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A questionnaire investigation of the relationship between trait mindfulness, trait emotional intelligence, trait anxiety and psychological well-being of working adults

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### **ABSTRACT**

Trait mindfulness and trait emotional intelligence (trait EI) are associated with improved mental health and increased life satisfaction. Conversely, trait anxiety is widely associated with lack of psychological well-being (e.g. depression and anxiety). Previous studies investigated these variables in samples of undergraduate students. It has been suggested that working adults' mental health are a cause for concern in the UK.

Using a correlational survey design, the present study investigated relationships between these constructs, including the variable stress, in a working adult population (N=225), with an age range of 22-64. The correlations were consistent with hypotheses.

Multiple linear regression analyses revealed that trait anxiety was the only significant variable to predict depression. Trait mindfulness, trait EI and trait anxiety predicted anxiety symptoms in the expected directions. Additionally, trait mindfulness did not contribute to stress in the sample studied, but trait EI and trait anxiety revealed significant results, in the expected direction, as predictors of stress. Furthermore, it was found that trait mindfulness, trait EI and trait anxiety were significant predictors of satisfaction with life as hypothesised.

The findings confirm the importance of these variables in the psychological well-being of working adults. The limitations, applications and further research directions are also discussed.

<b>KEY WORDS:</b>	Trait Mindfulness	Trait EI	Trait anxiety	Working adults mental health	Psychological wellbeing
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## Introduction

### Mindfulness and trait mindfulness

Mindfulness is a concept originating from Buddhist practices; it can either be conceptualised as a skill developed through practice or a disposition (William, 2010). Trait mindfulness is the term used for dispositional mindfulness (Lau *et al.*, 2006). This trait is characterized by full attention and awareness of the internal and external sensory and cognitive experience of the present moment (Brown & Ryan, 2003). Bishop *et al.* (2004) added that this process needed to be in a non-reactive and non-judgmental manner. Baer *et al.* (2006), after an extensive review of self-report measures of mindfulness, suggested five factors which are closely connected to mindfulness: observation of experience; a non-judgmental and/or openness towards experience; acting with awareness; the ability to describe one's experience and a non-reactivity to inner experience. Baer *et al.* (2006) also demonstrated that four of the five facets of mindfulness (describe experience, act with awareness, non-judgement and non-reactivity) were significantly associated with psychological well-being.

Many studies have suggested that trait mindfulness positively correlates with subjective well-being (Baer *et al.*, 2008; Brown *et al.*, 2009; Brown & Ryan, 2003; Falkenstrom, 2010; Howell *et al.*, 2008). Mindfulness-based interventions (MBIs) such as Mindfulness-based stress reduction (MBSR; Kabat-Zinn, 2003) and Mindfulness-based cognitive therapy (MBCT; Segal *et al.*, 2002) are successfully applied in clinical settings (Cullen, 2011). Mindfulness interventions have also been used to reduce anxiety (Baer, 2003), social anxiety disorder (Goldin & Gross, 2010) and depression (Kumar *et al.*, 2008; Shapiro *et al.*, 1998; Speca *et al.*, 2000; Teasdale *et al.*, 2000). Although research into mindfulness interventions and psychological well-being has burgeoned in the last few years, there is still a lack of understanding of the concept of trait mindfulness and its components in relation to mental health (Kocovski *et al.*, 2009).

Coffey *et al.* (2010) conducted a study using the Five-Factor Mindfulness Questionnaire (FFMQ; Baer, 2006) to assess trait mindfulness; the Brief Symptom Inventory (BSI; Derogatis, 1983) to measure psychological distress and the Satisfaction With Life Scale (SWLS; Diener *et al.*, 1985) to measure flourishing mental health; 'a sense that one is living a rich and satisfying life' (Coffey *et al.*, 2010, p.238). It was found that acceptance of one's experiences can be important for flourishing mental health. The findings also suggested that mindfulness consisted of only two facets: present-centred attention and acceptance of experience, which challenges Baer's *et al.* (2006) five factor model of mindfulness. There is a paucity of non-interventional studies investigating the relationship between the FFMQ and psychological well-being. Although Coffey *et al.* (2010) investigated flourishing mental health; other variables associated to lack of psychological well-being were not assessed as the study only measured depression and anxiety.

## Emotional intelligence and trait emotional intelligence

Another concept linked to psychological well-being is Emotional Intelligence (EI). EI is characterised by 'the ability to monitor one's own and others emotions, to discriminate among them and to use this information to guide one's thinking and actions' (Salovey & Mayer, 1990, p.189). The core aspects of EI resemble the definition of mindfulness given by Brown and Ryan (2003), leaving the pertaining question about relationships between these two concepts and consequently their connection with psychological well-being. Although Mayer *et al.* (2004) sustain the idea that EI is considered an ability as opposed to a trait, other researchers have argued that EI is dispositional (Neubauer & Freudenthaler, 2005; Petrides & Furnham, 2000; Petrides & Furnham, 2003), conceptualised as trait emotional intelligence (trait EI). Lykins & Baer (2009) found that FFMQ scores significantly differ between meditators and non-meditators, but the same phenomenon did not occur for trait EI scores. Although associations between both constructs were found (Schutte & Malouff, 2010), links between trait mindfulness and trait EI still remains unclear.

High levels of trait EI is widely linked to subjective well-being and life satisfaction (Austin *et al.*, 2005; Martins *et al.*, 2010; Schutte *et al.*, 2007) and low scores on trait EI are associated with psychological symptoms, such as depression, anxiety and stress (Ciarrochi *et al.*, 2002; Extremera & Berrocal, 2006; Schutte *et al.*, 2007, Schutte *et al.*, 1998). Schutte and Malouff (2010) conducted a correlational study to investigate if trait EI mediates the relationship between trait mindfulness and subjective well-being. The findings suggested a relationship between trait EI, mindfulness and subjective well-being. However, this study used a short-form of the Freiburg Mindfulness Inventory (FMI; Walach *et al.* 2006) in non-meditators university students. The FMI was initially developed by Buchheld *et al.* (2001) to be used on experienced meditators. Although it is specified that the short-form could be used on participants with no previous meditation practice (Buchheld *et al.*, 2001), authors have stated that this questionnaire was specifically designed for experienced meditators. For this reason the FMI is arguably not the most suitable tool to measure trait mindfulness in non-meditators. Many studies into mindfulness utilised questionnaires which do not have as many factors as the FFMQ, limiting findings about factors' relationships with other variables (e.g. Baer *et al.*, 2004; Schutte & Malouff, 2010). Schutte and Malouff (2010) measured trait EI using the Assessing Emotions Scale (AES; Schutte *et al.*, 1998). The AES was used in the current research but because of reasons mentioned above, the researcher chose not to use the FMI to measure trait mindfulness.

