men and women, married and unmarried people, people working in European and non-European countries, nor according to basis of employment.

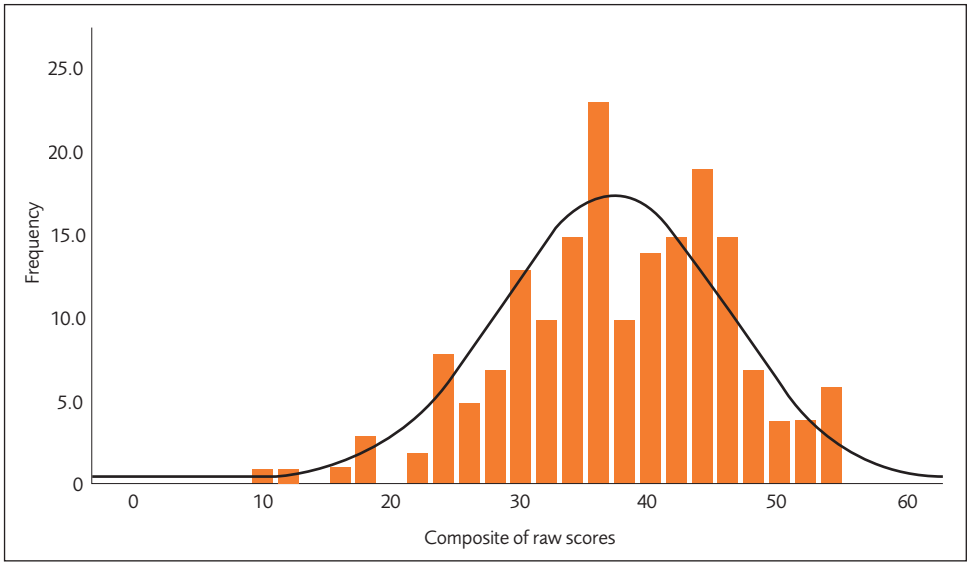


Figure 53: Frequency distribution – Composite Engagement and Related Scales scale

[79] Comparison to the norm group is not available

[80] Independent-samples *t*-test: Managers ($M = 22.67$, $SD = 4.98$), Employees ($M = 20.44$, $SD = 4.55$; $t(181) = 2.66$, $p = .01$, two tailed)

4.7 Work-related Resilience

Resilience is a multidimensional construct that refers to how well a person can adapt to the events in their life. A person with good resilience has the ability to bounce back more quickly and with less stress than someone whose resilience is less developed (Cohen, 2018). Robertson Cooper's four-component model of resilience is drawn from current theories of resilience in the research literature (Charney, 2004; Southwick, Vythilingam & Charney, 2005; Davydov, Stewart, Ritchie & Chaudieu, 2010).

A person with good resilience has the ability to bounce back from adversity more quickly and with less stress than someone whose resilience is less developed. Managers were found to be slightly above the norm group while employees were significantly below

The *Work-related Resilience* scale (Robertson Cooper, 2012) measures the four constructs of: *confidence*; *adaptability*; *social support*; and *purposefulness*. Each component is a broad construct that encompasses various personality traits, behaviours and skills. For example, *social support* includes the degree of one's natural sociability (a personality trait), but also includes coping strategies (behaviours) such as making time to nurture friendships even when work demands are at their highest. Respondents used a slider scale[81] (1-100) to indicate their level of agreement with 12 statements. As in the preceding section, four independent-samples *t*-tests were conducted for each subscale to compare differences in the scores between: managers and employees; men and women; married and unmarried people; and people working in European and non-European countries. In addition, a Welch ANOVA and Games-Howell post-hoc test was conducted for each subscale to compare differences in the scores according to respondents' basis of employment: self-employed, casual, part time and fixed term.

4.7.1 Overall Work-related Resilience

The average *Resilience* score for the norm group was 77 per cent, which is substantially higher than the 65 per cent[82] calculated for project professionals. The average resilience score for managers in the project professional sample was 79 per cent, which was considerably higher than the 59 per cent calculated for employees; and the average score for self-employed project professionals was 79 per cent, which was higher than the score for any of the other types of employment.

Figure 54 presents the frequency distribution of the average score[83] per respondent (for all 12 items in the *Work-related Resilience* scale). This provides an overview of resilience and contextualises the resilience constructs presented in section 4.7.2.

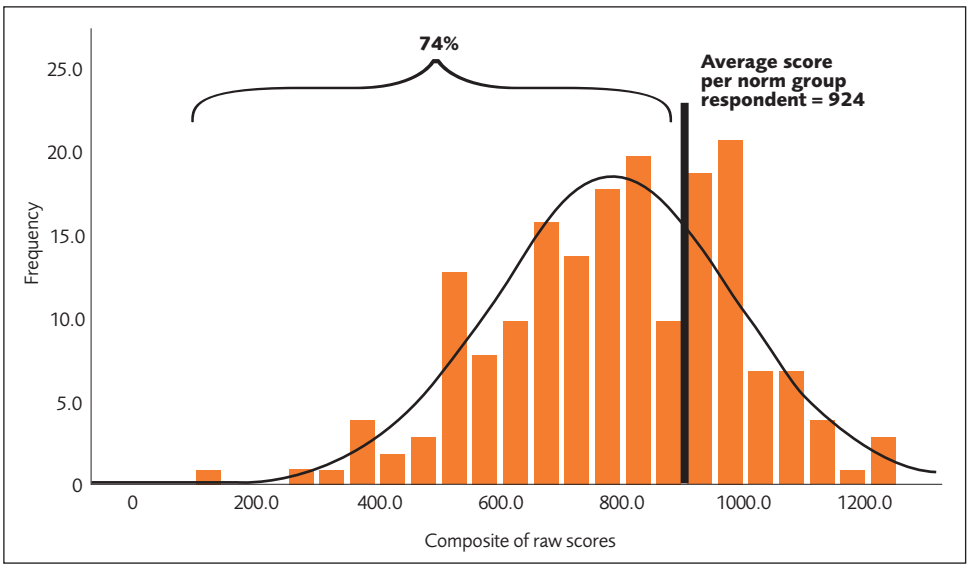


Figure 54: Frequency Distribution – Composite Work-related Resilience score

[81] A visual analogue ordinal scale that obtains essentially qualitative data (Kero and Lee, 2015)

[82] Based on 183 respondents. Resilience score = (∑ all scores/183)/12)

[83] ∑ all scores/183

The average score per respondent, out of a possible 1,200, was 924 for the norm group and 780 for project professionals. The majority (74 per cent) of project professionals scored lower than 924, indicating that they were less resilient than were respondents in the norm group (see Figure 54).

A significant difference was found between the scores for managers and employees[84], with managers being more resilient than employees. In addition, a significant difference was found according to basis of employment, with the self-employed group being more resilient than were casual employees[85]. No significant differences were found between the resilience levels of women and men, married and unmarried people, nor between people working in European and non-European countries.

4.7.2 Work-related Resilience constructs

In this section Figures 55 to 58 present the average percentage scores[86] per respondent for the resilience constructs: *confidence*, *adaptability*, *social support* and *purposefulness*; and compare project professionals with the norm group. The outcome of the independent-samples *t*-tests and Welch ANOVA and Games-Howell post-hoc tests are also reported.

4.7.2.1 Confidence

This subscale comprises three statements that measure *confidence*, for example, "Right now at work I feel confident that I can deal with difficulties when they arise". The average percentage score for confidence in the norm group was 80 per cent, which is considerably higher than the 65 per cent calculated for project professionals. From Figure 55 it can be seen that the lower level of confidence in the sample of project professionals is reflected in the finding that 74 per cent of them scored lower than the average for the norm group.

