A study of the relationship between emotional

intelligence and stress management in the Irish

workforce

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1   Acknowledgements

2   Abstract

In the midst of recession, this paper examines previous research which indicated that perceived stress may be moderated by emotional intelligence ("EI"), the emotional dimensions of the Big Five personality measures (extraversion and emotional stability), and personality hardiness, and whether EI is a construct distinct from personality. Across 81 participants from a multitude of work domains, significant correlations in the expected direction were found between EI and perceived stress, with EI accepted as a unique entity despite strong relationships with the emotional dimensions of personality. The hypothesis that perceived stress is negatively correlated with both personality hardiness and the emotional dimensions of personality was rejected. Therefore EI was found to be predictive of better stress management, with potential impacts discussed.

3   Introduction

The purpose of this study is to examine the relationship between stress and a number of moderators of stress, in particular emotional intelligence ("EI") but also personality hardiness and personality. Participants were drawn from a convenience sample drawn from organisations accessible to the researcher, with the study conducted in the context of local and global recession.

EI was first proposed in the psychological press by Salovey and Mayer (1990) as "the ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions". The study of stress covers a wide area of research study from health psychology to organisational psychology. Although there is limited research in this area there are indications that stress can be moderated by EI (Cheng-Ping & Fang-Jiu, 2010; Ramesar, Koortzen, & Oosthuizen, 2009; Slaski & Cartwright, 2002; Van Dierendonck, Garssen, & Visser, 2005; YuChi, 2011), although other studies have indicated that EI does not moderate stress (Matthews et al., 2006). Similarly there is much discussion as to whether EI is a concept distinct from IQ or personality: those who think it is (Cherniss, Extein, Goleman, & Weinberg, 2006; Mayer, Salovey, & Caruso, 2008; Tok & Morali, 2009), and those who think it is not (Cartwright & Pappas, 2008; Waterhouse, 2006). For example Van Der Zee, Thijs, and Schakel (2002) positively correlated EI with the 5 personality factors known as the "Big Five", especially extraversion and emotional stability (essentially emotions being minimally disturbed by the environment, also referred to as levels of neuroticism) but also the remaining personality factors of agreeableness, conscientiousness and openness. The authors did not find a correlation between EI and academic intelligence.

Taking this point further, many studies have indicated that personality traits, as defined by the five factor model, are correlated with stress moderation and with coping with stress (Cartwright & Pappas, 2008; Matthews et al., 2006; Riggio, 2009, p.249-250) although some studies have suggested that job and context play a major role in addition to personality (Bilgic & Sumer, 2009). Similarly some studies have proposed that stress may be moderated by personality hardiness (Bartone, 2006) with direct implications upon health, for example making one more susceptible to depression (Riggio, 2009, p.257). There is some evidence that EI increases with age, experience and with training (Anand & UdayaSuriyan, 2010; Slaski & Cartwright, 2002, 2003), whilst positive correlations between EI and leadership are also suggested (Anand & UdayaSuriyan, 2010) and refuted (Cartwright & Pappas, 2008).

At the present time, the prevailing zeitgeist is the impact of global and local recession upon the performance of organisations. Certain aspects of recession, specifically employment tenure and indeed unemployment, are believed to have a direct impact upon health and well-being. For example, excessive reactions to sources of stress, known as adjustment disorder, have been detailed by various studies (Butcher, Mineka, & Hooley, 2007, p151-155; Rushing, Ritter, & Burton, 1992). Extending the discussion around the relationship between stress and EI, Cole (2009) suggested that higher EI can be used to manage recession related stress. Indeed it is proposed that EI increases productivity (Tasler, 2008), a key goal for many organisations especially during recession.

For this study, participants are drawn from a general population in Ireland across various work scenarios (self-employed, small-medium enterprise, larger corporate entities, and public/private sector). The intention of the present research is that the findings will enhance knowledge of stress, EI, personality hardiness and personality specifically when applied to

general health, occupational stress, quality of working life, times of recession, and overall performance within organisations, and that the on-going development of EI (van Dierendonck et al., 2005) can have significant potential for the organizational management of stress.

3.1   Stress

The concept of stress, first described by Cannon in 1931 as the "fight or flight" response, is complex, to such a degree that there is no formal agreement on a single definition (Riggio, 2009, p.246). Stress can be described as a call to action (e.g. defence or protection) by the body based on environmental triggers including threats and dangers (Slaski & Cartwright, 2003). Ramesar et al. (2009) defined stress as "any event that places a demand on the body, whether mentally or physically", where such a demand exceeds personal resources. Similarly Taylor (2009, p.147-148), describing work by Lazarus and Folkman (from 1984) and by Lazarus and Launier (from 1978), defined stress as a biochemical, physiological, cognitive and behavioural change determined by the "person-environment fit". The author suggested that the person faces a challenge and expends effort at the cost of moderate stress or, where resources are not sufficient to deal with the challenge, at the cost of high stress.

It appears that humans assess the threat or danger, decide on a response, and then respond. Taylor (2009, p.147-148) cited the proposition of a general adaptation syndrome by Selye in 1956, in which we are mobilized by some form of alarm, we use resistance in order to cope and become exhausted due to depleted resources from trying to overcome the perceived threat. This can lead to many general health problems such as cardiovascular disease, arthritis, hypertension and immune related deficiencies (Taylor, 2009, p.147-148). However Selye's model is questioned by Taylor, who suggests that it did not take account of psychological factors, that it proposed a uniformity of response across all people, and also that it did not

recognise resource depletion before and during stress events. Indirectly extending this criticism of Selye's model, Davis, Matthews, and McGrath (2000) demonstrated individual differences regarding levels of hostility associated with stress, leading to heightened blood pressure and cardiovascular responsiveness. In an approach that is suggestive of high EI, Taylor (p.404) advocated a support structure in which the teaching of enhanced intra-personal skills would give rise to reduced stress and associated health problems. Indeed Slaski and Cartwright (2002) suggested EI as a critical stress moderator.

In 1993, work-related stress was cited as an occupational health issue by the United Kingdom Health and Safety Executive (UKHSE) and as such needs an associated risk management program (Cox, Karanika, Griffiths, & Houdmont, 2007). A number of work related sources of stress, otherwise known as stressors, have been identified including job ambiguity, inter-personal relationship difficulties, harassment and organisational change (Riggio, 2009, p.251-253). It is estimated, from figures in the United Kingdom (UK), that stress has an associated cost of £530m per annum to industry, and £3.8bn to the UK exchequer based on UKHSE statistics (Cole, 2009). Furthermore the New York Business Group on Health (Cheng-Ping & Fang-Jiu, 2010) suggested that businesses spend $750-800bn annually on stress-related health problems (such as absenteeism). Ramesar et al. (2009) observed that organisations tend to focus on theory and symptoms of stress, but do not proactively manage causes of and reactions to stress. With regard to stress during recession, Butcher at al. (2007, p151-155) noted the devastating consequences of long-term unemployment on one's self-concept, sense of worth and sense of belonging. Rushing at al. (1992) suggested that stable employment is a predictor of better health.