It is also worth noting that Baer *et al.* (2004) studied the relationship between mindfulness, EI and life satisfaction, using the Kentucky Inventory of Mindfulness Skills (KIMS; Baer *et al.*, 2004). It was found that EI positively correlates with mindfulness and satisfaction with life. However, this study investigated EI as a skill and not a trait. The present research tested these variables in relation to trait EI.

## Anxiety and trait anxiety

Trait anxiety refers to either an individual's general predisposition to become anxious and state anxiety is usually defined as a person's level of anxiety as a transitory emotion (Spielberger, 1983). Recently, trait anxiety has been found to increase the risk of Parkinson's disease (Bower *et al.*, 2010) and all-cause mortality (Grossard *et al.*, 2009). Despite evidence of undesirable outcomes linked to this trait, researchers have suggested that individuals with high scores in trait anxiety are likely to perform better at work than low trait anxious peers (Smillie *et al.*, 2006).

Neuroticism (N) is the personality trait that predominantly resembles trait anxiety (Zinbarg *et al.*, 2008). McCrae and John (1992) identified trait anxiety as a subscale of Neuroticism. Meta-analytic reviews found that neuroticism is a strong predictor of satisfaction with life (DeNeve & Cooper, 1998; Steel *et al.* 2008). High N scores positively correlate with anxiety sensitivity (Norton *et al.*, 2005; Sexton *et al.*, 2003) and intolerance of uncertainty (Watson *et al.*, 2006). Many studies measure trait anxiety by multi-factor questionnaires, such as the Five-Factor Inventory (NEO-FFI; Costa & McCrae, 1992) and the Minnesota Multiphasic Personality Inventory (MMPI; Rocca *et al.*, 2006). Neuroticism has been considered one of the personality traits most relevant to mental ill health (Roelofs *et al.*, 2008) and high N scores have also been linked to depression (Ormel *et al.*, 2001; Surtees *et al.*, 1996). Baer *et al.* (2006) found that four factors of mindfulness negatively correlated with neuroticism. Despite general assumption about stability of personality traits (McCrae *et al.*, 2000), there is evidence suggesting that personality continues to change across the life span (e.g. Lenzenweger *et al.*, 2004; Roberts, 1997; Seivewright *et al.*, 2002). For instance, Roberts (1997) argues that personality can change according to environmental influences, such as different work experiences in adulthood.

## Personality traits and their relationship to psychological well-being of working adults

Psychological well-being, as reviewed above, can be named differently (e.g. subjective well-being, flourishing mental health). The current research used psychological well-being as an umbrella term for depression, anxiety, everyday stress (lack of well-being) and satisfaction with life (well-being).

There is an array of studies investigating the relationship between personality traits and psychological well-being of working adults (Albuquerque *et al.*, 2011; Gutierrez *et al.*, 2005; Newbury-Birch & Kamali, 2001; Vitterso & Nilsen, 2002). In these studies low neuroticism and high extraversion are found to be the main traits that can predict well-being. On the other hand it is difficult to correlate personality traits with lack of well-being (Ozer & Benet-Martinez, 2006). According to Trull and Sher (1994) depression and anxiety disorders are predominantly linked to neuroticism and low extraversion respectively. Neuroticism was also found to be a predictor of major depression episodes (Kendler *et al.*, 2006). Although there are a wide range of studies investigating mental health in working adults in relation to the big-five personality traits (Goldberg, 1990), there is still a paucity of research investigating traits such as

mindfulness, emotional intelligence and anxiety in relation to psychological well-being. Studies investigating trait mindfulness and trait EI, mentioned above, used undergraduate students as samples, making it difficult to generalise findings to other populations.

Mental health difficulties at work are a cause for concern in the UK. Stress is the number one cause of long-term sickness absence, followed by acute medical conditions and mental health problems, such as anxiety and depression (Chartered Institute of Personnel and development, 2008). Forty percent of sickness absence in the UK is attributable to mental ill health (National Institute for health and Clinical Excellence, 2009). Further research in mental health exploring personality traits in working adults can enhance knowledge of variables that contribute to psychological well-being in this specific population.

### **The current study**

The present research focused on trait mindfulness, trait emotional intelligence and trait anxiety. The main aim is to explore personality in the frame of psychological well-being. Firstly, relationships between trait mindfulness, trait EI, trait anxiety, depression, anxiety, stress and satisfaction with life was investigated (H1). Following (Baer *et al.*, 2004; Baer *et al.*, 2008; Brown *et al.*, 2009; Schutte & Malouff, 2010; Schutte *et al.*, 2007) it is hypothesised that trait mindfulness and trait EI will negatively predict lack of psychological well-being (depression, anxiety and stress) (H2) and significantly predict satisfaction with life (H3). Additionally, it is expected that trait anxiety will positively predict lack of psychological well-being (depression, anxiety and stress) (H2) and negatively predict satisfaction with life (H3). The current research partially replicated and extended Baer *et al.* (2008) and Coffey *et al.* (2010), as it further investigated relationships between FFMQ factors and psychological well-being in working adults, a sample not previously explored.

In summary, the purpose of the present research was to articulate and test a structural framework between all the variables mentioned. Additionally it examined trait mindfulness, trait EI and trait anxiety as potential predictors of psychological well-being as these traits haven't been previously tested in combination.

### **Methodology**

#### **Design**

The current research used a correlational survey design. There were no predictor variables in hypothesis 1 as only inter-correlations were investigated. In hypothesis 2 and 3 predictor variables were trait mindfulness, trait emotional intelligence and trait anxiety and the criterion variable was psychological well-being (depression, anxiety, everyday stress and satisfaction with life).

## Participants

An online (Soper, 2011), A-priori sample size calculator for multiple regression (Cohen *et al.* 2003), indicated that a minimum of 113 participants were required (appendix 1). The final sample comprised 225 working adults with an age range of 22- 64 (M= 38.64, SD= 10.13). The sample contained 154 females (68.4%), 70 males (31.1%) and 1 transgender (.4%). To ensure trait mindfulness measurement, it was required that participants had no previous knowledge of meditative practices. Adults aged 18 to 64 years old could participate. The eligibility criteria (appendix 2), also stated that participants need to work a minimum of 16 hours per week. The current research utilised opportunistic and snowball sampling methods, recruiting participants via internet social network websites, such as Facebook and Twitter (Facebook, 2011; Twitter, 2011). Many advantages and disadvantages are noted on web-based data collection. The main advantages are related to money saving and time efficiency (e.g. Skitka & Sargis, 2006; Wright, 2005). Due to time restraints, the present study chose a web-based survey.

## Measures

All predictors and criterion variables were measured using self-report measures (See appendix 3-6).

