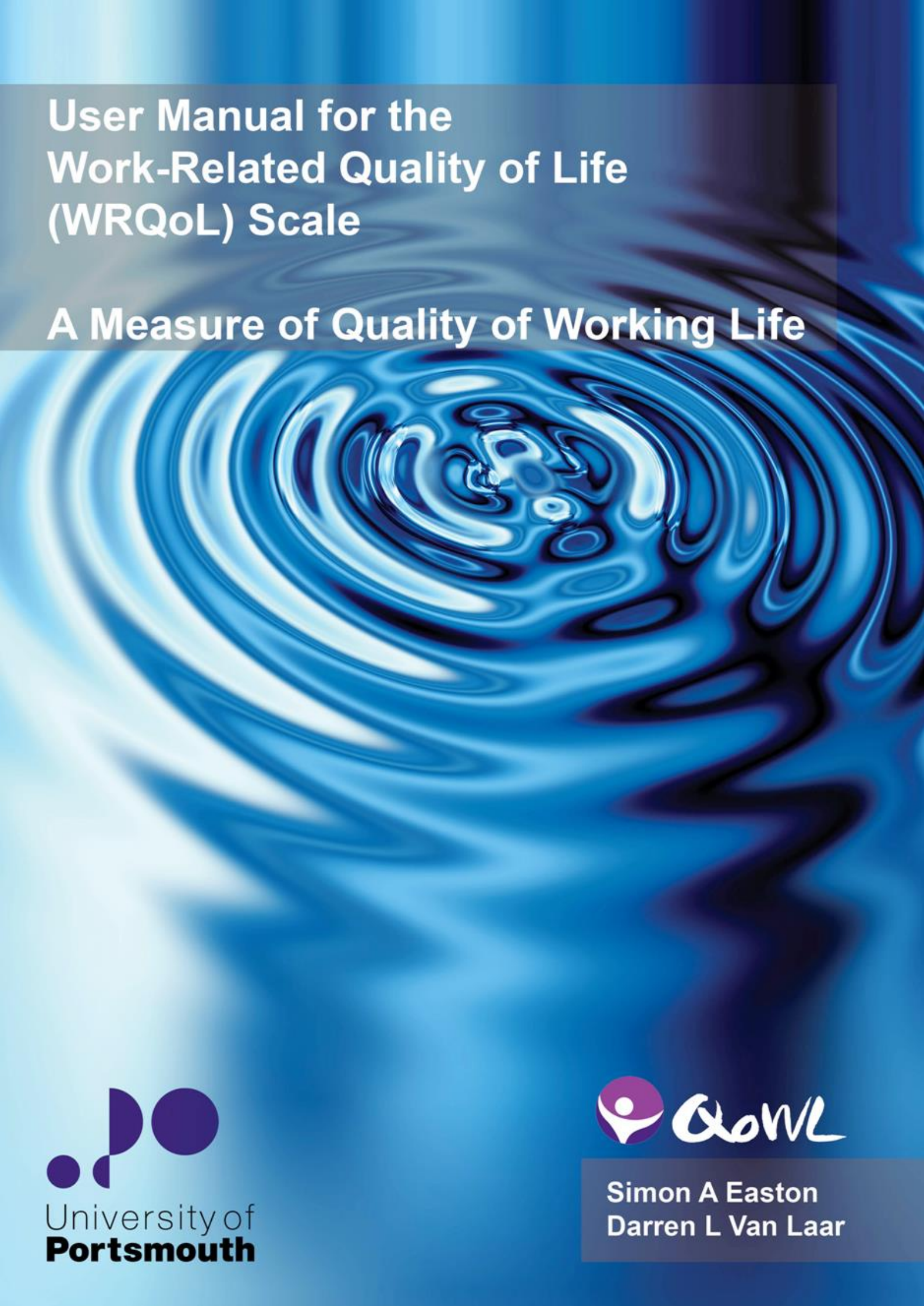
User Manual for the Work-Related Quality of Life (WRQoL) Scale

A Measure of Quality of Working Life



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QoWL

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User Manual for the Work-Related Quality of Life (WRQoL) Scale

A Measure of Quality of Working Life

FIRST EDITION

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QoWL Quality of Working Life

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Contents Page

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The Work-Related Quality of Life Scale

1 Overview

The Work-Related Quality of Life (WRQoL) scale is a 23-item psychometric scale used to gauge the perceived quality of life of employees as measured through six psychosocial sub-factors. The WRQoL scale has been used in many types of organisation across the world and has been translated into several languages. The WRQoL scale is used by individuals, organisations and consultants as well as researchers as an aid to assessing and understanding the quality of working life of working people.

Quality of Working Life (QoWL) as a theoretical concept aims to capture the essence of an individual's work experience in the broadest sense. The QoWL of an individual is influenced by their direct experience of work and by the direct and indirect factors that affect this experience. From organisational policies to personality, from feelings of general well-being to actual working conditions, an individual's assessment of their Quality of Working Life is affected as much by their job as what the individual brings to the job. In particular, QoWL is influenced by job satisfaction as well as factors that broadly reflect life satisfaction and general feelings of well-being (Danna & Griffin, 1999).

There is evidence to indicate that improvements to perceived quality of working life can have a range of benefits. For example, the UK's Somerset County Council conducted a study to improve the QoWL of their employees in an attempt to reduce workplace stress and the level of sickness absence within the organisation (Tasho, Jordan & Robertson, 2005). The resulting reduction in sickness absence levels from staff (from 10.75 days in 2001-02 to 7.2 days in 2004-05) represented a total net saving of approximately £1.57 million over two years.

Studies of QoWL and performance or productivity indicate subjective and objective associations. For example, Judge et al., (2001), in a meta-analysis of 312 studies, found a correlation of 0.30 between QoWL-type factors including job satisfaction and self-reported productivity. Analysis of findings from the Finnish workplace development program (Ramstad, 2007), showed quality of working life and performance appeared to be correlated (Pearson's r =0.5).

There is increasing evidence to support the proposition that attention to the psychosocial needs of staff can have benefits for both employees and employers. Worrall and Cooper (2006), for example, reported that a low level of well-being at work is estimated to cost about 5-10% of Gross National Product per annum.

As well as reflecting best practice in management of human resources, attention to QoWL is important for employers who have a legal duty of care for the health and safety of their employees. Indeed, in the UK the assessment of psychosocial hazards is required under Health & Safety (HSE) legislation.

The Work-Related Quality of Life Scale (WRQoL) is an evidence based measure of Quality of Working Life, and provides key information required for assessing employee contentment for use in planning interventions, monitoring workforce experience and assessing the effect of organisational change (Edwards, Webster, Van Laar, & Easton, 2008; Van Laar, Edwards, & Easton, 2007).

The WRQoL measure has been developed in the light of relevant research in the field, expanding existing models of QoWL (e.g., Warr et al., 1979), and embracing the main theoretical approaches to QoWL (Maslow, 1954; Herzberg, 1966, and that of Loscocco & Roschelle, 1991).

Initially based on a large sample of staff employed by the UK's National Health Service, Van Laar, Edwards, & Easton (2007) identified six independent psychosocial factors as contributing to QoWL. These 6 factors were used to develop the 23-item WRQoL scale, and are: Job and Career Satisfaction (JCS), General Well-Being (GWB), Stress at Work (SAW), Control at Work (CAW), Home-Work Interface (HWI) and Working Conditions (WCS). These factors have subsequently been confirmed in other samples (Edwards, Van Laar, Easton & Kinman, 2009).

The WRQoL factor sub-scales allow researchers and organisations to analyse the most important issues affecting the overall employment experience of employees and for these to be interpreted within a wide context of work and individual related factors.

This User Manual has been written to provide researchers and users with a detailed description of the theoretical background to the WRQoL scale, and includes a comprehensive description of its psychometric derivation and scoring. Information is presented on the psychometric properties of the WRQoL scale, its reliability and validity, along with details of key norms.

2 Quality of working life: a brief review of the literature

One of the earliest uses of the term “Quality of Work Life” appears in the work of Mayo in studies of the way environment affected workers’ performance (Mayo, 1960). Goode (1989) has suggested that the term “Quality of Work Life” was first used by Irving Bluestone in the 1960s when involved in designing programmes to increase worker productivity. Much research interest in the concept led to a conference in 1972, and then to formation of ‘The International Council for the Quality of Working Life’ in an endeavour to draw together the disparate strands of research into this topic.

2.1 Defining QoWL

Initially, there was often little to distinguish between the concepts of Quality of Working Life and job satisfaction. Kandasamy and Ancheri (2009) have suggested that quality of working life has been viewed in a variety of ways including: (a) as a movement; (b) as a set of organisational interventions, and (c) as a type of work life by employees (p.329).

Definitions of Quality of Working Life have continued to vary over time and to be influenced by the theoretical stance of researchers. As a result, various models of QoWL have been proposed, each drawing upon different combinations of a wide range of factors. Whilst some authors have emphasised the workplace aspects contributing to QoWL, others have identified the relevance of personality factors, psychological well being, and the broader concepts of happiness and life satisfaction.

For example, Hackman and Oldham (1976) suggested that psychological growth needs could be used in the conceptualisation of QoWL. Several such needs were identified: skill variety, task identity, task significance, autonomy and feedback. They proposed that such needs have to be addressed if employees are to experience high QoWL. This approach, however, tended to frustrate those who saw other factors as relevant, and who thus felt that the term could more usefully be defined without the constraints of a single theoretical model. For these reasons, Taylor et al., (1979) proposed that the essential components of QoWL could be identified as the basic extrinsic job factors of wages, hours and working conditions, and the intrinsic job notions of the nature of the work itself. Taylor suggested that a number of other factors could also be added, including; individual power, employee participation in management, fairness and equity, social support, use of one’s present skills, self development, a meaningful future at work, social relevance of the work or product and effect on extra work activities. Taylor’s pragmatism led to the suggestion that relevant QoWL concepts might vary according to organisation and employee group.

Warr et al., (1979), in an investigation of QoWL, identified a different list of apparently relevant factors, including work involvement, intrinsic job motivation, higher order need strength, perceived intrinsic job characteristics, job satisfaction, life satisfaction, happiness, and self-rated anxiety. Warr et al., discussed a range of correlations derived from their research, which contributed towards development of models of QoWL, such as those between work involvement and job satisfaction, intrinsic job motivation and job satisfaction, and perceived intrinsic job characteristics

and job satisfaction. In particular, Warr et al., found evidence for a moderate association between total job satisfaction and total life satisfaction and happiness, with a less strong, but significant association with self-rated anxiety.

The difficulties in defining the concept of QoWL continued to be illustrated in the literature even as authors such as Mirvis and Lawler (1984) proposed new models highlighting the relevance of factors such as satisfaction with wages, hours and working conditions. The basic elements of a good quality of work life were defined as having a safe work environment, equitable wages, equal employment opportunities and opportunities for advancement.

In a further study, key elements relevant to QoWL were identified as: task, physical work environment, social environment within the organization, administrative system and relationship between life on and off the job (Cunningham and Eberle, 1990).

Baba and Jamal (1991) listed what they saw as typical indicators of QoWL, including: job satisfaction, job involvement, work role ambiguity, work role conflict, work role overload, job stress, organisational commitment and turn-over intentions. Baba and Jamal also explored routinisation of job content, suggesting that this should be investigated as part of the concept of quality of working life.

Katzell (1983) returned to some degree to the earlier linking of QoWL with productivity in highlighting connections between quality of life and job characteristics associated with employee productivity. He emphasised the relevance of training, supervision, job enrichment, equitable pay, flexible work schedules and integrated socio-technical systems.

Lau and Bruce (1998) have suggested that the QoWL construct can best be seen as being dynamic, and as encompassing dimensions such as: job security, reward system, training and career advancement opportunities, and participation in decision making.

The suggestion that QoWL might vary between groups of workers has threaded it's way through the literature, as, for example, illustrated by the work of Ellis and Pompli (2002), who identified a number of factors contributing to poor quality of working life in nurses, specifically, including: poor working environments, resident aggression, workload, unable to deliver quality of care preferred, balance of work and family, shift-work, lack of involvement in decision making, professional isolation, lack of recognition, poor relationships with supervisor/peers, role conflict, and lack of opportunity to learn new skills.