3.2 Emotional Intelligence

The notion of EI, popularised in the 1990's by Daniel Goleman (1995) and many subsequent magazine and newspaper articles, was first proposed in the psychological press by Salovey and Mayer (1990) as "the ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions". Côté, Gyurak, and Levenson (2010) suggested that the ability to regulate emotion is directly linked to personal well-being, income and socio-economic status – although their study was limited by looking at these factors in two separate studies and drawing correlations between the outcomes. An earlier study of 50 sophomore students in the United States of America (USA) by Lauer and Evans (1930) however suggested that emotional stability is not related to success and intelligence.

3.2.1 Models of emotional intelligence

Citing the work of Mayer et al. in 2000, Jain and Sinha (2005) noted two models for EI. The first, the ability model, is "the ability to perceive and express emotion; the assimilation of emotions in thought, understanding, and reasoning; and the regulation of emotion in oneself and others". The second is the mixed model of EI which the authors described is classified by Goleman as "knowing one's emotions, managing emotions, motivating oneself, recognizing emotions in others, and handling relationships" and by Bar-On as "interpersonal skills, intrapersonal skills, adaptability skills, stress management skills, and general mood". The former (ability) model is suggested as accounting for between 2% and 25% variation in life outcomes for individuals, with the latter (mixed) model suggested as accounting for much higher variation (Cartwright & Pappas, 2008), although the authors do not back up this assertion with specific figures. Taking this further, Cartwright and Pappas (2008) suggested that the ability model may

be theoretically purer but the mixed-model is more valid with respect to predictions of work performance.

Joseph and Newman (2010) advocated a third model, the integrated ability/mixed model, which they referred to as a cascading model of EI. The authors concluded that mixed models of EI do not predict job performance over cognitive ability and personality. Cherniss et al. (2006) summarised the various EI models as managing one's own emotions and the emotions of others, and noted that the study of EI is at an early hypothesis testing stage. The authors robustly refuted a critique by Waterhouse (2006) of EI theory in educational settings. Waterhouse (2006) maintained that EI does not have the research based empirical support to merit it being a unique scientific construct. However Cherniss et al. (2006) suggested that EI is a distinct concept to IQ or personality, and provided evidence of linkages between EI and workplace success, although possible limitations of EI study are not explored further beyond rebuttal of Waterhouse's previous work.

Mayer et al. (2008) maintained that EI has become too broad a concept, potentially rendering the term invalid, and argued in favour of EI as an ability to guide thinking and behaviour based on complex information processing of one's own and others emotions. Indeed, citing Sternberg in 2001, Cartwright and Pappas (2008) suggested that the mixed models approach to EI is little more than a description of the personality of a "good person". In essence, Mayer et al. (2008) urged application of the term EI to abilities for reasoning about emotions and using emotions to guide and enhance reasoning. The authors drew on this definition to distinguish EI from the Big Five personality traits, whilst taking care to identify uncertainties and limitations with this approach, such as the lack of convergent validity between other ability measures of specific EI skills.

3.2.2   Previous studies of emotional intelligence

Van Dierendonck et al. (2005) demonstrated that increased EI was a factor in burnout prevention amongst 38 participants with a background in engineering. The authors measured the understanding and repairing of emotions, using an ability model of EI called the Trait Meta-Mood Scale (or TMMS); whilst they acknowledged that the study did not address the management of emotions in other people. Also making use of an ability model (the Mayer-Salovey-Caruso Emotional Intelligence Test or MSCEIT), Matthews et al. (2006) studied 200 psychology student participants at the University of Cincinnati. They concluded that EI predicted worry states and avoidance coping, but not task-related stress. The authors acknowledged that their research needed further evaluation with regard to application to real-world scenarios.

Yu-Chi (2011) found that stress and performance is moderated by EI amongst 571 employees of the Taiwanese financial sector. The Self Report Emotional Intelligence Test (SREIT), an ability based EI model developed in 1998 by Schutte, was used. In effect, the author concluded that it is not the stressor that impacts work performance, but the individuals perception of that stress as moderated by EI. Yu-Chi (2011) also urged caution regarding the generalization of the research findings. Essentially it is possible that studying one culture (Taiwan) in one sector (finance) may have resulted in findings specific to those settings. Also using the SREIT measure, Tok and Morali (2009) found no association between trait EI and grade success, nor between trait EI and personality measured using a Big Five method, amongst 295 physical education teachers in Turkey.

Similar results were reported for the relationship between EI and academic performance of 116 students by Van Der Zee et al. (2002). Conversely the authors did find a positive correlation between EI and emotional dimensions of the Big Five (specifically extraversion and

emotional stability). Whilst the authors indicated the possibility that EI may not be a construct that is separate from personality, they broadly supported this separation. However although the EI measuring instrument utilised in this study was reasonably well described, it is not clear whether this instrument had been used elsewhere or indeed since. This opens the authors up to questions around validity and generalization of their work.

In a study of 395 employees in the semi-conductor industry in Taiwan, Cheng-Ping and Fang-Jiu (2010), again using the SREIT ability based EI model, found that EI mediated perceptions of work stress and was correlated with personality. The authors failed to take the opportunity to discuss limitations of the study or to acknowledge possible errors, but rather took the results to make a series of recommendations around hiring, rewards, training and coping with pressure – for example matching new employees to appropriate work assignments by first measuring personality traits and emotional intelligence.

Using a "mixed model" measure of EI (Bar-On EQi), Jain and Sinha (2005) demonstrated the predictive ability of EI upon positive general health, interpersonal trust and organizational support across 250 mid-level executives. In this instance, the study was limited to a particular culture (India) and to a specific sector (manufacturing), whilst also considering only one element (the within-individual aspect) of EI. Using the same measure Ramesar et al. (2009) studied 105 managers in one South African financial institution against a backdrop of stress events such as organisational restructuring and internal competitiveness, higher levels of unemployment, greater cost-effectiveness and budget control, and global competition. The authors maintained: that coping with stress is a component of EI; that stress responses such as worry has an impact upon levels of EI; and indeed that EI affects levels of stress. The authors acknowledged the need for a larger sample size but did not refer to the potential limitations regarding the specific nature of the

sample in their study (i.e. participants from one organisation in one market). In addition this study focused on the "mixed model" and despite the outcomes (that emotional intelligence training should be used to help moderate stress) this may be perceived as a drawback of this work.

Slaski and Cartwright (2002) examined 320 randomly selected middle managers from a large UK retail organisation. Self-report questionnaires on EI, general health, subjective stress and demographic data were administered to the participants alongside a performance appraisal measure completed by their line manager. 191 valid responses were received. The authors reported that high scores in EI (measured using the Bar-on EQi method) indicated lower stress, better health and better management performance. A follow-on study (Slaski & Cartwright, 2003) of 120 middle managers from the same UK retail organisation as before examined the impact of training in EI. The participants were split into 2 groups – a training group and a control group. Measures of EI (using the Bar-On EQi tool), general health, stress, quality of working life and management appraisal were taken by all participants prior to training commencement, and also 6 months post-completion of the training programme (to counter any possible Hawthorne Effect). The EI training consisted of one day training per week for four weeks delivered to five groups of twelve, with one week in between to enable the participants to absorb learning outcomes. An increase in EI was reported, whilst the authors did acknowledge that direction of causality between these factors is not implied. Here again possible limitations such as using a sample from a specific organisation, and the use of a mixed model for EI are not discussed. In addition the lack of benefit from training for some participants is dismissed without due consideration of potential influences or implications. It could be argued for example that other

variables may have influenced the observed change, such as simply having participated in a training program.