The Five-Facet Mindfulness Questionnaire (FFMQ; Baer *et al.*, 2006) was used to measure trait mindfulness. As mentioned above, most previous research into mindfulness utilised questionnaires which don't have as many factors as the FFMQ, limiting findings about factors' relationships with other variables (e.g. Baer *et al.*, 2004; Schutte & Malouff, 2010). The current research selected the FFMQ, as one of its aims is to investigate the relationships between mindfulness facets with all the other variables.

The FFMQ is a 39-item self-report measure, 5-point Likert-type scale (1=never, 5=very often) that assesses five facets of mindfulness: observation of internal and external experiences (FFMQ observe); non-judgement of experience (FFMQ non-judge); the ability to express one's experience (FFMQ describe); non-reactivity to inner experience (FFMQ non-react) and acting with awareness instead of having automatic responses (FFMQ act with awareness). Examples of items include 'I'm good at finding words to describe my feelings' and 'I have trouble thinking of the right words to express how I feel about things' (reverse-scored). High scores in this report indicate high levels of trait mindfulness. Reverse-scored items, according to authors' instructions are: 3, 5, 8, 10, 12, 13, 14, 16, 17, 18, 22, 23, 25, 28, 30, 34, 35, 38, and 39. Internal consistency, Cronbach's alpha ( $\alpha$ ), for the five facets ranges from .75 to .91 and test-retest reliability is adequate to good ranging from 0.657 to 0.863 (Baer *et al.*, 2006). Example of the FFMQ can be found in appendix 3.

The Assessing Emotions Scale (AES; Schutte *et al.*, 1998) was chosen against the Trait Meta-Mood Scale (TMMS; Salovey *et al.*, 1995) as the present study is

looking to compare trait mindfulness with a one factor scale, like the AES. Furthermore, the AES is based on the original Salovey and Mayer (1990) model, where the TMMS originated from, which is linked to appraisal and expression of emotion, regulation of emotion and utilization of emotion. Therefore, the researcher concluded that there was no advantage in adding a three factor self-report measure of trait EI in the present study.

The AES comprises 33 items. This self-report measures trait emotional intelligence using a 5 point Likert-type scale (1=strongly disagree, 5=strongly agree). According to Schutte *et al.* (1998) the AES comprises one factor, adaptive tendency toward emotional intelligence. This factor is within the framework of the Salovey and Mayer (1990) model. Examples of items include 'Other people find it easy to confide in me' and 'I find it hard to understand the non-verbal message of other people' (reverse-scored). High scores in this scale indicate higher trait emotional intelligence. Reverse-scored items, according to authors' instructions are: 5, 28, and 33. Internal consistency, Cronbach's alpha ( $\alpha$ ), for the AES is .90 and test-retest reliability is .78 (Schutte *et al.*, 1998). Example of the AES can be found in appendix 4.

State-Trait Anxiety Inventory (STAI; Spielberger *et al.*, 1983) is a widely used and well-validated 40 item self-report of trait and state anxiety. The current research only used the trait form of the STAI as it is a global measure of trait anxiety, which assesses trait anxiety alone and not in conjunction with other factors. Trait levels of anxiety were assessed with the 20-items taken from the full STAI version, which has a 4-point Likert-type scale (1= almost never, 4= almost always). Examples of items include, 'I feel nervous and restless' and 'I feel pleasant' (reverse-scored). Reverse-scored items, according to author's instructions are: 21, 23, 26, 27, 30, 33, 34, 36, and 39. Internal consistency, Cronbach's alpha ( $\alpha$ ), for the trait form of the STAI is .91 (Spielberger *et al.*, 1983). The STAI cannot be found in appendices as it is a copyrighted document.

Psychological well-being (lack of it) was measured by the Depression Anxiety Stress Scale (DASS-21 short-form). The DASS-21 is taken from the full-form (DASS-42; Lovibond & Lovibond, 1995). The scale comprises 21 items, 4-point Likert-type scale (0=did not apply to me at all, 3= applied to me very much, or most of the time). Examples of items include 'I experience trembling (e.g. in hands)' and 'I felt that I had nothing to look forward to'. The DASS-21 produces separate scores for depression, anxiety and stress. High scores in each of the subscales suggest extremely severe depression, anxiety and/or stress. The DASS-21 does not contain reverse-scored items. It is important to note that the scale measures everyday stress and not occupational stress. It has been suggested that the short version (DASS-21) has a better factor structure compared to the long version; DASS-42 (Antony *et al.*, 1998; Clara *et al.*, 2001), for this reason, the short-form version was selected. Internal consistency, Cronbach's alpha ( $\alpha$ ), for the DASS-21 in a non-clinical sample of 1,794 participants was .88 for the depression scale, .90 for the anxiety scale and .93 for the stress scale (Henry & Crawford, 2005). Example of the DASS can be found in appendix 5.



The Satisfaction with Life Scale (SWLS; Diener *et al.*, 1985) was utilised to measure psychological well-being. The SWLS is a 5-item self-report measure, using a 7-point Likert-type scale (1- strongly disagree, 7=strongly agree). This scale has been designed to measure satisfaction with life as a whole. It does not isolate specific life domains and respondents weigh different domains (e.g. health or material). The SWLS does not contain reverse-scored items. Examples of items include 'The conditions of my life are excellent' and 'if I could live my life over, I would change almost nothing'. Internal consistency measured by Cronbach's alpha is .87 (Diener *et al.*, 1985). Example of the SWLS can be found in appendix 6.

To summarise, the Five-Facet Mindfulness Questionnaire (FFMQ) was used to assess trait mindfulness. The Assessing Emotions Scale (AES) measured trait emotional intelligence; the trait form of STAI was used to measure trait anxiety, the Satisfaction with Life Scale (SWLS) and the Depression, Anxiety and Stress Scale short-form (DASS-21) measured psychological well-being and lack of psychological well-being respectively.

## **Procedure**

All five questionnaires were uploaded onto the Survey Monkey website (Survey Monkey, 2011). All participants were then directed to read the research brief / informed consent page (appendix 7), and demographic information page (appendix 8). Participants also had the option to choose a unique identifier number, in case they chose to withdraw from the study at a later date. Upon completion, participants were automatically directed to a debrief page containing research aims, questionnaires' information and researcher's contact details (appendix 9).

## **Ethical considerations**

All participants were informed about their right to withdraw in the briefing and debriefing pages. The data was protected and kept confidential. Participants were kept anonymous using identification numbers of their choice. It is important to note that participants were not considered to be vulnerable as they were all employed. This research was conducted in accordance with the British Psychological Society ethical guidelines (2009). In addition, ethical check forms were approved by the project supervisor prior to data collection (appendix 10 & 11).

## **Results**

### **Data preparation**

The raw data for the 225 participants was entered into SPSS version 19 for Windows (SPSS, Inc, 2010). All graphs and tables used in this study were derived from SPSS outputs (appendix 12). After data input, the relevant items from the FFMQ, AES, and STAI were reverse-scored according to the authors' instructions (see methodology section for reversed-scored items). Scales and subscales totals were then computed.

