

POQA-R4

Personal and Organizational Quality Assessment - Revised 4 Scale

Report for:

**Aggregate Matched Pairs
n = 14,266**

January 17, 2003 through December 31, 2020

Confidential

Personal and Organizational Quality Assessment – Revised 4 Scale

The POQA-R4 is an assessment of workplace quality based on a survey questionnaire which gathers self-report information on socio-demographic and key psychological and workplace elements that contribute to the overall quality and effectiveness of an organization. Originally developed to provide an assessment in two main domains of workplace quality and function—Personal Quality and Organizational Quality—the assessment has been revised and updated, by HeartMath Research Center scientists, with a new, empirically validated conceptual framework. Based on 52 questions from the original POQA-R survey, the new conceptual framework reclassifies these items into four major scales of workplace quality which directly affect health and job performance.

Socio-Demographic Profile

Eight items of basic socio-demographic information describing the respondents' characteristics were measured: gender, age, marital status, employment status, level of education, hours worked per week, number of years in the organization, and number of years in the current job. The results are presented in the bar-charts on page 3.

The POQA-R4 Model

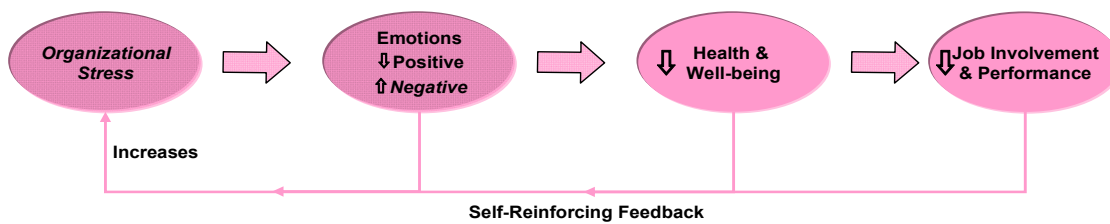
Reflecting HeartMath’s focus on the key role emotions play in the workplace, two of the four factors in the POQA-R4 model measure emotions. The four factors are Emotional Vitality, Emotional Stress, Organizational Stress, and Physical Stress. Each of the four factors has been constructed into a robust, statistically valid and reliable scale (see the Technical Appendix at the back of this report), and each has been subdivided into subscales, using the same statistical techniques, to provide a more fine-grained picture of the components within each factor.

The two models below show how the introduction of HeartMath’s emotional management tools can mitigate the negative impacts of organizational stress and emotional stress by teaching employees how to manage their stress more effectively.

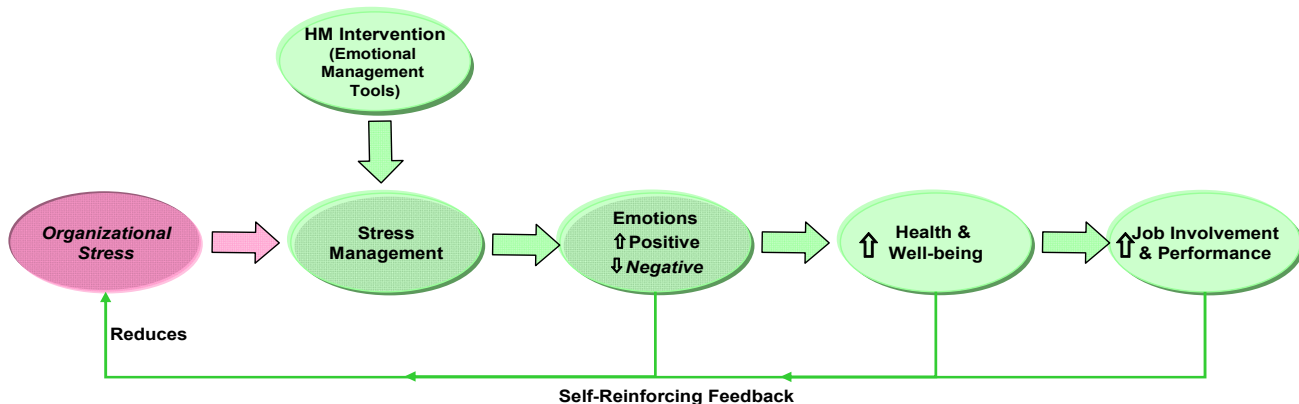
In the first model, the effects of organizational stress operate to increase negative emotions and, at the same time, reduce positive emotions. The combined effects of these factors have a deleterious impact on physical stress—the health and well-being of employees. This not only increases health care costs and employee turnover, but it also reduces job performance and organizational effectiveness. Left unaddressed, this system of negative affects acts as a self-reinforcing cycle with a downward dysfunctional impact on both employees and the organization.