Cole (2009), citing Phillip Hodson, advocated the use of EI by employers to manage stress caused by external circumstances, in particular recession. The author suggested, for example, that high levels of EI would enable management to be sensitive to employee concerns such as potential redundancies. Similarly, a 2011 survey of 2,662 US based hiring managers indicated that employers are placing greater emphasis on EI (over IQ) during the hiring process as a result of recession (CareerBuilder.com, 2011, *para.* 1). Piperopoulos (2010) suggested that EI plays an important role in creativity and innovation, both key intangible assets that can underpin success for small to medium enterprises (SMEs). The author essentially organised pre-existing theory and evidence in order to arrive at this conclusion and to propose a model, but did not provide empirical evidence to specifically support his model. Although not referring to specific research, Tasler (2008) suggested that EI provides a basis for increasing productivity whilst trying to cope with external pressure such as recession, citing various performance increases across a number of business settings (including a 15% productivity boost at Coca Cola).

A connection between EI and leadership ability has also been cited in a number of articles (Goleman, 2011) and studies. In a correlational study of 300 randomly-sampled executives in a south-Indian public sector organisation, Anand and UdayaSuriyan (2010) reported that EI (using a mixed model measure, Bar-On EQi) increased with age and experience and that EI also correlated with good leadership practice, in particular related to imparting knowledge to others. This research also recommended EI training for executives to improve their effectiveness. However this study drew some conclusions which are rather general in nature. It

suggested, for example, that higher empathy amongst executive with 11-20 years experience was due to exposure to systems and people without providing convincing evidence for those arguments. The authors did not make any attempt to discuss limitations within the study, for example cautioning against attempts to generalize against results from a specific culture. In contrast, Cartwright and Pappas (2008) maintained that the evidence for a link between EI and leadership effectiveness is limited. Going further, and echoing a commonality amongst many of the studies above, the need for a longitudinal based diverse study of EI seems clear, alongside clarity on the model used for measurement of EI.

3.3   *Personality hardiness*

The concept of personality hardiness was first outlined by psychologist Suzanne Kobasa as an ability to be resistant to health-related negative impacts of stress through the combination of cognition, emotion and action. Essentially those that lack personality hardiness may be at higher risk of developing stress-related health problems due to higher levels of perceived stress (Kobasa, 1979; Riggio, 2009, p. 257). Personality hardiness has been described as a collection of personality characteristics (Allred & Smith, 1989) and also has been defined as "a characteristic sense that life is meaningful, we choose our own futures, and change is interesting and valuable" and is suggested as a significant moderator of stress across various organisational and operational groups (Bartone, 2006). In this instance Bartone focused on the highly demanding area of military operations, although the author did reference studies focussed on city bus drivers, male/female undergraduates and upper-middle level male managers. As such the participants were all drawn from specific groups.

Some studies have reported that people with high personality hardiness reported less illness during high stress (Kobasa, Maddi, & Courington, 1981) whilst others suggested this is

not the case (Funk & Houston, 1987). In their longitudinal (5 year) study of middle-upper

managers in a large utility company, Kobasa et al. (1981) concluded that personality hardiness –

specifically commitment (sense of curiosity and meaningfulness of life), control (belief in one's

ability to influence the course of events) and challenge (life does change, and development is

stimulated by change) - decreased subsequent illness. In contrast stressful life events and

constitutional predisposition (e.g. parent's illness) increased the chances of subsequent illness.

However this study only looked at participants from a particular organisation. In addition, the

final sample used across the study (259) was all male, which may have discounted potential

impacts of gender and indeed context.

In contrast in a study of 58 male psychology undergraduates, drawn from an original pool

of 84, Allred and Smith (1989) suggested that hardy people may use cognitive processes

effectively to moderate the impact of high stress, but that linkages between personality hardiness

and health are questionable. Instead the authors proposed that hardy people may deal with stress

events more proactively by simply engaging in better coping strategies. This study did focus on a

single gender (in order to provide consistency with previous studies) within a single context

(psychology undergraduates), and took effort to check on the consistency and validity of

measures used - for example the authors examined previous research to look at correlations

between measures. Agreeing with the previous study, Funk and Houston (1987) measured

stressful life events, personality hardiness and maladjustment (or psychopathology) amongst 117

male students. The authors concluded that personality hardiness is not correctly operationalized

by a multi-dimensional construct (i.e. commitment, control and challenge), and hence hardiness

measures need to be adapted. The authors also concluded personality hardiness overlapped with

maladjustment or psychopathology, and that personality hardiness does not buffer the effects of stressful life events.

However Maddi, Harvey, Khoshaba, Fazel, & Resurreccion (2009) summarised 25 years of research by asserting personality hardiness as a distinct pattern, and suggested that previous rebuttal such as that from Funk and Houston (1987) may be attributed to defective measures of personality hardiness. Maddi et al. (2009) pointed to changes in positive and negative wording in more recent measures as key to this conclusion.

3.4   Personality

Personality is described by Pervin and Cervone (2010, p.8) as being "psychological qualities that contribute to an individual's enduring and distinctive patterns of feeling, thinking and behaving". Personality measures, alongside those for IQ, have been used for over a century in organisational selection and promotion procedures. The criterion-related validity of personality - essentially the accuracy of scores on a job measurement instrument towards predicting job success such as work output or work quality – has received the most widespread research support (Riggio, 2009, p.92). Specifically the Five Factor Model (FFM, or "Big Five") of personality has predicted job performance and training performance well: openness best predicted training performance; conscientiousness best predicted job performance; with extraversion, agreeableness and emotional stability having predicted job performance well in specific jobs (Barrick & Mount, 1991; Frei & McDaniel, 1997; Ones, Viswesvaran, &Schmidt, 1993; Salgado, 1998; Tett, Jackson, & Rothstein, 1991).

A number of studies concluded that personality moderates stress alongside the ability to cope with change (Cartwright & Pappas, 2008). According to Matthews et al. (2006), the "Big Five" model of personality was widely used to predict vulnerability to stress. For example,

individuals with 'type A' personality - characterised as excessively hostile, driven and competitive - are said to be more at risk of developing stress related health problems such as coronary heart disease (Riggio, 2009, p.255).

Regarding the relationship of performance to personality, Bilgic and Sumer (2009) developed their own personality measure as they asserted that personality measures need to be job and context specific in order to be effective (in the case of the referenced study, when studying non-commissioned officers in the Turkish Armed Forces). Performance, acknowledged by the authors as having many aspects, was measured based on cumulative rankings, reprimands and commendations amongst the participants. Bilgic and Sumer (2009) acknowledged that the lack of variability in reprimands may have skewed their study, and also that more theoretical analysis is required around their finding on the specificity of personality and performance. Rode, Arthaud-Day, Mooney, Near, & Baldwin (2008) suggested that initial career success may be determined more by personality factors than later developing abilities, and that this influences the hiring and on-going development of personnel within organisations.