## Descriptive statistics

Descriptive statistics and normality table was generated (appendix 12). The data was skewed for all DASS-21 subscales (depression, anxiety and stress). All other variables were considered within the normal distribution range (Tabachnick & Fidell, 2005). Due to skewness of data, a boxplot for depression, anxiety and stress (appendix 12) were examined to identify potential outliers. Seventeen outliers were identified. Regression analyses between predictors and criterion variables were conducted with outliers included and excluded (appendix 12). The significance levels remained the same and removal of outliers showed little influence on the regression analyses. All participants were retained, as outliers were considered to be true scores and not a result of measurement error (Tabachnick & Fidell, 2005). Table 1 provides the means and standard deviations for all measures in working adult sample (N=225).

**Table: 1**

### **Means and standard deviations for all measures for all participants-working adults sample (N=225).**

Measures	Mean	Standard deviation
FFMQ Observe	25.34	5.63
FFMQ Describe	27.64	6.08
FFMQ Act/aware	24.93	5.69
FMMQ Nonjudge	25.02	7.15
FFMQ Nonreact	20.86	4.41
FFMQ Total	123.80	19.45
AES	120.78	16.18
STAI-Trait form	34.00	21.38
DASS depression	5.08	5.16
DASS anxiety	3.86	4.39
DASS stress	6.88	4.80
SWLS	22.59	7.41

Note: Act/aware = act with awareness

## Reliability

Internal consistency (Cronbach's alpha ( $\alpha$ ) coefficients) for all variables was calculated. Table 2 provides the alpha coefficients and confidence intervals for all self-report measures and their subscales.

**Table 2: Alpha coefficients and confidence intervals for all scales (N=225).**

Scales	Number of items	$\alpha$	95% CI	
			Lower	Upper
<b>Five Facet Mindfulness Questionnaire (FFMQ)</b>				
FFMQ Observe	8	.84***	.80	.87
FFMQ Describe	8	.91***	.89	.92
FFMQ Act with awareness	8	.89***	.87	.91
FFMQ Nonjudge	8	.92***	.91	.94
FFMQ Nonreact	7	.81***	.76	.85
<b>Assessing Emotions Scale – (AES)</b>				
AES	33	.91***	.89	.92
<b>Depression Anxiety Stress Scale short-form (DASS-21)</b>				
DASS-21 Depression	7	.94***	.92	.95
DASS-21 Anxiety	7	.88***	.86	.90
DASS-21 Stress	7	.90***	.88	.92
<b>State-Trait Anxiety Inventory- Trait form (STAI)</b>				
STAI	20	.95***	.94	.96
<b>Satisfaction With Life Scale (SWLS)</b>				
SWLS	5	.92***	.90	.94

Note: *F* test with true value = 0.7, \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$

The Cronbach's alpha coefficients for the scales were above .70, which is the recommended and acceptable level of internal reliability (Nunnally, 1978). The *F* test values for all scales were significant at the  $p < .001$  level, thus indicating high reliability for all scales.

## Correlation Analyses

Pearson's correlation coefficients between all variables are provided in table 3.

**Table 3**  
**Pearson Correlation Matrix among all variables (N = 225)**

	FFMQ Observe	FFMQ Describe	FFMQ Act/aware	FFMQ Nonjudge	FFMQ Nonreact	FFMQ Total	AES	DASS Depression	DASS Anxiety	DASS Stress	Trait STAI	SWLS
FFMQ Observe	-	.28**	.12	-.09	.19**	.42**	.43**	-.10	.01	.05	-.14*	.12
FFMQ Describe		-	.49**	.37**	.38**	.76**	.65**	-.40**	-.34**	-.33**	-.46**	.34**
FFMQ Act/aware			-	.57**	.34**	.77**	.35**	-.49**	-.45**	-.53**	-.59**	.37**
FFMQ Nonjudge				-	.43**	.72**	.30**	-.60**	-.57**	-.63**	-.71**	.41**
FFMQ Nonreact					-	.66**	.42**	-.38**	-.29**	-.38**	-.56**	.34**
FFMQ Total						-	.63**	-.61**	-.51**	-.57**	-.74**	.48**
AES							-	-.45**	-.23**	-.29**	-.55**	.49**
DASS depression								-	.77**	.79**	.79**	-.59**
DASS anxiety									-	.76**	.65**	-.39**
DASS stress										-	.76**	-.46**
Trait STAI											-	-.66**
SWLS												-

Note: Act/aware = act with awareness.

\*\*Correlation is significant at the 0.01 level (two-tailed)

\*Correlation is significant at the 0.05 level (two-tailed)

Correlations, shown in table 3, are described in line with hypothesis 1.

### Relationships between mindfulness and all other variables (H1)

As expected, mindfulness total scores and its factors (observe, describe, act /awareness, non-judge and non-react) positively correlated with trait emotional intelligence at  $p < .01$ . Mindfulness total scores and its factors negatively correlated with trait anxiety all at  $p < .01$ . Interestingly, mindfulness and its factors negatively correlated with depression, anxiety and stress at  $p < .01$ , except for factor 'observe', which wasn't statistically significant for any of the DASS-21 subscales. Lastly, mindfulness total scores and its factors, as predicted, positively correlated with life satisfaction at  $p < .01$ , apart from the factor 'observe' which didn't show statistical significance.

### Multiple linear regression analyses

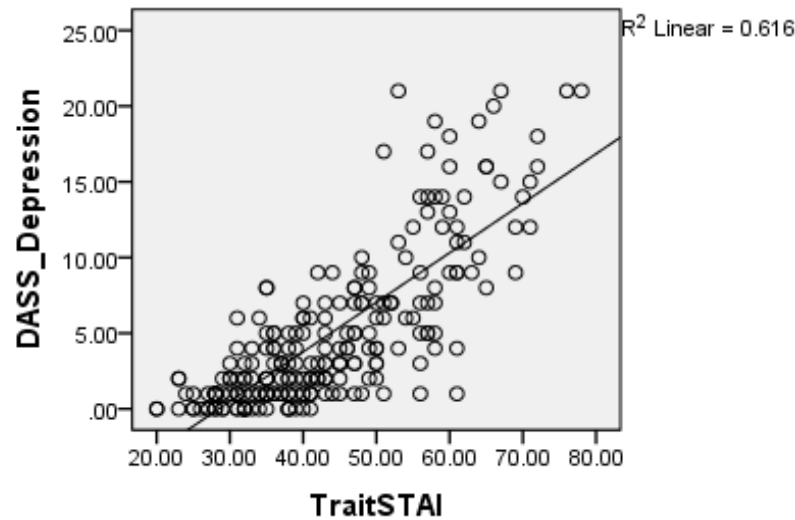
Multiple linear regression analyses reported here is on sample including outliers (N=225). All predictor variables and criterion variables correlated (table 3); therefore none of the variables were excluded from the regressions. Only FFMQ total scores were considered for regressions. The present research used the 'forced entry' method, entering all predictors simultaneously to the regression, as this is suggested to be the most suitable method for theory testing (Studenmund & Cassidy, 2005). Table 4 provides a summary of the first regression model, which used predictor variables (trait mindfulness, trait EI and trait anxiety) and criterion variable depression (H2).