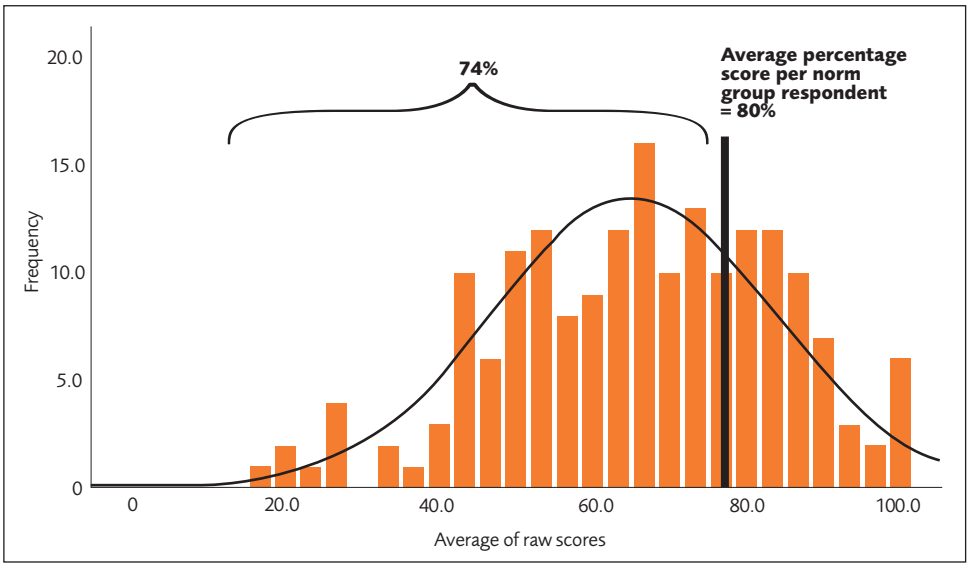


Figure 55: Frequency Distribution – Average Confidence score

Significant differences were found between the scores for managers and employees[87] women and men[88], married and unmarried people[89], and according to basis of employment[90], with employees, women, unmarried and casual employed people feeling less confident to handle difficulties than did managers, men, married and self-employed people. No significant differences were found between people working in European and non-European countries.

[84] Independent-samples *t*-test: Managers (M = 950.28, SD = 156.55), Employees (M = 706.91, SD = 205.58; t (181) =3.02, p = .00, two tailed)

[85] Welch ANOVA test: F (5, 24.03) = 5.46, p = .00. Games-Howell post-hoc test: Self-employed (M = 950.28, SD = 156.55), Casual employed (M = 706.91, SD = 205.58)

[86] ∑ all scores for the construct/183/300

[87] Independent-samples *t*-test: Managers (M = 72.27, SD = 17.78), Employees (M = 63.48, SD = 17.95; t (181) = 2.72, p = .01, two tailed)

[88] Independent-samples *t*-test: Women (M = 62.27, SD = 18.14), Men (M = 69.12, SD = 17.72; t (181) = 2.56, p = .04, two tailed)

[89] Independent-samples *t*-test: Married (M = 70.04, SD = 17.38), Unmarried (M = 61.87, SD = 18.13; t (181) = 2.57, p = .01, two tailed)

[90] Welch ANOVA test: F (5, 24.71) = 5.90, p = .00. Games-Howell post-hoc test: Self-employed (M = 80.46, SD = 14.53), Casual employed (M = 57.10, SD = 16.90)

4.7.2.2 Adaptability

This subscale comprises three statements that measure *adaptability*; for example, "When I hit difficulties at work these days, I adapt my behaviour to find a way forward". The average percentage score for adaptability of the norm group was 84 per cent, where it was 71 per cent for project professionals. The greater level of adaptability in the norm group is reflected in Figure 56, where it can be seen that 78 per cent of project professionals scored lower than the average for the norm group.

Given the norm group score, the majority of project professionals were not as adaptable as the norm group

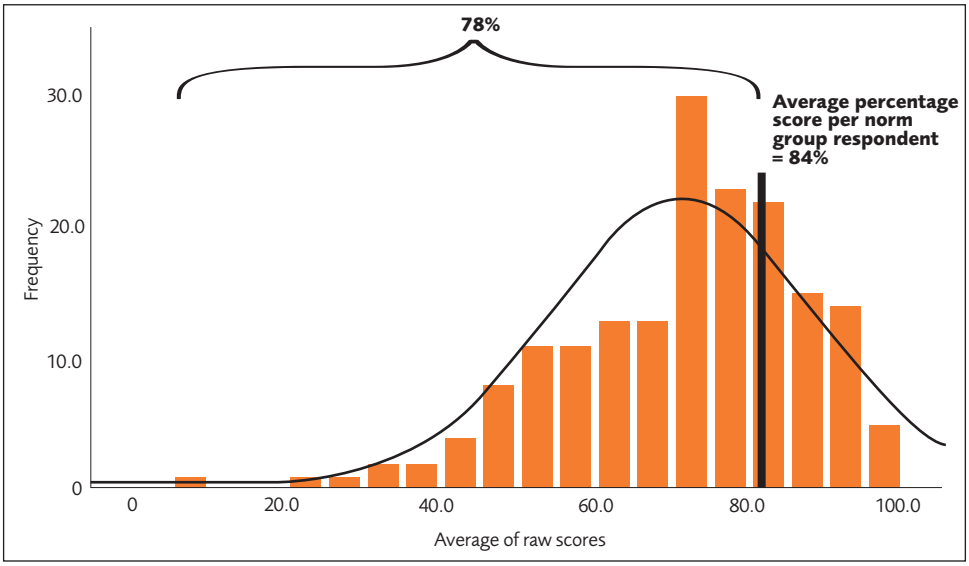


Figure 56: Frequency Distribution – Average Adaptability score

Significant differences were found in the scores for managers and employees[91], women and men[92], married and unmarried people[93], people working in European and non-European countries[94], and according to basis of employment[95]. Employees, women, people working in non-European countries, unmarried and casual employed people felt less adaptable and able to handle challenges than did managers, men, people working in European countries, married and self-employed people.

[91] Independent-samples *t*-test: Managers (M = 78.50, SD = 15.06), Employees (M = 69.34, SD = 13.86; t (181) =3.08, p = .00, two tailed)

[92] Independent-samples *t*-tests: Women (M = 57.91, SD = 17.07), Men (M = 75.37, SD = 15.81; t (181) =3.05, p = .00, two tailed)

[93] Independent-samples *t*-test: Married (M = 76.21, SD = 15.14), Unmarried (M = 67.64, SD = 17.24; t (181) = 2.77, p = .01, two tailed)

[94] Independent-samples *t*-test: European (M = 75.76, SD = 13.97), Non-European (M = 67.67, SD = 18.19; t (181) =3.62, p = .01, two tailed)

[95] Welch ANOVA test: F (5, 23.30) = 6.71, p = .00. Games-Howell post-hoc test: Self-employed (M =84.32, SD = 12.28), Casual employed (M = 60.06, SD = 19.15)

4.7.2.3 Social support

This subscale comprises three statements that measure *social support*, for example, "Right now I feel that I can rely on getting support when problems arise with my job". The average percentage score for social support among the norm group was 74 per cent, while for project professionals it was much lower at 61 per cent. The lower level of social support among project professionals is apparent in Figure 57, where it can be seen that 70 per cent of project professionals scored lower than the average for the norm group.

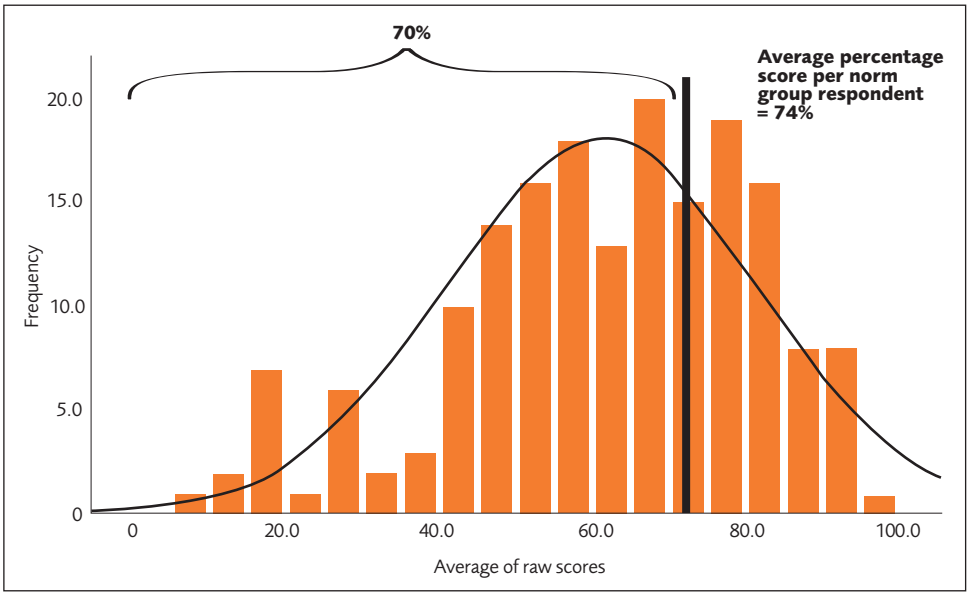


Figure 57: Frequency Distribution – Average Social Support score

The majority of project professionals were not feeling they were getting as much social support than did the norm group

A significant difference was found between the scores according to basis of employment[96], with fixed-term employees feeling less sure of the availability of support if needed than did self-employed people. No significant differences were found between managers and employees, men and women, married and unmarried people, and people working in European and non-European countries.