In a study of 316 part-time members of a large USA base military reserve unit, Schaubroeck, Judge, and Taylor (1998) examined job attitudes and perceived stressors. Whereas previous research had indicated that stability in job attitudes was related to stability in job content, the authors suggested that cross-situational consistency does occur. This consistency is proposed as being dependent upon the situation more so than the personality traits. Of course this study did examine participants from the military reserve, 84% of whom were male. As such the validity of the study in different contexts would need to be examined. However the authors acknowledged the potential limitation of examining part-time military employees.

The link between personality and health outcomes has been examined in various studies. In a meta-analysis of previous research, Friedman and Booth-Kewley (1987) concluded that specific diseases are only weakly associated with particular personality traits, with the exception of coronary heart disease which is associated with depression, anger, hostility and anxiety. Despite this weak relationship the authors suggested that there is evidence for a disease-prone personality. Furthermore, in another meta-analysis Booth-Kewley and Friedman (1987) proposed that one or more negative emotions - in particular depression, anger, hostility, aggression and anxiety - did predict coronary heart disease. In essence the authors suggested that it is not just the 'type A' personality that has a higher risk of developing health issues. Of course such meta-analyses and the conclusions drawn depend upon the quality of information provided by the original studies, and can also be accused of over-generalising findings away from the individual person.

3.5   Study outline

Drawing on the findings from the various studies and literature outlined above, the aim of this study is to examine the following questions:

- Do individual differences in EI, personality (specifically extraversion and emotional stability) and personality hardiness correlate with perceived stress levels?
- Is EI an entity distinct from personality, specifically extraversion and emotional stability?

In comparison to the studies and literature highlighted previously, whilst acknowledging the relatively small sample size and the fact that participants come from a convenience sample drawn from organisations accessible to the researcher, this study is set in a new context – that of

local and global recession. This study also examines the above factors in the context of a different culture and geography (Ireland). In addition, the participants are drawn from a multitude of domains within the public and private sector, and also come from a range of organisational levels.

In summary, this study will examine the relationship between emotional intelligence and stress management in the Irish workforce with the aim of understanding the context (e.g. recession), benefiting general health (e.g. cardiovascular disease), understanding levels of occupational stress, upgrading quality of working life and improving the performance of organisations. Specifically the following hypotheses are examined:

- Ha_1: That levels of perceived stress are negatively correlated with measures of emotional intelligence;

- Ha_2: That levels of perceived stress are negatively correlated with measures of personality hardiness;

- Ha_3: That levels of perceived stress are negatively correlated with measures of personality (specifically extraversion and emotional stability);

- Ha_4: That levels of EI are positively correlated with measures of personality (specifically extraversion and emotional stability).

4   Methodology

4.1   Materials

A self-administered questionnaire was distributed via e-mail for web-based (Survey Monkey[1]) surveys, and where requested a paper-and-pencil format was delivered by post. The questionnaire was collated from a number of psychological instruments, with the briefest form for each chosen to ensure that the questionnaire was not a burden upon the participants, and that the survey could be completed in approximately 20 minutes. The five psychological instruments used were:

- **Perceived Stress Scale (PSS)** (Cohen, Kamarck, & Mermelstein, 1983): A 10 item questionnaire (PSS-10), with a 5 point Lickert scale, designed to measure stress through subjective appraisals of events occurring within a one-month time frame. Cohen et al. (1983) suggested the use of PSS-10 because of good internal reliability, tighter factor structure and its value in predicting outcomes (for example, stress related symptoms);

- **TEIQue-SF - The Trait Emotional Intelligence Questionnaire – Short Form** (Petrides & Furnham, 2006): A 30-item questionnaire with a 7-point Lickert scale, based on the long form of the TEIQue (Petrides & Furnham, 2003) designed to measure global trait EI (trait EI). TEIQue-SF is a mixed-model measure of EI. This model was chosen over alternative instruments (ability-model, cascading model, and other mixed-models) due to its availability to the researcher and the applicability of this model to the workplace setting. Regrettably, the authors did not provide reliability or validity information for this instrument;

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[1] www.surveymonkey.com

- **<u>Personality Hardiness Scale - HS</u>** (Bartone, Ursano, Wright, & Ingraham, 1989): A 30 item instrument, derived from the longer 45-item scale, designed to measure dispositional resilience, the personality hardiness of one's personality. Personality hardiness has been shown to relate to how people process and cope with stressful events. In stressful situations, personality hardiness has been shown to be associated with high levels of well being. Three components of personality hardiness serve as subscales of the HS: commitment, which refers to imputed meaning and purpose to self, others and work; control, a sense of autonomy and influence on ones future; and challenge, a zest and excitement for life which is perceived as opportunities for growth.

  According to the author, the internal consistency of the 30 item short form ranged from .56 to .82 for the subscales. Internal consistency of the summated 30 item form was .83. In terms of validity, the 45 item HS was developed from a pool of 76 items. Scale scores had a correlation coefficient of 0.93 with total scores on the 76 item version. The three sub scale structure was supported with principal component factor analysis. Scores on the 30 item short form had a correlation coefficient of 0.82 with scores on the 45 item version;

- **<u>Personality Test – The Ten Item Personality Inventory (TIPI)</u>** (Gosling, Rentfrow & Swann, 2003): A 10 item instrument designed to measure the big five personality traits of openness, conscientiousness, extraversion, agreeableness and emotional stability (also referred to as levels of neuroticism). The measure is described by the authors as being ideal for situations where short measures are required, and where personality is not the primary variable – despite the lack of reliability or strong correlation when compared to other multi-item measures of the five factors of personality;

In addition a number of external demographic variables was collected using a 10 item instrument devised by the researcher from searches on the Internet. These questions were focused on eliciting the participants' gender, age, marital status, education level, employment tenure, employment type (e.g. public sector), job function, length of tenure in their current job, average number of working hours per day, average number of commute hours per day, and perceived security of employment.

4.2   Participants

The participants in this study were 81 private/public/education sector employees (female = 36, male = 45; aged 16-59; education levels covering the National Framework of Qualifications ("NFQ"[2]) Level 4 - Level 10) ranging from administration to management levels, drawn from a convenience sample accessible to the researcher across multiple organisations. Participants were selected from the researchers own extensive list of contacts in the Irish business sector – including the contact database of the researchers employer (Esri Ireland – from whom a letter of consent was acquired), the use of the business related contact networks LinkedIn, and the social media channel Facebook. The participants provided informed consent and were engaged on a voluntary basis after being approached by the researcher directly.

4.3   Design

A correlational (cross-sectional) design was employed. Along with Mean and Standard Deviation, analysis of relationships was conducted to examine the correlation between perceived stress (the dependent/criterion variable) and a number of independent/predictor variables, namely: emotional intelligence ("EI"); personality (including the five factors of openness, conscientiousness, extraversion, agreeableness, and emotional stability); and personality

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[2] www.nfq.ie

hardiness (made up of the sub-scales of commitment, control and challenge) within the context of a set of external demographic variables (e.g. age, gender and work status).