Sirgy et al., (2001) took a theoretical stance in suggesting that the most important elements of employee QoWL spring from theories of need satisfaction, such as: need satisfaction based on job requirements, work environment, supervisory behaviour, ancillary programmes and on organisational commitment. They proposed that higher QoWL reflected satisfaction of these key needs through resources, activities, and outcomes stemming from participation in the workplace. Maslow's Needs (1943) were seen as relevant in underpinning this model, covering key aspects; health and safety, economic and family, social, esteem, actualisation, and knowledge and aesthetics, although the relevance of non-work aspects is played

down, as attention is focussed on quality of work life, rather than the broader concept of quality of life.

More recently, Denvir et al., (2008) have proposed a number of factors through analysis of a small sample for the Institute for Employment Studies, with the question items being drawn from themes in the literature. They propose a number of dimensions to quality of working life, which they see as reflecting key factors including individual's pay and benefits, their relationships with their manager and colleagues, the nature of their work and the way it is organised.

These attempts at defining QoWL have included theoretical approaches, lists of identified factors and correlational analyses, with opinions varying as to whether such definitions and explanations can be both global, or need to be specific to each work setting.

2.2 Models of QoWL

In some cases, selected facets are combined together to produce an apparently arbitrary measure of QoWL. For example, the document "Working Together" (Department of Health, 1998) suggested that the test of whether UK NHS Trusts succeeded in improving the quality of working life would be whether the organisation provided: a fair process for determining rewards, job satisfaction through empowerment and involvement in decision making, equality of opportunity, skills development, positive and sensitive management and well being in terms of employment security and working environment. A number of key criteria were identified as relevant to evaluating QoWL, including: reward, staff, involvement, equality, performance review and development, management, health and safety in the workplace, and communication.

The wider literature offers evidence and opinion as to the relationship between the various facets identified as playing a part in QoWL and the overall QoWL concept. Loscocco & Roschelle (1991), for example, identified job satisfaction and employee (work- and organisational -) commitment as relevant to QoWL. They also mention role conflict and work-scheduling as being relevant.

Arts et al., (2001) review empirical evidence for three models of quality of working life, the foci being variously on: job characteristics (Hackman, 1974, 1976), job demand and control (Karasek and Theorell, 1990) incorporating workload, psychological and physical outcomes, and capacity for coping.

Bearfield (2003) used 16 questions to examine QoWL, and distinguished between causes of dissatisfaction in professionals, intermediate clerical, sales and service workers, indicating that different concerns might have to be addressed for different groups.

The distinction made between job satisfaction and dissatisfaction in QoWL reflects the influence of job satisfaction theories. Herzberg at al. (1959) used "Hygiene factors" and "Motivator factors" to distinguish between the separate causes of job satisfaction and job dissatisfaction. It has been suggested that Motivator factors are

intrinsic to the job, that is: job content, the work itself, responsibility and advancement. The Hygiene factors or dissatisfaction-avoidance factors include aspects of the job environment such as interpersonal relationships, salary, working conditions and security. They suggest that the most common cause of job dissatisfaction can be company policy and administration, whilst achievement can be the greatest source of extreme satisfaction.

An individual's experience of satisfaction or dissatisfaction can be substantially rooted in their perception, rather than simply reflecting their "real world". Further, an individual's perception can be affected by relative comparison – am I paid as much as that person - and comparisons of internalised ideals, aspirations, and expectations, for example, with the individual's current state (Lawler and Porter, 1966).

The main theoretical models underlying the development of the concept of QoWL have been summarised by Martel and Dupuis (2006) as: The Transfer Model (or Spillover Effect), The Compensation Model, The Segmentation Model, and The Accommodation Model.

The Transfer Model or Spillover Effect (Kavanagh and Halpern, 1977) emphasises the positive links between work and non-work areas of life and how one affects the other. The Compensation Model, (Schmitt & Mellon, 1980), on the other hand, places emphasis on the way in which an individual might seek outside of work that which is absent in the work setting. Thus, a tedious job might be held by someone who actively seeks excitement through their hobbies and interests.

The Segmentation Model (George & Brief, 1990) proposes that work and home life do not substantially affect each other, whilst The Accommodation Model (Lambert,1990) envisages an active variation of investment from work to home and vice versa to balance demands in each sphere.

Loscocco & Roschelle (1991) have, however, highlighted the degree to which these models have lacked both supporting evidence and universal acceptance, as researchers have continued to disagree on the best way to conceptualise QoWL. The story of the development of the concept of QoWL has only recently begun to include more rigorous methods of empirical research focusing on identifying key factors and explaining the relationships between them. Theories need to be tested if they are to be refined, and the more central role of statistical analysis of findings to aid understanding of QoWL is perhaps somewhat overdue.

2.3 Historical background to the development of the WRQoL scale

In 1998 the UK Department of Health (DoH) issued a requirement through the document "Working Together: Securing a quality workforce for the NHS" (Department of Health, 1998) that, by April 2000, all Trusts should have undertaken "an annual staff survey to act as a benchmark against which improvements in quality of working life can be measured" (DoH, 1998; p.11).

In 1999, a QoWL questionnaire was distributed to some 1800 UK National Health Service (NHS) Trust staff, and the data provided by the 43.7% who responded were analysed. These data were compared with an earlier 1998 survey, which had been developed from questionnaires used previously in the NHS. The Trust wished to develop a combined questionnaire and incorporate a broader range of issues identified in the literature to gain a more complete understanding of the perceived quality of working life of their employees.

This process enabled a theoretically driven investigation of QoWL by researchers, whilst allowing exploration of issues seen as important by managers, union representatives and employees. The resulting survey questions addressed aspects of communication, management, flexibility, development, general, intrinsic and extrinsic job satisfaction, staff involvement, reward, equality, health and safety and co-relationships. Principal components analysis of the 1999 survey highlighted 4 factors explaining 60% of the variance. These loosely correlated with hygiene factors, social aspects of the work setting, relationship with management/the organisation, and job satisfaction.

Subsequent analyses of survey results and reviews of relevant literature and research led to the identification of what appeared to be recurring factors related to Quality of Working Life. It was also noted that previous theories and scales of QoWL often appeared to be inconsistently defined, and even contradictory. More careful consideration of the literature and discussion with those at the Trusts led to a conceptualisation of quality of working life which focused on the broader antecedents affecting individual well-being and quality of life, rather than concentrating only on job satisfaction.

The Work-Related Quality of Life (WRQoL) scale emerged, as will be described in detail in this manual, as a 23-item psychometrically strong scale used to gauge the perceived quality of life of employees as measured through six psychosocial sub-factors.

3 WRQoL Scale Construction

3.1 Scale Format and Scoring

The WRQoL scale is supplied as a single sided paper questionnaire (see Appendix 7.3).There are 6 factors which are based on responses to 23 items. A 24th item is usually included to provide an outcome variable for measuring the reliability and validity of the items (see Appendix 7.1).

Respondents are required to answer the questions on a 5 point scale comprising of: Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree. The data is coded such that Strongly Disagree = 1 and Strongly Agree = 5. In this way higher scores indicate more agreement. The scores of the three negatively phrased items are reversed (questions 7, 9, 19). After coding, higher scores indicate greater perceived quality of working life.

After coding (including reversal of the three negatively phrased items), each factor score is determined by finding the average of the items contributing to that factor (Appendix 7.1). The Overall WRQoL factor score is determined by finding the average of all 23 WRQoL items (not including the 24th 'Overall' item).

3.2 Scale Background

The original data for the WRQoL Scale were gathered via a survey of UK, NHS staff serving in local community services and a hospital Trust in Southern England (Van Laar, Edwards & Easton, 2007).

3.3 Item Generation

During a series of surveys conducted for UK NHS Trusts, 200 questions and scale items were gathered to reflect a broad based definition of QoWL. These items were gathered from various sources, including Warr et al., (1979) and Warr's (1990) model of work and non-work well-being ("I enjoy doing new things in my job"), Goldberg & Williams's (1988) 12-item General Health Questionnaire ("Recently I have been feeling reasonably happy all things considered"), Sirgy et al's. (2001) model of QoWL ("I am encouraged to develop new skills"), and the NHS (2000) staff satisfaction surveys ("I am involved in decisions that affect me in my own area of work").

A panel was set up consisting of occupational psychology researchers, human resource staff, union representatives and a clinical psychologist. The panel met to consider the original 200 items, and to remove any theoretically or practically irrelevant questions, or any that appeared to be repeating the essential content of other items. The final pool of 61 items reflected a new broad conceptualisation of QoWL by containing items about not only work, but also the home-work interface, as well as theoretically relevant non-work issues.

3.4 Participants & Data Collection

Three thousand five hundred and fifty seven employees from two UK NHS Trusts (one Hospital and one Primary Care) in the South East of England were asked to complete an anonymous QoWL questionnaire that contained the pool of 61 questions. Participants answered the questions by responding to one of five statements (Strongly Agree to Strongly Disagree).

All Trust employees received the questionnaire and a return envelope attached to their monthly wage packets. As the survey was anonymous, follow-up reminders were not sent to individual non-respondents, although general reminders were sent to all staff. The number of questionnaires returned was 1284, providing a response rate of 36%.

After excluding incomplete returns, 953 full responses on all questions were available for the final analysis. As the sample size was still large enough for the planned data analysis, new values were not calculated for the missing data.

Fifty two percent of the valid sample of 953 individuals were under 45 years old, and 86% were female. Most staff (36%) had been working for the organisation for between one to five years, and 55% of employees worked full-time. Respondents self identified within available categories of: managers, administrative and clerical, professions allied to medicine, clinical, nursing, and ancillary workers.

3.5 Factor Derivation

A preliminary Principal Components Analysis (PCA) with Oblim rotation was carried out on a randomly selected half of the full WRQoL NHS UK data set – hereafter referred to as the 'EXPLORE' half of the data set. Using the EXPLORE data set, 12 components with eigenvalues above 1.0 were generated. One of the aims of the exploratory analysis phase was to reduce the number of items within the questionnaire if appropriate, whilst still retaining the scale reliability and the underlying factor structure. A low loading variable factor reduction process was used to reduce the number of variables in the initial scale to produce a more stable factor structure (see Comfrey & Lee, 1992).

Items that did not load on any factor with at least a loading of .5 were deleted from the item set (see Rick et al., 2001). Using this procedure, thirty four items were removed, leaving 27 items, which together represented seven factors. However, the seventh factor not only exhibited an unacceptable reliability alpha of .60, but the three items representing factor seven also failed to be theoretically meaningful. Inspection of the scree plot and eigenvalues also found a clear discontinuity between factor six and seven. On this basis, the three items loading on this seventh factor were removed, and a further PCA was undertaken. The removal of the three items from the seven factor solution produced a six factor structure with items loaded on the same 6 factors as previously.

3.6 Component Labels Analysis

The theoretical and practical basis of the labels for the factors extracted through the exploratory phase of the analysis is described below.

Factor 1: Job and Career Satisfaction (JCS) contained six items, and had a sub-scale reliability of .86. Items are associated with aspects of job and career satisfaction, for example, “I am satisfied with the career opportunities available to me at the organisation” (Item 5).

Factor 2: General Well-Being (GWB) also contained six questions, and exhibited a reliability value of .82. Items were broadly related to happiness and life satisfaction: for example, “Generally things work out well for me” (Item 18), and this component has been labelled accordingly.

Factor 3: Home-Work Interface (HWI) reflected three items, and showed a scale reliability of .82. As most items appear to be related to issues of accommodating family and work commitments, this component was labelled HWI: for example, “My current working hours/patterns suit my personal circumstances” (Item 17).

Factor Four: Stress at Work (SAW) was represented by two items, and had a sub-scale reliability of .81. As the items appear to be related to demands, this component has been labelled SAW: for example, “I often feel under pressure at work” (Item 7).

Factor Five: Control at Work (CAW). Three items loaded on component five, which had a sub-scale reliability of .81. As most items appear to be related to being able to have control over decisions, this component was labelled Control at Work: for example, “I am involved in decisions that affect me in my own area of work” (Item 12).