By contrast, the introduction of HeartMath’s emotional management tools, shown in the second model, improves employee ability to effectively manage stress (from sources both within and outside the organization). This facilitates an increase in positive emotions and a corresponding reduction in negative emotions, which, in turn, improves the health and well-being of employees. The combined effects of these positive changes reduce health care costs and employee turnover, and lead to an improvement in job performance and effectiveness. Over time, the sustained practice of effective emotional management techniques generates a self-reinforcing system of positive changes throughout the organization which shifts the organization to an enhanced level of function and performance.

Effects of Organizational Stress



Effects of HeartMath Intervention



Personal and Organizational Quality Assessment - Revised 4 Scale

Aggregate Matched Pairs

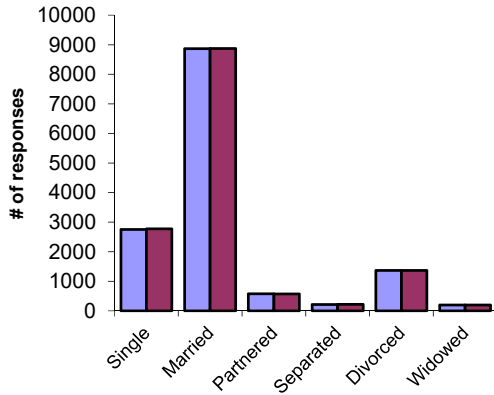
January 17, 2003 through December 31, 2020

PRE
POST

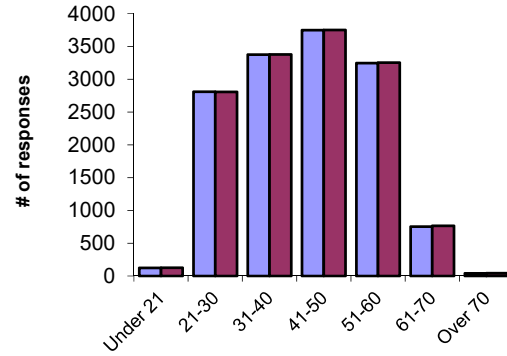
Total Responses
14266
14266

Gender: 2206 Males, 11974 Females and 86 NA
Gender: 2210 Males, 11993 Females and 63 NA