**Table: 4**  
**Summary of regression analysis for variables predicting depression (N=225).**

Predictor variables ( $p$ )	B	$\beta$	$t$	sig.
Constant (intercept)	-6.81			
FFMQ Total	-.01	-.04	-.63	.529
AES	-.00	-.01	-.19	.850
Trait STAI	.31	.75	11.86	$p < .001$

Note:  $R^2 = .62$

As shown in Table 4, trait mindfulness, trait EI and trait anxiety accounted for 62% of the variance in the criterion variable depression,  $R^2 = .617$  (adjusted  $R^2 = .612$ ) and was significant,  $F(3,221) = 118.56$ ,  $p < .001$ . Only trait anxiety was a significant predictor of depression ( $p < .001$ ). The relationship between trait anxiety and depression is illustrated in Figure 1.



**Figure 1: The scattergram illustrates the significant positive relationship between trait anxiety (predictor variable) and depression (criterion variable).**

Table 5 provides a summary of the second regression model, which used predictor variables (trait mindfulness, trait EI and trait anxiety) and criterion variable anxiety (H2).

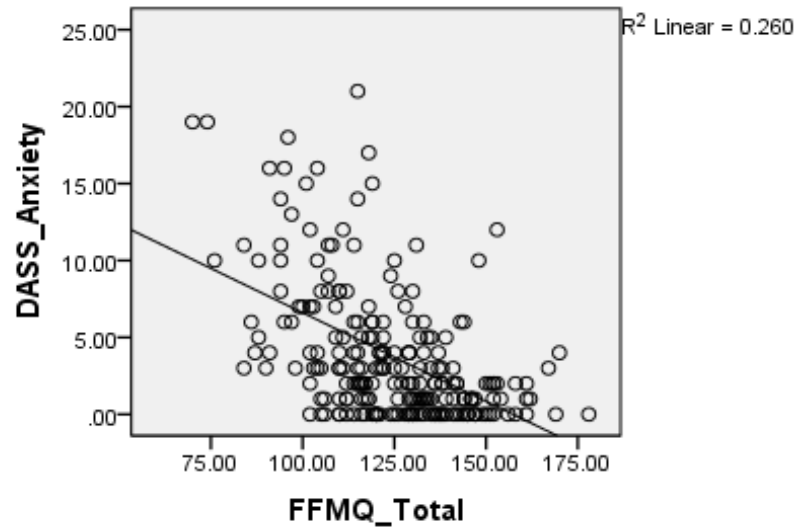
**Table: 5  
Summary of regression analysis for variables predicting anxiety (N=225).**

Predictor variables	B	$\beta$	t	sig. (p)
Constant (intercept)	-8.88			
FFMQ Total	-.04	-.18	-2.25	.026
AES	.07	.24	3.68	$p < .001$
Trait STAI	.23	.64	8.55	$p < .001$

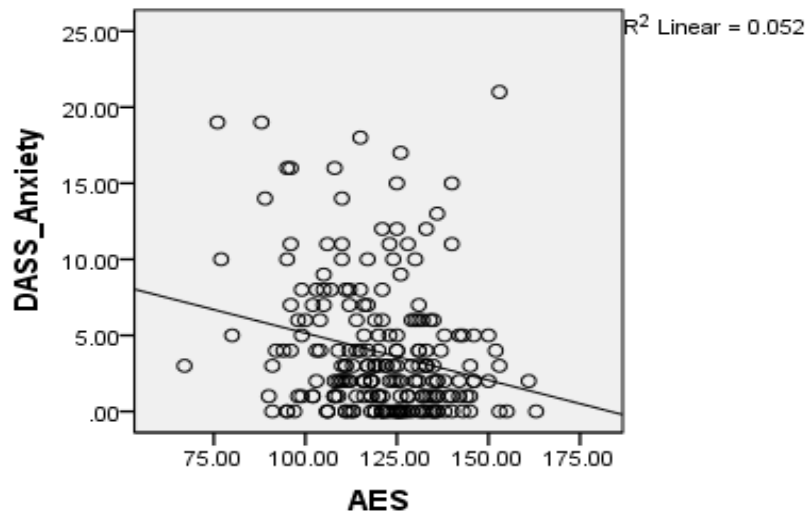
Note:  $R^2 = .46$

As indicated in table 5, trait mindfulness, trait EI and trait anxiety accounted for 46% of the variance in the criterion variable anxiety,  $R^2 = .455$  (adjusted  $R^2 = .448$ ) and was significant,  $F(3, 221) = 61.53$ ,  $p < .001$ . Trait mindfulness, trait EI and trait anxiety were all significant predictors of anxiety, but trait EI and trait anxiety were stronger predictors with significance value  $p < .001$ . The relationships between FFMQ, AES, trait STAI with anxiety are illustrated in Figure 2, 3 and 4, respectively.

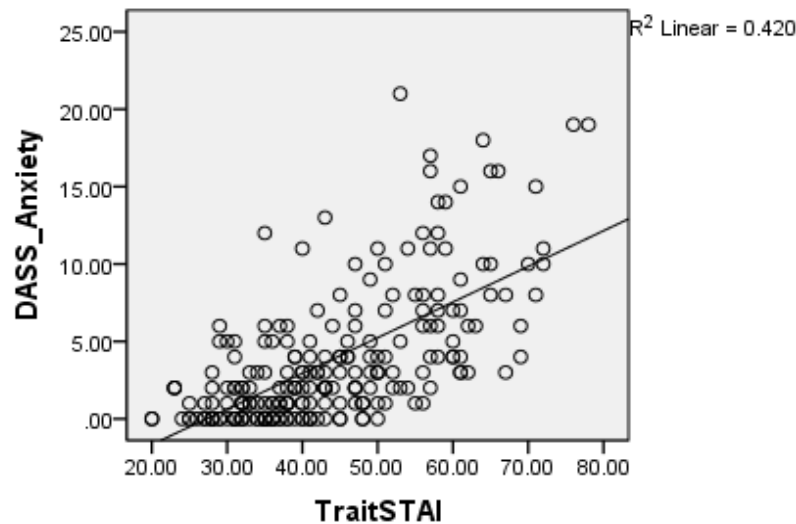
Note: Adjusted  $R^2 =$  conservative value for specific population sample (Thompson, 2002).