Factor Six: Working Conditions (WCS). This factor had a sub-scale reliability of .75 and contains three items. This component was labelled WCS since the items appear to be related to the physical working environment: for example, “The working conditions are satisfactory” (Item 9).

3.7 Confirmatory Factor Analysis

Confirmatory Factor Analysis (CFA) was undertaken (AMOS: Arbuckle, 1999) to test the exploratory factor structure. If the defined 24 item six factor model developed from the EXPLORE data set has a good fit with the second randomly selected half of the original NHS UK data set – the ‘CONFIRM data set’ then the same factor structure should exist in both data sets, and the factor structure confirmed. A maximum likelihood estimation was therefore used to assess the model fit on the covariance matrix of the CONFIRM data set.

As recommended by Tabachnik and Fidell (2007), the Comparative Fit Index (CFI), Goodness of Fit Index (GFI), Normed Fit Index (NFI) and Root Mean Square Error of Approximation (RMSEA) were used to test model fit. The criterion for establishing

model fit via goodness of fit indices generally suggest that values around .90 are acceptable and values .90 or higher are considered good fit for the CFI, GFI and the NFI (Bentler & Bonnet, 1980). However, other authors argue that values greater than .95 are a better representation of good fit (Hu & Bentler, 1999 and Schermelleh-Engel et al., 2003). Values of .05 or less for the RMSEA indicate a close fit, whereas values between .05 and .10 represent adequate to mediocre fit (Browne & Cudeck, 1993). The criterion relating to good fit should therefore be approached with caution, as there is no general consensus (Tanaka, 1993).

Confirmatory factor analysis was conducted on the 24 items identified in the exploratory data set, and was found to provide an acceptable, but relatively poor fit based on the goodness-of-fit statistics: χ^2 (238, N = 472) = 750.02 $p < 0.01$, CFI = .91, GFI = .89, NFI = .88 and RMSEA = .07. Inspection indicated that item 24, the lowest loading factor item within the data set, should be removed. This item was also found to be the lowest loading item during the exploratory factor analysis (.505).

The factor structure model was tested again on the remaining 23 items, and support was found for the model in the CONFIRM data set: χ^2 (216, N = 472) = 642.15 $p < 0.01$, CFI = .93, GFI = .90, NFI = .89 and RMSEA = .06. All fit indices sizes suggested a reasonable to good model fit, with the exception of the overall model χ^2 value which is known to be influenced by a large sample size (Stevens, 2002). A Chi-square difference test indicated a significant improvement in fit for the 23 item model over the 24 item model (χ^2 (22) = 107.87, $p < 0.01$), represented by the 23 item model's better chi-square value and goodness of fit statistics.

Since the same factor structure was found in both the 23 item EXPLORE and CONFIRM data sets, and to ensure the most valid and powerful analysis, the two data sets were then combined for further analysis (De Vellis, 2003). This provides an additional test of the factor structure, as the results for the COMBINED data should be very similar to that of the EXPLORE and CONFIRM sub-sets of data.

The sample size for the COMBINED data set was 953, and the assumptions for the COMBINED Principle Components Analysis were confirmed (See Table 2). The resulting scale produced good sub-scale reliabilities of between .75 and .88 for the six factor 23 item model, and 0.91 overall (i.e. for all 23 items), see Table 3 for a summary.

As expected, high correlations were found between the six factors, especially between JCS and WCS (.64), JCS and CAW (.70) and WCS and CAW (.63).

The model was estimated again for the COMBINED data set, and produced a χ^2 (216, N = 953) = 866.46, $p < 0.01$, CFI = .94, GFI = .93 NFI = .92 and RMSEA = .05. All fit indices sizes suggest good model fit.

Assumption	Value: Decision
Normality & Linearity	Square root transform used: Good
Univariate outliers	None > Z = 3.29: Good
Multivariate outliers	Maximum Value = 20.155; Critical (23df) = 35.17: Good
KMO	0.912: Excellent
Bartlett test	$p < 0.0001$: Excellent
Communality	Maximum = 0.862; Minimum = 0.498: Good
Determinant	1.002×10^{-5}: Appropriate for PCA or FA
Total variance explained	68.98% in un-rotated solution: Good
Oblique or Orthogonal	Component correlation matrix has 6 values above 0.32: Oblique rotation confirmed

Table 2: Assumption summary for 23 Item six factor COMBINED NHS UK data set.

Component	Factor Label	COMBINED Reliability (α)	De Vellis Scale Description
1	General Well-being (GWB)	0.880	Very good
2	Home-Work Interface (HWI)	0.825	Very good
3	Job-Career Satisfaction (JCS)	0.863	Very good
4	Control at Work (CAW)	0.812	Very good
5	Working Conditions (WCS)	0.752	Respectable
6	Stress at Work (SAW)	0.814	Very good
	Overall WRQoL	0.912	Excellent

Table 3: 23-item, 6 factor component sub-scale and overall scale Cronbach's Alphas for the COMBINED NHS UK data set.

4 WRQoL Subscales

The six psychosocial factors contributing to overall quality of working life as measured by the WRQoL scale are reviewed within the following sections. The conceptual model of quality of working life, as measured through the WRQoL scale incorporates a six factor structure. The six factors are: General Well-Being (GWB), Home-Work Interface (HWI), Job and Career Satisfaction (JCS), Control at Work (CAW), Working Conditions (WCS) and Stress at Work (SAW).

4.1 General Well-Being (GWB)

How much you agree you feel generally content with life as a whole.

The General Well-Being (GWB) factor assesses the extent to which an individual feels good or content with their life as a whole. General well-being is conceptualised as influencing and, being influenced by, work. GWB therefore incorporates broader psychological well-being as well as general physical health aspects. When the WRQoL scale is coupled in a single survey with other measures of General Well-being such as the GHQ-12 scale, the GWB factor is the most highly correlated sub-scale (Spears, 2010).

Psychological well-being can affect an individual's performance at work for better or for worse. When people feel good, they may be more likely to work well and enjoy being at work more. However, when people feel low, anxious, or ill at ease, regardless of whether that distress springs from their work or from difficulties at home, their work is likely to be adversely affected.

When people are affected by physical ill health, their performance at work can be affected, and, in turn, their sense of psychological well-being can be reduced. Thus, it can be argued that general well being of people at work needs to be positively addressed, with attention being paid to prevention and promotion of well-being, rather than simply responding with provision of help when problems arise.

It can be useful to review relevant policies and services, foster or maintain awareness and clarify responsibilities, and ensure that monitoring of well-being is effective. A heightened awareness of GWB and it's role in the overall quality of working life an individual experiences can serve to help people consider more carefully what they can do to look after their own and others' well-being, so helping people work well at work and feel well when working.

Mental health problems, predominantly depression and anxiety disorders, are common, and have a major impact on the GWB of the population and on the use of health service resources. The national challenge presented by psychological difficulties such as depression and the need for effective and accessible psychological therapies is of direct relevance to the sphere of occupational health.

The Department of Health (1999) and the Welsh Assembly (2002) have both provided a succession of framework documents on mental health. The Health & Safety at Work Act (HSW, 1974) and the Management of Health and Safety at Work

Regulations (1999) have both developed a statutory framework to try to prevent mental health problems at work. The HSW Act requires employers to create a working environment that counters risk to health and wellbeing. Management Regulations place a 'duty of care' on employers to evaluate risks to mental health in the workplace.

4.2 Home-Work Interface (HWI)

How far you agree that the organisation understands and tries to help you with pressures outside of work.

Work-life balance assesses the degree to which employees feel they have control over when, where and how they work. It can reflect an individual's perception that he or she has a fulfilled life inside and outside paid work, to the mutual benefit of the individual, business and society. Within the WRQoL measure, the HWI factor addresses work-life balance and reflects the extent to which the employer is perceived to support employees' home lives.

The demands of home can mean someone finds it difficult to be at work when they need to be, and it can mean they have less to give when they are at work. The strains of work can similarly mean that an individual feels unable to leave work behind, and might neither recuperate after work nor feel they can invest as they would wish in the other aspects of their lives.

It can be argued that inadequate attention to the individual's commitments to home will not serve an employer well in the long run. Failure to balance work and home demands will tend to threaten an employee's ability to get the best out of either sphere.

Both the individual and the employer need to actively and continually monitor the work-life balance, and make adjustments as required. Flexibility on both sides will often be needed, with discussion and compromise within practical constraints fostering the identification of solutions.

Relevant issues will vary widely between and within work settings. Flexible hours, working from home, job rotation, maternity and parental leave, child and dependent care, job sharing are all aspects which can impact the Home-Work Interface. The demands of dual career families, for example, are among the many issues arising in both home and work which need to be monitored and addressed by way of a partnership in the workplace.

The concepts addressed in the WRQoL Home-Work Interface (HWI) factor have also been referred to as Work-Life Balance and Work-Family Conflict in the wider literature. Within the current QoWL model, the HWI factor reflects the extent to which the employer is perceived to support employees' family and home life. The UK Department of Trade & Industry (DTI (http://www.dti.gov.uk/) have highlighted a number of HWI strategies in relation to flexible hours, such as working from home and job rotation. Zedeck & Mosier (1990) note that some organisations have addressed HWI by initiating programs such as maternity and parental leave, child

and dependent care and alternative work schedules (e.g., flexible working hours, job sharing, working from home and job sharing and job rotation).

The consequences arising from HWI conflict can be both physical and psychological. For example, Schmidt, Colligan & Fitzgerald (1980) proposed that negative HWI was associated with an increase in physical health symptoms, and Frone, Russell & Cooper (1997) found that higher levels of conflict associated with the HWI predicted depression, physical health complaints and hypertension. The consequences for organisations resulting from employee HWI conflict are also apparent in the work of Bruck, Allen & Spector (2002), who found that conflict between the home and work was related to decreased job satisfaction. White & Beswick (2003) showed that flexible hours policies were related to increases in work performance and job satisfaction.

4.3 Job and Career Satisfaction (JCS)

How far you agree that you are generally happy with your ability to do your work.

Job and Career Satisfaction (JCS) represents the level to which the workplace provides a person with the best things at work - the things that make them feel good, such as: sense of achievement, high self esteem and fulfilment of potential. When the WRQoL scale is coupled with measures of job satisfaction, the JCS factor is the most highly correlated sub-scale.

Previous research has indicated that some of the most important determinants of job satisfaction are employees' interest in their work, good colleague relationships, high incomes, independent working and clearly defined career opportunities (e.g., Souza-Poza & Souza-Poza, 2000). Some researchers have proposed that job satisfaction depends, on one hand, on the individual characteristics of the person (such as the ability to use initiative, relations with supervisors, or the work that the person actually performs), and, on the other hand, environment factors (e.g., pay, promotion and job security), (Porter & Steers, 1973).

Job satisfaction can be defined as being the positive emotional reaction and attitude an individual has towards their work (Oshagbemi, 1999). Spector (1997:p2) suggests:

"Job satisfaction is simply how people feel about their jobs and different aspects of their jobs. It is the extent to which people like (satisfaction) or dislike (dissatisfaction) their jobs."

Rose (2001) proposed that job satisfaction is a bi-dimensional concept consisting of intrinsic and extrinsic satisfaction dimensions, where intrinsic satisfaction depends on the individual characteristics of the person, such as the ability to use initiative, relations with supervisors, or the work that the person actually performs, and extrinsic satisfaction is seen as situational, and dependent on the environment (e.g., pay, promotion and job security).

A meta-analysis by Faragher, Mass & Cooper (2005) of 485 studies examining the relationship between job satisfaction and health supports the proposition that job satisfaction critically influences employee physical and psychological wellbeing. The report asserts that organisations should include the development of stress management policies to identify and eradicate work practices that cause most job dissatisfaction as part of any exercise to improve employee health. The authors propose that occupational health clinicians should consider provision of counselling for employees identified as having psychological problems with a view to critically evaluating their work and helping them explore ways of gaining greater satisfaction from this important aspect of their life.

Other meta-analyses conducted have indicated that job satisfaction is closely related to life/work characteristics and job performance (Laffaldno & Muchinsky, 1985). The rapidly changing nature of the workplace is becoming more demanding on the employee, whereupon longer working hours, job insecurity and demanding deadlines are trends that have tended to contribute negatively to employee satisfaction. Increasing numbers of employers are now introducing intervention policies to address work-related health.