In addition, differences between grouped demographic variables (including gender, job function and job security) and perceived stress, EI, personality hardiness and personality were examined

4.4   Procedure

On January 31st and February 1st 2012, a total of 85 people (drawn from a convenience sample accessible to the researcher across multiple organisations) were contacted directly, advising them of the purpose of the research study, and informing them that a questionnaire would be sent to them should they provide informed consent to be included in the study. In addition, those approached directly were encouraged to distribute the web based link to colleagues who qualified to participate in the research (essentially, anybody currently in the Irish workforce). Assurances of individual confidentiality were provided in writing to each participant.

A few days later, in early February, the 90 item questionnaire was distributed via e-mail for web-based (Survey Monkey) surveys, and where requested a paper-and-pencil format was delivered by post. At first a small batch (10) of volunteers were tested to ensure the questionnaire could be completed within 20 minutes. Once this was established, the remaining questionnaires were distributed. On February 8th 2012 at 18:30 the survey was closed having reached a total number of participants of 81. All responses were then downloaded from Survey Monkey and imported into SPSS, alongside manual entry of the one paper-and-pencil format questionnaire completed by postal return.

5   Results

5.1   Descriptive statistics

Table 1 outlines the descriptive statistics from the demographic responses of the participants. The majority of the respondents (67.9%) fell between the ages 30 and 49, and most worked for a "for-profit" company although there was a reasonable spread across the categories of employment type. The level of participants at executive level within their organisations was 13.6% - higher than had been anticipated.

The length of employment tenure was high with more than 54% having worked with their current organisation for 5 years or more. The vast majority (80.2%) perceived their employment as secure. Only 7.4% felt insecure with their employment status, all of whom had been in post for less than 3 years, whilst no participants felt threatened with regard to job security. Figure 1 below provides a breakdown of length of employment tenure plotted against job security.
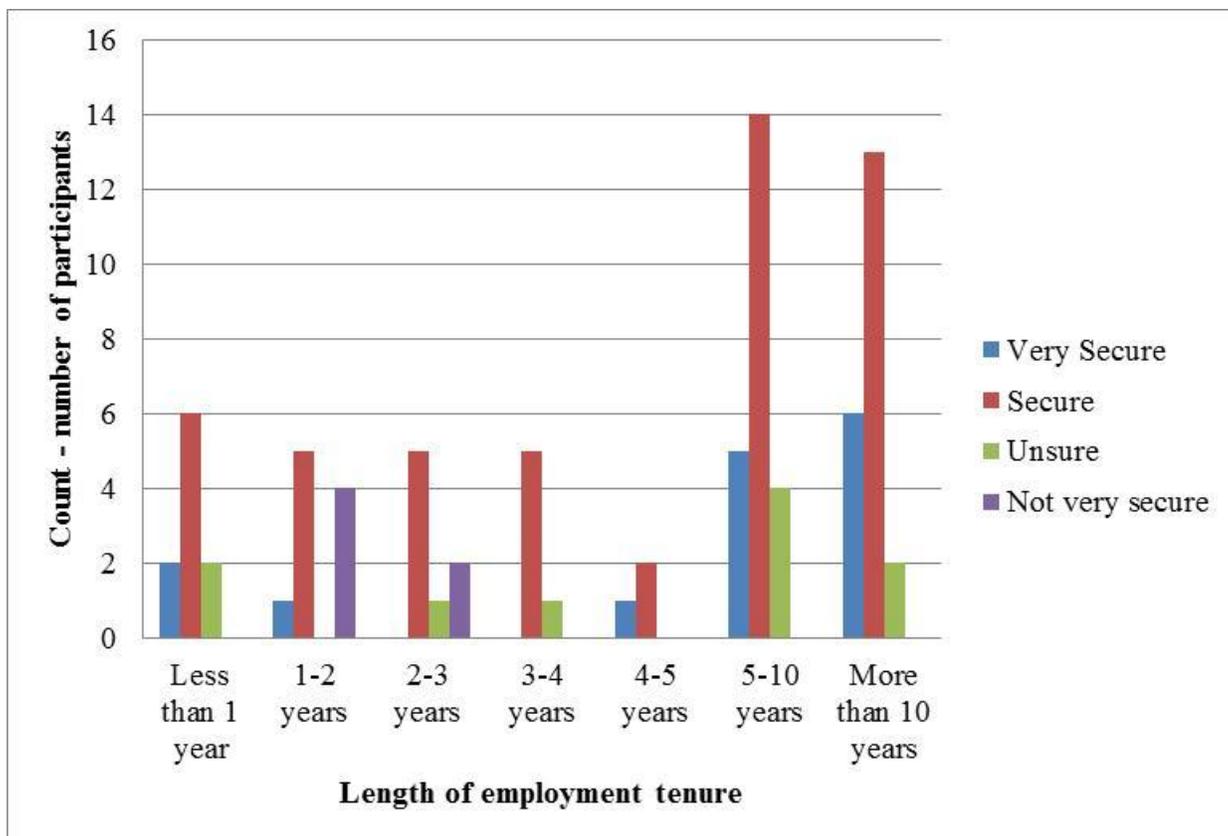
Figure 1: Number of participants v. Length of employment tenure/Job security

Table 1: *Summary of descriptive statistics*

Characteristics	n	%
Gender		
Female	36	44.4
Male	45	55.6
Age Category		
16-19	1	1.2
20-29	13	16
30-39	23	28.4
40-49	32	39.5
50-59	12	14.8
*Marital Status**		
Single, never married	34	42
Married	43	53.1
Separated/Divorced	4	4.9
Employment type		
Employee of a for-profit business	39	48.1
Employee of a not-for-profit organisation	7	8.6
Public sector employee	14	17.3
Self-employed	11	13.6
Academia and/or research	10	12.3
*Job function**		
Executive	11	13.6
Senior Manager/Manager	28	34.6
Operations/Production/Administration	40	49.4
*Employment tenure**		
Less than 1 year	10	12.3
1-2 years	10	12.3
2-5 years	17	21.0
5-10 years	23	28.4
More than 10 years	21	25.9
*Hours worked per week**		
Less than 40	46	58
More than 40	34	42
*Hours commute per week**		
Less than 2 hours	20	24.6
2 to 5 hours	32	39.5
More than 5 hours	29	35.8
Security of employment		
Very Secure	15	18.5
Secure	50	61.7
Unsure	10	12.3
Not very secure	6	7.4

*Collapsed into smaller categories for reporting purposes

5.1.1   Relationship of EI, personality, and personality hardiness to demographic groupings

5.1.1.1   Gender

An independent samples t-test found that there was a significant difference between perceived stress levels for females and males (t(76)=2.141, p<0.05, 2-tailed). Females (mean=16.17, SD=6.252) were found to have higher levels of perceived stress than males (mean=13.23, SD=5.842). In a similar manner a significant difference emerged between levels of emotional stability (one of the five factors of personality) for females and males (t(77)=-2.079, p<0.05, 2-tailed). Females (mean=10.03, SD=3.224) were found to have lower levels of emotional stability than males (mean=11.38, SD=2.54).