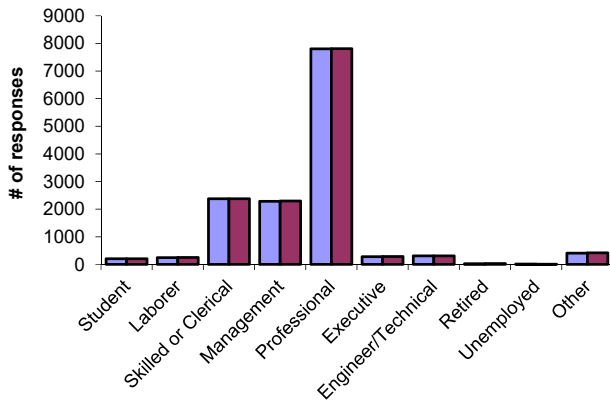
Marital Status



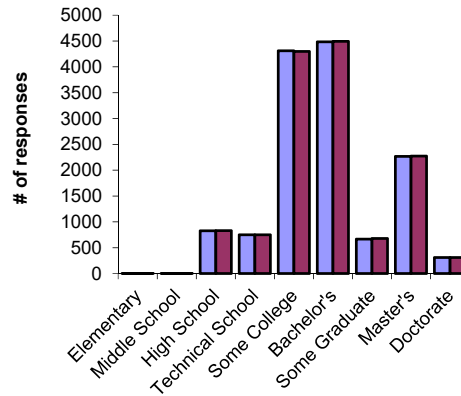
Age Range



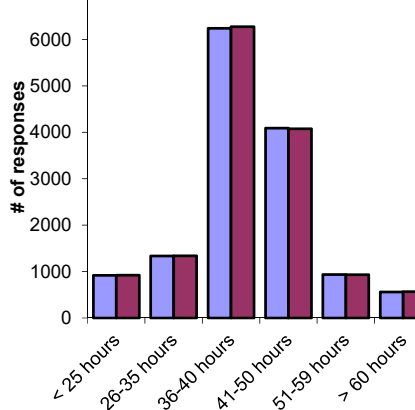
Employment Status



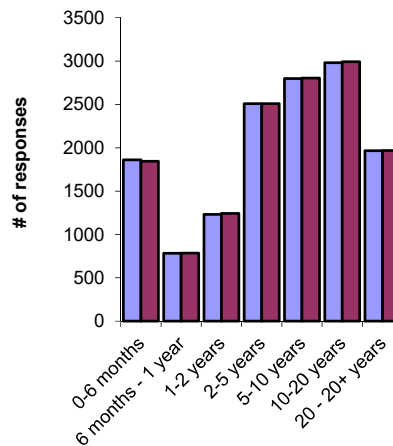
Education



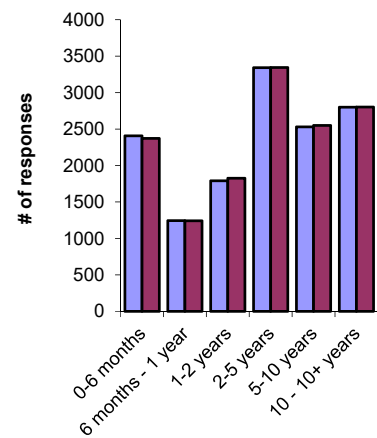
Hours Worked per Week



Years at Organization



Years at Current Job



Personal and Organizational Quality Assessment – Revised 4 Scale

Guide for Interpreting Scores on the Scales

The following is provided to aid the interpretation of the results from the statistical analysis of your workforce's scores on the POQA-R4 scales and subscales. The scores are based on an aggregated analysis of the usable data from completed surveys. The information presented in this report is intended to provide a profile of the quality of your organization's workplace environment in terms of the major factors that enhance or detract from effective work performance, at this time. Thus, this information is designed to highlight those aspects of the workplace environment that may require management attention and intervention in seeking to improve organizational performance.

Normative Summary

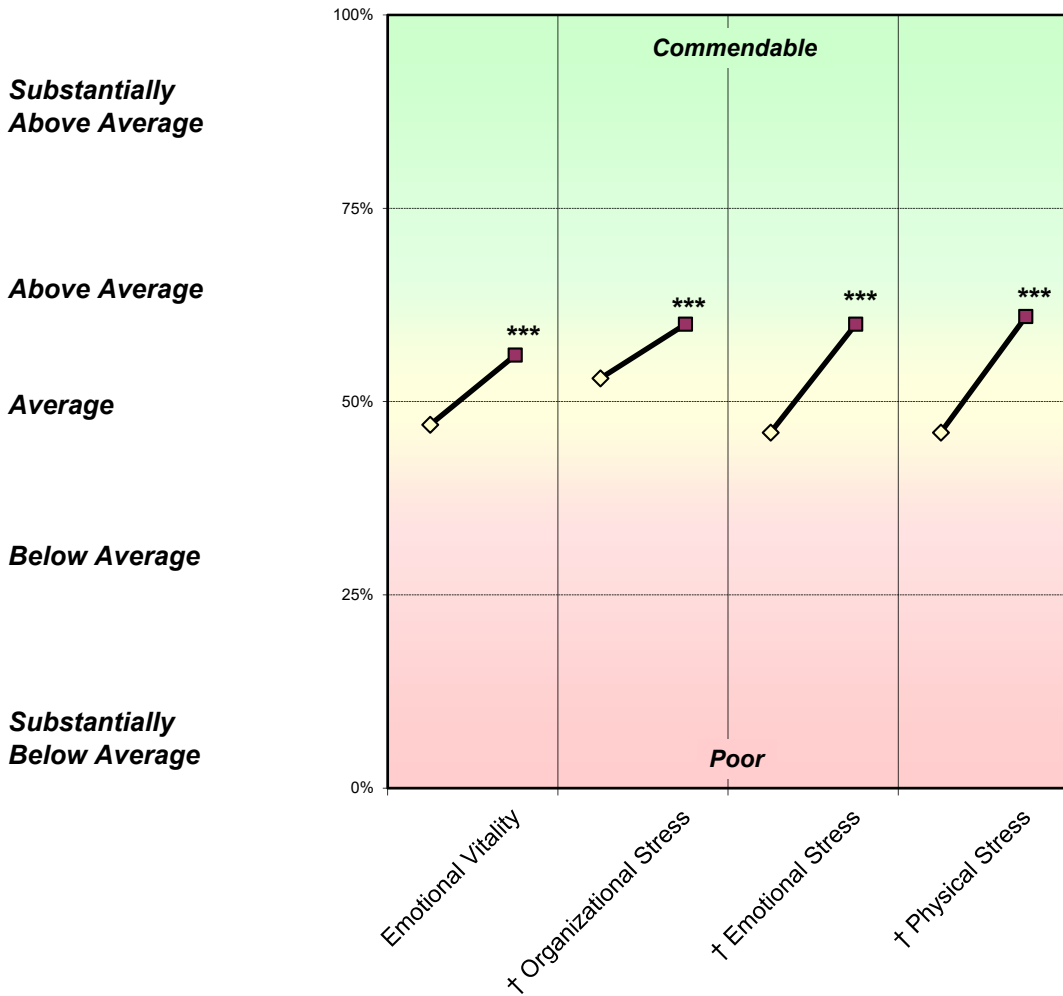
To help place the interpretation of the results on your organization in a broader context, we have compared your organization's scores to norms from a large convenience sample of 5,971 working adults (pages 5 & 7). The distribution of scores on each scale for the normed sample has been rescaled to a statistical scale with a maximum value of 100. Scores of 25 and below are considered low. For example, if your organization had a score of 23, this means that 23% of the individuals in the normed sample have scores equal to or lower than yours. Conversely, scores of 75 and above are considered high. Thus, if your organization had a score of 79, then your score is higher than 79% of the individuals in the normed sample have scores equal to or lower than your score.