At European policy level, there has been great emphasis in recent years on achieving quality at work and on the importance of generating better jobs in the European Union. Policymakers have identified 'more and better jobs' as a major objective in the EU's vision for the future (http://www.eurofound.eu.int/index.htm).

The JCS factor is conceptually closely related to Working Conditions (WCS) within the current QoWL model. For example, JCS reflects the degree to which the workplace provides an individual with the best things at work - the things that make them feel good, such as; achieving personal development, goals, promotion and recognition, etc., whilst the WCS factor, by contrast, reflects the degree to which the workplace meets an individual's basic requirements, and, in particular, their dissatisfaction with their physical work environment. Whilst WCS aspects need to be addressed to counter possible dissatisfaction at work, the JCS component assesses the degree to which an individual's workplace offers opportunity for them to experience satisfaction in the workplace. These ideas mirror the work of Herzberg in his Hygiene Theory (1966) and Maslow in his Higher Need Theory (1954).

4.4 Control at Work (CAW)

How far you agree you feel you are involved in decisions that affect you at work.

In the WRQoL scale, the Control at Work (CAW) factor reflects the level at which an employee feels they can exercise what they consider to be an appropriate level of control within their work environment. That perception of control might be linked to various aspects of work, including the opportunity to contribute to the process of decision making that affect them. Leading authors in the field suggest that perception of personal control can strongly affect both an individuals' experience of stress and their health.

Control has appeared as a principal concept in many stress research studies (Spector, 1982, 1986 and 1988; Parkes, 1991 and Jex & Spector, 1996,), and evidence from Spector (1982; 1986) suggests that there is a positive significant association also between personal control and job satisfaction.

According to Spector (2002), negative emotional reactions (e.g., anxiety), physical health problems in both the short term (e.g., headache or stomach distress) and the long term (e.g., cardiovascular disease), and counterproductive behaviour at work are all work conditions related to individual perceptions of control at work. Spector further suggested that evidence is growing that greater control at work can be an important factor in employees' health and well-being.

The perception of control might be linked to various aspects of work including the opportunity to contribute to the process of decision making that affect them. Leading authors in the field have suggested that perception of personal control can strongly affect both an individual's experience of stress and their health (Steptoe & Appels, 1989). The HSE use a simple definition of CAW which focuses on how much say or influence someone feels they have in the way they do their work (http://www.hse.gov.uk/stress/standards/).

The HSE Management Standards for work-related stress propose that CAW is one of seven primary factors that need to be addressed in order to combat SAW. Thus, the HSE see SAW and CAW as intricately linked.

Karasek's (1979) Job Demand-Control (JDC) model has developed the concept of workplace control. This model, which is based upon the 'strain hypothesis', suggests that negative health outcomes are to be expected in jobs characterised by high job demand and low job control. Karasek (1979) suggests that strain does not occur via one single element of the work environment. He argues that both demands and different forms of decision making discretion made by the worker can result in higher levels of strain. This model has been elaborated, indicating that individuals who experience adverse health outcomes at work may also experience poor job-related support, this being referred to as the 'iso-strain hypothesis' (Job Demand-Control-Support model). Thus, demands, control and support are therefore seen as interrelated in the determination of employees' well-being at work.

Karasek's results showed organisations that they could improve mental health without sacrificing productivity. For example, organisations could reduce job strain by increasing worker control, without reducing actual workload. Organisations could change their administrative structure to reduce employee stress and protect employees' mental health without cutting productivity.

4.5 Working Conditions (WCS)

The extent you agree that you are happy with conditions in which you work
Working Conditions (WCS) assesses the extent to which the employee is satisfied with the fundamental resources, working conditions and security necessary to do their job effectively. Dissatisfaction with physical working conditions such as health

and safety and work hygiene, for example, can have significant adverse effect on employee QoWL.

The WCS factor is conceptually related to JCS within the current QoWL model, in that JCS reflects the degree to which the workplace provides an individual with the best things at work - the things that make them feel good, such as; achieving personal development, goals, promotion and recognition, etc., whilst the WCS factor, by contrast, reflects the degree to which the workplace meets an individual's basic requirements, and, in particular, their dissatisfaction with their physical work environment. Whilst WCS aspects need to be addressed to counter possible dissatisfaction at work, the JCS component assesses the degree to which an individual's workplace offers opportunity for them to experience satisfaction in the workplace.

In the US, occupational injuries resulted in some 77,675 fatalities of civilian workers between 1980 and 1992 (National Safety Council, 1997). This represents an annual average of 5.5 deaths per 100,000 workers. It has been estimated that, in 1995, occupational injuries cost the US $119 billion in lost wages and productivity. Economic analysis and evaluation of the effect of workers' health on the national economy has begun to play a significant role in decision-making processes in terms of relations between health and safety in the work environment and the financial policy of enterprises. Problems associated with poor WCS have been highlighted within the literature. Poor WCS (lighting, dust, fumes, etc) may contribute to people staying away from work or avoidance of spending time in certain work areas. Poor quality job design and working conditions may also increase staff turnover (Oxenburgh & Marlow, 2005).

The HSE (1997) demonstrated a range of benefits that can arise from Occupational Health & Safety (OHS) interventions, including reduced insurance premiums, reduced absenteeism; reduced staff turnover, reduced sick pay costs, improved production and improved job satisfaction. Lowered profit and reduced investment opportunities for the organisation can result from of unnecessary costs due to poor or unsafe working conditions.

Research has been conducted over the years examining the symptoms associated with musculoskeletal disorders (MSD) caused by poor working conditions. “Musculoskeletal disorders (MSDs) are the most common occupational illness in Great Britain, affecting one million people a year. They include problems such as low back pain, joint injuries and repetitive strain injuries of various sorts (http://www.hse.gov.uk/msd/index.htm). The HSE indicate that MSDs can be associated with uncomfortable working conditions, poor thermal equipment and psychosocial factors.

4.6 Stress at Work (SAW)

How far you feel agree you experience stress at work.

The QoWL SAW factor is determined by the extent to which an individual perceives they have excessive pressures and feel stressed at work.
The Health & Safety Executive (HSE) in 2003 proposed that stress could be best seen in terms of the any adverse reaction someone has to excessive pressure or demand they experience. This definition is based on the idea that someone's experience of stress depends upon individual perceptions about a situation and whether they believe they can cope. One alternative definition proposes that job stress is a harmful physical and emotional response that occurs when the requirements of work do not fit the capabilities, resources, or needs of the employee.

Workplace stress in now considered one of the top five job-related health problems in the US (Kinman, 1996). A similar study conducted in the UK by the Policy Studies Institute (Allen & Hogg, 1993) found that nearly one-third of workers who participated experienced relatively high levels of stress, and more than half considered that their stress levels over the last five years had increased. Further, a study by the HSE indicated that approximately 20% of workers in a random British working population announced very high levels of stress at work and approximately 43% indicated that their work was moderately stressful (HSE, 2000).

MIND, the mental health charity, suggests that 30-40% of sickness absence from work is related to mental or emotional disturbance (see Earnshaw & Cooper, 1994).

Over the past four decades significant developments have occurred within the workplace, wherein the increase in information and communication technology, the globalisation of many industries, company restructuring and changes in job contracts and workplace patterns have all contributed to the transformation of the nature of work (Sparks, Faragher & Cooper, 2001). In recent years, effective management of stress and maintenance of well-being within the workplace have become of increased attention and concern for both employee and employer world-wide (Dollard & Metzer, 1999). The experience and reporting of undue levels of stress at work appear to be a growing problem. Speilberger & Reheiser (1994) indicated within their US national survey that the number of employees who reported experience of relatively high levels of stress had more than doubled between 1985 and 1990. Thus, workplace stress in now considered one of the top five job-related health problems in the US (Kinman, 1996). A similar study conducted in the UK by the Policy Studies Institute (1993) found that nearly one-third of workers who participated experienced relatively high levels of stress, and more than half considered that their stress levels over the last five years had increased. Further, a study by the HSE indicated that approximately 20% of workers in a random British working population announced very high levels of stress at work and approximately 43% indicated that their work was moderately stressful (HSE, 2000, Smith, et al, 2000).

The Health & Safety Executive (1990) undertook a study of UK workers reporting disability or physical problems that were caused by or made worse by work.

Findings show that stress and depression were the most frequently reported complaints. Cooper & Davidson (1982) found similar results in a sample of UK managers. Seventy one percent of respondents reported that they believed their psychological health problems were associated with workplace stress. MIND, the mental health charity, suggests that 30-40% of sickness absence from work is related to mental or emotional disturbance (see Earnshaw & Cooper, 1994). Boyd (1997) conducted a survey in collaboration with International Communications Research, American Society of Chartered Life Underwriters & Chartered Financial Consultants and the Ethics Officer Association. Results showed that 56% of employees reported experiencing high levels of pressure at work. Moreover, 88% of respondents reported physical reactions resulting from their pressure, with depression featuring amongst the most frequent symptoms. As a result of the ever changing work environment and its affect upon employees and employers, many organisations are dramatically transforming their structures and strategies in response to commercial pressures (Kinman, 1998).

Occupational stress has been said to cost the UK economy a substantial human resource bill (Cooper & Payne, 1988). For example, the Confederation of British Industry (CBI) estimated that 360 million working days are lost each year in the UK through sickness at a cost of £8 billion to organisations (Sigman, 1992). The HSE estimates that at least 50% of these lost days are associated with stress absence.

Similarly, the CBI state that 80 million lost working days within the UK are the result of mental illness at a cost of £3.1 billion to the UK industry (Cooper & Cartwright, 1996). Within the United States, Karasek & Theorell (1990) estimated that the cost of occupational stress to organisations was as much as $150 billion per annum. Dollard & Metzer (1999, pp 241) state: “The accumulation of research findings now suggest a significant work stress problem, with implications for worker health, motivation and productivity, that warrants a concerted applied research effort at a local level and a strategy and policy response at a national level.”

5 Scale Validation

The validity of a psychometric scale can be assessed in a number of ways. For example, the factors generated based on items given to a particular organisation should also give rise to the same factors when given to another organisation.

The construct validity of a scale is concerned with the idea that if a number of scales are given to the same sample, then scales measuring related constructs should correlate with each other (convergent validity) and not correlate with each other if they measure theoretically unrelated constructs (discriminant validity).

It is therefore reasonable to assume that if the WRQoL scale is a good measure of our broad definition of quality of working life then the same factors should be generated in any organisation, that scores on the scale should be highly correlated with, say, scores on a jobs satisfaction scale and on a general well-being scale, but be unrelated to say, scores on attitudes to recycling. The following sections test the validity of the WRQoL scale on each of these concepts as well as for test-retest reliability which is also a required property for a valid scale.

5.1 Revalidation– 4 University data set

A revalidation exercise was conducted with the WRQoL Scale in 2008 and 2009, (Edwards, Van Laar, Easton & Kinman, 2009).

Staff from four UK Universities (3 pre-1992, 1 post-1992) were issued with the WRQoL questions as part of a larger staff survey. 2136 staff returned the survey with all 23 items completed (valid response rate of 28%). Overall Cronbach's alpha for all 23 items was found to be an excellent .94. Other component reliabilities are shown in Table 4.

Component	Factor Label	COMBINED Reliability (α)	De Vellis Scale Description
1	GWB	0.90	Excellent
2	HWI	0.78	Respectable
3	JCS	0.85	Very good
4	CAW	0.72	Respectable
5	WCS	0.79	Respectable
6	SAW	0.81	Very good
	Overall Scale	0.94	Excellent

Table 4: 23-item, 6 factor component sub-scale Alphas for the 4UNI data set.

It will be noted that comparing Tables 3 and 4, the 4 university sub factor reliabilities are significantly lower for components HWI and CAW, significantly higher for GWB and WCS (and overall), and not significantly different between JCS and SAW. A first order confirmatory factor analysis found a good fit for the 6 factor model (CFI = .93;

GFI = .92, NFI = .93, RMSEA =.06). Some evidence was also found to support the use of the WRQoL scale as a univariate measure of Quality of Working Life (i.e. the a single WRQoL overall value made from the average of all scores) (CFI = .91; GFI = .89, NFI = .90, RMSEA =.007).