[96] Welch ANOVA test: $F(5, 25.34) = 2.61$, $p = .01$. Games-Howell post-hoc test: Self-employed ($M = 73.67$, $SD = 18.13$), Fixed-term employed ($M = 58.51$, $SD = 12.72$)

4.7.2.4 Purposefulness

This subscale comprises three statements that measure *purposefulness*, for example, "The fact that my current job goals are worthwhile helps me to keep going when problems arise". The average percentage score for purposefulness in the norm group was 72 per cent, which is higher than the 63 per cent calculated for project professionals. From Figure 58 it can be seen that the lower level of purposefulness in the sample of project professionals is reflected in the finding that 60 per cent of them scored lower than the average for the norm group.

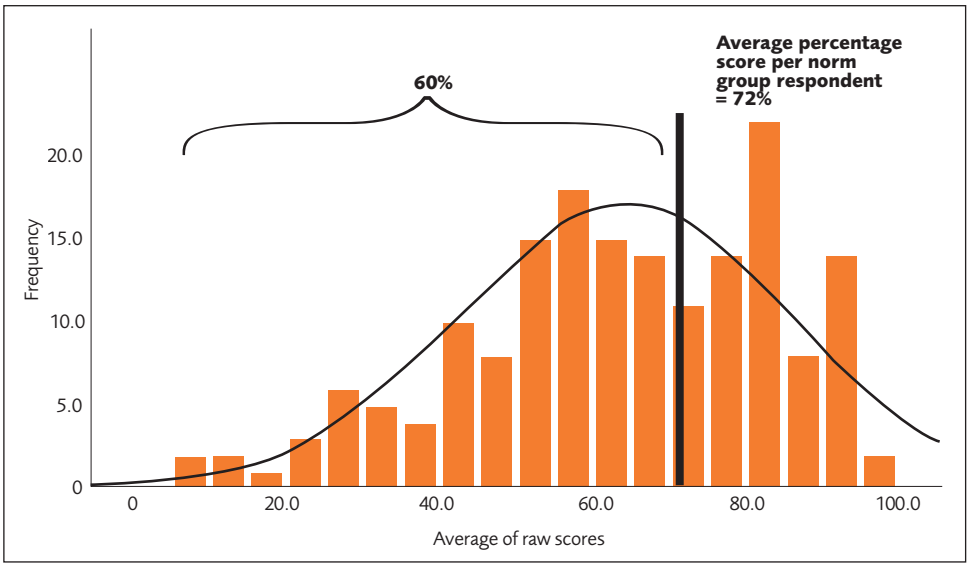


Figure 58: Frequency Distribution – Average Purposefulness score

Significant differences were found in the scores for managers and employees[97], married and unmarried people[98], and according to basis of employment[99]. Employees, unmarried people and casual employed people felt less *purposeful* in terms of seeing their job goals as worthwhile than did managers, married people and self-employed people. No significant differences were found between men and women, nor between people working in European and non-European countries.

4.8 Productivity

The *Productivity* scale is a one-item scale that asks respondents how productive they felt they had been over the preceding three months. The scale measured the productivity level of project professionals as 66 per cent. The productivity measurement is not included in every survey, so there is no accurate benchmark for it in the GWP data. However, it is typically in the range of 70-75 per cent[100].

A significant difference was found between the scores according to basis of employment[101], with casual employees feeling less productive than did self-employed people. No significant differences were found between managers and employees, men and women, married and unmarried people, and people working in European and non-European countries.

[97] Independent-samples *t*-test: Managers (M = 73.33, SD = 19.99), Employees (M = 61.69, SD = 21.56; t (181) = 3.07, p = .00, two tailed)

[98] Independent-samples *t*-test: Married (M = 68.16, SD = 21.55), Unmarried (M = 61.20, SD = 21.13; t (181) =2.184, p =0.03, two tailed)

[99] Welch ANOVA test: F (5, 24.18) = 4.59, p = .00. Games-Howell post-hoc test: Self-employed (M = 73.67, SD = 18.13), Casual employed (M = 58.52, SD = 17.75)

[100] Robertson Cooper Ltd – personal communication

[101] Welch ANOVA test: F (5, 26.85) = 4.73, p = .03. Games-Howell post-hoc test: Self-employed (M = 70.94, SD = 5.35), Casual employed (M = 51.25, SD = 6.29)

5. Discussion of the findings

The sten diagrams for the various subscales show areas where project professionals were found to be similar to, better off or worse off than the comparison norm group. This discussion explores potential reasons for such divergence as well as potential explanations for the significant differences found (according to gender, marital status, country of employment, basis of employment and managerial status).

Resources and Communication

The *Resources and communication* subscale shows project professionals to be high risk compared with the norm group, mainly caused by *lack of adequate training to do the job*, *lack of feedback on performance*, *lack of information about what is going on in the organisation* and, to a lesser extent, *lack of equipment/resources to do the job*.

Inadequate training has long been recognised as a stressor, because it is associated with career development (Cooper, 1983), and in the context of mentoring and induction, it is important for new recruits to receive adequate training (Arrman & Björk, 2017). Love, Edwards & Irani (2010) suggest that modifying the use of training and technology can be an effective stress management strategy at the organisational level.

Significant differences were found between three types of respondents regarding the level of their concern over *inadequate training*. Firstly, respondents from European countries were less concerned than were respondents from other countries. This may be explained by differences regarding how people function in organisations and what they perceive as sources of stress within different cultural settings (Leung, Chan & Chong, 2010). Secondly, 'casual' employees were more concerned than were 'self-employed' professionals. It appears self-evident that self-employed people are likely to be in control of the type and amount of training they receive, while casual employees are less likely to receive training interventions than contract or permanent employees. Thirdly, managers were less concerned than employees. It appears similarly self-evident that managers would be more in control of whether they receive the necessary training to support their functions than employees would be.

Receiving constructive *feedback* helps people to perform effectively in their jobs, and good communication can also be a powerful source of inspiration and motivation (Faragher et al. 2004). An important aspect of feedback is that it can flag the onset of a stressor, and thereby be an important moderator of stress (Bakker & Demerouti, 2007).

The subscale item *lack of equipment/resources to do the job* was found to be approaching high risk, compared with the norm group. One significant difference was found – between respondents from European countries and from other countries, which may be explained by regional economic theories, such as cumulative causation and imperfect diffusion that counter the neoclassical assumption that technology is spread immediately and widely. The counter view is that technology gaps do indeed exist between regions (Caniëls, 1996).

Control

Overall, the *Control* subscale shows project professionals to be approaching high risk compared with the norm group. The most concerning item was *account not taken of ideas and suggestions about the job*. Such perceived lack of control, or decision latitude, over how people choose to do their work, or whether they feel able to influence their situation, can be a major source of stress (Faragher et al. 2004). The perception of control over their situation empowers people to make active attempts to resolve problems and encourages them to approach their work in a positive way (Karasek, 1979). Increased control can also be a safeguard against the negative effects of other pressures such as work-life imbalance and heavy workloads. Significant differences existed between managers and employees for the subscale items *lack of involvement in decision-making* and *lack of influence over performance targets*, suggesting in both cases that employees feel excluded from decision-making. This is a concerning finding, given that participation in decision-making is regarded as an important job resource that may assist people in overcoming job demands (Bakker & Demerouti, 2007).

An increase in work-related demands may impact negatively on people, leading to divided loyalties when they attempt to meet the needs of organisations as well as those of family and friends

Work-life balance

Project professionals were found to be worse off than the norm group in terms of having a *Balanced workload* – both the *Work-life balance* and *Workload* subscales were high risk. This is consistent with the findings of previous research (Bowen, Edwards, Lingard & Cattell, 2014b; Lingard & Francis, 2004). A good balance between people's work and non-work lives is generally regarded as an important contributor to their overall psychological wellbeing, with work-life imbalance having been described as the primary cause of occupational stress (Faragher et al. 2004; Industrial Society, 2001). An increase in work-related demands may impact negatively on people, leading to divided loyalties when they attempt to meet the needs of organisations as well as those of family and friends (Bowen, Edwards, Lingard & Cattell, 2014a; Lingard & Francis, 2009; Lingard, Francis & Turner, 2010).