Included in the graphical presentation of the data in the Normative Summary is a description of the meaning of each primary scale (page 6) and its associated subscales (page 8). A guide on how to interpret each scale is included after the Normative Summary. Reflecting the conceptual model described above, the scales and subscales have been grouped into positive and negative factors. The interpretation guide has been written to highlight aspects of the workplace that appear to be problematic and may need management's attention and intervention.

Aggregate Matched Pairs

January 17, 2003 through December 31, 2020

PRIMARY SCALES



† Reverse coded to show the degree of improvement over time

Paired t test significance;

* p < 0.05, ** p < 0.01, *** p < 0.001

◇ Pre
■ Post

Emotional Vitality scale: wholehearted positive emotional energy that enriches life experience and enhances health and well-being.

Organizational Stress scale: organizational impediments and relational discord that impair work performance, reduce job satisfaction, and increase employee turnover.

Emotional Stress scale: emotional discord that reduces the quality of life experience and jeopardizes health and well-being.

Physical Stress scale: physical symptoms of fatigue and poor health that reflect the overall stress an employee is experiencing.

Primary Scales

POSITIVE FACTORS—Enhance Organizational Performance

Emotional Vitality scale: positive emotional energy that enriches life experience and enhances health and well-being.

This scale is an overall measure of the degree to which employees feel a positive emotional energy that enables an optimistic and fulfilling life experience. Low scores on this scale suggest it is likely that the employees have low levels of emotional vitality, and, hence, may have limited emotional energy available to invest.

NEGATIVE FACTORS—Impede Organizational Performance

Organizational Stress scale: organizational impediments and relational discord that impair work performance, reduce job satisfaction, and increase employee turnover.

This scale is an overall measure of the degree to which employees feel negatively pressured by stressors and conflicts at work and in their personal lives that not only detract them from work performance but may also lead them to want to quit their job. High scores on this scale signify likely stressors and tensions employees feel they are experiencing that impede work performance and may also signal an intention to quit.

Emotional Stress scale: emotional discord that reduces the quality of life experience and jeopardizes health and well-being.

This scale is an overall measure of the degree to which employees report negative emotions, which they have difficulty controlling and which they feel impair the quality and effectiveness of their life experience. High scores on this scale indicate it is likely that the employees are feeling emotionally stressed, overwhelmed, and/or frustrated by the present circumstances of their lives.