5.2 Revalidation – 9 University data set

A further scale revalidation exercise was conducted in 2010 (Van Laar & Easton, 2010).

Staff from nine UK Universities (4 pre-1992; 3 post-1992, 2-post 1995, including 4 universities from the 4 University data set) were issued with the WRQoL questions as part of a larger staff survey. 3797 staff returned the survey with all 23 items completed (response rate of 33%). The 9 University data set contained a good general sample from a wide range of jobs and many respondents across age groups and gender (see Table 4). Overall Cronbach's Alpha for all 23 items was found to be.94. Other component reliabilities are shown in Table 5.

Component	Factor Label	COMBINED Reliability (α)	De Vellis Scale Description
1	GWB	.90	Excellent
2	HWI	.78	Respectable
3	JCS	.86	Very good
4	CAW	.72	Respectable
5	WCS	.79	Respectable
6	SAW	.82	Very good
	Overall Scale	.94	Excellent

Table 5: 23-item, 6 factor component sub-scale Alphas for the 9UNI data set.

It will be noted that comparing Tables 3 and 5, the 9 University sub factor reliabilities are significantly lower for components HWI and CAW, significantly higher for GWB and overall, and not significantly different between JCS, WCS and SAW. A first order confirmatory factor analysis found a good fit for the 6 factor model (CFI = .93; GFI = .92, NFI = .93, RMSEA =.07).

As the 9 University data set contains a good general sample from a wide range of jobs and many respondents across age groups and gender (see Table 6), then, in the absence of a more relevant norm group that the 9 University data set be used. To this end, full detailed norm tables and category question breakdowns for this sample are shown in Appendix 7.2.

	Age Group (Years)				
Gender	under 25	25-44	45-59	60 or over	Total
Male	35	663	608	126	1432
Female	104	1320	855	86	2365
Total	139	1983	1463	212	3797

Table 6: Breakdown by Age Group and Gender for the 9 University data set.

5.3 Test-Retest validity

Problems with anonymity means that often staff being surveyed do not want to be tracked during research. This has meant that few studies have been able to conduct WRQoL test-retest surveys. Van Laar, Easton & Bradshaw (2012) conducted a staff survey in an English Higher Education institution in which staff were asked to provide details if they wished to take part in a test-retest study. Four weeks after the initial survey staff were again surveyed and 102 respondents provided full data at both time periods.

The test-retest reliabilities of the overall WRQoL average and the individual factor subscales all showed a strong, significant, positive intra-class correlation between the test and the retest measures, see Table 7.

Factor	r	ICC
GWB	.773**	.772**
HWI	.785**	.781**
JCS	.888**	.887**
CAW	.823**	.817**
WCS	.831**	.833**
SAW	.794**	.792**
WRQoL	.874**	.874**

*Notes: N = 102; ** p < .01.*

Table 7: Test-retest reliabilities and intra-class correlations coefficients for WRQoL sub factors and overall score.

5.4 Construct validity

Construct validity is concerned with the idea if a number of scales are given to the same sample, then scales measuring related constructs should correlate with each other (convergent validity) and not correlate with each other if they measure theoretically unrelated constructs (discriminant validity).

It is therefore reasonable to assume that if the WRQoL scale is a good measure of our broad definition of quality of working life then scores on the scale should be

highly correlated with, say, scores on a jobs satisfaction scale and with a general well-being scale and unrelated to say, scores on attitudes to recycling.

A number of studies have been conducted, mainly by researchers at the University of Portsmouth, which have examined the construct validity of the WRQoL. A series of these are described below and unless otherwise mentioned the overall WRQoL measure is the average of the untransformed, negative phrased-reversed WRQoL items.

5.4.1 GHQ-12 General Health Questionnaire

The 12 item General Health Questionnaire (GHQ-12) developed by Goldberg (1978) is a measure of Psychological and general well-being. The measure is also sensitive to minor mental health disorders. Respondents are required to answer 12 questions referring to their psychological well-being behaviours over the past few weeks. Answers are given on a four-point Likert scale, such as: “Better Than Usual”, “Same As Usual”, “Less Than Usual”, “Much Less Than Usual”. High scores indicate poor psychological well-being. Cronbach’s alpha reliabilities ranged from 0.82 and 0.90 in a series of studies (Goldberg, 1978).

183 Construction workers completed the WRQoL and a number of other measures including the GHQ-12 (Spears, 2010). A negative correlation (the expected direction) was found between average scores on the General Health Questionnaire with Overall WRQoL of -.53 (Criterion adjusted correlation = -.57) which according to Smith & Smith (2005:159) is an indication of ‘reasonable’ convergent validity, suggesting that the two scales are tapping into similar constructs.

5.4.2 Warr Job Satisfaction Scale (WJSAT)

210 members of staff from a small UK University completed an online questionnaire containing both WRQoL scale and the Warr Job Satisfaction scale (WJSat) and other questions (Van Laar, Easton & Bradshaw, 2009). 108 members of staff completed every question on both scales.

The overall perceived quality of working Life at the University was similar to the average for the sector.

The Warr Job Satisfaction scale contains 15 items which add up to a general measure of job satisfaction. The seven even numbered items in the scale assess intrinsic job satisfaction and odd numbered items assess extrinsic job satisfaction. Mullarkey et al., (1999) provide examples of the questions and the marking scheme.

Overall WJSat is correlated 0.832 with Overall WRQoL (Criterion adjusted correlation = 0.873) which according to Smith & Smith (2005) is an indication of excellent convergent validity, suggesting that the two scales are tapping into similar constructs. A multiple regression where the 6 WRQoL factors were entered directly to predict Overall WJSat was highly significant ($p < 0.001$) with an adjusted r^2 of

0.781, and three factors contributing significantly to the prediction (JCS, CAW, WCS),

Overall WJSAT is correlated 0.832 with Overall WRQoL (Criterion adjusted correlation = 0.873), an indication of 'excellent' convergent validity.

5.4.3 Warr Job Related Well-being Anxiety-Contentment Scale (WJRWB-AC)

210 members of staff from a small UK University completed an online questionnaire containing both WRQoL scale and the Warr Well-being anxiety-contentment scale and other questions (Van Laar, Easton & Bradshaw, 2009). 108 members of staff completed every question on both scales.

The Warr Job Related Well-Being anxiety-contentment sub-scale is made up of 6 items, with a sub-set of three items contributing to the anxiety factor. Mullarkey et al., (1999) provide examples of the questions and the marking scheme, all questions in the present study used the Sevastos et al., (1992) wording and 5 item version of the scale.

WJ-R Anxiety-Contentment was found to be correlated 0.686 with Overall WRQoL (Criterion adjusted correlation = 0.754), which indicates 'good' convergent validity.

5.4.4 Work Locus of Control

The 16 item Work Locus of Control scale measures generalised control beliefs within the work setting Spector (1988). Eight items address internal control (e.g., a job is what you make of it) eight items address external control (e.g., Getting the job you want is mostly a matter of luck). Responses were recorded on a six-point Likert scale (1= Disagree Very Much to 6= Agree Very Much). Cronbach's Alpha reliabilities have been reported between 0.75 and 0.85 (Spector, 1988).

183 Construction workers completed the WRQoL and a number of other measures including the Work Locus of control scale (Spears, 2010). A negative correlation was found between average scores on the Work Locus of Control scale with Overall WRQoL of -.37(Criterion adjusted correlation = -0.43) which according to Smith & Smith (2005) is an indication of 'Inadequate' convergent validity. It was found that high WRQoL was generally associated with internal locus of control views, whereas low WRQoL was generally associated with external locus of control views.

5.4.5 AGI Attitudes to Green Issues

In order to assess the discriminant validity of the WRQoL, Spears (2010) surveyed 183 UK construction workers. In addition to the 23 item WRQoL scale, Spears also gathered responses to a 4-item Attitudes to Green Issues (AGI) scale (Breakwell, Fife-Schaw, Lee & Spencer, 1986). The AGI scale items concern environmental

beliefs and have no theoretical link to issues of Quality of Working Life. No significant correlation was found between the two scales (r = .01), suggesting the two scales are measuring different constructs, thus providing clear evidence of discriminant validity.

5.4.6 GSES Generalised Self Efficacy Scale

As part of the British Psychological Society 'Graduate 2000' survey the WRQoL and the Generalised Self Efficacy Scale (GSES) (Schwarzer & Jerusalem, 1995) scales were completed (Van Laar & Udell, 2007).

The GSES is a 10 item scale created to assess a general sense of perceived self-efficacy with the aim in mind to predict coping with daily hassles as well as adaptation after experiencing all kinds of stressful life events. Cronbach's alphas ranged from .76 to .90, with the majority in the high .80s. The scale is one-dimensional. Criterion-related validity is documented in numerous correlation studies where positive coefficients were found with favourable emotions, dispositional optimism, and work satisfaction. Negative coefficients were found with depression, anxiety, stress, burnout, and health complaints. In studies with cardiac patients, their recovery over a half-year time period could be predicted by pre-surgery self-efficacy. 430 useable questionnaires were returned by the cut off date, giving an overall response rate (430 from 939 – 65 sent out) of 49.2%. 372 respondents completed every question on both GSES and WRQoL scales and the subsequent analysis was conducted on this data. The GSES was scored as described above. The Overall WRQoL scale was the average of the 6 WRQoL sub factors.

Overall GSES is correlated 0.246 with Overall WRQoL (Criterion adjusted correlation = 0.264) which according to Smith & Smith (2005) is an indication of 'inadequate' convergent validity, suggesting that the two scales are not tapping into similar constructs.

5.4.7 TMMS Emotional Intelligence Scale

The TMMS is a 48-item questionnaire used to measure emotional intelligence (Salovey, Mayer, Goldman, Turvey, and Palfai, 1995). For the purposes of this study a 30-item short version of the TMMS was used as it has better internal consistency and has been used in previous studies which correlated EI with stress. The TMMS is used to identify three interpersonal factors: emotional clarity, emotional repair, and emotional attention. Emotional clarity refers to an individual's tendency to distinguish their own emotions and moods, emotional repair refers to an individual's tendency to regulate their own, and emotional attention conveys the level to which an individual tends to observe and think about their own feelings and moods (Salovey et al., 1995). It is believed that those who obtain high scores in emotional clarity and repair tend to experience less stress and report better health whereas those who score high in emotional attention tend to report high stress and other physical symptoms and psychological disorders. Higher scores on the three factors indicate higher Emotional Intelligence.

431 members of staff from a UK University completed an online questionnaire containing both WRQoL scale and the Trait Meta Mood scale (TMMS) and other questions (Phillips, 2008). 360 members of staff completed every WRQoL scale and every TMMS scale item.

Overall TMMS correlated 0.039 with Overall WRQoL (Criterion adjusted correlation = 0.056) which according to Smith & Smith (2005) is an indication of ‘inadequate’ convergent validity.

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7 Appendices

7.1 Scoring Key

Number	Factor	Item wording
1.	JCS	I have a clear set of goals and aims to enable me to do my job
2.	CAW	I feel able to voice opinions and influence changes in my area of work
3.	JCS	I have the opportunity to use my abilities at work
4.	GWB	I feel well at the moment
5.	HWI	My employer provides adequate facilities and flexibility for me to fit work in around my family life
6.	HWI	My current working hours / patterns suit my personal circumstances
7.	SAW	I often feel under pressure at work
8.	JCS	When I have done a good job it is acknowledged by my line manager
9.	GWB	Recently, I have been feeling unhappy and depressed
10.	GWB	I am satisfied with my life
11.	JCS	I am encouraged to develop new skills
12.	CAW	I am involved in decisions that affect me in my own area of work
13.	WCS	My employer provides me with what I need to do my job effectively
14.	HWI	My line manager actively promotes flexible working hours / patterns
15.	GWB	In most ways my life is close to ideal
16.	WCS	I work in a safe environment
17.	GWB	Generally things work out well for me
18.	JCS	I am satisfied with the career opportunities available for me here
19.	SAW	I often feel excessive levels of stress at work
20.	JCS	I am satisfied with the training I receive in order to perform my present job
21.	GWB	Recently, I have been feeling reasonably happy all things considered
22.	WCS	The working conditions are satisfactory
23.	CAW	I am involved in decisions that affect members of the public in my own area of work
24.	OVL	I am satisfied with the overall quality of my working life

Key	
red	= negatively phrased question (score should be reversed)

GWB	General Well Being (GWB)
HWI	Home-Work Interface (HWI)
JCS	Job Career Satisfaction (JCS)
CAW	Control at Work (CAW)
WCS	Working Conditions (WCS)
SAW	Stress at Work (SAW)
OVL	Overall Quality of Working Life item

Item scores are derived from a 5pt Likert scale from Strongly Disagree (1) to Strongly Agree (5). The individual factor scores are calculated by taking the average of the item scores contributing to that factor with the scores reversed for the three negatively phrased items. See questionnaire for an example. Overall WRQoL is the average of the six factors scores.