None of the other psychological variables of EI, personality hardiness or the remaining personality factors (extraversion, agreeableness, conscientiousness or openness) were found to have significant differences dependent upon gender.

5.1.1.2   Job function

With a grouping of job function into management and non-management, an independent samples t-test found that there was a significant difference between measures of EI when comparing these organisational functions (t(73)=-2.260, p<0.05, 2-tailed). Management functions (mean=165.08, SD=20.103) were revealed as having higher EI than non-management (mean= 154.46, SD=20.592).

Regarding personality hardiness, only the sub-factor of commitment demonstrated a significant difference between these job function groupings (t(74)=-2.182, p<0.05, 2-tailed), again with management levels showing higher commitment (mean=33.08, SD=3.9) than non-management (mean=30.82, SD=5.066).

A significant difference was also found (t(75)= -2.266, p<0.05, 2-tailed) for the personality factor of extraversion between these two groups. Management levels (mean=10.29, SD=2.609) scored higher for extraversion than non-management (mean=8.79, SD=3.147). Similarly an independent samples t-test found that there was a significant difference between measures of emotional stability for these categories (t(75)= -2.124, p<0.05, 2-tailed) with management (mean=11.50, SD=2.447) revealing higher levels than non-management(mean=10.13, SD=3.164).

None of the other psychological variables of perceived stress, the remaining personality hardiness sub-factors (control or challenge), or the remaining personality factors (agreeableness, conscientiousness or openness) were found to have significant differences dependent upon job function.

5.1.1.3   Job security

A grouping of job security was performed into those who felt very secure or secure in their current employment, versus those who felt either: unsure; not very secure; or threatened. An independent samples t-test found that there was a significant difference between perceived stress levels between these groupings (t(76)=2.969, p<0.05, 2-tailed), with those feeling more certain of their futures (mean=13.59, SD=5.808) showing lower levels of perceived stress than those who were uncertain (mean=18.60, SD=6.174).

Taking the same groupings into account an independent samples t-test found that there was a significant difference when comparing the personality hardiness sub-factor of commitment and the job security groups (t(76)= -2.341, p<0.05, 2-tailed). Those who felt less secure with regard to their job security showed lower levels of commitment (mean=29.43, SD=5.906) than those who were more secure (mean=32.50, SD=4.082).

With regard to personality factors, only emotional stability showed a significant difference between these job security groupings (t(77)=-2.081, p<0.05, 2-tailed). Participants in the high job security grouping (mean=11.11, SD=2.711) showed higher emotional stability (and hence lower levels of neuroticism) than those in the low job security grouping (mean=9.36, SD=3.478).

None of the other psychological variables of EI, the remaining personality hardiness sub-factors (control or challenge), or the remaining personality factors (extraversion, agreeableness, conscientiousness or openness) were found to have significant differences dependent upon job function.

5.2 Hypothesis testing

Table 2 presents the minimum, maximum, mean and standard deviation scores on each of

the scored items: perceived stress; EI; personality hardiness (with sub-scales of commitment,

control and challenge); and personality (consisting of the five factors of extraversion,

agreeableness, conscientiousness, emotional stability, and openness).

Table 2: *Mean and standard deviation of perceived stress, EI, personality hardiness and personality measures*

Measure	Range	Minimum	Maximum	Mean	Std. Deviation	N
Perceived stress	0-40	2	30	14.55	6.168	78
EI	30-210	114	208	159.99	20.818	77
Personality hardiness – subfactor "commitment"	10-40	16	39	31.95	4.575	78
Personality hardiness – subfactor "control"	10-40	21	37	31.51	2.823	78
Personality hardiness – subfactor "challenge"	10-40	20	33	25.83	2.648	79
Personality – subfactor "extraversion"	2-14	2	14	9.57	2.947	79
Personality – subfactor "agreeableness	2-14	4	14	11.09	2.44	79
Personality – subfactor "conscientiousness	2-14	4	14	11.28	2.741	79
Personality – subfactor "emotional stability"	2-14	2	14	10.8	2.915	79
Personality – subfactor "openness"	2-14	4	14	11.28	2.224	79

As none of the variables examined violated the assumptions of normality, a Pearson's

correlation was conducted to examine each of the hypotheses.

5.2.1   Perceived stress and emotional intelligence

Table 3: *Correlations between perceived stress and EI, personality hardiness and personality (extraversion and emotional stability)*

		EI	Personality hardiness - subfactor "commitment"	Personality hardiness – subfactor "control"	Personality hardiness – subfactor "challenge"	Personality – subfactor "extraversion"	Personality – subfactor "emotional stability"
Perceived stress	Pearson Correlation	-.612**	-.497**	-.515**	-0.051	-0.195	-.593**
	Sig. (2-tailed)	0	0	0	0.66	0.09	0
	N	75	76	76	77	77	77

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

As detailed in Table 2 above, the mean scores for EI was 159.99 (SD = 20.818) and for perceived stress was 14.55 (SD = 6.168). Table 3 shows that there was a strong negative significant relationship between EI and perceived stress (r=-0.612, p<0.05, 2-tailed). Thus the higher the participants measured for EI, the lower their levels of perceived stress.

5.2.2   Perceived stress and personality hardiness

The mean scores (see Table 2) for commitment was 31.95 (SD=4.575), for control was 31.51 (SD=2.823), and for challenge was 25.83 (SD=2.648). A test of correlation (see Table 3) found that there was a moderate negative significant relationship between commitment and perceived stress (r=-0.497, p<0.05, 2-tailed), and a strong negative significant relationship between control and perceived stress (r=-0.515, p<0.05, 2-tailed). However the relationship between challenge and perceived stress was found to be not significant (r=-0.051, p>0.05, 2-tailed).

Thus with higher levels of commitment and control, one finds lower levels of perceived stress. However this is not the case for the personality hardiness sub-scale challenge, where no correlation was found with perceived stress.

5.2.3 *Perceived stress, extraversion and emotional stability*

With respect to personality, the mean scores (Table 2) for extraversion was 9.57 (SD=2.947) and for emotional stability was 10.8 (SD=2.915). A test of correlation (Table 3) found that the relationship between extraversion and perceived stress was not significant (r=-0.195, p>0.05, 2-tailed). In contrast there was a strong negative significant relationship between emotional stability and perceived stress (r=-0.593, p<0.05, 2-tailed).

Thus there is no correlation between levels of extraversion and perceived stress, although the results do show an approach towards significance (p=0.09). However when measures of emotional stability increase (and hence levels of neuroticism decrease) then perceived stress decreases.