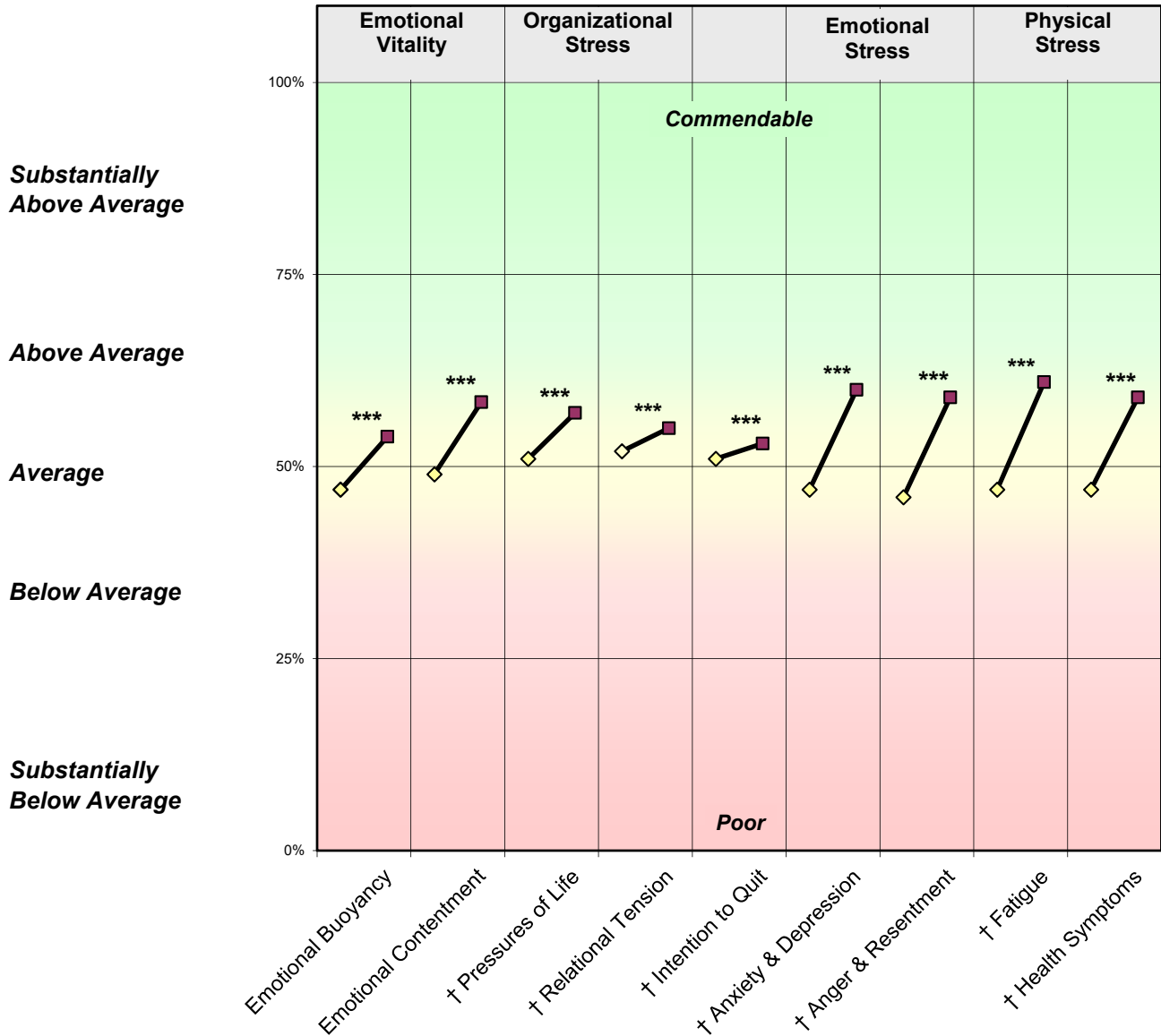
Physical Stress scale: physical symptoms of fatigue and poor health that reflect the overall stress an employee is experiencing.

This scale is an overall measure of the level of physical symptoms of stress among employees. High scores on this scale indicate the employees may have low levels of physical and emotional energy and may also be experiencing precursors of significant health issues and problems.

Aggregate Matched Pairs

January 17, 2003 through December 31, 2020

Subscales



† Reverse coded to show the degree of improvement over time

Paired t test significance;
 * p < 0.05, ** p < 0.01, *** p < 0.001

◇ Pre
 ■ Post

- Emotional Buoyancy:** emotional energy available for work and personal life.
- Emotional Contentment:** feeling of contentment and inner peace.
- Pressures of Life:** feeling overwhelmed by work pressures and the demands of life.
- Relational Tension:** stressed by relational disaffection and coworker conflict.
- Intention to Quit:** thinking about leaving the organization.
- Anxiety/Depression:** feelings of anxiety, unhappiness, sadness, and/or depression.
- Anger/Resentment:** feelings of anger and resentment and difficulty in emotional control.
- Fatigue:** feelings of tiredness, fatigue, and physical exhaustion.
- Health Symptoms:** physical tension, aches, and pain, stomach upset, rapid heartbeats, and headaches.

Subscales

POSITIVE FACTORS—Enhance Organizational Performance

The **Emotional Vitality scale** has two components or subscales:

Emotional Buoyancy subscale. Low scores on this subscale indicate that it is likely that the employees feel that they have low levels of emotional energy available for investment in their work and personal lives.

Emotional Contentment subscale. Low scores on this subscale suggest that the employees may be feeling only low levels of contentment and inner peace with their lives, both at work and off the job.

NEGATIVE FACTORS—Impede Organizational Performance

The **Organizational Stress scale** has three components or subscales:

Pressures of Life subscale. Poor scores on this subscale indicate that employees may be feeling overwhelmed by the pressure of work and by the other demands on their time and energy in their personal life.

Relational Tension subscale. Poor scores on this subscale signal that employees may be feeling pressured by relational disaffection and coworker conflict, which creates a stressful work place environment.

Stress subscale. Poor scores on this subscale suggest that employees may be feeling overwhelmed by various sources of stress in their lives as a whole.

The **Emotional Stress scale** has two components or subscales:

Anxiety/Depression subscale. Poor scores on this subscale indicate that a notable proportion of employees may be experiencing high levels anxiety, unhappiness, sadness, and/or depression.

Anger/Resentment subscale. Poor scores on this subscale indicate that a notable proportion of employees may be feeling high levels of anger and resentment and experience difficulty in controlling their feelings and emotions.