Scale means and Norm tables

Norm tables allow the scores on a scale achieved by one sample group (or individual) to be indexed against the scores achieved by a known or representative sample group. Norm tables allow the researcher or user to determine the percentile of the distribution the new sample score is equivalent to. For example, the Job-Career Satisfaction score of a group of nursery school teachers may be found to be equivalent to the 80th percentile of a general sample of teachers – indicating that their average JCS score was equal or higher than that of 80% of general teachers.

Norm tables are produced for summative scales (i.e. those scales whose values are expected to make sense when added together). Summative scales may be derived from simple summation (e.g., question 3 score + question 4 score + question 5 score), or some form of transformed item scores.

To fulfil the requirements for confirmatory factor analysis the data reported in the original WRQoL scale article (Van Laar et al, 2007) was first statistically transformed. The main advantage of a norm scale based on the transformed factor scores is good fit to the factor and good link to published data. The main disadvantage is that the norm tables contain relatively uninterpretable factor weight scores and not simple question scores. Some researchers will wish to compare their data against the transformed data norms, others against the non-transformed data norms. For this reason, norm tables based on the average non-transformed scores as well as the average transformed data are provided.

Table 7-1: 9 University Norm table for overall WRQoL and sub-factors broken down by category question using untransformed data.

	GWB			HWI			JCS			CAW			WCS			SAW			WRQoL		
	Mean	SD	Count	Mean	SD	Count	Mean	SD	Count	Mean	SD	Count	Mean	SD	Count	Mean	SD	Count	Mean	SD	Count
Male	3.36	0.9	1429	3.44	0.88	1429	3.32	0.86	1429	3.41	0.91	1429	3.54	0.85	1429	2.66	1.02	1429	3.33	0.73	1429
Female	3.49	0.82	2363	3.58	0.85	2363	3.49	0.78	2363	3.41	0.84	2363	3.66	0.79	2363	2.82	1.03	2363	3.46	0.65	2363
under 25	3.64	0.73	139	3.64	0.86	139	3.63	0.79	139	3.41	0.84	139	3.94	0.7	139	3.28	0.96	139	3.62	0.61	139
25-44	3.43	0.84	1982	3.57	0.85	1982	3.45	0.79	1982	3.41	0.82	1982	3.65	0.77	1982	2.78	1.02	1982	3.42	0.66	1982
45-59	3.39	0.86	1461	3.44	0.87	1461	3.37	0.84	1461	3.4	0.91	1461	3.51	0.86	1461	2.64	1.02	1461	3.34	0.72	1461
60 or over	3.68	0.86	210	3.65	0.85	210	3.51	0.85	210	3.53	0.93	210	3.7	0.89	210	2.95	1.06	210	3.55	0.75	210
Managerial Staff	3.53	0.83	369	3.51	0.88	369	3.65	0.77	369	3.88	0.79	369	3.75	0.8	369	2.54	1.03	369	3.55	0.67	369
Academic Staff	3.34	0.93	1137	3.35	0.93	1137	3.3	0.86	1137	3.37	0.92	1137	3.41	0.9	1137	2.41	0.99	1137	3.26	0.76	1137
Research Staff	3.45	0.86	337	3.71	0.8	337	3.52	0.73	337	3.34	0.73	337	3.71	0.77	337	2.87	1.01	337	3.47	0.63	337
Academic Support Staff	3.47	0.82	689	3.61	0.81	689	3.45	0.82	689	3.44	0.82	689	3.65	0.79	689	2.93	1.01	689	3.46	0.66	689
Admin. and Clerical Staff	3.49	0.76	690	3.6	0.79	690	3.46	0.75	690	3.32	0.83	690	3.74	0.67	690	3.03	0.98	690	3.47	0.6	690
Faculty Support Staff	3.49	0.84	206	3.49	0.85	206	3.32	0.88	206	3.14	0.94	206	3.67	0.83	206	3.12	1.08	206	3.39	0.7	206
Other	3.44	0.8	343	3.67	0.82	343	3.49	0.81	343	3.43	0.82	343	3.68	0.73	343	2.95	0.94	343	3.47	0.64	343

Notes:
GWB = GWB factor has reversed question 9 (i.e. higher value = better QoWL).
SAW = SAW factor has reversed the negatively phrased questions 7 and 19 (i.e. so that higher value = better WRQoL).
WRQoL = Data for the average of all 23-item questionnaire scores (includes reversed negatively phrased qns 7, 9, 19).

Table 7-2: NHS UK Norm table for overall WRQoL and sub-factors using untransformed data.

		GWB	HWI	JCS	CAW	WCS	SAW	WRQoL
	N	953	953	953	953	953	953	953
	Mean	3.62	3.48	3.50	3.43	3.45	2.69	3.44
	SE	0.02	0.03	0.03	0.03	0.03	0.03	0.02
	Median	3.83	3.67	3.67	3.67	3.67	3.00	3.48
	SD	0.73	0.89	0.81	0.86	0.78	0.95	0.58
Percentiles	1	1.67	1.00	1.33	1.00	1.33	1.00	1.96
	5	2.17	1.67	2.00	2.00	2.00	1.00	2.39
	10	2.67	2.33	2.33	2.00	2.33	1.50	2.65
	20	3.00	2.67	2.83	2.67	2.67	2.00	2.96
	25	3.17	3.00	3.00	3.00	3.00	2.00	3.09
	30	3.33	3.00	3.17	3.00	3.00	2.00	3.17
	40	3.67	3.33	3.50	3.33	3.33	2.50	3.35
	50	3.83	3.67	3.67	3.67	3.67	3.00	3.48
	60	4.00	4.00	3.83	3.67	3.67	3.00	3.65
	70	4.00	4.00	4.00	4.00	4.00	3.00	3.78
	75	4.17	4.00	4.00	4.00	4.00	3.50	3.83
	80	4.17	4.00	4.17	4.00	4.00	3.50	3.91
	90	4.50	4.67	4.50	4.33	4.33	4.00	4.13
	95	4.67	5.00	4.67	5.00	4.67	4.00	4.35
	99	5.00	5.00	5.00	5.00	5.00	5.00	4.70

Notes:

GWB = GWB factor has reversed question 60 (i.e. higher value = better QoWL).

SAW = SAW factor has reversed the negatively phrased questions 7 and 19 (i.e. so that higher value = better WRQoL).

WRQoL = Data for the average of all 23-item questionnaire scores (includes reversed negatively phrased qns 7, 9, 19).

Table 7-3: NHS UK Norm table for overall WRQoL and sub-factors using transformed data.

		GWB	HWI	JCS	CAW	WCS	SAW	WRQoL*
	N	953	953	953	953	953	953	953
	Mean	1.51	1.55	1.55	1.57	1.57	1.79	1.57
	SE	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	Median	1.47	1.52	1.52	1.52	1.52	1.73	1.56
	SD	0.23	0.28	0.25	0.27	0.24	0.27	0.18
Percentiles	1	1.00	1.00	1.00	1.00	1.00	1.00	1.11
	5	1.14	1.00	1.14	1.00	1.14	1.41	1.26
	10	1.21	1.14	1.21	1.28	1.28	1.41	1.33
	20	1.35	1.38	1.35	1.41	1.41	1.57	1.42
	25	1.35	1.41	1.41	1.41	1.41	1.57	1.45
	30	1.40	1.41	1.41	1.41	1.41	1.71	1.47
	40	1.41	1.41	1.47	1.49	1.52	1.73	1.52
	50	1.47	1.52	1.52	1.52	1.52	1.73	1.56
	60	1.52	1.63	1.57	1.63	1.63	1.87	1.61
	70	1.63	1.72	1.67	1.72	1.72	2.00	1.66
	75	1.67	1.72	1.72	1.73	1.72	2.00	1.69
	80	1.72	1.79	1.77	1.80	1.80	2.00	1.72
	90	1.82	1.91	1.90	1.99	1.91	2.12	1.80
	95	1.95	2.08	1.99	2.00	2.00	2.24	1.87
	99	2.08	2.24	2.16	2.24	2.16	2.24	2.00

Notes:

GWB = GWB factor has reversed question 9 (i.e. higher value = better QoWL).

SAW = SAW factor has reversed the negatively phrased questions 7 and 19 (i.e. so that higher value = better WRQoL).

WRQoL = Data for the average of all 23-item questionnaire scores (includes reversed negatively phrased qns 7, 9, 19).

Table 7-4: 9 University Norm table for overall WRQoL and sub-factors using untransformed data.

		GWB	HWI	JCS	CAW	WCS	SAW	WRQoL
	N	3797	3797	3797	3797	3797	3797	3797
	Mean	3.437	3.528	3.427	3.411	3.612	2.758	3.407
	SE	0.014	0.014	0.013	0.014	0.013	0.017	0.011
	Median	3.500	3.667	3.500	3.667	3.667	3.000	3.478
	SD	0.851	0.863	0.818	0.865	0.815	1.032	0.688
Percentiles	1	1.33	1.33	1.33	1.00	1.33	1.00	1.70
	5	2.00	2.00	1.83	2.00	2.00	1.00	2.13
	10	2.17	2.33	2.17	2.33	2.33	1.50	2.43
	20	2.67	3.00	2.67	2.67	3.00	2.00	2.83
	25	2.83	3.00	2.83	3.00	3.00	2.00	2.96
	30	3.00	3.33	3.00	3.00	3.33	2.00	3.09
	40	3.33	3.33	3.33	3.33	3.67	2.50	3.30
	50	3.50	3.67	3.50	3.67	3.67	3.00	3.48
	60	3.83	3.67	3.67	3.67	4.00	3.00	3.65
	70	4.00	4.00	3.83	4.00	4.00	3.50	3.83
	75	4.00	4.00	4.00	4.00	4.00	3.50	3.87
	80	4.17	4.33	4.17	4.00	4.33	4.00	3.96
	90	4.50	4.67	4.33	4.33	4.67	4.00	4.22
	95	4.67	5.00	4.67	4.67	4.67	4.50	4.43
	99	5.00	5.00	5.00	5.00	5.00	5.00	4.78

Notes:
GWB = GWB factor has reversed question 9 (i.e. higher value = better QoWL).
SAW = SAW factor has reversed the negatively phrased questions 7 and 19 (i.e. so that higher value = better WRQoL).
WRQoL = Data for the average of all 23-item questionnaire scores (includes reversed negatively phrased qns 7, 9, 19).

Table 7-5: 9 University Norm table for overall WRQoL and sub-factors using transformed data.