**Figure 2: The scattergram illustrates the significant negative relationship between trait mindfulness (predictor variable) and anxiety (criterion variable).**



**Figure 3: The scattergram illustrates the significant negative relationship between trait EI (predictor variable) and anxiety (criterion variable).**



**Figure 4: The scattergram illustrates the significant positive relationship between trait anxiety (predictor variable) and anxiety (criterion variable).**

Table 6 provides a summary of the third regression model, which used predictor variables (trait mindfulness, trait EI and trait anxiety) and criterion variable stress (H2).

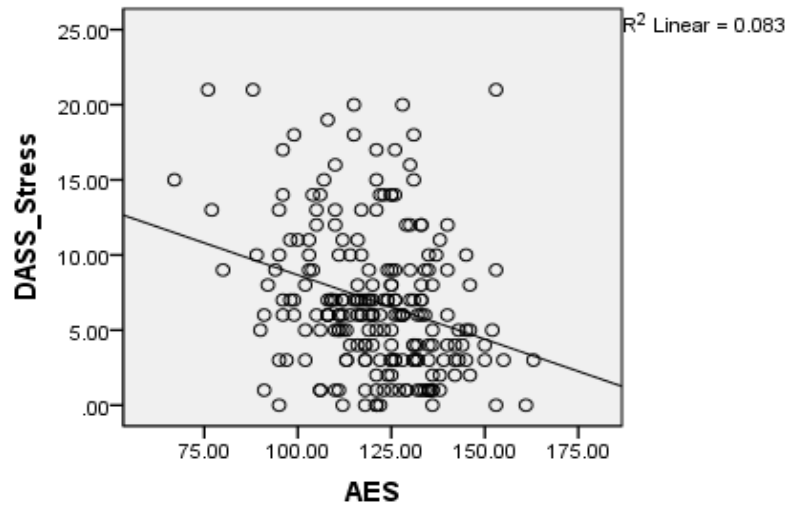
**Table: 6**  
**Summary of regression analysis for variables predicting stress (N=225).**

Predictor variables	B	$\beta$	<i>t</i>	sig. ( <i>p</i> )
Constant (intercept)	-11.49			
FFMQ Total	-.03	-.10	-1.51	.134
AES	.06	.22	3.96	$p < .001$
Trait STAI	.31	.81	12.71	$p < .001$

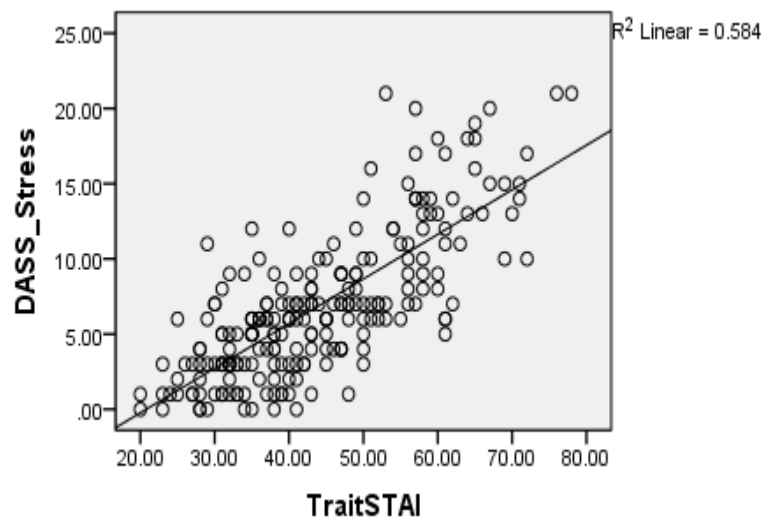
Note:  $R^2 = .61$

As revealed in Table 6, trait mindfulness, trait EI and trait anxiety accounted for 61% of the variance in the criterion variable stress,  $R^2 = .612$  (adjusted  $R^2 = .606$ ) and was significant,  $F(3,221) = 116.01$ ,  $p < .001$ . Only trait EI and trait anxiety were significant predictors of stress. Scattergrams were generated for predictors, trait EI and trait anxiety in relation to stress. Figure 5 and 6 illustrate these relationships.





**Figure 5: The scattergram illustrates the significant negative relationship between trait EI (predictor variable) and stress (criterion variable).**



**Figure 6: The scattergram illustrates the significant positive relationship between trait anxiety (predictor variable) and stress (criterion variable).**

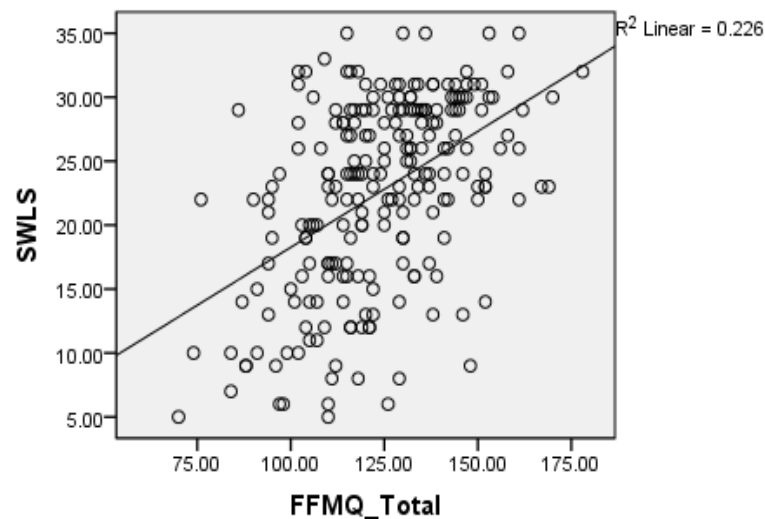
Table 7 provides a summary of the fourth regression model, which used predictor variables (trait mindfulness, trait EI and trait anxiety) and criterion variable stress (H3).