The **Physical Stress scale** has two components or subscales:

Fatigue subscale. Poor scores on this subscale indicate that employees may be experiencing tiredness, fatigue, and physical exhaustion.

Health Symptoms subscale. Poor scores on this subscale indicate that employees may be experiencing physical tension, aches and pain, stomach upset, rapid heartbeats, and headaches.

Intention to Quit subscale. Poor scores on this subscale should be a red flag to management, because they indicate an increased likelihood that a notable proportion of employees are feeling sufficiently dissatisfied with their work environment that they are thinking about leaving the organization (quitting their job).

Organization's POQA-R4 Profile

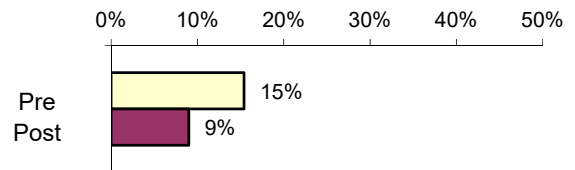
Two formats of a seven-point ordinal Likert scale were used to gather responses to the questions on the POQA-R4 survey: "Not at all" to "Always" and "Strongly Disagree" to "Strongly Agree." The results of a descriptive analysis of the percentage of respondents reporting the subsets of "Often" to "Always" or "Agree" to "Strongly Agree" of all items in a given subscale are presented below.

Appropriate caution should be exercised when interpreting the pattern of results. The reader should refer to the analysis of pre-post change, presented next, for information regarding the statistical significance of the direction and magnitude of changes observed.

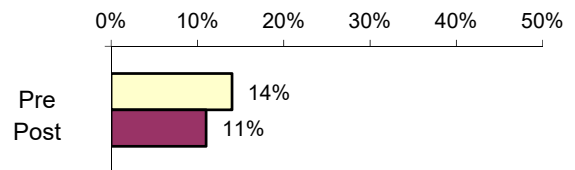
Organizational Stress

Percentage of individuals who responded: agree - strongly agree

Pressures of Life

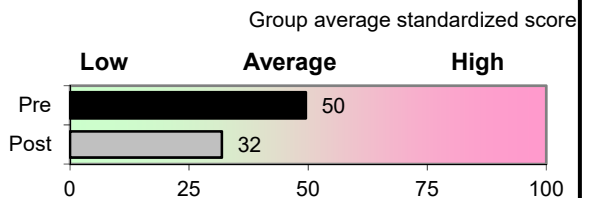


Relational Tension



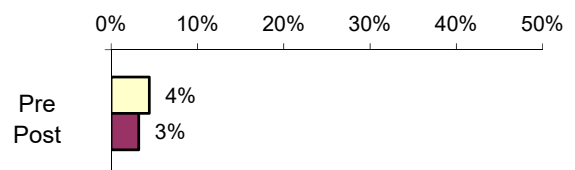
Stress

How stressed you have been in the past month?