		GWB	HWI	JCS	CAW	WCS	SAW	WRQoL
	N	3797	3797	3797	3797	3797	3797	3797
	Mean	1.5652	1.5359	1.5671	1.5724	1.5126	1.7687	1.5737
	SE	0.004	0.004	0.004	0.004	0.004	0.005	0.004
	Median	1.535	1.520	1.557	1.520	1.488	1.732	1.560
	SD	0.268	0.277	0.256	0.271	0.259	0.303	0.216
Percentiles	1	1.00	1.00	1.00	1.00	1.00	1.00	1.08
	5	1.12	1.00	1.14	1.14	1.14	1.21	1.22
	10	1.21	1.14	1.26	1.24	1.14	1.41	1.30
	20	1.35	1.28	1.35	1.38	1.28	1.41	1.40
	25	1.40	1.41	1.41	1.41	1.41	1.57	1.44
	30	1.41	1.41	1.41	1.41	1.41	1.57	1.46
	40	1.47	1.47	1.50	1.52	1.41	1.73	1.51
	50	1.54	1.52	1.56	1.52	1.49	1.73	1.56
	60	1.63	1.61	1.62	1.63	1.52	1.87	1.62
	70	1.72	1.63	1.70	1.72	1.63	2.00	1.69
	75	1.77	1.72	1.73	1.73	1.69	2.00	1.72
	80	1.81	1.73	1.78	1.82	1.72	2.00	1.76
	90	1.92	1.91	1.91	1.91	1.88	2.12	1.87
	95	2.00	2.00	2.02	2.00	1.99	2.24	1.95
	99	2.16	2.16	2.16	2.24	2.16	2.24	2.06

Notes:

GWB = GWB factor has reversed question 9 (i.e. higher value = better QoWL).

SAW = SAW factor has reversed the negatively phrased questions 7 and 19 (i.e. so that higher value = better WRQoL).

WRQoL = Data for the average of all 23-item questionnaire scores (includes reversed negatively phrased qns 7, 9, 19).

7.2 WRQoL questionnaire and individual scoring scheme

Questionnaire

The individual version of the WRQoL questionnaire is normally presented as a 24 item single page scale. Although the WRQoL scale has 23 items, a further general question is normally added to serve as an indicator of the validity and reliability of the scale and factors. This 24th item is: 'I am satisfied with the overall quality of my working life'.

Marking Sheet

The WRQoL marking sheet is used to score the individual version of the WRQoL questionnaire. The marking sheet shows how the questionnaire provides values for the 6 WRQoL sub-factors and illustrates how the items contribute to each factor.

Personal Profile (norm) sheets

Once the WRQoL sub factor scores have been derived for an individual, the appropriate Personal Profile sheet can be used to calculate the overall WRQoL score and to determine the percentile sub factor scores compared to a given norm group. The sheets may also be used to produce an individual WRQoL profile. Please use the profile sheet that is most relevant to the occupation of the person or sample being surveyed. If in doubt, please use the sheet with the largest sample (UK HE staff).

Personal Record

The personal profile sheet allows interpretation of the WRQoL sub-scales into Higher, Average and Lower ranges when compared to the norm sample data.

The personal record sheet provides a brief description of the WRQoL factors to aid interpretation of the individual profile.

Action Planning

This sheet can be used as the first step towards helping someone use WRQoL questionnaire results to make a difference in the quality of their working life.

The personal record and action planning sheets offer a summary record of the assessment process.

Work-Related Quality of Life (WRQoL) Scale

Questionnaire

This questionnaire is designed to assess your quality of working life. Please do not take too long over each question; we want your first reaction not a long drawn out thought process. Please do not omit any questions. This isn't a test, simply a measure of your attitudes to the factors that influence your experience at work.

Please indicate your answers by filling in the circles like this: ●, ***if you make a mistake do this:*** 

	To what extent do you agree with the following? *Please fill in the appropriate circle.*	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1.	I have a clear set of goals and aims to enable me to do my job	○	○	○	○	○
2.	I feel able to voice opinions and influence changes in my area of work	○	○	○	○	○
3.	I have the opportunity to use my abilities at work	○	○	○	○	○
4.	I feel well at the moment	○	○	○	○	○
5.	My employer provides adequate facilities and flexibility for me to fit work in around my family life	○	○	○	○	○
6.	My current working hours / patterns suit my personal circumstances	○	○	○	○	○
7.	I often feel under pressure at work	○	○	○	○	○
8.	When I have done a good job it is acknowledged by my line manager	○	○	○	○	○
9.	Recently, I have been feeling unhappy and depressed	○	○	○	○	○
10.	I am satisfied with my life	○	○	○	○	○
11.	I am encouraged to develop new skills	○	○	○	○	○
12.	I am involved in decisions that affect me in my own area of work	○	○	○	○	○
13.	My employer provides me with what I need to do my job effectively	○	○	○	○	○
14.	My line manager actively promotes flexible working hours / patterns	○	○	○	○	○
15.	In most ways my life is close to ideal	○	○	○	○	○
16.	I work in a safe environment	○	○	○	○	○
17.	Generally things work out well for me	○	○	○	○	○
18.	I am satisfied with the career opportunities available for me here	○	○	○	○	○
19.	I often feel excessive levels of stress at work	○	○	○	○	○
20.	I am satisfied with the training I receive in order to perform my present job	○	○	○	○	○
21.	Recently, I have been feeling reasonably happy all things considered	○	○	○	○	○
22.	The working conditions are satisfactory	○	○	○	○	○
23.	I am involved in decisions that affect members of the public in my own area of work	○	○	○	○	○
24.	I am satisfied with the overall quality of my working life	○	○	○	○	○

Work-Related Quality of Life (WRQoL) Scale

Marking Sheet

1. For each question on the WRQoL questionnaire, circle the number in the column headed "**Questionnaire responses**" below which corresponds to the answer on the questionnaire. Thus, for the example below, the number "2" in the second column corresponding to the position of the ● would be encircled in the table.

		SD	D	N	A	SA
4.	I feel well at the moment	○	●	○	○	○

2. Then, for each question, copy the numbers you have circled in the column headed "Questionnaire responses" into the corresponding blank squares in the columns headed **GWB, HWI,** etc.
3. Next, at the base of each of the columns headed **GWB, HWI** etc., calculate the column score in the row **Column total**. **N.B.: all questions need to be answered for the resulting scores to be valid.**

WRQoL Question	Questionnaire responses					GWB	HWI	JCS	CAW	WCS	SAW
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree						
1	1	2	3	4	5						
2	1	2	3	4	5						
3	1	2	3	4	5						
4	1	2	3	4	5						
5	1	2	3	4	5						
6	1	2	3	4	5						
7	5	4	3	2	1						
8	1	2	3	4	5						
9	5	4	3	2	1						
10	1	2	3	4	5						
11	1	2	3	4	5						
12	1	2	3	4	5						
13	1	2	3	4	5						
14	1	2	3	4	5						
15	1	2	3	4	5						
16	1	2	3	4	5						
17	1	2	3	4	5						
18	1	2	3	4	5						
19	5	4	3	2	1						
20	1	2	3	4	5						
21	1	2	3	4	5						
22	1	2	3	4	5						
23	1	2	3	4	5						
24	1	2	3	4	5	q24 is not used to calculate factor scores					
					Column Totals						

Next, copy the figures from the **Column total** onto the **WRQoL Scale Personal Profile** sheet**.**

Work-Related Quality of Life (WRQoL) Scale

Personal Profile

Name……. Date……

Write the **Column Totals** from the **WRQoL Scale Marking Sheet** in the relevant boxes below. To calculate the overall WRQoL score add up the 6 column totals.

	GWB	HWI	JCS	CAW	WCS	SAW
Column Totals from the **WRQoL Marking Sheet**						
Full Scale WRQOL Score (total of the six Column Totals)						

Key: GWB: General Well-being; HWI: Home-Work Interface; JCS: Job-Career Satisfaction; CAW: Control at Work; WCS: Working Conditions; SAW: Stress at Work.

For each of the WRQoL factors in the table above, find the equivalent factor column in the table below and circle the corresponding value. You can read off the percentile equivalents in the left hand column of the table below. Higher percentiles indicate a better Quality of Working Life (QoWL). You can create a ***WRQoL Profile*** by joining your adjacent subscale raw scores. Next, to help you interpret the scores go to the **Work-Related Quality of Life (WRQoL) Scale Personal Record** sheet.

PERCENTILE TABLE

PERCENTILES*		GWB	HWI	JCS	CAW	WCS	SAW	Full scale WRQoL
Lower QoWL	**10**	6-16	3-7	6-15	3-6	3-7	2-3	23-58
	20	17-19	8	17				59-65
	30	20	9	18-19	7-8	8-9	4	66-71
Average QoWL	**40**	21	10	20	9	10	5	72-75
	50	22	11	21				76-78
	60	23		22	10	11		79-82
Higher QoWL	**70**	24		23			6	83-85
	80	25	12	24	11	12	7	86-88
	90	26	13-14	25-26	12	13	8	89-93
	99	27-30	15	27-30	13-15	14-15	9-10	94-115

**UK National Health Service Norms (N = 953) for untransformed data.*

Work-Related Quality of Life (WRQoL) Scale

Personal Profile

Name…….. Date……

Write the **Column Totals** from the **WRQoL Scale Marking Sheet** in the relevant boxes below. To calculate the overall WRQoL score add up the 6 column totals.

	GWB	HWI	JCS	CAW	WCS	SAW
Column Totals from the **WRQoL Marking Sheet**						
Full Scale WRQOL Score (total of the six Column Totals)						

Key: GWB: General Well-being; HWI: Home-Work Interface; JCS: Job-Career Satisfaction; CAW: Control at Work; WCS: Working Conditions; SAW: Stress at Work.

For each of the WRQoL factors in the table above, find the equivalent factor column in the table below and circle the corresponding value. You can read off the percentile equivalents in the left hand column of the table below. Higher percentiles indicate a better Quality of Working Life (QoWL). You can create a ***WRQoL Profile*** by joining your adjacent subscale raw scores. Next, to help you interpret the scores go to the **Work-Related Quality of Life (WRQoL) Scale Personal Record** sheet.

PERCENTILE TABLE

PERCENTILES*		GWB	HWI	JCS	CAW	WCS	SAW	Full scale WRQoL
Lower QoWL	**10**	6-13	3-7	6-13	3-7	3-7	2-3	23-60
	20	14-16	8-9	14-16	8	8-9	4	61-68
	30	17-18		17-18	9	10	5	69-73
Average QoWL	**40**	19-20	10	19-20	10			74-78
	50	21		21		11	6	79-81
	60	22-23	11	22	11		7	82-84
Higher QoWL	**70**	24	12	23		12		85-87
	80	25	13	24-25	12	13	8	88-90
	90	26-27	14	26	13	14	9	91-96
	99	28-30	15	27-30	14-15	15	10	97-115

**UK Higher Education Norms (N = 3797) for untransformed data.*

Work-Related Quality of Life (WRQoL) Scale

Personal Record

Your name…… Date……

The Work-Related Quality of Life (WRQoL) Scale is an evidence based measure of Quality of Working Life (QoWL), (Van Laar et al., 2007) based on the following six independent psychosocial subscales.

Circle the box next to each subscale below which matches the range for your score on your Personal Profile.

General Well-Being (GWB)

GWB reflects psychological well-being and general physical health aspects. Your sense of GWB may be more or less independent of your work situation. General well-being both influences, and is influenced by, work. It warrants attention and action where necessary as it is closely linked with your overall Quality of Working Life.

Higher
Average
Lower

Home-Work Interface (HWI)

The degree to which you think the organisation understands and tries to help you with pressures outside of work is measured by this subscale. HWI is related to your work life balance, and is about having a measure of control over when, where and how you work. It is achieved when you feel you have a more fulfilled life inside and outside paid work, to the mutual benefit of you and your work. A poor work-life balance can have negative effects on your well-being.

Higher
Average
Lower

Job and Career Satisfaction (JCS)

This WRQoL subscale reflects the extent to which you are content with your job and prospects at work. JCS is a very important subscale in overall quality of working life. How you score on the JCS subscale relates to whether you feel the workplace provides you with the best things at work - the things that make you feel good, such as: a sense of achievement, high self esteem, fulfilment of potential, etc. The JCS subscale is influenced by clarity of goals and role ambiguity, appraisal, recognition and reward, personal development career benefits and enhancement and training needs.

Higher
Average
Lower

Control at Work WRQoL (CAW)

Lastly, this subscale shows how far you feel you are involved in decisions that affect you at work. Control at Work reflects the level to which you feel you can exercise what you consider to be an appropriate level of control within your work environment. That perception of control might be linked to various aspects of work, including the opportunity to contribute to the process of decision making that affects you. Leading authors in the field suggest that perception of personal control can strongly affect both an individuals' experience of stress and their health.