The departure from the norm group in the *Work-life balance* subscale was caused by all four of the items, *excessive travel time*, *unsocial hours*, *work interfering with home/personal life* and *long hours*, but mainly the first two. The finding that *excessive travel time* was a stressor is consistent with the findings of similar research using the *ASSET* model (Cattell, Bowen, Cooper & Edwards, 2017). Excessive travel time could mean: the frequency of business travel (away from home); daily commuting; or frequent site visits (away from office). All three of these are potential stressors (Alluisi, 1982; Ivancevich, Konopaske & Defrank, 2003; Leung, Ng, Skitmore & Cheung, 2005). As was expected (Strazdins, Clements, Korda, Broom & D'Souza, 2006), a significant difference was found between married and unmarried people regarding *unsocial hours* and *long hours*, with married people being more adversely affected in both cases. There was also a significant difference related to *unsocial hours* between respondents who described themselves as self-employed and those who were part-time employees, with self-employed people being less adversely affected. This reflects the greater control self-employed people have over their work hours, but it may also reflect a consequence of the trend in work organisation towards results-based, as opposed to time-based, part-time work, ie that part-timers work unsociable hours to produce results sooner (Rubery, Ward & Grimshaw, 2013). The other, expected, significant difference concerning both *unsocial hours* and *long hours* was between respondents from European countries and those from other countries (Chandra, 2012).

Workload

The departure from the norm of the *Workload* subscale was mainly due to *technology overload* and *unrealistic deadlines*. Feeling overloaded by technology might refer to: the pace and nature of new software development, eg information modelling tools (which tends to be supported by the finding that *lack of adequate training to do the job* was high risk compared with the norm group); it could refer to communication overload (eg time spent on computers and smartphones, emailing, texting, etc.); or it could refer to the latent fear of change felt by many workers regarding the use of new office technologies generally (Cooper, 2005; Leung et al. 2005). Tight or unrealistic deadlines are typically part of project work and can be a major source of stress (Asquin, Garel & Picq, 2010; Faragher et al. 2004; Ibem, Anosike, Azuh & Mosaku, 2011). Significant differences relating to *technology overload* were found between married and unmarried people, with married people being more adversely affected, and between respondents from European countries and those from other countries, with the latter being more adversely affected. No explanations for these differences were found in the literature.

Job security and change

Project professionals' overall perceptions of *Job security and change* as sources of stress were approaching high risk relative to the norm group, caused mainly by concerns about *lack of job permanence* and the *fear of skill redundancy*. At the item level, both of these were found to be high risk relative to the norm group, a potentially unexpected result in the case of the latter (Brown, Cooper & Kirkcaldy, 1996). Significant differences regarding concerns about the *lack of job permanence* were found as follows. Firstly, between men and women, with men being less concerned. While this may appear intuitively correct because men are often assumed to enjoy greater occupational mobility, there is also empirical evidence that women may be less concerned than men about job security (Cheng & Chan, 2008). Secondly, married and unmarried people differed significantly, with married people feeling less concerned about a lack of job security. Previous research consistently indicates that married women with a child or children experience higher levels of stress than do single men and women, as well as childless married men and women (Galanakis, Stalikas, Kallia, Karagianni & Karela, 2009). In light of this, the finding that married people were less concerned about job security is counter-intuitive but appears to be explained by the fact that only 32 per cent of married people in the current study were women. A further observation is that 71 per cent of the more concerned unmarried respondents to this item were women. It is unclear, though, whether marital status is generally positively associated with greater concern about lack of job security (László et al. 2010). Thirdly, a significant difference was found between respondents from European countries and those from other countries, with the former being less concerned about job security. This was expected, given the relatively high degree of protection of European employees, achieved via labour legislation and trade unions (Uysal, 2016). Finally, a significant difference was found between those who described their employment as 'full-time' and 'casual', with full-time employees being less concerned, for obvious reasons.

Significant differences regarding the *fear of skill redundancy* were found between: married and unmarried people, with married people being less concerned; respondents from Europe and those from other countries, with European country respondents being less concerned than were their counterparts; and those describing themselves as 'self-employed' and 'casual', with the former being less concerned. While it is obvious why self-employed people would be less fearful of their skills becoming redundant than would casual employees, nothing was found in the literature that explains why married people, or those from European countries, would be so. It is possible that unmarried people feel more vulnerable about potential redundancy because they do not have spouses who would continue earning in the event of them being made redundant.

It is possible that unmarried people feel more vulnerable about potential redundancy because they do not have spouses who would continue earning in the event of them being made redundant

Work relationships

All of the items in the *Work relationships* subscale were found to be high risk compared with the norm group, except for *others not pulling their weight*, which was approaching high risk. The remaining seven items can be grouped according to their reference to: a **boss/manager** – *aggressive management style*, *unclear what boss expects* and *boss forever finding fault*; or **support/relations with colleagues** – *support from others*, *isolation at work* and *poor relations with colleagues*. The item *others taking credit for my achievements* could be allocated to either group. In the boss/manager group, significant differences were found in respect of the following: married people and people from European countries were less concerned about *aggressive management style* and *boss forever finding fault* than were unmarried people and people from non-European countries. Also, unmarried people were more concerned about *unclear what boss expects* than were married people. Nothing was found in the literature to explain these differences. In the support/relations with colleagues group, significant differences were found in respect of: *support from others*, as expected, with men being more concerned than women about not getting the support they need (Bellman, Forster, Still & Cooper, 2003); and *poor relations with colleagues*, where people from European countries were less worried than those from other countries that their relationships with colleagues were poor, in line with cultural tendencies in this regard (Morris, Podolny & Sullivan, 2008).

The potential influence of bosses and managers in causing stress is reported in the literature – poor relationships with managers and colleagues can cause strain, and affect health and performance negatively (Faragher et al. 2004; Michie, 2002). The importance of social support is that it has been found to be a buffer against job stress (Thoits, 1995; Van der Doef & Maes, 1999; Viswesvaran, Sanchez & Fisher, 1999; Chen, Siu, Lu, Cooper & Phillips, 2009). Good relationships at work can be energising and can contribute to the achievement of high levels of engagement and satisfaction, helping people to cope with work pressure and to maintain performance under challenging conditions (Faragher et al. 2004).

Job conditions

The *Job conditions* subscale of the *6 Essentials* scale indicates that, overall, project professionals were high risk compared with the norm group. This was mainly caused by *dull and repetitive work*, *dealing with difficult customers* and *lack of enjoyment of the job*. Significant differences were found in respect of *dull and repetitive work* between married and unmarried people, those from European countries and those from other countries, and between self-employed people and casual employees, with the former in each case being less concerned about the issue. No explanation of these differences could be found in the literature.

The finding that project professionals were more concerned than were the norm group about not enjoying their jobs, finding work dull and repetitive, and dealing with difficult customers and clients is cause for concern because job satisfaction is important to people's overall psychological wellbeing (Faragher, Cass & Cooper, 2005; Kalleberg, 1977). The approaching high-risk items, ie concerns about *work being monitored closely*, *poor physical working conditions* and *risk of physical violence* are also apparently related to job dissatisfaction (Firth, Mellor, Moore & Loquet, 2004). Job satisfaction is causally linked to stress, commitment and turnover intentions (Elangovan, 2001; Mansell, Brough & Cole, 2006). Higher stress leads to lower job satisfaction, which leads to lower commitment and an increase in intentions to quit. Job satisfaction is also a strong predictor of organisational performance (Mansell et al. 2006). Intentions to quit that lead to high staff turnover are clearly detrimental to organisations, while staff retention is beneficial (Parker & Skitmore, 2005). High turnover can also be detrimental to the individuals involved, who suffer from various stressors leading up to the decision to quit (O'Driscoll & Beehr, 1994).

Sense of purpose

The *Sense of purpose* subscale of the *Psychological Wellbeing* scale was approaching high risk compared with the norm group. The causes of this were: *job goals are specific*; *job goals and objectives are clear*; and *committed to achieving job goals*; meaning that project professionals found job goals to be less well specified than they were in the general working population and, similarly, job goals and objectives were found to be less clear, resulting in a relatively lower commitment to achieving them. A sense of purpose theoretically enhances the effect of positive emotions (Robertson & Cooper, 2010) (*positive emotions* was aligned with the norm group in this sample), so this finding indicates the underachievement by project professionals of overall psychological wellbeing, notwithstanding the foundation thereof being in place. Significant differences were found in respect of both *job goals and objectives are clear* and *committed to achieving job goals*, between managers and employees, with managers being clearer about their job goals and objectives, and more committed to achieving them than were employees. Respondents from European countries were significantly more committed to achieving job goals than were their counterparts from other countries. Explanations for these differences are not apparent from the literature.

Strain on physical health

Project professionals were aligned with the norm group regarding *strain on physical health*, but the item *feeling nauseous or being sick* was high risk, with significantly more women than men reporting this. It is unclear why this would be the case, but it is cause for concern.