5.2.3.1 *Further analysis – perceived stress and personality*

Table 4: *Correlations between perceived stress and personality (openness, conscientiousness and agreeableness)*

		Personality – subfactor openness	Personality – subfactor conscientiousness	Personality – subfactor agreeableness
Perceived stress	Pearson Correlation	-.251*	-.345**	-.110
	Sig. (2-tailed)	.028	.002	.343
	N	77	77	77

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

A further examination of correlation between perceived stress and the remaining personality factors (Table 4) revealed a weak negative significant relationship between openness and perceived stress (r=-0.251, p<0.05, 2-tailed). In addition a moderate negative significant

relationship was observed between conscientiousness and perceived stress (r=-0.345, p<0.05, 2-tailed). However the relationship between agreeableness and perceived stress was not significant (r=-0.110, p>0.05, 2-tailed).

5.2.4   EI, extraversion and emotional stability

When looking at the relationship between EI and personality, a test of correlation (Table 5) found that there was a strong positive significant relationship between extraversion and EI (r=-0.535, p<0.05, 2-tailed), and also between emotional stability and EI (r=0.598, p<0.05, 2-tailed). Thus when levels of extraversion and emotional stability increase (and as such levels of neuroticism decrease), so too does the measure of EI indicating a strong correlation between EI and these personality factors.

Table 5: *Correlations between EI and personality (extraversion and emotional stability)*

		Personality – subfactor "extraversion"	Personality – subfactor "emotional stability"
EI	Pearson Correlation	.535**	.598**
	Sig. (2-tailed)	.000	.000
	N	76	76
**. Correlation is significant at the 0.01 level (2-tailed).			
*. Correlation is significant at the 0.05 level (2-tailed).			

5.2.4.1   Further analysis – EI and personality

From an examination of the correlation between EI and the remaining personality factors (Table 6), it emerged that there was a moderate positive significant relationship between openness and EI (r=0.453, p<0.05, 2-tailed), conscientiousness and EI (r=0.325, p<0.05, 2-tailed), and agreeableness and EI (r=0.390, p<0.05, 2-tailed).

Table 6: *Correlation between EI, openness, conscientiousness and agreeableness*

		Personality – subfactor openness	Personality – subfactor conscientiousness	Personality – subfactor agreeableness
EI	Pearson Correlation	.453**	.325**	.390**
	Sig. (2-tailed)	.000	.004	.001
	N	76	76	76
**. Correlation is significant at the 0.01 level (2-tailed).				
*. Correlation is significant at the 0.05 level (2-tailed).				

Thus as EI scores increase, so too do scores in these remaining factors of personality

(although not as strongly as for extraversion and emotional stability).

5.2.4.2 Further analysis – EI and personality hardiness

Table 7: *Correlation between EI and personality hardiness*

		Personality hardiness - subfactor "commitment"	Personality hardiness – subfactor "control"	Personality hardiness – subfactor "challenge"
EI	Pearson Correlation	.673**	.633**	.245*
	Sig. (2-tailed)	.000	.000	.033
	N	75	75	76
**. Correlation is significant at the 0.01 level (2-tailed).				
*. Correlation is significant at the 0.05 level (2-tailed).				

A test of correlation (see Table 7) found that there was a strong positive significant

relationship between EI and the personality hardiness sub-scale of commitment (r=0.673,

p<0.05, 2-tailed), and also the sub-scale of control (r=0.633, p<0.05, 2-tailed). Furthermore a

weak positive significant relationship was discovered between EI and the personality hardiness

sub-scale of challenge (r=0.245, p<0.05, 2-tailed).

6   Discussion

The aim of this study was to examine a number of different questions:

- Do individual differences in emotional intelligence ("EI"), personality (specifically extraversion and emotional stability) and personality hardiness correlate with perceived stress levels?

- Is EI an entity distinct from personality, specifically extraversion and emotional stability?

The results support the hypothesis (Ha_1) that levels of perceived stress are negatively correlated with measures of EI, and that levels of EI are positively correlated with measures of personality, specifically extraversion and emotional stability (Ha_4). In all cases above, the relationship was shown to be strong. In contrast, only the commitment and control sub-scales of personality hardiness were found as negatively correlated with perceived stress. The challenge sub-scale was found to have no relationship with perceived stress. Given that is the case, hypothesis Ha_2 (that levels of perceived stress are negatively correlated with measures of personality hardiness) must be rejected. Similarly although perceived stress was strongly negatively correlated with the emotional stability factor of personality, no relationship was found between extraversion and perceived stress. Therefore hypothesis Ha_3 (that levels of perceived stress are negatively correlated with measures of personality, specifically extraversion and emotional stability) must also be rejected.

The following sections provide some comment on the context of this research from analysing demographic groupings, alongside further discussion around the implications of the results, an outline of the limitations of this research and the high level conclusions.

6.1 *Context of the research*

The significant differences reported for perceived stress between females (higher levels of perceived stress) over males cannot be reasonably explained by the present study. This is because no data was collected on family commitments, found to be a source of differences in gender stress (Petrides & Furnham, 2006). Nor was information collected on gender ideology which would capture, for example, the traditional roles of male breadwinner and the stay at home female versus more egalitarian gender roles (Gaunt & Benjamin, 2007). However the differences in perceived stress should be noted, as should the lower levels of emotional stability recorded for females.

The present research was undertaken at a time of global and local recession when many managers in organisations would be expected to face higher levels of external pressures placed upon their staff. EI has been suggested as a strong moderator of higher stress levels (Cole, 2009; Slaski & Cartwright, 2002). Encouragingly those participants in the present study categorised as "managers" demonstrated higher levels of EI. In addition, higher levels of commitment (a sub-scale of personality hardiness), extraversion and emotional stability were observed amongst the management grouping.

The potentially devastating consequences of long-term unemployment may be a source of high stress, with stable employment demonstrated as providing diametrically opposite benefits (Butcher et al., 2007, p151-155; Rushing et al. 1992). Perhaps unsurprisingly higher levels of perceived stress, lower levels of emotional stability and lower levels of commitment were recorded for those participants grouped as "uncertain" about their job security. This may lead employers to apply focus to each of these areas – for example stronger lines of communication to reduce uncertainty in the workforce (Cole, 2009).

6.2   Hypothesis testing

6.2.1   Perceived stress and emotional intelligence

The strong negative correlation found between perceived stress and emotional intelligence supports the findings from a number of previous studies (YuChi, 2011), with associated impacts upon health and better performance (Slaski & Cartwright, 2002). From a workplace stressor perspective the findings of Van Dierendonck et al. (2005) have been supported, indicating the potential to increase career longevity by increasing EI. Cheng-Ping and Fang-Jiu (2010) found that EI mediated perceptions of work stress. The results go on to back up the findings of Ramesar et al. (2009), who maintained that coping with stress is a component of EI, that stress (such as worry) has an impact upon levels of EI, and indeed that EI affects levels of stress. In contrast the study outcomes from Matthews et al. (2006) regarding EI not moderating stress have not been backed up, although the authors only made that conclusion with regard to task-related stress. The outcomes here suggest that EI can indeed help managers to manage stress in their organisations caused by external circumstances such as recession (Cole, 2009).