Percentage of individuals who responded: agree - strongly agree

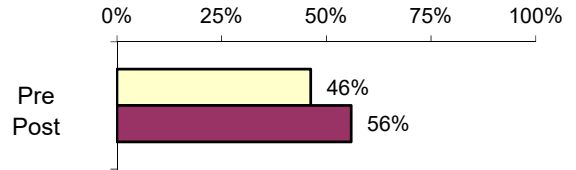
Intention to Quit



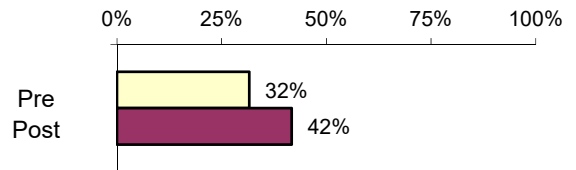
Emotional Vitality

Percentage of individuals who responded: often - always

Emotional Buoyancy



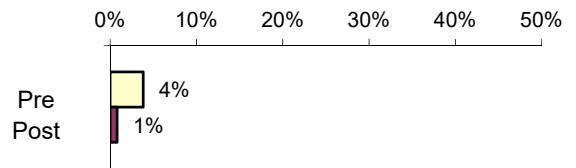
Emotional Contentment



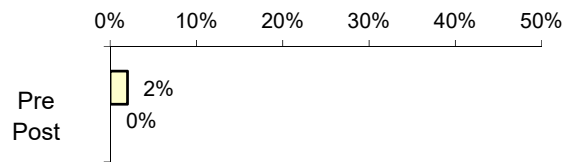
Emotional Stress

Percentage of individuals who responded: often - always

Anxiety & Depression



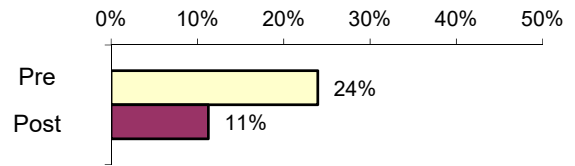
Anger & Resentment



Physical Stress

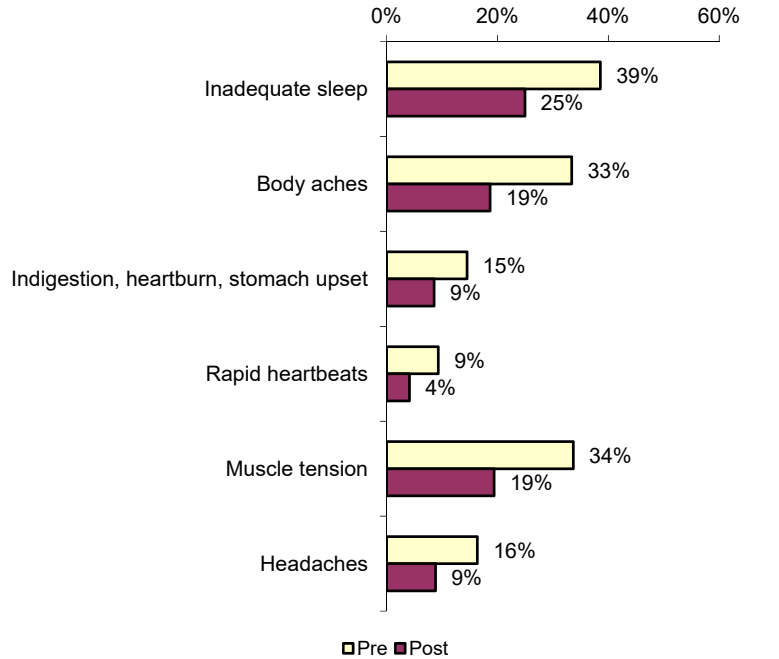
Percentage of individuals who responded: often - always

Fatigue



Health Symptom Items

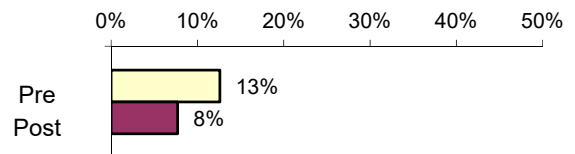
Percentage of individuals who responded: often - always



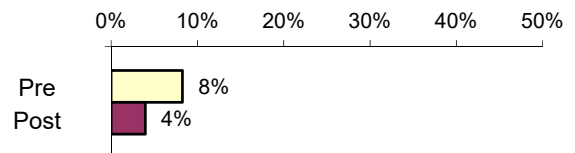
Health Risk Factors

Percentage of individuals who responded: agree - strongly agree

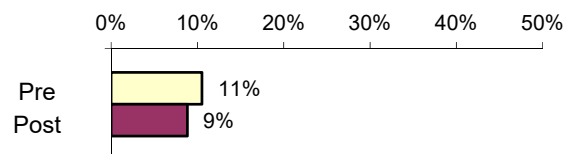
Poor health perception



Low life satisfaction



Low job satisfaction



Pre-Post Analysis

The results of a pre-post analysis conducted on the initial (Time 1) and repeated (Time 2) administration of the POQA-R4 survey are presented in Table 1. Raw score means and the percentage of change (Time 2 mean score minus Time 1 mean score) are presented for both the four primary scales and the nine subscales; the direction of change from Time 1 is indicated by a positive or negative number, accordingly, to show whether the scale score value has increased or declined from the initial point of measurement. This analysis requires that each respondent completed both Time 1 and Time 2 administrations of the POQA-R4 survey, and thus has been conducted on the subset of respondents who have usable data from both time points.

A matched pairs t-test of the difference in means between Time 1 and Time 2 has also been computed, along with a test of the statistical significance of the mean difference. This indicates the degree to which the observed difference between the two means could be explained by chance. Observed differences in means that are statistically significant (cannot be explained by chance) are flagged in the table by one or more asterisk, signaling the level of significance.

It should be noted that the smaller the sample size the more difficult it is to achieve statistical significance.

Table 1: Raw Score Means

	Pre	Post	% Change	Significance
Organizational Stress	4.32	4.03	-7%	0.001
<i>Pressures of Life</i>	4.45	4.19	-6%	0.001
<i>Relational Tension</i>	4.20	4.01	-5%	0.001
<i>Stress</i>	9.00	7.51	-17%	0.001
Emotional Vitality	4.45	4.77	7%	0.001
<i>Emotional Buoyancy</i>	4.55	4.85	7%	0.001
<i>Emotional Contentment</i>	4.31	4.66	8%	0.001
Emotional Stress	2.79	2.37	-15%	0.001
<i>Anxiety & Depression</i>	2.89	2.44	-16%	0.001
<i>Anger & Resentment</i>	2.70	2.30	-15%	0.001
Physical Stress	3.36	2.85	-15%	0.001
<i>Fatigue</i>	4.01	3.34	-17%	0.001
<i>Health Symptoms</i>	2.93	2.51	-14%	0.001
Intention to Quit	2.33	2.23	-4%	0.001