Strain on psychological health

Only three of the 11 items in the *strain on psychological health* subscale were not high risk compared with the norm group, indicating that project professionals experience a high level of strain on their psychological health. The remaining eight items can be grouped as follows. The first group – *difficulty in making decisions*, *feeling unable to cope* and *having difficulty concentrating* – suggest being overwhelmed by the volume of work, which mirrors the finding that unrealistic deadlines was reported as a high-risk item in the *Workload* subscale. The second group – *avoiding contact with other people* and *unable to listen to other people* – suggest antisocial or intolerant behaviour that could be related to the sense of being overwhelmed, or the presence of depressive or anxiety disorders (World Health Organization, 2016). The third group – *feeling/becoming angry with others too easily*, *mood swings* and *loss of sense of humour* – appear to relate to emotional intolerance. Three of the significant differences found – for the items *feeling angry*, *unable to listen to others* and *having difficulty concentrating* – were differences between people from European countries and people from other countries, with those from other countries being less affected in all three cases. This probably reflects cultural differences. A further three of the significant differences found – for the items *loss of sense of humour*, *avoiding contact with other people* and *mood swings* – were differences between self-employed people and casual employees, with self-employed people being less affected in all three cases. This reflects a generally higher level of psychological health among self-employed people compared with the more vulnerable position and consequent mindset possibly attributable to casual employees.

Engagement

The *Engagement* subscale puts project professionals in the approaching high-risk category, compared with the norm group. Three causes of this can be identified by the items *put myself out for the organisation*, *committed to achieving job goals* and *committed to organisation*, which indicate that project professionals were less inclined to agree with these statements than were the norm group. The relatively low level of engagement of project professionals is a problem, given the link between engagement and productivity/organisational performance outcomes (Markos & Sridevi, 2010; Robertson, Birch & Cooper, 2012). The significant differences found were that: people from European countries were more *committed to achieving job goals* and more prepared to *put themselves out for the organisation* than were people from other countries; and that managers were more *committed to achieving job goals* than were employees. The former difference probably reflects a cultural context, while the latter is more complex than it appears, given the likely relationship, and consequent levels of engagement, for both parties, between managers and employees (Markos & Sridevi, 2010). A possible explanation is that managers are more involved in, and aware of, goals set and therefore more committed to attaining them, which appears to be reinforced by this finding that managers feel more organisational commitment to job goals than do employees (Harter, Schmidt & Keyes, 2002).

Project professionals, while less committed to their organisations, are strongly committed to their projects and willing to work hard for their organisations

Committed to organisation/Work hard for this organisation

The *Commitment of employee to organisation* subscale found project professionals to be high risk compared with the norm group. The cause of this was that project professionals were not as *committed to organisations* as people in the norm group – a surprising finding, given that their preparedness to exceed expectations (*work hard for this organisation*) was aligned with the norm group. Indeed, previous studies found that project professionals' commitment to their projects was high even when working under stressful situations such as unrealistic timelines. For example, Wang and Armstrong (2004) found that project professionals' commitment to the profession was significantly higher than it was to their employing organisations. The fundamental reason for this is that, with project management skills and knowledge, project professionals have opportunities for horizontal job mobility and can obtain jobs in many different organisations. The current study's results show that project professionals were less committed to their organisations, compared with the norm group, but both groups indicate that they felt 'slightly' committed. However, project professionals may be committed to their projects because of their high levels of professional commitment. Although project-level commitment and organisational-level commitment are different constructs, project-level commitment is outside the scope of this study. Future research is required to investigate the different levels of work commitment among project professionals.

Resilience

The overall average *Work-related Resilience* score for project professionals was 65 per cent, considerably lower than the 77 per cent of the norm group. This finding is cause for concern, considering that there is an increased risk of being diagnosed with a mental health disorder among people with lower resilience (Bezdjian, Schneider, Burchett, Baker & Garb, 2017). Self-employed people and managers were found to be significantly more resilient than were other employment basis and employees, respectively. Managers (79 per cent) and self-employed people (79 per cent), respectively, were found to be significantly more resilient than employees (59 per cent) and casual employed people (59 per cent). Managers and self-employed people may be more resilient because they have greater levels of autonomy from which to respond to setbacks.

Resilience is described as a malleable, dynamic process and therefore suitable for intervention (Robertson, Cooper, Sarkar & Curran, 2015) and, for example, research on post-traumatic stress disorder patients has shown that treatment can improve resilience (Connor & Davidson, 2003). In a workplace context, intervention training has been shown to be potentially beneficial, particularly in tackling stress, anxiety, depression and negative emotions among employees (Robertson et al. 2015).

People in management roles were more resilient than employees, and self-employed people were more resilient than were casual employed people

A high level of self-esteem and feeling competent and effective in coping with stressful situations are inherent to feeling resilient. It is also influenced by how frequently one experiences positive and negative emotions (Robertson Cooper, 2012). Project professionals appear to be considerably less *confident* with an average score of 65 per cent for the confidence construct, compared with the norm group's 80 per cent.

This is reflected in the finding that the majority of project professionals (74 per cent) scored lower than the norm level. Interpretation of these data should take into account the significantly greater levels of *confidence* reported by: managers compared with employees; self-employed compared with other employment basis; married compared with unmarried people; and men compared with women. It is inferred from this that women employees are a particularly vulnerable group, and more so if they are unmarried, in terms of lacking in confidence to deal with job-related difficulties. A lack of confidence and the experience of more negative than positive emotions lower resilience and the ability to cope (Bartone, Eid, Johnsen, Laberg & Snook, 2009; Campbell-Sills, Cohan & Stein, 2006).

Resilience requires the ability to adapt to changing situations beyond one's control. People with high levels of resilience handle change well and recover quickly. Psychologically resilient people tend to be flexible in terms of the ability to produce alternate explanations, positively reframe events and accept challenging situations, making them more resilient than inflexible thinkers (Haglund, Nestadt, Cooper, Southwick & Charney, 2007). The adaptability of project professionals is far lower than that of the norm group (71 per cent and 84 per cent, respectively). This finding indicates that the majority of project professionals (78 per cent) scored lower than the norm level. The interpretation of these data should take account of the significantly greater levels of *adaptability* reported by: managers compared with employees; self-employed compared with other employment basis; married compared with unmarried people; men compared with women; and people from European countries compared with people from other countries. This relatively low adaptability score is cause for concern, given that a high level of adaptability improves resilience and the ability to cope – particularly important attributes for project professionals. This should be regarded as an area for intervention, since individual adaptability is a mindset that can be altered (Boylan & Turner, 2017).

Purposeful behaviour has a clear sense of purpose, a particular goal in mind. It is underpinned by clear values and is characterised by drive and direction (Campbell-Sills et al. 2006; Robertson Cooper, 2017). The statements constituting the purposeful construct emphasise the connection between job goals and their perceived worthiness, as a catalyst for motivation and perseverance.

Project professionals (63 per cent) have a lower average purposefulness score compared with the norm group (72 per cent). This reflects that the majority of project professionals (60 per cent) scored less than the norm level. A significantly higher level of purposefulness was found for: managers compared with employees; self-employed compared with casual employees, and married compared with unmarried people. The absence of purposefulness is detrimental to overall resilience. It reduces engagement and commitment and increases work-related stress, with consequences for business outcomes. It was seen from the *Job Conditions* subscale that, relative to the norm group, project professionals did not enjoy their jobs. These issues appear to be related if we consider that a general problem appears to exist concerning job goals (in terms of specificity, clarity and commitment to them), as can be seen from the *Sense of purpose* subscale.

Adverse situations are more easily overcome if one enjoys good relationships with one's work colleagues and can count on their *support* when it is needed (Holahan, Holahan, Moos & Brennan, 1995; Resick, 2001). The absence of such support undermines resilience and increases work-related stress. Project professionals (61 per cent) felt considerably less supported by colleagues when difficulties and challenges arose at work, compared with the norm group (74 per cent). This is reflected in the fact that the majority of project professionals (74 per cent) scored less than the norm level. No relevant significant differences were found. This low level of perceived support needed to meet challenges or rectify problems was also evident in the *Work Relationships* subscale, where support from others was seen to be lower among project professionals relative to the norm group.

6. Recommendations

While project management as a profession is stressful, sustainable performance is impaired when stress levels are too high for too long and when staff do not feel able to rest and recover from extreme stress levels. This section aims to provide both organisations and project professionals with potential interventions to reduce the high levels of stress indicated in the *6 Essentials* subscales (refer to section 4) and thus to enhance the state of wellbeing. The application of these potential interventions must be assessed carefully in the context of the specific organisation and individual, since not all interventions are applicable or appropriate in all situations.

To systematically alleviate the stress levels of project professionals, we suggested organisational-level interventions using the SPEC framework proposed in section 6.1, and individual-level interventions in section 6.2.