**Table: 7**  
**Summary of regression analysis for variables predicting satisfaction with life (N=225).**

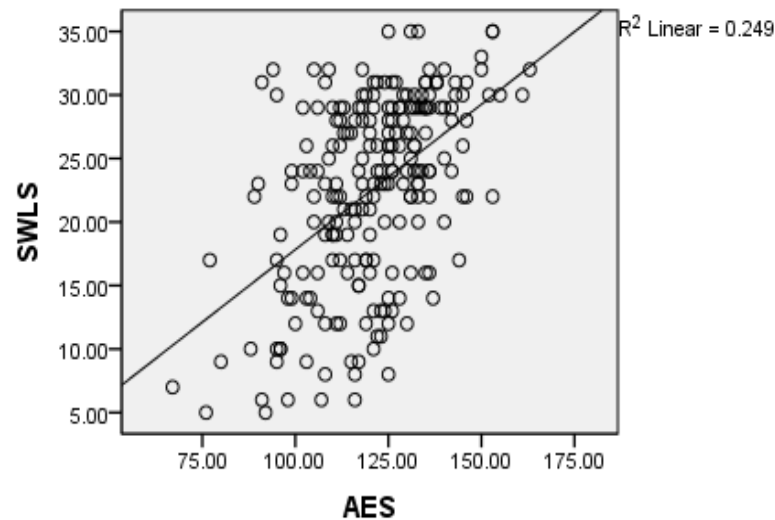
Predictor variables	B	$\beta$	t	sig. (p)
Constant (intercept)	33.87			
FFMQ Total	-.06	-.17	-2.09	.037
AES	.11	.25	3.92	$p < .001$
Trait STAI	-.39	-.65	-8.87	$p < .001$

Note:  $R^2 = .48$

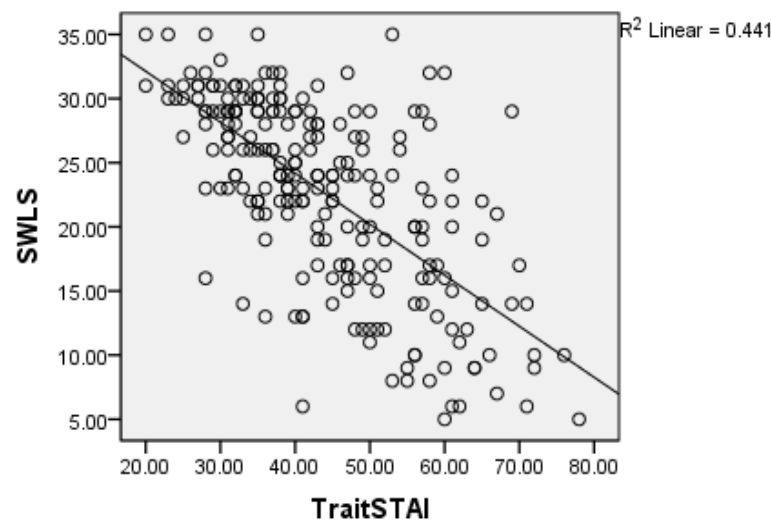
As presented in Table 7, trait mindfulness, trait EI and trait anxiety accounted for 48% of the variance in the criterion variable, satisfaction with life,  $R^2 = .478$  (adjusted  $R^2 = .471$ ) and was significant,  $F(3,221) = 67.39$ ,  $p < .001$ . As shown in Table 7, trait mindfulness, trait EI and trait anxiety were all significant predictors of satisfaction with life, but trait EI and trait anxiety were stronger predictors of life satisfaction  $p < .001$ . Relationships between FFMQ, AES, trait STAI with life satisfaction are illustrated in Figure 7, 8 and 9, respectively.



**Figure 7: The scattergram illustrates the significant positive relationship between trait mindfulness (predictor variable) and life satisfaction (criterion variable).**



**Figure 8: The scattergram illustrates the significant positive relationship between trait EI (predictor variable) and life satisfaction (criterion variable).**



**Figure 9: The scattergram illustrates the significant negative relationship between trait anxiety (predictor variable) and life satisfaction (criterion variable).**

## Discussion

The current study aimed to articulate and test a structural framework between trait mindfulness, trait emotional intelligence, trait anxiety and psychological well-being in a working adult population. Thus, it explored personality in the frame of psychological well-being. All regression models were significant. The findings substantiated all three hypotheses, with the exception of hypothesis 2, where trait mindfulness and trait EI did not contribute independently to the prediction of depression. Additionally, trait mindfulness was not a significant predictor of

stress, if accounted independently. The hypotheses are discussed in detail below.

### **Mindfulness's relationships with all other variables (H1).**

In accordance with hypothesis 1, the current study investigated relationships of mindfulness and its factors with the six other variables (trait EI, trait anxiety, depression, anxiety, stress and satisfaction with life).

The current study found that mindfulness total score and all five factors positively correlated with trait EI and negatively correlated with trait anxiety. These findings were in line with Baer *et al.* (2006), who found positive correlations between all five mindfulness's factors and trait EI and a negative correlation between trait mindfulness and neuroticism. Furthermore, Coffey *et al.* (2010) also found that mindfulness factors, apart from factor 'observe', significantly correlate with trait EI in the predicted direction. However, it is important to note that Baer *et al.* (2006) and Coffey *et al.* (2010) measured trait EI using the Trait Meta-Mood Scale (TMMS; Salovey *et al.*, 1995). Therefore, it is interesting to note that even though the current study used the AES to measure trait EI, the findings were still consistent with studies mentioned above. The present study also found that all five factors of mindfulness and total FFMQ scores, negatively correlated with trait anxiety, which again was in line with Baer *et al.* (2006), who also found that four factors of the FFMQ negatively correlated with neuroticism, except the factor 'observe', which was found to be non-significant.

Furthermore, the present research found that FFMQ total scores and its facets, negatively correlate with depression, anxiety and stress, apart from the FFMQ factor 'observe' which was non-significant. These findings support those of Baer *et al.* (2006), who found that four facets of the FFMQ, except of 'observe', negatively correlate with psychological symptoms. Additionally, Coffey *et al.* (2010) found that depression and anxiety negatively correlated with mindfulness, apart from the factors 'observe' and 'act with awareness'. In addition to previous studies, the present research enhanced the analysis of mindfulness and psychological well-being, incorporating the variable 'stress', and found that everyday stress also negatively correlated with the FFMQ and its factors, with the exception of the 'observe' facet. The current study also substantiated previous findings of mindfulness's associations with life satisfaction (Baer *et al.*, 2008; Brown & Ryan, 2003; Brown *et al.*, 2009), excluding the factor 'observe'.

Taking into account previous and current findings, it is argued that the FFMQ facet 'observe' does not have a major influence on psychological well-being of non-meditators. Although Baer *et al.* (2008) suggested that the facet 'observe' varies according to meditation experience, more research is needed in order to substantiate this assumption. Furthermore, Coffey *et al.* (2010) suggested that mindfulness consists of only two facets (present-centred attention and acceptance), arguing that 'acceptance' is the most important facet in relation to psychological well-being. Although the current study did not aim to perform a factor analysis of the FFMQ, it has demonstrated that four facets of the FFMQ play a role in psychological well-being. Further investigations, with non-clinical

samples, are needed in order to gain an in-depth understanding of the factor 'observe' and its connections to psychological well-being of non-meditators.