Paired t test significance;

* p < 0.05, ** p < 0.01, *** p < 0.001

POQA-R4: Technical Appendix

Limitations

The following limitations should be borne in mind when interpreting the results presented in this report:

- Because the data are self-reports from survey participants, they may or may not truly reflect the respondents' behavior, attitudes, or feelings.
- Because data collection has not employed random sampling methods, the degree to which the results can be accurately generalized beyond the study population unknown.
- Because the analysis is based on an aggregation of the data for the whole study population, the results may not accurately characterize the attitudes, feelings, or behavior of any subpopulation or individual.
- Because there are many other unmeasured variables not included in the POQA-R4 assessment which may or may not have had an effect on the results observed, the results must be interpreted with appropriate caution.

Development of POQA-R4

A subset of 49 items from the original 81 questions from the POQA-R survey questionnaire, were selected on the basis of a new conceptual framework composed of four major factors of workplace quality which directly affect employee job performance—**Organizational Stress**, **Emotional Vitality**, **Emotional Stress**, and **Physical Stress**.*

As described at the outset of this report, one of the factors—**Emotional Vitality**—has a positive or enhancing effect on health, well-being, and performance, and the other three factors—**Organizational Stress**, **Emotional Stress**, and **Physical Stress**—all have negative or deleterious effects on employee health, well-being, and performance.

Validity and Reliability of Measurement

The psychometric integrity of the reorganization of the 49 items into these four factors was empirically verified by a validity and reliability of measurement study conducted on the existing POQA-R database of 5,971 working adults.

The reorganization of items into this new framework resulted in the following range of item assignments: at the primary scale level (the four factors), the minimum number of items assigned to a factor was 8 and the maximum number of items assigned was 15; at the subscale level (the sub-factors or components within a factor), the range of items assigned to a given subscale was from 2 to 8 items. Overall, under this new framework, 6 of the 9 multi-item subscales were measured by 5 or more items.

Two statistical analyses were conducted to verify measurement validity and reliability. In the first, the seven scales and their associated subscales were subjected to an analysis of internal consistency of measurement using Cronbach's coefficient alpha (α) (see Table A1). The results for the four primary scales showed that all constructs exceeded the criterion for technical adequacy ($\alpha > 0.75$): the alpha coefficients ranged from 0.76, for Organizational Stress, to 0.92 for Emotional Vitality and Emotional Stress. The results for the nine multi-item subscales showed that, with one exception (Relational Tension, $\alpha = 0.69$), these constructs also achieved or exceeded the criterion for technically adequate measurement reliability. Across the other eight multi-item subscales the alpha coefficient ranged from 0.76, for Health Symptoms, to 0.90, for Emotional Buoyancy, Intention to Quit, and Anxiety/Depression. Table A1 lists the number of items and alpha coefficient for each scale.

*The original version of the POQA-R assessment was targeted to measure and evaluate two main domains of workplace quality and function—Personal Quality and Organizational Quality. Each of these domains was subdivided into a set of 10 scales and 14 scales, respectively. The Personal Quality scales reflected the employee's day-to-day moods, attitudes, and stress-related symptoms. The Organizational Quality scales measured key areas of organizational climate that affect employee job involvement, performance and important factors related to employee behavior, attitudes toward work, and job performance ability.

Table A1: Results from Analysis of Internal Consistency of Measurement

	Number of Items	Internal Consistency α
Emotional Vitality	14	0.92
Emotional Buoyancy	8	0.90
Emotional Contentment	6	0.86
Organizational Stress	9	0.76
Pressures of Life	5	0.78
Relational Tension	3	0.69
Stress	1	-
Emotional Stress	15	0.92
Anxiety/Depression	7	0.90
Anger/Resentment	8	0.85
Physical Stress	10	0.87
Fatigue	4	0.87
Health Symptoms subscale	6	0.76
Intention to Quit	2	0.90

In the second analysis, all 49 items were factor analyzed (results not shown) to compare the item classifications resulting from the factor analysis with their nominal designation into the four primary scales and nine multi-item subscales of the of POQA-R4's. With few exceptions, the factor analysis item classifications corresponded to the nominal classification of the items into the categories for the primary scales.

Overall, the results from both statistical analysis procedures confirm the validity of the item assignment to the scales and subscales and also confirm that the measurement reliability is more than technically adequate. In short, all of the available statistical evidence suggests that the measurement basis of the scales and subscales of the new POQA-R4 framework appears to be psychometrically sound.