6.1 Organisational-level interventions

Our review of the high-risk and approaching high-risk items of the *6 Essentials* subscales, as shown in Table 1, shows that the potential interventions at the organisational level can be categorised in four interrelated dimensions, namely: strategy, operational planning, execution, and continuity and growth. In addition, many high-risk and approaching high-risk items could be related to more than one category for interventions, which means organisations can choose the most appropriate interventions to implement. The definitions of the four categories are as follows:

Strategy (**S**) refers to potential interventions that involve macro-level changes in the context of work, such as organisational culture, technology applications and corporate policies, in order to address the overstress problems of project professionals environmentally.

Operational planning (**P**) focuses on interventions that move strategy to planning for actions more effectively. As a result, it could help project professionals to manage their work stress. For example, using resource planning and goalsetting, organisations empower and engage with employees to plan for work tasks that align with strategic objectives.

Execution (**E**) is about interventions that help implement plans in work more efficiently. For instance, organisations implement performance management processes to enable project professionals to attain the planned goals through giving constructive and constant feedback to individuals and teams, which helps alleviate their stress level.

Operational planning focuses on interventions that move strategy to planning for actions more effectively. As a result, it could help project professionals to manage their work stress

Continuity and growth (**C**) refers to interventions that enhance the capabilities of the workforce to work more efficiently and effectively. As a result, it could strengthen operational planning and execution in a continuous way to better support strategic execution. For example, organisations provide project professionals with training and development programmes to enhance their decision-making, problem-solving and performance management skills. Consequently, it helps to build up their capacity of dealing with stress, and managers' ability to create a better and less stressful workplace.

In the following part, we used this **SPEC** framework to propose and categorise potential interventions that could enable organisations and teams to choose the appropriate interventions for improving the wellbeing of project professionals.

6 Essentials subscale	Items of the subscale	Rating	Strategy (S)	Operational planning (P)	Execution (E)	Continuity and growth (C)
Control	Involvement in decision-making	7	X	X	X	X
Control	Lack of control over aspects of the job	7		X	X	
Control	Lack of influence over performance targets	7	X	X	X	X
Work relationships	Others not pulling their weight	7			X	
Job conditions	Work performance closely monitored	7			X	
Resources and communication	Lack of equipment/ resources to do the job	7		X	X	
Work-life balance	Long hours	7		X	X	
Work-life balance	Work interfering with home/ personal life	7		X	X	
Workload	Unmanageable workloads	7		X	X	
Job conditions	Poor physical working conditions	7	X	X	X	
Job conditions	Risk of physical violence	7	X	X	X	

Table 1: Categories of Interventions on 6 Essentials

6 Essentials subscale	Items of the subscale	Rating	Strategy (S)	Operational planning (P)	Execution (E)	Continuity and growth (C)
Work-life balance	Unsocial hours	8		X	X	
Workload	Unrealistic deadlines	8		X	X	
Job security and change	Fear of skill redundancy	8	X			X
Resources and communication	Lack of feedback on performance	8		X	X	X
Job security and change	Lack of job permanence	8	X			X
Control	Account not taken of staff ideas/suggestions about the job	9	X	X	X	
Job conditions	Dull and repetitive work	9	X	X	X	X
Work-life balance	Excessive travel time	9	X		X	
Workload	Technology overload	9	X	X		

Table 1 continued: Categories of Interventions on 6 Essentials

6 Essentials subscale	Items of the subscale	Rating	Strategy (S)	Operational planning (P)	Execution (E)	Continuity and growth (C)
Work relationships	Support from others	9	X		X	X
Resources and communication	Lack of adequate training	9	X		X	X
Job conditions	Dealing with difficult customers/ clients	9	X		X	X
Work relationships	Unclear what boss expects	10	X		X	X
Work relationships	Aggressive management style	10	X		X	X
Work relationships	Boss is forever finding fault	10	X		X	X
Work relationships	Isolation at work	10	X		X	
Work relationships	Others take credit for my achievements	10	X		X	
Work relationships	Poor relationships with colleagues	10	X		X	
Job conditions	Lack of enjoyment of job	10	X	X	X	X

Table 1 continued: Categories of Interventions on 6 Essentials

6.1.1 Strategy (S) interventions

The results of the *6 Essentials* indicate that many items relate to top-level organisational issues. These include, but are not limited to, the following items: *lack of information about what is going on in the organisation*, *lack of feedback on performance*, *lack of involvement in decision-making*, *lack of influence over performance targets*, *account not taken of staff ideas/suggestions about the job*, *unmanageable workloads*, *organisation changes for change's sake*, *poor relationships with colleagues*, *unrealistic deadlines*, *unsocial hours* and *aggressive management style*. The above items also indicate pervasive work stressors on project professionals arising from the culture, structure and policies of organisations. Under the circumstances, strategy interventions, like cultivating positive culture, establishing a project management office and developing supportive corporate policies, were suggested to tackle the overstress issues at a macro level.

Cultivate Positive Culture

Negative or toxic cultures unnecessarily increase stress on project professionals, decreasing their performance. The results on the *6 Essentials*, such as the items of *others not pulling their weight*, *work performance closely monitored* and *boss is forever finding fault*, suggest that improvement is needed in a number of items characteristic of a positive workplace culture. According to Miller (2018), some characteristics of a positive culture include:

1. frequent and transparent communication;
2. active social support over individual performance;
3. clear goalsetting from the strategic to the task level;
4. reasonable and attainable work expectations;
5. appropriate consideration of work-life balance;
6. appreciation of a job well done;
7. active professional development programmes; and
8. frequent performance feedback.

Development of a positive workplace culture would include these steps:

1. conduct a culture audit to determine whether the values of the organisation are reflected fully in the behaviours of the organisation's members;
2. validate the values of the organisation to assure they are in alignment with the strategic objectives;
3. develop observable behavioural standards representing the implementation of the values with the assistance of staff;
4. provide training and feedback on value-based behaviours in the workplace; and
5. include the assessment of value-based behaviours in periodic performance evaluations.

Implementation of a Project Management Office

For some organisations, project management is viewed as a tool, not a strategy. This may result in a disconnection between strategic planning and project planning, creating a stressful and possibly toxic work environment for project professionals. One possible solution to this is for project management processes and techniques to be elevated to the strategic level by establishing a project management office (PMO). A PMO actively manages all projects undertaken in the organisation, assuring that projects are properly prioritised, resourced, staffed and actively managed to assure goal attainment. It is empowered to intervene if the project is off schedule, under-resourced, or in competition for resources with functional elements of the organisation.

Develop Supportive Corporate Policies

The *6 Essentials* results, such as the items of *unsocial hours*, *fear of skill redundancy*, *unmanageable workloads*, *lack of time*, *long hours*, *poor physical working conditions*, *risk of physical violence* and *excessive travel time*, suggest that a comprehensive review and possible redevelopment of critical HR policies may be necessary to reduce unnecessary exposure to workplace stressors. Work-life balance is difficult in a high-demand field such as project management. However, there are a variety of possible interventions, which need to be supported by policy and incorporated into managers' performance reviews to assure compliance. Some companies actively limit the amount of overtime permitted, understanding the diminishing marginal return of excessive work hours per week. Some companies, recognising that overtime may be necessary, provide compensatory time, subsequent opportunities for telework, subsequent opportunities for alternative work schedules and, in some cases, supplemental compensation.

Where and when possible, use of alternative work schedules may be invaluable. These need to be customised for the organisation, the project and the team. They may range from flexibility to be gone from the project for a couple of hours to see a child's school play to something more comprehensive. Increased autonomy over when work is completed decreases experienced stress and may well increase motivation.

Some companies actively limit the amount of overtime permitted, understanding the diminishing marginal return of excessive work hours per week

Toxic management, such as *aggressive management style*, *boss forever finding fault*, *unclear what boss expects*, *unrealistic deadlines*, *unmanageable workloads*, *lack of control over aspects of the job*, *lack of equipment/resources to do the job* and *lack of feedback on performance*, among other items in the *6 Essentials*, must be addressed at an organisational level. Setting standards for positive managerial behaviours within HR policies, providing managerial training and feedback, and then supporting that through the establishment of performance objectives for good management, is a possible intervention. At its base, managers need to reconceptualise their role from command and control to facilitation of the team in attaining shared work goals.

Project-related travel may also need to be the subject of revised HR policies as *excessive travel time* was indicated as a high-risk item in the *6 Essentials*. Extended out-of-town travel and unusually long daily commutes are stressors that may be mitigated by flexible time-off policies, flexible overnight stays, shared commuting, or flexible work hours to avoid peak congestion periods.