### **Depression, anxiety and stress (H2).**

All tested models were statistically significant: The first model accounted for 62% of the variance in depression. The second model accounted for 46% of the variance in anxiety and the third model accounted for 61% of the variance in stress. However, an unpredicted finding emerged from the analysis, in that trait mindfulness did not contribute independently to the prediction of depression. Coffey *et al.* (2010) found a negative relationship between trait mindfulness and depression. An array of studies revealed that mindfulness interventions can effectively reduce depressive symptoms (Kumar *et al.*, 2008; Shapiro *et al.*, 1998; Speca *et al.*, 2000; Teasdale *et al.*, 2000). Thus the non-significant result of this variable in relation to depression was unexpected. An obvious explanation for such occurrence may be the combination of the three personality traits as predictors in the current study. Thus, trait mindfulness may be a significant predictor of depression if used in conjunction with other variables. Although trait mindfulness association with depression was an unexpected result, it substantiated concerns raised over the lack of understanding of mindfulness and its relation to mental health (Kocovski *et al.*, 2009).

The current research also found that trait mindfulness predicted anxiety in the expected direction. This replicated previous findings, as Baer *et al.* (2006) suggested a negative association between trait mindfulness and psychological symptoms. Additionally, Coffey *et al.* (2010) found that trait mindfulness negatively correlates with anxiety. Furthermore, the current study found that trait mindfulness did not predict stress. However, it is important to note that mindfulness interventions are successfully used for stress reduction (MBSR; Kabat-Zinn, 2003). Baer *et al.* (2008) found that trait mindfulness negatively correlates with stress in a sample of experienced meditators, thus further studies are needed to investigate relationships between these two variables in non-meditators. In addition, more research with non-clinical samples is required in order to clarify the link between trait mindfulness and everyday stress.

Furthermore, the present study found that trait EI predicts anxiety and stress in a negative direction. The results lend support to previous findings as it has been suggested that this variable is associated with lack of depressive and anxiety symptoms (Extremera & Berrocal, 2006; Schutte *et al.* 1998; Schutte *et al.*, 2007). Ciarrochi *et al.* (2002) found that people with high scores in trait EI show better adaptation to stressful situations. Similarly to trait mindfulness, it was unexpected to find that trait EI did not contribute independently to the prediction of depression. There is also a lack of correlational studies investigating everyday stress and trait EI, warranting further examination into these two variables.

Lastly, the current research found that trait anxiety significantly predicts depression, anxiety and stress in the expected direction. These results are parallel to those findings that support neuroticism's associations with anxiety sensitivity (Norton *et al.*, 2005; Sexton *et al.*, 2003) and depression (Ormel *et al.*,

2001; Surtees *et al.*, 1996). Similarly to trait mindfulness and trait EI, there is a lack of evidence on stress and trait anxiety.

### **Satisfaction with life (H3)**

The tested model was significant and accounted for 48% of the variance in satisfaction with life. In line with hypothesis 3, the present study found that trait mindfulness significantly predicts life satisfaction of experienced meditators and in non-meditators. These are in line with previous findings (e.g. Baer *et al.*, 2008; Brown *et al.*, 2009; Falkenstrom, 2010; Howell *et al.*, 2008).

Additionally, trait EI significantly predicts life satisfaction in the expected direction. This supports previous findings. For instance, Schutte and Malouff (2010) found that trait EI mediates the relationship between mindfulness and satisfaction with life. An array of other studies also support associations between trait EI and subjective well-being (e.g. Austin *et al.*, 2005; Martins *et al.*, 2010). Lastly, it was found that trait anxiety predicts satisfaction with life in the expected direction, lending support to previous findings that found high neuroticism scores to be linked to low life satisfaction (DeNeve & Cooper, 1998; Steel *et al.* 2008).

The above findings reveal that trait EI and trait anxiety have a stronger link to psychological well-being in comparison to trait mindfulness. The findings suggest that high trait anxiety scores are associated with depression, anxiety, stress and low life satisfaction. Trait mindfulness only significantly predicted anxiety and satisfaction with life. Thus, according to current findings trait EI is arguably more important for positive mental health outcomes than trait mindfulness. Additionally, trait anxiety was highly linked to mental ill health. The current findings could be enhanced with experimental designs investigating causal links between these variables.

### **Limitations and future directions**

In addition to recommendations already made in relation to the hypotheses, general limitations and suggestions are also considered below.

Firstly, it is important to note that due to the correlational nature of the design, the present study cannot assume causal effects of the variables investigated. In order to partially control for this drawback the researcher used multiple linear regression analyses between significant correlations. The regression analyses did not change the nature of the design but enhanced variances explanations between the variables. Experimental designs could benefit from utilising the structural framework tested in this study as a basis for further exploration between these personality traits and the causes of psychological well-being.

Secondly, the present study could have benefited from controlling for participants' occupations and working hours. The eligibility criteria did not specify occupation; as it stated that working adults between 18 and 64 years old, who work a minimum of 16 working hours per week, could participate. Therefore, specific occupations could be investigated and perhaps grouped together. This could have made a difference in the regression analyses as some professions are

considered more demanding than others. Additionally, controlling for occupation could have enhanced the knowledge of the traits studied, as different personality traits can perceive and respond differently to the same cause of distress (i.e. the profession of the participant). Furthermore, a specific amount of hours worked per week could also be a requirement in the demographic section as it is arguable that adults who work longer hours could be more susceptible to mental ill health.

Thirdly, it is noteworthy to mention that web-based data collection could be a cause for concern. Skitka and Sargis (2006) argue that internet users within a subculture could be potentially different when compared to non-users within the same subculture. This limitation may be overcome by using both web-based and 'pen and paper' method to collect data. This may eliminate the possibility of excluding members of the same subculture who do not have access to the internet.

Lastly, it is noted that research focusing on trait mindfulness is still in its infancy. It was a valuable exercise to add novel variables to the mindfulness literature, thus the structural framework tested in the current study could benefit from future investigations of these traits and its relation to psychological well-being in different populations.

### **Implications of the findings**

The findings of the current research enhanced knowledge of the possible triggers of mental ill health in a sample of working adults. Previous research, in a working adult sample, suggests that personality is changeable (e.g. Roberts, 1997). Thus, the present findings of strong associations between trait anxiety and mental ill health could prompt preventative interventions in the workplace for employees who are susceptible to negative psychological symptoms. For instance, mindfulness interventions and emotional intelligence training could be implemented, as the current research suggests that both traits are associated with positive psychological outcomes.

### **Conclusion**

The present study successfully tested and provided a structural framework between all the variables investigated. The findings will serve as a foundation for future research aiming to find causal triggers of mental ill health. Additionally, it further enhanced the literature as it investigated the variable 'stress', as there is a paucity of studies examining this variable. Furthermore, it provided extra support to the literature as it examined the variables in a population of working adults, whilst most previous investigations were done in student populations. Lastly, it also tested three personality traits not previously examined in combination.

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