Higher
Average
Lower

Working Conditions (WCS)

This subscale assesses the extent to which you are satisfied with the conditions in which you work. Your score for the WCS subscale indicates the extent to which you are satisfied with the fundamental resources, working conditions and security necessary to do your job effectively. This includes aspects of the work environment such as noise and temperature, shift patterns and working hours, pay, tools and equipment, safety and security. Dissatisfaction with these aspects can have a significantly adverse effect on your overall WRQoL score.

Higher
Average
Lower

Stress at Work (SAW)

This subscale assesses the extent to which you see work pressures and demands as acceptable and not excessive or 'stressful'. The UK Health & Safety Executive (HSE) define stress as: "the adverse reaction people have to excessive pressure or other types of demand placed on them". Work pressures and demands can be a positive of aspect of our work experience, providing challenge and stimulation, but, where we see them as excessive and beyond our ability to cope, we are likely to feel overloaded and stressed.

Higher
Average
Lower

Now turn the page over and complete the final **Action Planning** section of the procedure

Work-Related Quality of Life (WRQoL) Scale

Action Planning

The Quality of Your Working Life is Important

A large proportion of most peoples' lives will be spent at work. Most of us recognise the importance of sleeping well, and we actively try to enjoy the leisure time that we can snatch in this hectic environment. But all too often, we can tend to see work as something we just have to put up with, or even something we don't expect to enjoy.

Now consider your overall WRQoL score and your scores on the 6 WRQoL subscales.

If one or more of your scores is in the ***lower range***, this indicates that, generally, you are substantially less satisfied with your work life in one or more areas than most people. You probably aren't enjoying work as much as you could, and though some aspects of work may satisfy you, there are issues which warrant your attention. You may have to spend some time thinking through the possible reasons for any lower range scores on your WRQoL profile so that you can begin to plan change for the better. It is important that you do make changes, because dissatisfaction with the quality of your working life will have negative effects on you if don't address its causes.

For many people, most of their scores will, of course, be in the ***average range***. Where your scores fall into the mid range, it may indicate that your working life overall probably does not provide you with very high levels of satisfaction, but then again you are not wholly dissatisfied either. Consideration of your subscale scores may help you identify areas where you might usefully look to see if there are positive changes you could make. Such changes could result in a higher quality of working life and help you feel good about life in general.

Where you have scores in the ***higher range***, you might simply review any areas which are not as satisfactory among the subscale scores and see if there is any action you choose to take. Many scores in the higher range indicates that, generally, your quality of working life is good and satisfying. For you, the key thing is to maintain that good quality of working life – don't take it for granted. It will help to identify and reflect on the subscales that make you feel good about your work environment. Understanding why they have a positive effect will help you maintain high satisfaction.

Mark in the section below the WRQoL areas which warrant some further consideration and or action. Where necessary continue on a separate sheet. In due course you will need to repeat the assessment to see if changes have been effective.

Action Plan

	Lower range subscale score?	Possible causes for lower subscale score	Options for action
General Well-Being			
Home-Work Interface			
Job and Career Satisfaction			
Control at Work			
Working Conditions			
Stress at Work			

7.3 Getting the best out of your Quality of Working Life Survey: Some Guidelines

To help you get the best out of a survey of Quality of Working Life, we give below a list of observations made by organisations which report that they have successfully surveyed their staff (See the Health and Safety Executive Management Standards for work related stress on-line resources for more on these guidelines and for examples of staff survey procedures).

Programmes tend to be less successful if there is insufficient senior management commitment

The senior management team need to clear about the rationale and business case for monitoring and addressing the wellbeing of their staff. They will need to understand their legal duties in relation to considering the wellbeing of staff. Successful programmes usually involve real commitment from senior management (e.g., visible support from senior staff, etc.), and communication with staff about the organisation's plans to improve Quality of Working Life in the workforce.

Preparation is paramount

Most successful projects involve the formation of a project group or working party. This might usefully include representatives from various elements of the organisation, such as; Health and Safety, Human Resources, Occupational Health, the trade unions, communications and general management. The project group can then effectively decide how best to carry a programme to assess and improve QoWL within the specific setting of their organisation.

Programmes are less successful if the project group making the decisions do not understand QoWL and the issues involved

Staff QoWL is most successfully addressed if the project group is fully familiar with the process of developing QoWL. They may benefit from specific opportunities to foster their understanding of QoWL, the survey process and the options for taking effective action to address issues raised. They are then likely to make the most appropriate decisions. It is also helpful if the staff most likely to be supporting general managers through the process are also familiar with the concept of QoWL, e.g., Health and Safety, Human Resources, Occupational Health, the trade unions etc.

Programmes are not very successful if a survey is carried out without first educating managers about QoWL and the reason for tackling it

Most managers do not fully know their legal duties and do not understand the business case for addressing staff QoWL. Understanding of the relevance of QoWL in the workplace will help managers identify what they must do when survey results are published. Failure to educate managers means the survey sits on a shelf and no actions are taken. The full potential of the survey is then not realised.

Programmes are not very successful if a survey is carried out without prior communication with staff

If staff do not understand why a survey is being done, or are sceptical about its motives, they do not tend to return questionnaires. A good return rate is essential if a representative sample of the organisation is to be obtained, and if the results are to be seen as representative. A process of effective and positive communication to explain the QoWL programme of surveying and then taking action is therefore paramount.

Programmes work can be linked to other methods of information gathering.

Quantitative surveys produce a lot of useful data, and analysis of open questions can provide more detailed examples and illustrations to help interpret the survey results.

Focus groups and/or other discussions with staff (e.g., appraisals) can give additional and beneficial insights to complement the survey process.

An organisation may also have other data which will assist in interpretation of results, such as turnover and absence data, previous staff satisfaction surveys, and exit and return-to-work interviews.

Programmes benefit from benchmarking

Programmes which use data from one time-point as a baseline against which interventions and the effect of any other changes can be evaluated help project leaders to develop an understanding of the processes underlying staff experience of QoWL so that interventions lead to positive change as well as being cost-effective.

Comparative data can provide the evidence needed to help planners select interventions and initiatives to address QoWL.

Programmes are less successful if the results of surveys are not communicated effectively to staff

The results of a survey will require consideration and interpretation prior to dissemination. That process of interpretation needs to be taken within the context of a programme of action planning and in the context of other factors affecting the organisation at that time-point.

Once the survey results are in a form ready for dissemination, communication of the findings needs to be carried out promptly and effectively. Delay at this point can lead to loos of momentum in a QoWL improvement programme. Staff can also become sceptical about the process, and less likely to participate in the process of identifying and making changes, and may be less likely to participate in future surveys.

Programmes are more successful when a constructive and positive approach is taken to use of survey results.

Surveys can offer opportunity to identify excellence in an organisation, and thereby the opportunity to promote, develop and protect the strengths already existing. It is often better to support and promote spread of best practice rather than seeking to detect poor and try to tackle practice in isolation. A positive and constructive approach will foster staff engagement, whilst a witch-hunt model can lead to anxiety and disengagement.

Celebration of excellence will be more likely to motivate others in an organisation to find out how they too can be excellent. Where issues do arise which lead to concern then it will be necessary to work with those involved to understand the survey findings and identify any action required.

Programmes are less successful if solutions to problems are determined by senior management with no input from staff

Solutions to any problems arising need to be addressed through involvement of all concerned at the various relevant levels of an organisation. Discussions can be a basis for interpreting the survey results, and part of a process to bring interested parties together to identify appropriate action where such is needed. A partnership model will often be most effective in promoting positive change.

Programmes are most successful if decisions and policies are first tested on pilot groups

Decisions made on the basis of survey findings and other information need to be tested, and the effect of changes made assessed, before interventions are fully implemented. Careful monitoring and ongoing review of any changes made will help ensure that the action taken is appropriate.

Programmes are most successful if support is in place before introducing a process to improve QoWL

Once the concept of optimising QoWL is introduced, staff need to know where to go for support and advice. This may be line managers wishing to know where they can get further help or information to deal with staff; or staff needing to know where to go if they have a problem. The sources of help and support for the process need to be identified at the beginning o the process, and incorporated into an organisation's QoWL or general well-being policy.

Programmes are less successful if attention is only paid to educating the individual

Personal assistance in optimising QoWL can be extremely useful, and successful as part of an overall strategy, and can be by way of group approaches, mentoring or psychological support. In tandem with the individual approach, organisational level factors need to be identified and managed effectively. It is often the latter aspects which can lead to greatest positive change when effectively addressed.

Summary

QoWL assessment and intervention programmes are particularly successful where careful attention is given to the detail of the whole process. An effective programme will be based on the idea that optimising staff QoWL is an ongoing process of continuous improvement - not just about conducting a survey.

Some specific requirements of the survey process

A Covering letter

Organisations will need to consider what information needs to be contained within the email or letter that accompanies and introduces the survey. Each recruitment / covering letter and/or questionnaire might usefully contain the following statements or similar, following a statement about the aim and nature of the survey within the context of the organisation's QoWL programme.

"This survey will be used to foster your quality of your working life. If you agree to take part you will be asked to fill-in a questionnaire that takes around 15 minutes to complete. At the end of the questionnaire you will be given details about how you can contact the survey providers if you wish to know more about the survey.

A report on the findings will be sent to your employers.

No one from your organisation will have access to the answers you make as an individual, and no summaries of findings for a group of staff will be provided where there are less than 10 people to ensure no one can guess who responded. After the survey, your data will be kept anonymously in a secure place, and may be used as part of the data collected from all QoWL Ltd surveys for research and development and promotion of the QoWL tool and concept.

Your participation in this survey is important. As is standard procedure for such surveys, please note that no one from your organisation will see your questionnaire. Only a summary is reported back to your organisation, and no information is released that might identify any individual.

This isn't a test, simply a measure of your attitudes to the factors that influence your experience at work. Please do not omit any questions."

Statement of consent

"I understand that participation in this study will take around 15 minutes of my time, and that I may decide to not complete the questionnaire at any point if I do not wish to continue.

I understand that my participation in the study is confidential, and that my name is not included on the questionnaire. Therefore, once the questionnaire has been submitted, I will not be able to withdraw my data from the analysis of results.

I understand that all data will be kept for a minimum of five years, and that the data may be used as a part of research projects, and may be included in an individually unidentifiable summary form in publications."

Questionnaires with "open" questions also contain the following statement:

"Only general themes that arise from the comments made will be reported back to your organisation. Please note that, if you have a specific concern that requires action by your organisation, you should communicate directly with them."

All cover sheets / recruitment letters should provide details of how to contact the organisation to ask for more details.

7.4 Assessment, Inclusion and Special Needs or Disability

The assessment of Quality of Working Life may need to be adapted to ensure that all those who wish to provide opinion have the opportunity to do so. There may be particular requirements of people for whom a standard assessment process will be inappropriate. Not all staff will have access to a computer. Not all staff will find reading a questionnaire easy. Where people speak or read and write languages other than English, for example, or where people have special needs or disabilities, the process of assessment will need to be adapted.

There are a wide range of issues to be considered when planning to ensure that any assessment is appropriate. We offer here some guidelines on some key issues to help ensure that the assessment of Quality of Working Life is a valid process, whether for an individual or for a group of employees.

Please note that these guidelines cannot be taken as a definitive list of relevant issues, and, where appropriate, expert advice should be sought.

From the legal perspective, in the UK, the Disability Discrimination Act 1995 made it unlawful to discriminate against any individual with a disability. The Act applies to organisations with 20 or more employees, but some smaller settings may be covered in certain circumstances. The Act requires that employers make reasonable adjustments to avoid any significant disadvantage to a disabled person.

When assessing Quality of Working Life, it is worth bearing in mind that individuals may have more than one specific requirement or disability. An assessment process can be adapted in various ways, and a number of possibilities are given here, although the list is not meant to be exhaustive.

In some cases, it may be necessary or helpful to provide a scribe so that someone can complete the assessment.

Braille copies of the questionnaire may be required for people with impaired vision, and the assessment may need to be translated into other languages.

It may be necessary to consider physical restrictions and other issues such as dyslexia.

As it may not be possible to predict every possible requirement, it may be useful to seek to identify relevant issues and needs through HR or Occupational staff, and use communication networks in the workplace to invite people to identify any additional steps that might need to be taken to ensure inclusivity.

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