6.1.2 Operational Planning (P) interventions

Operational planning (**P**) focuses on interventions that move strategy to planning for execution. Ideally, after strategic objectives and success criteria are determined by executive management, project professionals should be included in the development of appropriate project plans to implement those objectives. However, the results of the *6 Essentials* items, such as *unclear of what the boss expects*, *unrealistic deadlines* and *technology overload*, strongly suggest that higher-level management may not be taking sufficient care in developing plans with reasonable input and participation by project professionals.

Besides being an unnecessary stressor, this lack of consultation may well result in plans with a higher risk of failure because they did not include all relevant considerations when prepared. Planning interventions, like integrating project management techniques into operational planning, introducing high-level change management planning, developing active job design and strengths-based management, and creating a consistent strategic communication programme were proposed to alleviate the overstress issues.

Integrate Project Management Techniques into Operational Planning

For some organisations, project management techniques are deployed only on discrete projects and have not been integrated into the operational planning and execution of the work of the organisation as a whole. This may result in a mismatch between projects and the operational plan in terms of scope, schedule and budget (both financial and human resources), which creates undue stress on staff. Improving project management maturity levels as shown in Figure 59 is a way to integrate project management techniques with operational planning. By doing so, project professionals may feel less stressed at work. Project management maturity levels reflect the extent to which project management is integrated and integral to the work of the organisation. As project management maturity increases, the rigorous practices of project management extend further into the organisation, likely reducing stressors arising from poorly planned and resourced projects. Additionally, the more fully project management is integrated into an organisation, the less isolated project professionals are from the general employee population. When projects are one-offs, the project professionals may feel isolated, different and unsupported, thereby increasing their experienced stress. This may be particularly true when they are managed by non-project professionals within a traditional functional organisation.

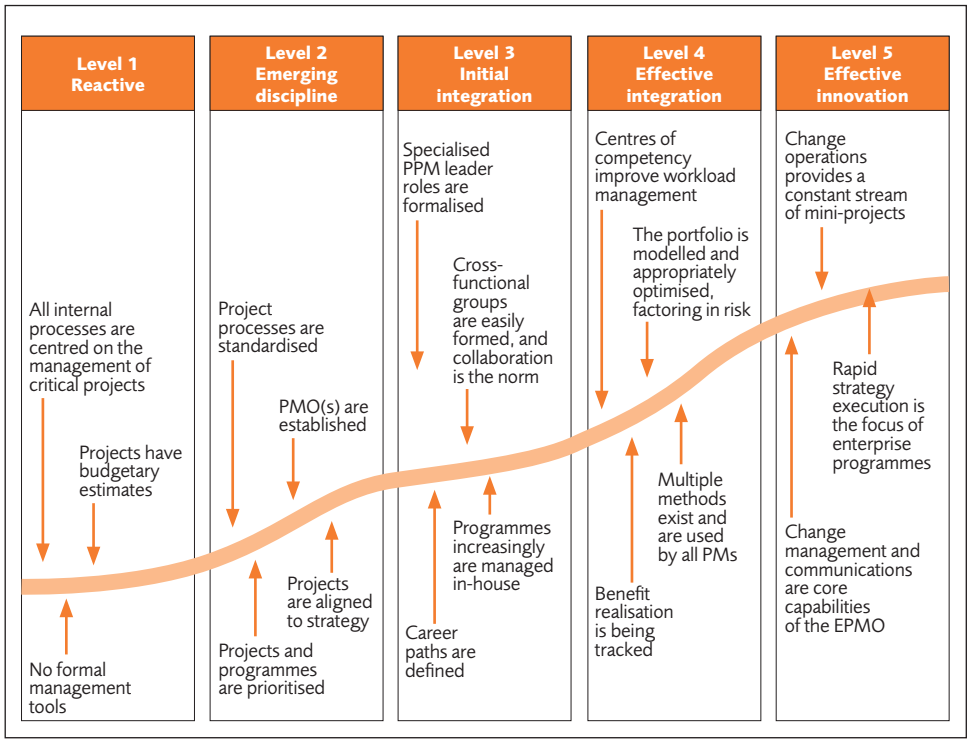


Figure 59: Gartner Project Management Maturity Model

High-level Change Management Planning

Change takes time and effort. Organisations often create unnecessary and sometimes toxic levels of stress by not including project professionals early in the change management process, obtaining their input and advise about how to move forward with the change, not allowing for the time it takes people to assimilate technical and process changes, and not actively supporting the change process. Possible interventions here include:

1. establish a formal change management process;
2. delegate the execution of the change management process, including prioritisation and resource management, to a PMO;
3. specifically budget into all projects time and effort resources for the assimilation of significant technology and process changes; and
4. enable project professionals to understand organisational dynamics of change.

Technology change also needs to be planned in a similar fashion. Working on a tight deadline with new technology frequently creates unnecessary stress, discouraging project professionals from adopting the required technology change to successfully complete the project's work. Clear and early communication about the technology changes, followed by education, practice and then deployment, can support effectively more rapid technology change.

Active Job Design and Strengths-Based Management

Project professionals bring a variety of expertise to the projects on which they work. They also bring diverse portfolios of personal strengths. Strengths-based management provides an opportunity for project professionals to optimise their performance and reduce their stress by approaching project tasks through using their strengths. This concept suggests that strategic, project and task objectives are set by management (best practice is with involvement from the team) and team members are permitted to actively design how the job is done, including approaching it in a way that optimises the use of their strengths while minimising use of their weaknesses, and encourages active collaboration among team members to optimise strengths use for attainment of project goals. For more information about how to encourage active job design as a way to reduce stressors for project professionals, explore resources found at this link: http://bit.ly/Job_Crafting.

Create a Consistent Strategic Communications Programme

In order for all project professionals to do their best work, they need to have insights into how their work aligns with the strategic objectives of their organisation. Additionally, all project professionals need to understand the benefits or purposes derived from their actions on the project in order keep them motivated. While often subsumed into the crush of daily activities, top-down communications of strategic objectives, potential impediments, upcoming changes and competitive developments, as well as current results of operation, are critical information for all project professionals. Without this information they will be less able to prioritise and execute tasks successfully. Against this backdrop, management at the highest level needs to create a communication programme that enables project professionals to know what is going on in the organisation, and where it is going. Additionally, managers at other levels need to have an affirmative duty to communicate information into their project teams regularly. This could happen at regular team meetings, in response to specific team enquiries or in one-to-one meetings with project team members.

6.1.3 Execution (E) interventions

Execution (**E**) is about interventions that implement plans at work. Once implementation plans have been developed, the management of project teams needs to be designed in such a way that project professionals are sustainably able to execute project objectives without the distraction from manageable stressors. Potential interventions include giving constructive performance management and feedback, and supporting dynamic resource management.

Give Constructive Performance Management Feedback

Giving immediate and constructive performance feedback delivered with some frequency through performance management systems is important, as the ability of project professionals to make midcourse adjustment to improve their performance is dependent upon timely feedback. This feedback may come from peers, subordinates, supervisors and clients. All too often feedback is limited to corrective feedback, and the opportunity to provide appreciative and constructive feedback that reinforces positive behaviours is not fully realised. Possible interventions here include:

1. create a culture of appreciation;
2. cultivate a culture of mutual accountability (the hallmark of a true team);
3. encourage collaboration over competition within the team;
4. include 'what went well' sessions in regular team meetings; and
5. set team goals rather than individual goals for performance may encourage better teamwork over time.

Support Dynamic Resource Management

Through supportive management and supervision, managers are tasked with having to actively and dynamically align scope, schedule and budget to manage the dual objectives of project delivery and staff development. Managers need to be encouraged and supported by executive management to broaden their management toolkit beyond the 'do more with less' mantra. Managers need organisational support to be able to renegotiate deadlines, acquire additional resources when necessary and redefine scope when appropriate to optimise the balance between goal attainment and staff sustainability. Interventions here include managerial training, organisational support, possibly through a PMO, and active engagement of the manager with the project team to identify issues and implement solutions as promptly as possible.

6.1.4 Continuity and growth (C) interventions

Continuity and growth (**C**) refers to interventions that enhance the capabilities of the workforce to work more efficiently and effectively. The proposed continuity interventions here mainly involve professional development of project professionals because the results of the *6 Essentials* items revealed that project professionals are significantly stressed by fear of redundancy, lack of challenging assignments, boring and repetitive work and lack of training, etc. Under the circumstances, possible interventions include building a strategic training programme and developing different career tracks for managers and technical experts.