6.2.2   Perceived stress and personality hardiness

A strong negative correlation was found between perceived stress and the personality sub-scale of control, with a moderate relationship in the same direction discovered with the sub-scale of commitment. Levels of perceived stress and the personality sub-scale of challenge were found not to be related. This does not support previous studies (Allred & Smith, 1989; Bartone, 2006; Kobasa et al., 1981) which suggested that stress is moderated by all sub-scales of personality hardiness. Given that challenge is described by as being the feeling that "life does change, and development is stimulated by change", it is perhaps rather surprising that higher

scores for challenge are not found to predict lower scores in perceived stress. Hence these results provide support for researchers like Funk and Houston (1987) who have questioned the validity of hardiness, or more accurately hardiness measures like the hardiness scale. This lack of agreement with prior studies is perhaps worthy of further investigation.

6.2.3   Perceived stress, extraversion and emotional stability

The finding that extraversion is not correlated with perceived stress runs contrary to a number of previous studies which had indicated a correlation between the five-factors of personality and stress moderation (Matthews et al., 2006; Cartwright & Pappas, 2008; Riggio, 2009, p.249-250). Measures of emotional stability were found to have a strong negative correlation with perceived stress, as predicted by the research indicated above.

Further to the above regarding personality measures, whilst perceived stress showed a moderate negative and weak negative correlation, respectively, with openness and conscientiousness, there was no relationship discovered between perceived stress and agreeableness. These results perhaps support the contention from Bilgic and Sumer (2009) that other factors combine with personality to determine stress management. In this case the authors suggested job type and job context as those other factors. It is also worth considering - as per the research by Schaubroeck et al. (1998) - that perhaps the participants demonstrated stability in job attitudes regardless of their job content, and that this had an impact upon perceived stress. Thus the reported levels of correlation and the lack of significance of relationships with perceived stress across the five factors of personality is worthy of further examination.

6.2.4   EI, extraversion and emotional stability

A strong positive correlation was discovered between EI and two of the five factors of personality, namely extraversion and emotional stability. This was consistent with previous

research findings regarding the relationship between EI and emotional dimensions of the Big Five (Van Der Zee et al., 2002; Cheng-Ping & Fang-Jiu, 2010). In contrast the outcome of research by Tok and Morali (2009) has not been supported by the results discovered here. Furthermore a moderate positive correlation was found between EI and the remaining three factors of personality in the Big Five model (openness, conscientiousness and agreeableness), further supporting the work of Van Der Zee et al. (2002) and of Cheng-Ping and Fang-Jiu (2010).

In general the level of correlation between EI and the Big Five factors of personality tend to indicate that EI can be considered a construct distinct from these various measures of personality. This broadly supports the findings from a number of previous studies (Cherniss et al. 2006; Mayer et al., 2008; Tok & Morali, 2009). This outcome is not consistent with research which has indicated that EI and personality may be one and the same thing (Cartwright & Pappas, 2008; Van Der Zee et al., 2002; Waterhouse, 2006).

6.2.4.1   EI and personality hardiness

The relationship between EI and personality hardiness was not found to have been widely researched previously. Research by Chan (2005) did look at the relationship of both EI and personality hardiness to creativity for gifted students in Hong Kong, but did not examine (directly) the impact of either on perceived stress. However the author does suggest EI and personality hardiness as distinct constructs. The results here indicated a strong positive correlation between EI and the sub-scales of commitment and control, with a weak positive correlation demonstrated between EI and challenge. The strength of the relationships here provides further evidence in support of Chan (2005) for EI and personality hardiness to be considered as related, but separate, psychological measures. Furthermore the variation of

correlation, particularly between EI and challenge, is perhaps worthy of further research, especially so when one considers the findings discussed above regarding the lack of correlation between challenge and perceived stress.

6.3   Study limitations and areas for further research

A number of weaknesses must be acknowledged with regard to this present study. First, the relatively small sample size and the fact that participants come from a convenience sample drawn from organisations accessible to the researcher may have had an undue influence on the profile of respondent. Some participants were included by way of invitation from other participants, and as such direct control over the quality of the sample was placed at risk. For example, it is possible that a small proportion of the participants may not have been part of the Irish workforce. In addition the data was collected by self-report, which reduces objectivity of the responses. Second, there were some technological drawbacks with using the online survey method. Specifically the e-mail distribution of surveys resulted in many volunteered participants not receiving the questionnaire due to their e-mail spam filter settings within their organisations. This issue was not discovered until the survey had closed and, due to time pressures, those participants could not then be included. This could have been avoided by using a trusted e-mail client to send the surveys rather than the automated e-mail mechanism within the online survey tool.

Second, the briefest form for each psychological measurement instrument was chosen to ensure the questionnaire was not a burden upon the participants, and that the survey could be completed within approximately 20 minutes. There is a risk that these short measures may have introduced generalisations into the results which may account for some of the reported outcomes. Third, and related to the above, the Trait Emotional Intelligence Questionnaire – Short Form

(TEIQue-SF; Petrides & Furnham, 2006) was chosen on the basis of accessibility, in addition to brevity as outlined in the previous point. The TEIQue-SF is a "mixed model" measure rather than an "ability model" measure (e.g. the Mayer-Salovey-Caruso Emotional Intelligence Test or MSCEIT). Some research advocates mixed-models as more valid regarding work performance predictions (Joseph & Newman, 2010), whilst others do not agree with this view (Cartwright & Pappas, 2008). Furthermore Petrides and Furnham (2006) failed to provide reliability or validity information for TEIQue-SF instrument, which potentially weakens any findings reported using this EI measure.

With respect to further research, investigation of the age, experience and training impacts of EI levels is advised, to compliment earlier studies (Ramesar et al., 2009; Slaski & Cartwright, 2002, 2003; Anand & UdayaSuriyan, 2010). This will require carefully controlled longitudinal studies and could build on many of the findings of this present research. In particular, as per Anand and UdayaSuriyan (2010), EI training for management levels and upwards is recommended to assist with stress management across organisations. The potential impacts upon good leadership practice should also be investigated to investigate whether EI has a positive impact (Anand & UdayaSuriyan, 2010) or it does not (Cartwright & Pappas, 2008). In addition, the impact of EI upon productivity should be further investigated (Tasler, 2008), most particularly given the current economic environment (that of recession). Such investigation could have potential impacts upon creativity and innovation, which are also believed to be key to modern day organisational success (Piperopoulos, 2010).

The unexpected findings regarding elements of personality hardiness (specifically the challenge sub-scale) are worthy of further investigation. If the findings reported herein are accurate, then it would appear that levels of personal challenge may not impact upon perceived

stress, and are only weakly related to EI. More research here, perhaps using different measurement instruments, is advised to assess this finding in more detail.

6.4 Conclusions

In summary this study has demonstrated that higher levels of emotional intelligence ("EI"), emotional stability, commitment (a sense of curiosity and meaningfulness of life) and control (belief in one's ability to influence the course of events) predict lower levels of perceived stress. In addition the results from this study indicate that EI is an entity distinct from the personality factors of extraversion and emotional stability, and from the personality hardiness sub-scales of commitment and control, although strong positive relationships do exist between these constructs. It is therefore reasonable to conclude that increasing one's EI is predictive of better stress management (for example during times of external stress such as recession), which previous research has indicated may impact upon health outcomes, better organisation performance, and improved quality of life.

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