Managers need to be encouraged and supported by executive management to broaden their management toolkit beyond the 'do more with less' mantra

Build a Strategic Training Programme

The success of an organisation is dependent upon the capabilities of its employees. In a fast-changing work environment, ongoing professional development is an imperative, but it is an imperative that is often in conflict with the need to meet immediate, short-term project goals. Elevating training to ongoing professional development and linking it to strategy attainment may be an important intervention for organisations employing project professionals, as it enables them to have the capabilities to plan and execute strategic objectives effectively. This needs to occur at a corporate policy level and be actively supported by the human resource function. The following depicts a four-step model for developing a comprehensive training programme:

1. Conduct comprehensive assessment of strategic core competencies
This begins at a strategic level with the identification of core competencies necessary for the organisation to successfully and competitively implement strategic objectives.

2. Evaluate existing strategic core competencies of staff
Once a portfolio of core competencies has been established, a comprehensive assessment needs to be conducted to identify which of these core competencies are adequately represented in the current staffing and which may need to be supplemented through training and development, learning on the job or recruitment of new staff.

3. Conduct a gap analysis of strategic core competencies
Comparison of the required strategic core competencies with the current portfolio of strategic core competencies will yield a gap analysis identifying areas where specific professional development may be needed. Additionally, it may identify areas where specific strategic core competencies must be purchased either through the recruitment and hiring of new staff or the engagement of outside expertise.

4. Develop a comprehensive professional development programme
Professional development programmes should be designed and implemented to support the ongoing development of project professionals and their managers according to the above gap analysis. In addition to the traditional technical and university education, these programmes should take advantage of cost-efficient and just-in-time learning opportunities such as Massive Open Online Courses (MOOCs), brown-bag lunches and bespoke courses for professionals.

Support for project professionals to obtain relevant project management certifications may also be a tool in the professional development programmes portfolio, as it could help them to build their confidence and capability in managing projects.

Support for active participation in professional organisations, such as APM, is another important component of professional development. Organisations and their project professionals benefit from the participation by staying in touch with changes and trends in their industry and profession, building professional networks, learning and sharing best practices with people in the same profession.

Develop Different Career Tracks

Project professionals may be subject matter experts, technical staff, who are asked to fulfil the same role on all projects. From the organisation standpoint, it capitalises on their expertise, however, from the individual standpoint, it may feel like career stagnation because it may turn out to have limited opportunity for promotion and learning new things.

Organisations can address this by providing discrete career tracks for technical professionals, allowing them a sense of progress professionally while allowing them to contribute their technical expertise. Development of technical and non-technical (managerial) career tracks provides the opportunity for the organisation to optimise the contribution of all of its employees.

6.2 Individual-level interventions

Individuals and small groups within organisations may often feel that only management, and often only at the most senior level, is able to implement effective and necessary changes in their workplace. This sense of helplessness, this sense that they have no control over their work environment, creates additional stress in the workplace, exacerbating already high levels of stress. This section discusses possible interventions that could be made by individuals acting without the necessity of senior management taking action first.

Active Management of Personal Stress

Stress has many sources arising from one's personal life conditions to conditions at work. Stress, however, can be managed through learning active stress management techniques, which include improving 1) time management skills; 2) stress management skills; and 3) energy management skills.

1. Time Management

While time is of finite quantity, it is possible to be better managed at the individual level. Some possible interventions include:

- establish or clarify personal values addressing what you would like to be known for and/or what's important to you;
- conduct a time usage self-audit documenting how you use time for a one- or two-week period;
- compare how you spend your time with what is valuable to you and identify areas where greater alignment may be attained;
- develop a plan and set goals for better alignment between values and actual expenditure of time;
- recognise that not all tasks are created equal, consider the urgent/not urgent, important/not important matrix popularised by Stephen Covey, using your time usage self-audit, assess how you are spending your time and make adjustments as necessary to improve your focus on things that will have the greatest impact;
- adopt appropriate time management skills: limit multitasking, schedule time with yourself for dedicated work on major initiatives and use Pareto's 80/20 rule to focus on the things that have the greatest impact;
- effectively manage other people's access to your time, set goals across multiple time horizons and start each day with a daily to-do list;
- actively manage your time and set deadlines to assure tasks don't expand to the time available;
- actively manage meetings and seek assistance when needed from others; and
- actively collaborate with supervisors and team members to plan tasks to assure there are reasonable deadlines and adequate resources.

Consider re-evaluating how you think about stress. Do you see stress as a negative or might you be able to reframe certain stressors as a challenge to be met?

2. Stress Management

While project management as a profession is stressful, it is possible for stress to be better managed at the individual level. Some possible interventions include:

- learn the signs of adverse stress reactions: physical, emotional and mental;
- recognise and engage the four major causes of stress at work: time stressors, encounter stressors, anticipatory stressors and situational stressors;
- actively manage encounter stressors that arise from interpersonal interactions by building close working relationships, developing higher levels of emotional and social intelligence, and contributing to the wellbeing of others in the workplace to build community and support;
- actively manage anticipatory stressors that arise from fear of future bad or unpleasant events: fear, failure of embarrassment, job loss, aggressive or toxic managers. Set small goals in support of larger goals and capitalise on small wins to build confidence, set appropriate boundaries with aggressive or toxic managers;
- actively manage situational stressors that arise from your specific working environment; consider job crafting – redesigning the job to best utilise your strengths while managing your weaknesses; and
- consider re-evaluating how you think about stress; do you see stress as a negative or might you be able to reframe certain stressors as a challenge to be met?

3. Energy Management

Some possible interventions include:

- use an online self-assessment, such as the one offered by the Human Performance Institute, to assess your current level of energy in four dimensions: physical, emotional, mental and spiritual, which is purpose-driven energy;
- adopt healthy physical habits, including appropriate nutrition, hydration, sleep and exercise, to enhance the physical energy level;
- actively manage cycles of expenditure of energy (stress) and recovery, moving to adopt the recommended high-performance cycle of 90 minutes of focused work followed by 20 minutes of focus recovery throughout the day;
- build emotional energy by focusing on establishing close relations personally and professionally, building hope and optimism, and actively expressing appreciation of others;
- build mental energy by following disciplined exertion/recovery rituals, limiting work hours, stopping multitasking, providing alone time for focused work and doing your most challenging work first; and
- build spiritual energy through reflection and alignment of your work activities, concentrating on doing what you do best and enjoy most, actively allocating your time to what's most important to you, and living your values.

Adoption of a strengths-based approach

1. complete a strengths assessment online to identify your particular strengths and weaknesses;
2. redesign your work while meeting organisational goals to optimise the use of your strengths and to manage your weaknesses; and
3. build a shared knowledge of individual strengths within your team to support active collaboration on team objectives and to maximise the use of individual team members' strengths.

7. Conclusions and future research directions

Overall, project professionals compare unfavourably with the norm group – only three of the 15 subscales used show them to be aligned with the general working population. Six subscales show the departure from the norm as high risk and four subscales show it as approaching high risk. None of the *6 Essentials* subscales were aligned with the norm group. The greatest departures from the norm occur in the areas of work relationships and job conditions. The *Work relationships* subscale shows that project professionals' work situations were characterised by poor relationships with, and lack of support from, bosses and colleagues, while the *Job conditions* subscale portrays their work condition to be unpleasant. The other subscales also flag concerns – the *Your Health* scale indicates *strain on psychological health* to be a high-risk area, the *Psychological Wellbeing* scale shows *sense of purpose* to be approaching high risk, and the *Engagement and Related Scales* scale shows project professionals to have lower engagement levels and considerably lower levels of commitment to their organisations compared with people in the norm group. Resilience levels are also far lower than the average for the norm group.

If the work stress levels, health, wellbeing and engagement of project professionals are to become better aligned with the general working population, analysis and interventions are required at both the organisational and professional levels. Once organisations know what the problems are, they can evaluate how best to respond. The current study provides direction in this regard. However, not all problems are capable of being addressed at the level of the organisation. Some problems are widespread and deeply rooted in the culture of the profession. They will need to be addressed by the profession, both at the policy and practice levels. Programmes promoting mental health are needed, the design of which should adopt a multi-stakeholder, multi-level approach.

This study has revealed several opportunities for future research. Firstly, given our finding that the wellbeing of self-employed people is consistently higher than that of their counterparts, it would be useful to explore the 'characteristics' of this employment category with a view to possibly incorporating them into the job design of project professionals. Secondly, we found that women were less confident and less resilient at work compared to their male counterparts, potentially impacting negatively on their level of wellbeing. Research would usefully be directed at understanding what contributes to this phenomenon, and how it can be remedied. Thirdly, future research is required to investigate the different levels of work commitment among project professionals. Finally, while this study employed the psychometrically validated *ASSET* model in this assessment of the wellbeing of project managers, little is known regarding the factorial structure and psychometric properties of the *ASSET* model in the context of project professionals. This shortcoming needs to be addressed by validating the model in this context.

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